

**Commonwealth of Kentucky
Energy and Environment Cabinet
Department for Environmental Protection
Division for Air Quality
300 Sower Boulevard, 2nd Floor
Frankfort, Kentucky 40601
(502) 564-3999**

Draft

**AIR QUALITY PERMIT
Issued under 401 KAR 52:020**

Permittee Name: Westlake Vinyls, Inc.
Mailing Address: 2468 Industrial Parkway, Calvert City, KY 42029

Source Name: Westlake Vinyls, Inc. – Vinyls Plant
Mailing Address: 2468 Industrial Parkway, Calvert City, KY 42029

Source Location: Same as above

Permit: V-19-016 R2
Agency Interest: 2966
Activity: APE20210010, APE20210011, APE20220001,
APE20220002, APE20220007, APE20220009,
APE20220012, APE20220014, APE20230001,
APE20230005, APE20230011, APE20240001

Review Type: Title V, Construction/Operating
Source ID: 21-157-00039

Regional Office: Paducah Regional Office
130 Eagle Nest Drive
Paducah, KY 42003
(270) 898-8468

County: Marshall

Application
Complete Date: June 27, 0219
Issuance Date: November 16, 2020
Revision Date:
Expiration Date: November 16, 2025

**For Michael J. Kennedy, P.E.
Director
Division for Air Quality**

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Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action
V-19-016	Renewal	APE20180008	6/27/2019	11/13/2020	Renewal Permit
	Minor Revision	APE20180010	3/28/2019		Increase in chlorine production
	Minor Revision	APE20190001	3/29/2019		Catoxid Preheater no longer limited use
	Significant Revision	APE20190007	8/27/2019		2020 Expansion Project
	Minor Revision	APE20190010	10/11/2019		Updated salt usage for chlorine production increase
V-19-016 R1	Minor Revision	APE20200006	3/18/2021	7/5/2021	Temp Salt Conveyor System (Alternate Operating Scenario)
	Minor Revision	APE20200009	3/18/2021		Permanent Salt Conveyor System
V-19-016 R2	Admin Amendment	APE20210010	3/3/2022		Clarified Requirements for EPN 534A
	Minor Revision	APE20210011	10/18/2023		NO _x & O ₂ CEMS for Boilers #2 & #6
	Minor Revision	APE20220001	9/14/2022		Flare Gas Recovery System throughout Plant
	Admin Amendment	APE20220002	3/3/2022		Removed multiple Insignificant Activities (IA). Modified IA EPN 452. Moved IA to correct Facility Plants
	Minor Revision	APE20220007	9/14/2022		Added Language to Section H for continued use of Existing Salt Conveyor System
	Admin Amendment	APE20220009	9/14/2022		Changed outlet concentration requirement for EPN 013
	Minor Revision	APE20220012	3/15/2023		Removal of EPN 877
	Admin Amendment	APE20220014	9/23/2022		Renaming of corporation to Westlake Corporation

Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action
V-19-016 R2	Minor Revision	APE20230001	3/14/2023		Addition of two Emergency Generators to Chlorine Plant
	Significant Revision	APE20230005	10/19/2023		Modification to NO _x emission limit for EPN 013.
	Significant Revision	APE20230011	10/24/2023		Incorporation of Consent Decree for EPN 524
	Minor Revision	APE20240001	4/29/2024		Addition of emergency engine EPN 092

SECTION A - PERMIT AUTHORIZATION

Pursuant to a duly submitted application the Kentucky Energy and Environment Cabinet (Cabinet) hereby authorizes the operation of the equipment described herein in accordance with the terms and conditions of this permit. This permit was issued under the provisions of Kentucky Revised Statutes (KRS) Chapter 224 and regulations promulgated pursuant thereto.

The permittee shall not construct, reconstruct, or modify any affected facilities without first submitting a complete application and receiving a permit for the planned activity from the permitting authority, except as provided in this permit or in 401 KAR 52:020, Title V Permits.

Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses, or approvals required by the Cabinet or any other federal, state, or local agency.

SINGLE SOURCE DETERMINATION:

Westlake Vinyls, Inc. – Vinyls Plant, Westlake Chemical OpCo, LP, and Westlake Vinyls, Inc. – PVC Plant are each a single “major source” as defined in 401 KAR 52:001, Section 1(45)(a), definition of major source. Each owner/operator is responsible and liable for their own violations, unless there is a joint cause for the violations.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS

013	(EPN 801)	Salt Handling and Transfer Operations
	Description:	Maximum salt throughput – 757,740 tons per year (tpy)
	EPN 801A	Salt Hopper
	EPN 801B	Hopper to Conveyor Belt Transfer
	EPN 801E	Conveyor to Conveyor Belt Transfer
	EPN 801F	Conveyor to Conveyor Belt Transfer
	EPN 801C	Stockpile Loading Operations
	EPN 801D	Stockpile Storage - Wind Erosion
	801 A, B, C, & D	Date of Construction: 1966 (Salt Throughput increased in 2019)
	801 E & F	Date of Construction: 2022
	Area:	2 acres

APPLICABLE REGULATIONS:

401 KAR 63:010, Fugitive emissions

1. Operating Limitations:

- a. Pursuant to 401 KAR 52:020, Section 10, the maximum annual salt throughput for EPN 801 shall not exceed 757,740 tons per year.

Compliance Demonstration Method:

Refer to **5. Specific Recordkeeping Requirements.**

- b. Pursuant to 401 KAR 63:010, Section 3(1), the permittee shall not cause, suffer, or allow any material to be handled, processed, transported, or stored; a building or its appurtenances to be constructed, altered, repaired, or demolished; or a road to be used without taking reasonable precaution to prevent particulate matter from becoming airborne. Reasonable precautions shall include, as applicable:
 - (1) Use, if possible, of water or suitable chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land;
 - (2) Application and maintenance of asphalt, oil, water, or suitable chemicals on roads, materials stockpiles, and other surfaces that can create airborne dusts;
 - (3) Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials, or the use of water sprays or other measures to suppress the dust emissions during handling. Adequate containment methods shall be employed during sandblasting or other similar operations;
 - (4) Covering, at all times while in motion, open bodied trucks transporting materials likely to become airborne;
 - (5) The maintenance of paved roadways in a clean condition; or
 - (6) The prompt removal of earth or other material from a paved street to which earth or other material has been transported by trucking or earth moving equipment or erosion by water.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration Method:

Emissions shall be controlled by partial enclosures at EPN 801E and 801F for conveyor to conveyor belt transfers; and by plastic sheeting to partially block wind at EPN 801C for stockpile loading operations from the conveyor.

2. Emission Limitations:

- a. Pursuant to 401 KAR 63:010, Section 3(2), the permittee shall not cause, suffer, or allow visible fugitive dust emissions beyond the lot line of the property on which the emissions originate, as determined by Reference Method 22 of Appendix A in 40 CFR Part 60, for:
 - (1) More than five (5) minutes of emission time during any sixty (60) minute observation period; or
 - (2) More than twenty (20) minutes of emission time during any twenty-four (24) hour period.

Compliance Demonstration Method:

Refer to **4. Specific Monitoring Requirements.**

3. Testing Requirements:

Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.

4. Specific Monitoring Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, during operation, the permittee shall monitor the reasonable precautions taken to prevent particulate matter from becoming airborne on a daily basis.
- b. Pursuant to 401 KAR 52:020, Section 10, if fugitive dust emissions beyond the lot line of the property are observed, the permittee shall conduct Reference Method 22 (visual determination of fugitive emissions) observations per Appendix A of 40 CFR Part 60. In lieu of conducting U.S. EPA Reference Method 22, the permittee shall immediately perform a corrective action which results in no visible fugitive dust emissions beyond the lot line of the property.

5. Specific Recordkeeping Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain records of monthly salt throughput for EPN 801 and calculate annual salt throughput based on a twelve month rolling total.
- b. Pursuant to 401 KAR 52:020, Section 10, during operation, the permittee shall maintain a log of the reasonable precautions taken to prevent particulate matter from becoming airborne, on a daily basis. Notation of the operating status, down-time, or relevant weather conditions are acceptable for entry to the log.
- c. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain a log of the following:
 - (1) Qualitative fugitive emissions observations conducted including the date, time, initials of observer, whether any fugitive dust emissions were observed beyond the lot line of the property,

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (2) Any Reference Method 22 performed and field records identified in Reference Method 22.
- (3) Any corrective action taken and the results.

6. Specific Reporting Requirements:

See Section F.

7. Specific Control Equipment Operating Conditions:

None

8. Alternate Operating Scenarios:

As an alternative to the permanent salt handling and transfer operations (EPN 801), the permittee may operate the temporary salt handling and transfer operations system listed below in accordance with the requirements for EPN 801, as well as the requirements below. The temporary system consists of existing operations (EPN 801) and temporary operations (EPN 802).

(EPN 802a)	Alternate Salt Handling and Transfer Operations
Description:	Maximum salt throughput – 757,740 tons per year (tpy)
EPN 801A	Salt Hopper
EPN 801B	Hopper to Conveyor Belt Transfer
EPN 802E	Conveyor to Conveyor Belt Transfer (Temporary)
EPN 802F	Conveyor to Conveyor Belt Transfer (Temporary)
EPN 802G	Conveyor to Conveyor Belt Transfer (Temporary)
EPN 802H	Conveyor to Truck Transfer (Temporary)
EPN 802I	Road Emissions (Temporary)
EPN 801C	Stockpile Loading Operations
EPN 801D	Stockpile Storage - Wind Erosion

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall not operate EPN 801 and EPN 801a simultaneously.
- b. Refer to **1. Operating Limitations** b.

Alternate Compliance Demonstration Method:

Emissions will be controlled by wetting the salt and partial enclosures at EPN 802E, 802F, 802G, and 802I for conveyor to conveyor belt transfers and for the conveyor to truck transfer; and by the use of wetted salt at EPN 801C for stockpile loading operations from trucks.

- c. Pursuant to 401 KAR 51:017, Section 16, to preclude 401 KAR 51:017, the permittee shall monitor and calculate annual PM emissions from EPN 802a and maintain a record of the annual emissions in tons per year on a calendar year basis for five (5) years during salt conveyor operations while the temporary conveyor EPN 802a is in operation. The source shall submit a report to the Division if:

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (1) The annual PM emissions, in tons per year, from this proposed project exceeds the baseline actual emissions by a significant amount; and
- (2) The PM emissions differ from the projected actual emissions as submitted in the application for the modification related to the proposed project.

- d. Refer to **2. Emission Limitations** and **4. Specific Monitoring Requirements**.
- e. Pursuant to 401 KAR 52:020, Section 10, the permittee shall monitor and record the following for all salt handling operations under EPN 802a:
 - (i) Each installation date and removal date of each of EPN 802E, 802F, 802G, 802H, and 802I;
 - (ii) The total hours of operation of EPN 802a; and
 - (iii) The amount of PM, PM₁₀, and PM_{2.5} emitted during salt handling operations of EPN 802a.
- f. Pursuant to 401 KAR 52:020, Section 10, during operation, the permittee shall maintain a log of the reasonable precautions taken to prevent particulate matter from becoming airborne from operating EPN 802a, on a daily basis. Notation of the operating status, down-time, or relevant weather conditions are acceptable for entry to the log.
- g. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain a log of the following while operating EPN 802a:
 - (1) Qualitative fugitive emissions observations conducted including the date, time, initials of observer, whether any fugitive dust emissions were observed,
 - (2) Any Reference Method 22 performed and field records identified in Reference Method 22.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

019A	(EPN 849A) Description:	Cooling Water Tower CT-5A 2 cells with recirculation rate of 18,700 gallons/minute total Equipped with mist eliminator with 0.005% Drift Loss Non-contact Cooling Tower Date of Construction: 2014
040	(EPN 853) Description:	Cooling Water Tower CT-6 3 cells with recirculation rate of 15,200 gallons/minute total Equipped with mist eliminator with 0.0005% Drift Loss Non-contact Cooling Tower Date of Construction: 2008
894	(EPN 894) Description:	Cooling Water Tower CT-7 3 cells with recirculation rate of 12,000 gallons/minute total Equipped with mist eliminator with 0.001% Drift Loss Non-contact Cooling Tower Date of Construction: Proposed 2026

APPLICABLE REGULATIONS:

401 KAR 59:010, New process operations

PRECLUDED REGULATIONS:

401 KAR 63:002, Section 2(4)(j), 40 C.F.R. 63.400 through 63.407, Table 1 (Subpart Q), National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers

1. Operating Limitations:

Pursuant to 401 KAR 52:020, Section 10, to preclude 40 CFR 63, Subpart Q, the permittee shall not use chromium-based water treatment chemicals in any affected IPCT.

Compliance Demonstration Method:

Refer to **5. Specific Recordkeeping Requirements c.**

2. Emission Limitations:

- a. Pursuant to 401 KAR 59:010, Section 3(1)(a), no person shall cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than twenty (20) percent opacity.
- b. Pursuant to 401 KAR 59:010, Section 3(2), for emissions from a control device or stack no person shall cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of 2.34 lb/hr as specified in Appendix A to 401 KAR 59:010.

Compliance Demonstration Method:

The permittee is assumed to be in compliance with **2. Emission Limitations a. and b.** based on the information provided in the application.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

3. Testing Requirements:

Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.

4. Specific Monitoring Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall monitor the hours of operation of each cooling tower on a weekly basis.
- b. Pursuant to 401 KAR 52:020, Section 10, the permittee shall monitor the total dissolved solids concentration or conductivity in the cooling water of each cooling tower on a weekly basis.

5. Specific Recordkeeping Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10:
 - (1) The permittee shall maintain weekly records of the hours of operation of each cooling tower and the total dissolved solids concentration or conductivity.
 - (2) All routine and non-routine maintenance activities performed on the corresponding control device shall be recorded.
- b. The permittee shall calculate and maintain monthly records of PM emissions based on the following equation:

$$E_{PM} = C_w \times \frac{60 \text{ min}}{\text{hour}} \times H_M \times \frac{8.34 \text{ pound water}}{\text{gallon}} \times \text{TDS} \times \frac{DL}{100}$$

Where:

E_{PM} = PM emission rate from the cooling tower during the month (pounds per month)

C_w = Water circulation rate in (gallons per minute)

H_M = Hours of operation during the month (hours per month)

DL = Drift loss from the mist eliminator (percent)

TDS = Monthly average total dissolved solids in the cooling water (ppmw)

- c. Pursuant to 401 KAR 52:020, Section 10, to preclude 40 CFR 63, Subpart Q, the permittee shall maintain records for each cooling tower to demonstrate that chromium-based water treatment chemicals are not used.

6. Specific Reporting Requirements:

See Section F.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**014A (EPN 813A) Sodium Hypochlorite Tower**

Description: Vent streams containing chlorine from process equipment are collected and vented through the Sodium Hypochlorite Tower. The tower is a packed bed scrubber using sodium hydroxide solution to neutralize the chlorine in the scrubber. The vent streams controlled include vapors from the chlorine production process equipment, chlorine wastewater treatment systems, chlorine barge and railcar loading/unloading operations, and chlorine storage bullets.

015 (EPN 852) Membrane Cell Room Ventilation

Description: The ridge vents from the building are expected to emit chlorine (Cl_2) from fugitive sources within the Cell Room. Emission rates of HAPs are estimated using maximum expected Cl_2 concentration.

016 (EPN 877) Atmospheric Scrubber

Description: Vent streams containing chlorine from process equipment are collected and vented through the Atmospheric Scrubber/Vent. This tower is a packed bed scrubber using sodium hydroxide solution to neutralize the chlorine in the scrubber. The vent streams controlled include streams from the chlorine production process equipment and chlorine wastewater treatment systems.

017 (EPN 887) HCl Synthesis Scrubber**017A (EPN 887A) HCl Synthesis Scrubber**

Description: Vent is expected to emit hydrogen chloride (HCl) and chlorine (Cl_2). Emission rates of HAPs are estimated using design vent gas flow rate and design vent gas characteristic (based on manufacturer's specifications). The HCl absorber is integral to the production process and not a control device.

APPLICABLE REGULATIONS:

401 KAR 63:020, Potentially hazardous matter or toxic substances [State-Origin Requirement]

NON-APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(a), 40 C.F.R. 63.100 through 63.107, Tables 1 through 4 (Subpart F), National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry

401 KAR 63:002, Section 2(4)(b), 40 C.F.R. 63.110 through 63.153, Tables 1 through 37, and Figure 1 (Subpart G), National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater

401 KAR 63:002, Section 2(4)(c), 40 C.F.R. 63.160 through 63.183, Tables 1 through 4 (Subpart H), National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks

1. Operating Limitations:

Pursuant to 401 KAR 52:020, Section 10, EPN 887 and EPN 887A shall be designed as integral absorbers and scrubbers such that the units will shut down in case of absorber/scrubber failure.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**Compliance Demonstration Method:**

The permittee shall maintain records of the design specifications for the HCl Synthesis Unit documenting that the operating limitations specified above have been incorporated into the design of the unit.

2. Emission Limitations:

Pursuant to 401 KAR 63:020, Section 3, persons responsible for a source from which hazardous matter or toxic substances may be emitted shall provide the utmost care and consideration, in the handling of these materials, to the potentially harmful effects of the emissions resulting from such activities. No owner or operator shall allow any affected facility to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals and plants. Evaluation of such facilities as to adequacy of controls and/or procedures and emission potential will be made on an individual basis by the cabinet.

Compliance Demonstration Method:

Based on the rates of emissions of airborne toxics provided in the applications submitted by the source, the source is in compliance with 401 KAR 63:020.

3. Testing Requirements:

Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.

4. Specific Monitoring Requirements:

Pursuant to 401 KAR 52:020, Section 10:

- (1) For EPN 813A (Sodium Hypochlorite Tower), the permittee shall maintain, calibrate and operate according to manufacturer specification, a monitoring device for the continuous measurement (one reading every 15 minutes) of the oxidation-reduction potential (ORP).
- (2) For EPN 877 (Atmospheric Scrubber), the permittee shall maintain, calibrate and operate according to manufacturer's specification, a monitoring device for the continuous measurement (one reading every 15 minutes) of the oxidation reduction potential (ORP).

5. Specific Recordkeeping Requirements:

Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain hourly average records of the oxidation-reduction potential at EPN 813A (Sodium Hypochlorite Tower); and EPN 877 (Atmospheric Scrubber).

6. Specific Reporting Requirements:

See Section F.

7. Specific Control Equipment Operating Conditions:

Pursuant to 401 KAR 52:020, Section 10, the Sodium Hypochlorite (Chlorine Conversion/Neutralization) Tower and Atmospheric Scrubber: the tower and scrubber shall be operated at a maximum oxidation-reduction potential (ORP) of 1000 mV (3-hour average).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

018 (EPN FUG-CA-1) Chlor-alkali Plant Cl₂/HCl Fugitives
 Process ID's 1-5 Chlorine & Hydrogen Chloride Fugitive emissions from the following:

1,199	Gas/Vapor and Light Liquid Valves	14	Light Liquid Pumps
6,959	Gas/Vapor Flanges	5	Compressors
63	Pressure Relief Valves		

020 (EPN FUG-CA-2) Chlor-alkali Plant Fugitives
 Process ID's 1-4 Stream composition (by average weight fraction): 98% Carbon Tetrachloride and 2% Nitrogen Trichloride. VOC Fugitive emissions from the following:

27	Light Liquid Valves	2	Light Liquid Pumps
159	Flanges	3	Pressure Relief Valves
6	Valves (Natural Gas)	20	Flanges (Natural Gas)

Date Constructed: 1966

NOTE - The pipeline equipment count listed above reflects an accurate count of the equipment as of the date of issuance of this permit but is not intended to limit the permittee to the exact numbers specified. The permittee may add or remove pipeline equipment without a permit revision as long as the equipment continues to comply with the applicable requirements listed below, and the changes do not cause a significant increase of emissions or potential to emit.

APPLICABLE REGULATIONS:

401 KAR 63:020, Potentially hazardous matter or toxic substances [State-Origin Requirement]

NON-APPLICABLE REGULATIONS:

401 KAR 57:002, Section 2, 40 C.F.R. 61.240 through 61.247, Tables 1 through 2 (Subpart V)
 National Emission Standard for Equipment Leaks (Fugitive Emission Sources)

401 KAR 60:005, Section 2(2)(bbb), 40 C.F.R. 60.480 through 60.489 (Subpart VV), Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After January 5, 1981, and on or Before November 7, 2006

401 KAR 63:002, Section 2(4)(III), 40 C.F.R. 63.2430 through 63.2550, Tables 1 through 12 (Subpart FFFF), National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**1. Operating Limitations:**

None

2. Emission Limitations:

Pursuant to 401 KAR 63:020, Section 3, persons responsible for a source from which hazardous matter or toxic substances may be emitted shall provide the utmost care and consideration, in the handling of these materials, to the potentially harmful effects of the emissions resulting from such activities. No owner or operator shall allow any affected facility to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals and plants. Evaluation of such facilities as to adequacy of controls and/or procedures and emission potential will be made on an individual basis by the cabinet.

Compliance Demonstration Method:

Based on the rates of emissions of airborne toxics provided in the applications submitted by the source, the source is in compliance with 401 KAR 63:020.

3. Testing Requirements:

Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.

4. Specific Monitoring Requirements:

None

5. Specific Recordkeeping Requirements:

None

6. Specific Reporting Requirements:

See Section F.6.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

005	(EPN 009)	Boiler #2	
	Description:	Type:	Indeck Boiler Type D
		Capacity:	191.0 mmBtu/hr (Natural Gas) 201.58 mmBtu/hr (Natural Gas, Process Fuel Gas + Hydrogen)
		Fuel:	Natural Gas or Process Fuel Gas*
		Date of construction:	2016
		Source of Emissions:	Fuel combustion (no controls)
		Control Device:	None
013B	(EPN 013)	Boiler #6	
	Description:	Type:	Indeck Boiler Type D With Oxygen-Trim System
		Capacity:	191.0 mmBtu/hr (Natural Gas) 201.58 mmBtu/hr (Natural Gas, Process Fuel Gas + Hydrogen)
		Fuel:	Natural Gas or Process Fuel Gas*
		Date of construction:	2022
		Source of Emissions:	Fuel combustion (no controls)
		Control Device:	None

* Process fuel gas is natural gas in combination with any of the following: ethylene plant fuel gas, hydrogen, propane, ethane, recovered flare gas, and mixtures thereof.

APPLICABLE REGULATIONS:

401 KAR 51:017, Prevention of Significant Deterioration of Air Quality [EPN 013 for CO, VOC, PM, PM₁₀, PM_{2.5} and CO_{2e}]

401 KAR 59:015, New indirect heat exchangers

401 KAR 60:005, Section 2(2)(c), 40 C.F.R. 60.40b through 60.49b (Subpart Db), Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

401 KAR 60:005, Section 2(2)(ppp), 40 C.F.R. 60.660 through 60.668 (Subpart NNN), Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations

401 KAR 60:005, Section 2(2)(ttt), 40 C.F.R. 60.700 through 60.708 (Subpart RRR), Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes

401 KAR 63:002, Section 2(4)(iii), 40 C.F.R. 63.7480 through 63.7575, Tables 1 through 13 (Subpart DDDDD), National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

1. Operating Limitations:

- a. Pursuant to 401 KAR 52:020, Section 10, the following Maximum Hourly Firing Rates shall not be exceeded: (on a 24-hour average basis)
 - (1) For EPN 009: 210 mmBtu/hr; and
 - (2) For EPN 013: 210 mmBtu/hr.
- b. Pursuant to 401 KAR 52:020, Section 10, the following Annual Average Firing Rates shall not be exceed: (on a 12-month rolling basis)
 - (1) For EPN 009: 201.58 mmBtu/hr; and
 - (2) For EPN 013: 201.58 mmBtu/hr.

Compliance Demonstration Method:

See **3. Source Operating Limitations** under **Section D**.

- c. Pursuant to 40 CFR 63.7500(a)(1), the permittee must meet each emission limit and work practice standard in Tables 1 through 3, and 11 through 13 to 40 CFR 63, Subpart DDDDD that applies, for each boiler or process heater at the source, except as provided under 40 CFR 63.7522. The permittee must meet these requirements at all times the affected unit is operating, except as provided in 40 CFR 63.7500(f).
 - (1) Pursuant to Item 3 of Table 3 to 40 CFR 63, Subpart DDDDD for EPN 009, the permittee shall conduct an annual tune-up on all new or existing boilers or process heaters without a continuous oxygen trim system and with heat input capacities of 10 million Btu per hour or greater as specified in 40 CFR 63.7540.
 - (2) Pursuant to Item 1 of Table 3 to 40 CFR 63, Subpart DDDDD for EPN 013, for a new boiler or process heater with a continuous oxygen trim system that maintains an optimum air to fuel ratio, the permittee shall conduct a tune-up of the boiler or process heater every 5 years as specified in 40 CFR 63.7540.
- d. Pursuant to 40 CFR 63.7500(a)(3), at all times, the permittee must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.
- e. Pursuant to 40 CFR 63.7500(f), the requirements of 40 CFR 63, Subpart DDDDD apply at all times the affected units are operating, except during periods of startup and shutdown during which time the permittee must comply only with items 5 and 6 of Table 3 to 40 CFR 63, Subpart DDDDD.

Compliance Demonstration Method:

- (1) Pursuant to 40 CFR 63.7495(a), the permittee must comply with 40 CFR 63, Subpart DDDDD by April 1, 2013, or upon startup of the permittee's boiler or process heater, whichever is later.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (2) Pursuant to 40 CFR 63.7540(a), the permittee must demonstrate continuous compliance with each emission limit in Tables 1 and 2 or 11 through 13 to 40 CFR 63, Subpart DDDDD, the work practice standards in Table 3 to 40 CFR 63, Subpart DDDDD, and the operating limits in Table 4 to 40 CFR 63, Subpart DDDDD that applies according to the methods specified in Table 8 to 40 CFR 63, Subpart DDDDD and 40 CFR 63.7540(a)(1) through (19).
- (3) Refer to **4. Specific Monitoring Requirements** c and d., **5. Specific Recordkeeping Requirements** b. and c. and **6. Specific Reporting Requirements** a. and b.
- f. Pursuant to 40 CFR 60.660(d)(1), the permittee of process vents that are subject to 40 CFR 60, Subpart NNN may choose to comply with the provisions of 40 CFR 65, Subpart D, to satisfy the requirements of 40 CFR 60.662 through 40 CFR 60.665 and 40 CFR 60.668. The provisions of 40 CFR Part 65 also satisfy the criteria of 40 CFR 60.660(c)(4) and (6). Other provisions applying to a permittee who chooses to comply with 40 CFR Part 65 are provided in 40 CFR 65.1.
- g. Pursuant to 40 CFR 60.700(d)(1), the permittee of process vents that are subject to 40 CFR 60, Subpart RRR may choose to comply with the provisions of 40 CFR 65, Subpart D, to satisfy the requirements of 40 CFR 60.702 through 40 CFR 60.705 and 40 CFR 60.708. The provisions of 40 CFR Part 65 also satisfy the criteria of 40 CFR 60.700(c)(2), (4), and (8). Other provisions applying to a permittee who chooses to comply with 40 CFR Part 65 are provided in 40 CFR 65.1.
- h. Pursuant to 40 CFR 65.63(a)(2) as referenced by 40 CFR 60.660(d)(1) and 40 CFR 60.700(d)(1), the permittee must reduce emissions of regulated material or TOC by at least 98 weight-percent or to a concentration of less than 20 parts per million by volume, whichever is less stringent. For combustion devices, the emission reduction or concentration shall be calculated on a dry basis, and corrected to 3 percent oxygen. The permittee shall meet the requirements in 40 CFR 65.142(b) and 40 CFR 65.63(a)(2)(i) and/or 40 CFR 65.63(a)(2)(ii).
- (1) Pursuant to 40 CFR 65.142(b)(2), a permittee subject to 40 CFR 65.63(a)(2) who route process vent emissions to a nonflare control device shall meet the applicable requirements in 40 CFR 65.143 for closed vent systems; the requirements applicable to the control devices being used in 40 CFR 65.149 as follows; the applicable general monitoring requirements of 40 CFR 65.156; the applicable performance test requirements and procedures of 40 CFR 65.157 and 40 CFR 65.158; and the monitoring, recordkeeping, and reporting requirements referenced therein. The requirements of 40 CFR 65.144 through 40 CFR 65.146 do not apply to process vents. No other provisions of 40 CFR 65, Subpart G apply to process vent emissions routed through a closed vent system to a nonflare control device.
- (i) (A) A permittee using boilers and process heaters to meet the 98 weight-percent emission reduction or 20 parts per million by volume outlet concentration requirement as specified in 40 CFR 65.63(a)(2), shall meet the requirements of 40 CFR 65.149.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (B) The vent stream shall be introduced into the flame zone of the boiler or process heater.
- (C) Boilers and process heaters used to comply with the provisions of 40 CFR 65, Subpart G shall be operated at all times when emissions are vented to them.
- (2) Pursuant to 40 CFR 65.63(a)(2)(i), compliance with 40 CFR 65.63(a)(2) may be achieved by using any combination of recovery and/or control device to meet the 20 parts per million by volume concentration standard; or by using any combination of recovery and/or control device to meet the 98 weight percent reduction standard, if the recovery device meets the conditions of 40 CFR 65.63(a)(2)(ii).
- (3) Pursuant to 40 CFR 65.63(a)(2)(ii), a permittee may use a recovery device alone or in combination with one or more control devices to reduce emissions of total regulated material by 98 weight-percent if all of the following conditions are met:
 - (i) The recovery device that will be used to reduce emissions of total regulated material by 98 weight-percent is the last recovery device before emission to the atmosphere.
 - (ii) The recovery device alone or in combination with one or more control devices is capable of reducing emissions of total regulated material by 98 weight-percent but is not capable of reliably reducing emissions of total regulated material to a concentration of 20 parts per million by volume.
 - (iii) If the permittee disposed of the recovered material, the recovery device would be considered a control device and comply with the requirements of 40 CFR 65, Subpart D and 40 CFR 65.142(b) for control devices.
- i. Pursuant to 401 KAR 59:015, Section 7(2)(a), during a startup period or shutdown period, the permittee shall meet the work practice standards established in 40 C.F.R. Part 63, Table 3 to Subpart DDDDD, as established in 401 KAR 63:002, Section 2(4)(iii).
- j. Pursuant to 401 KAR 51:017, Section 8, for EPN 013, the following control technology, equipment and method are required to meet Best Available Control Technology (BACT) demonstration for Carbon Monoxide (CO), Volatile Organic Compounds (VOC), Particulate Matter (PM), PM₁₀, and PM_{2.5} emissions:
 - (1) Utilizing clean, gaseous fuel.
 - (2) Proper design and operation.
 - (3) Conducting good combustion practices.

Compliance Demonstration Method:

- (1) Continuous compliance with **1. Operating Limitations** j.(1) shall be demonstrated by keeping records in accordance with **Compliance Demonstration Method** for **4. Source Recordkeeping Requirements** a. in **Section D**.
- (2) Continuous compliance with **1. Operating Limitations** j.(2) and j.(3) shall be demonstrated by keeping records in accordance with the **Compliance Demonstration Method** for **4. Source Recordkeeping Requirements** a. in **Section D** and by the following:
 - (i) Calibrations on the excess oxygen analyzer as per the manufacturer's recommendations;

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (ii) Calibrations and filter checks on the fuel gas analyzer as per the manufacturer's recommendations;
 - (iii) Calibration of the fuel gas flow meter as per the manufacturer's recommendations;
 - (iv) Inspect the boiler, insulation, piping and refractory, and repair / replace components as per the manufacturer's recommendations;
 - (v) Operation of the boiler with a continuous automated oxygen trim system; and
 - (vi) Conducting a tune-up of the boiler in accordance with 40 CFR 63.7540(a)(10)(i)-(iii) and 40 CFR 63.7540(a)(10)(vi)(B).
- k. Pursuant to 401 KAR 51:017, Section 8, for EPN 013, the following control technology, equipment and method are required to meet Best Available Control Technology (BACT) demonstration for Greenhouse Gases (as CO₂e) emissions:
- (1) Utilizing clean, gaseous fuel.
 - (2) Good heater design, including insulation and minimization of potential for air infiltration;
 - (3) Good combustion practices and proper burner design and operation;
 - (4) Condensate Recovery and Blowdown Heat Recovery;
 - (5) Thermal efficiency of the boiler shall be equal to or greater than 84% while burning natural gas; and
 - (6) Thermal efficiency of the boiler shall be equal to or greater than 78% while burning process fuel gas.

Compliance Demonstration Method:

- (1) Continuous compliance with **1. Operating Limitations** k.(1) shall be demonstrated by keeping records in accordance with the **Compliance Demonstration Method** for **4. Source Recordkeeping Requirements** a. in **Section D**.
- (2) Continuous compliance with **1. Operating Limitations** k.(2) through k.(4) shall be demonstrated by keeping records of
 - (i) Preventative maintenance of the boiler including calibration of fuel gas flow meters and oxygen control analyzers, cleaning of burner tips and cleaning of convection section tubes.
 - (ii) Operation of the boiler with a continuous automated oxygen trim system.
 - (iii) Conducting a tune-up of the boiler in accordance with 40 CFR 63.7540(a)(10)(i)-(iii) and 40 CFR 63.7540(a)(10)(vi)(B).
- (3) Continuous compliance with **1. Operating Limitations** k.(5) and (6) shall be demonstrated by one of the following:
 - (i) Providing thermal efficiency from the manufacturer for each fuel burned; or
 - (ii) Keeping records of the thermal efficiency of EPN 013 using the following equation for each fuel burned, on a calendar month basis:

$$\text{Thermal Efficiency} = \frac{(\text{SF} \times \text{SE}) - (\text{FwF} \times \text{FwE})}{\text{FR} \times \text{GCV}} \times 100$$

Where:

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

SF = Steam Flow Rate
SE = Steam Enthalpy
FwF = Feedwater Flowrate
FwE = Feedwater Enthalpy
FR = Fuel Firing Rate
GCV = Gross Calorific Value or Higher Heating Value (HHV) of the fuel burned.

2. Emission Limitations:

For any combination of fuels -

Particulate Matter (PM) and Sulfur Dioxide (SO₂) Mass Emission Limits:

- a. Pursuant to 401 KAR 59:015, Section 4(1)(b), the permittee shall not cause emissions of particulate matter in excess of 0.10 lb/mmBtu actual heat input from each boiler.
- b. Pursuant to 401 KAR 59:015, Section 5(1)(b)(1), the permittee shall not cause emissions of gases that contain sulfur dioxide in excess of 0.8 lb/mmBtu actual heat input from each boiler.

Compliance Demonstration Method:

Compliance with the applicable mass emission standards (lb/mmBtu) for particulate matter and sulfur dioxide is assumed while only burning gaseous fuel as defined in 40 CFR 60.41b.

Visible Emission Limits:

- c. Pursuant to 401 KAR 59:015, Section 4(2), the opacity of visible emissions shall not exceed 20 percent except as provided below:
 - (1) A maximum of twenty-seven (27) percent opacity shall be allowed for one (1) six (6) minute period in any sixty (60) consecutive minutes; and
 - (2) For emissions from an affected facility caused by building a new fire, emissions during the period required to bring the boiler up to operating conditions shall be allowed, if the method used is recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

Compliance Demonstration Method:

Compliance with the applicable visible emission standard is assumed while only burning gaseous fuel as defined in 40 CFR 60.41b.

NO_x Emission Limits:

- d. Pursuant to 40 CFR 60.44b(a)(1), on and after the date on which the initial performance test is completed or is required to be completed under 40 CFR 60.8, whichever date comes first, the permittee of an affected facility that is subject to the provisions of 40 CFR 60.44b and that combusts natural gas shall not cause to be discharged into the atmosphere from that facility any gases that contain NO_x (expressed as NO₂) in excess of the low and high heat release rates of 0.10 and 0.20 lb/mmBtu, respectively.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**Compliance Demonstration Method:**

(1) For EPN 009:

- (i) Initial compliance is demonstrated by complying with 40 CFR 60.46b(c).
- (ii) Continuous compliance is demonstrated by **3. Testing Requirements c.** and **4. Specific Monitoring Requirements a.**

(2) For EPN 013:

- (i) Initial compliance is demonstrated by complying with 40 CFR 60.46b(c).
- (ii) Continuous compliance is demonstrated by **3. Testing Requirements c.** and **d.** and **4. Specific Monitoring Requirements a.**

- e. Pursuant to 401 KAR 51:017, Section 8, emissions of CO from EPN 013 shall not exceed 0.037 lb/mmBtu and 32.67 tons per year on a 12-month rolling basis.
- f. Pursuant to 401 KAR 51:017, Section 8, emissions from EPN 013 shall not exceed the following:
 - (1) 1.56 lb/hr and 6.23 tons per year of PM on a 12-month rolling basis;
 - (2) 1.56 lb/hr and 6.23 tons per year of PM₁₀ on a 12-month rolling basis;
 - (3) 1.56 lb/hr and 6.23 tons per year of PM_{2.5} on a 12-month rolling basis;
 - (4) 1.13 lb/hr and 4.51 tons per year of VOC on a 12-month rolling basis; and
 - (5) 98,255 tons per year of CO_{2e} on a 12-month rolling basis.

Compliance Demonstration Method:

(1) For compliance with **2. Emission Limitations e.** and **f.**, see **1. Operating Limitations j.** and **5. Specific Recordkeeping Requirements j.**

(2) For compliance with **2. Emission Limitations e.**, see **3. Testing Requirements d.**

- g. Pursuant to 401 KAR 52:020, Section 10, emissions of NO_x from EPN 013 shall not exceed the following:
 - (1) 7.77 lb NO_x/hr on a 3-hour rolling average; and
 - (2) 32.67 tons per year on a 12-month rolling basis.

Compliance Demonstration Method:

For compliance with **2. Emission Limitations g.**, EPN 013 shall be operated with low NO_x burners and in a manner consistent with good air pollution control practice for minimizing emissions per the manufacturer's recommendations and guarantee. See **3. Testing Requirements d.** and **4. Specific Monitoring Requirements f.**

3. Testing Requirements:

- a. Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.
- b. Pursuant to 40 CFR 65.149(b)(2)(ii), a permittee is not required to conduct a performance test when a boiler or process heater into which the vent stream is introduced with the

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

primary fuel or is used as the primary fuel is used. The permittee shall report as specified in 40 CFR 65.165(f).

- c. Pursuant to 40 CFR 60.46b(e), to determine compliance with the emission limits for NO_x required under 40 CFR 60.44b, the permittee of an affected facility shall conduct the performance test as required under 40 CFR 60.8 using the continuous system for monitoring NO_x under 40 CFR 60.48(b).
- d. Pursuant to 401 KAR 52:020, Section 10, for EPN 013, the permittee shall conduct an initial performance test using reference methods in 401 KAR 50:015 to determine the CO and NO_x outlet concentrations in terms of ppmv, lb/mmBtu, and lb/mmscf. The permittee shall also measure the heat content of the gaseous fuel being combusted during the test. See **Section G**. 4. and 5. Subsequent performance testing shall be conducted within 5 years of the previous test approved by the Division.

4. Specific Monitoring Requirements:

- a. Pursuant to 40 CFR 60.48b(b)(1), except as provided under 40 CFR 60.48b(g), (h), and (i), the permittee of an affected facility subject to a NO_x standard under 40 CFR 60.44b shall install, calibrate, maintain, and operate a continuous emissions monitoring system (CEMS) for measuring NO_x and O₂ (or CO₂) emissions discharged to the atmosphere, and shall record the output of the system as follows:
 - (1) Pursuant to 40 CFR 60.48b(c), the CEMS required under 40 CFR 60.48b(b) shall be operated and data recorded during all periods of operation of the affected facility except for CEMS breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments.
 - (2) Pursuant to 40 CFR 60.48b(d), the 1-hour average NO_x emission rates measured by the continuous NO_x monitor required by 40 CFR 60.48b(b) and required under 40 CFR 60.13(h) shall be expressed in ng/J or lb/mmBtu heat input and shall be used to calculate the average emission rates under 40 CFR 60.44b. The 1-hour averages shall be calculated using the data points required under 40 CFR 60.13(h)(2).
 - (3) Pursuant to 40 CFR 60.48b(e), the procedures under 40 CFR 60.13 shall be followed for installation, evaluation, and operation of the continuous monitoring systems.
 - (4) Pursuant to 40 CFR 60.48b(e)(2), for affected facilities combusting coal, oil, or natural gas, the span value for NO_x is determined using one of the following procedures:
 - (i) Except as provided under 40 CFR 60.48b(e)(2)(ii), For Natural Gas, NO_x span value shall be 500 ppm.
 - (ii) As an alternative to meeting the requirements of 40 CFR 60.48b(e)(2)(i), the permittee of an affected facility may elect to use the NO_x span values determined according to Section 2.1.2 in Appendix A to 40 CFR Part 75.
 - (5) Pursuant to 40 CFR 60.48b(f), when NO_x emission data are not obtained because of CEMS breakdowns, repairs, calibration checks and zero and span adjustments, emission data will be obtained by using standby monitoring systems, Methods 7 and 7A of Appendix A of 40 CFR Part 60, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days.

- (6) Pursuant to 40 CFR 60.7(b), any permittee subject to the provisions of 40 CFR Part 60 shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.
- (7) Pursuant to 40 CFR 60.13(d)(1), the permittee of a CEMS installed in accordance with the provisions of 40 CFR Part 60, must check the zero (or low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once each operating day in accordance with a written procedure. The zero and span must, at a minimum, be adjusted whenever either the 24-hour zero drift or the 24-hour span drift exceeds two times the limit of the applicable performance specification in Appendix B of 40 CFR Part 60. The system must allow the amount of the excess zero and span drift to be recorded and quantified whenever specified.
- (8) Pursuant to 40 CFR 60.13(e), except for system breakdowns, repairs, calibration checks, and zero and span adjustments required under 40 CFR 60.13(d), all continuous monitoring systems shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:
 - (i) All continuous monitoring systems referenced by 40 CFR 60.13(c) for measuring emissions, except opacity, shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.
- (9) Pursuant to 40 CFR 60.13(h)(1), the permittee of all continuous monitoring systems for measurements other than opacity shall reduce all data to 1-hour averages for time periods as defined in 40 CFR 60.2.
- (10) Pursuant to 40 CFR 60.13(h)(2), For continuous monitoring systems other than opacity, 1-hour averages shall be computed as follows, except that the provisions pertaining to the validation of partial operating hours are only applicable for affected facilities that are required by the applicable subpart to include partial hours in the emission calculations:
 - (i) Except as provided under 40 CFR 60.13(h)(2)(iii), for a full operating hour (any clock hour with 60 minutes of unit operation), at least four valid data points are required to calculate the hourly average, i.e., one data point in each of the 15-minute quadrants of the hour.
 - (ii) Except as provided under 40 CFR 60.13(h)(2)(iii), for a partial operating hour (any clock hour with less than 60 minutes of unit operation), at least one valid data point in each 15-minute quadrant of the hour in which the unit operates is required to calculate the hourly average.
 - (iii) For any operating hour in which required maintenance or quality-assurance activities are performed:
 - (A) If the unit operates in two or more quadrants of the hour, a minimum of two valid data points, separated by at least 15 minutes, is required to calculate the hourly average; or

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (B) If the unit operates in only one quadrant of the hour, at least one valid data point is required to calculate the hourly average.
- (iv) If a daily calibration error check is failed during any operating hour, all data for that hour shall be invalidated, unless a subsequent calibration error test is passed in the same hour and the requirements of 40 CFR 60.13(h)(2)(iii) are met, based solely on valid data recorded after the successful calibration.
 - (v) For each full or partial operating hour, all valid data points shall be used to calculate the hourly average.
 - (vi) Except as provided under 40 CFR 60.13(h)(2)(vii), data recorded during periods of continuous monitoring system breakdown, repair, calibration checks, and zero and span adjustments shall not be included in the data averages computed under 40 CFR 60.13(h).
 - (vii) A permittee complying with the requirements of 40 CFR 60.7(f)(1) or (2) must include any data recorded during periods of monitor breakdown or malfunction in the data averages.
 - (viii) When specified in an applicable subpart, hourly averages for certain partial operating hours shall not be computed or included in the emission averages (e.g., hours with < 30 minutes of unit operation under 40 CFR 60.47b(d)).
 - (ix) Either arithmetic or integrated averaging of all data may be used to calculate the hourly averages. The data may be recorded in reduced or nonreduced form (e.g., ppm pollutant and percent O₂ or ng/J of pollutant).
- b. Pursuant to 40 CFR 65.149(c)(1) any boiler or process heater in which all vent streams are introduced with primary fuel or are used as the primary fuel is exempt from monitoring.
- c. Pursuant to 40 CFR 63.7540(a)(10), for EPN 009, the permittee must conduct an annual tune-up of the boiler or process heater to demonstrate continuous compliance as specified in 40 CFR 63.7540(a)(10)(i) through (vi) as follows. The permittee must conduct the tune-up while burning the type of fuel (or fuels in case of units that routinely burn a mixture) that provided the majority of the heat input to the boiler or process heater over the 12 months prior to the tune-up.
- (1) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the permittee may perform the burner inspection any time prior to the tune-up or delay the burner inspection until the next scheduled unit shutdown).
 - (2) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;
 - (3) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the permittee may delay the inspection until the next scheduled unit shutdown);
 - (4) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NO_x requirement to which the unit is subject; and
 - (5) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

and after the adjustments are made). Measurements may be taken using a portable CO analyzer.

- d. Pursuant to 40 CFR 63.7540(a)(12) for EPN 013, the permittee must conduct a tune-up of the boiler or process heater every 5 years as specified in 40 CFR 63.7540(a)(10)(i) through (vi) to demonstrate continuous compliance. The permittee may delay the burner inspection specified in 40 CFR 63.7540(a)(10)(i) until the next scheduled or unscheduled unit shutdown, but the permittee must inspect each burner at least once every 72 months. If an oxygen trim system is utilized on a unit without emission standards to reduce the tune-up frequency to once every 5 years, set the oxygen level no lower than the oxygen concentration measured during the most recent tune-up.
- e. Pursuant to 401 KAR 52:020, Section 10, if the permittee has not provided thermal efficiencies from the manufacturer for each fuel burned, then the permittee shall continuously monitor the steam flow rate, steam enthalpy, feedwater flowrate, feedwater enthalpy, fuel firing rate, and gross calorific value or higher heating value (HHV) of the fuel for EPN 013 while burning natural gas and process fuel gas.
- f. Pursuant to 401 KAR 52:020, Section 10, for EPN 013, the permittee shall keep records of the following:
 - (1) For each hour of operation, the 3-hour rolling average NO_x emissions in lb/hr; and
 - (2) The monthly and 12-month rolling NO_x emissions.

5. Specific Recordkeeping Requirements:

- a. Pursuant to 40 CFR 63.7555(a), the permittee must keep records according to 40 CFR 63.7555(a)(1) and (2) as follows:
 - (1) A copy of each notification and report that the permittee submitted to comply with 40 CFR 63, Subpart DDDDD, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report that the permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv).
 - (2) Records of performance tests, fuel analyses, or other compliance demonstrations and performance evaluations as required in 40 CFR 63.10(b)(2)(viii).
- b. Pursuant to 40 CFR 63.7540(a)(10)(vi) for each boiler, the permittee must maintain on-site and submit, if requested by the Administrator, a report containing the following information in 40 CFR 63.7540(a)(10)(vi)(A) through (C):
 - (1) The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater;
 - (2) A description of any corrective actions taken as a part of the tune-up; and
 - (3) The type and amount of fuel used over the 12 months prior to the tune-up, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel used by each unit.
- c. Pursuant to 40 CFR 63.7560(a), records must be in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- d. Pursuant to 40 CFR 63.7560(b), as specified in 40 CFR 63.10(b)(1), the permittee must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
- e. Pursuant to 40 CFR 63.7560(c), the permittee must keep each record on site, or they must be accessible from on site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The permittee can keep the records off site for the remaining 3 years.
- f. Pursuant to 40 CFR 60.49b(d)(1), the permittee of an affected facility shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for natural gas for the reporting period. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month
- g. Pursuant to 40 CFR 60.49b(g), except as provided under 40 CFR 60.49b(p), the permittee of an affected facility subject to the NO_x standards under 40 CFR 60.44b shall maintain records of the following information for each steam generating unit operating day:
 - (1) Calendar date;
 - (2) The average hourly NO_x emission rates (expressed as NO₂) (ng/J or lb/mmBtu heat input) measured or predicted;
 - (3) The 30-day average NO_x emission rates (ng/J or lb/mmBtu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days;
 - (4) Identification of the steam generating unit operating days when the calculated 30-day average NO_x emission rates are in excess of the NO_x emissions standards under 40 CFR 60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken;
 - (5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken;
 - (6) Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data;
 - (7) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted;
 - (8) Identification of the times when the pollutant concentration exceeded full span of the CEMS;
 - (9) Description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specification 2 or 3; and
 - (10) Results of daily CEMS drift tests and quarterly accuracy assessments as required under Appendix F, Procedure 1 of Part 60.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- h. Pursuant to 40 CFR 60.49b(o), all records required under 40 CFR 60.49b shall be maintained by the permittee of the affected facility for a period of 2 years following the date of such record.
- i. Pursuant to 401 KAR 52:020, Section 10 for EPN 013, the permittee shall keep records of the thermal efficiency as provided by the manufacturer for each fuel burned; or records to demonstrate that the average monthly thermal efficiency of 84% has been maintained while burning natural gas and the average monthly thermal efficiency of 78% has been maintained while burning process fuel gas.
- j. Pursuant to 401 KAR 52:020, Section 10, the permittee shall calculate and keep records of the emissions of CO, VOC, PM, PM₁₀, PM_{2.5} and CO_{2e} from EPN 013 on a monthly basis as well as a 12-month rolling total. The monthly emissions for each pollutant shall be calculated based on the emission factor, fuel used and monthly average heat content of fuel used. The emission factor for CO shall be determined from the most recent performance test approved by the Division. The emission factor for VOC, PM, PM, PM₁₀, PM_{2.5} are based on AP-42, Chapter 1.4 for gaseous fuel at heat content of 1020 Btu/scf. The emission factor for CO_{2e} shall be based on the calculations from 40 CFR 98, Subpart C.
- k. Pursuant to 401 KAR 52:020, Section 10, the permittee shall keep records of the 3-hour rolling average NO_x emissions from Boiler #6 in lb/hr from CEMS data; and the monthly and 12-month rolling NO_x emissions as specified under **4. Specific Monitoring Requirements** f.

6. Specific Reporting Requirements:

- a. Pursuant to 40 CFR 63.7540(a)(10)(vi), if requested by the Administrator, the permittee shall submit the information from **5. Specific Recordkeeping Requirements** b. regarding the most recent tune-up for each boiler.
- b. The permittee shall submit notifications and reports as specified in 40 CFR 63.7545 and 40 CFR 63.7550.
- c. Pursuant to 40 CFR 65.165(f), the permittee shall identify in the Initial Compliance Status Report whether an exemption from performance testing or conducting a design evaluation, as provided in 40 CFR 65.145(b)(2), 40 CFR 65.148(b)(2), or 40 CFR 65.149(b)(2), is being invoked, and which of the provisions of 40 CFR 65.145(b)(2), 40 CFR 65.148(b)(2), or 40 CFR 65.149(b)(2) apply.
- d. Pursuant to 40 CFR 60.49b(h), the permittee of any affected facility in any category listed in 40 CFR 60.49b(h)(1) or (2) is required to submit excess emission reports for any excess emissions that occurred during the reporting period.
 - (1) Any affected facility that is subject to the NO_x standard of 40 CFR 60.44b, and that:
 - (i) Combusts natural gas, distillate oil, gasified coal, or residual oil with a nitrogen content of 0.3 weight percent or less; or

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (ii) Has a heat input capacity of 73 MW (250 mmBtu/hr) or less and is required to monitor NO_x emissions on a continuous basis under 40 CFR 60.48b(g)(1) or steam generating unit operating conditions under 40 CFR 60.48b(g)(2).
 - (2) For purposes of 40 CFR 60.48b(g)(1), excess emissions are defined as any calculated 30-day rolling average NO_x emission rate, as determined under 40 CFR 60.46b(e), that exceeds the applicable emission limits in 40 CFR 60.44b.
- e. Pursuant to 40 CFR 60.49b(i), the permittee of any affected facility subject to the continuous monitoring requirements for NO_x under 40 CFR 60.48(b) shall submit reports containing the information recorded under 40 CFR 60.49b(g).
- f. See **Section F**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (2) Measurements of gaps between the tank wall and the secondary seal shall be performed within 60 days of the initial fill with VOL and at least once per year thereafter.
- (3) If any source ceases to store VOL for a period of 1 year or more, subsequent introduction of VOL into the vessel shall be considered an initial fill for the purposes of 40 CFR 60.113b(b)(1)(i) and (b)(1)(ii).

4. Specific Monitoring Requirements:

Refer to **3. Testing Requirements** for seal gap inspections.

5. Specific Recordkeeping Requirements:

- a. Pursuant to 40 CFR 61.356(k), a permittee who elects to install and operate the control equipment in 40 CFR 61.351 of 40 CFR 61, Subpart FF shall comply with the recordkeeping requirements in 40 CFR 60.115b.
- b. Pursuant to 40 CFR 60.115b(b)(3), after installing control equipment in accordance with 40 CFR 61.112b(a)(2), the permittee shall keep a record of each gap measurement performed as required by 40 CFR 60.113b(b). Each record shall identify the storage vessel in which the measurement was performed and shall contain:
 - (1) The date of measurement.
 - (2) The raw data obtained in the measurement.
 - (3) The calculations described in 40 CFR 60.113b(b)(2) and (b)(3).

6. Specific Reporting Requirements:

- a. Pursuant to 40 CFR 61.357(f), a permittee who elects to install and operate the control equipment in 40 CFR 61.351 of 40 CFR 61, Subpart FF shall comply with the reporting requirements in 40 CFR 60.115b.
- b. Pursuant to 40 CFR 60.115b(b), after installing control equipment in accordance with 40 CFR 61.112b(a)(2), the permittee shall:
 - (1) Furnish the Administrator with a report that describes the control equipment and certifies that the control equipment meets the specifications of 40 CFR 60.112b(a)(2) and 40 CFR 60.113b(b)(2), (b)(3), and (b)(4). This report shall be an attachment to the notification required by 40 CFR 60.7(a)(3).
 - (2) Within 60 days of performing the seal gap measurements required by 40 CFR 60.113b(b)(1), furnish the Administrator with a report that contains:
 - (i) The date of measurement.
 - (ii) The raw data obtained in the measurement.
 - (iii) The calculations described in 40 CFR 60.113b(b)(2) and (b)(3).
 - (3) After each seal gap measurement that detects gaps exceeding the limitations specified by 40 CFR 60.113b(b)(4), submit a report to the Administrator within 30 days of the inspection. The report will identify the vessel and contain the information specified in 40 CFR 60.115b(b)(2) and the date the vessel was emptied or the repairs made and date of repair.
- c. See **Section F**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

027	(EPN 052)	Cooling Water Tower CT-3
	Description:	Recirculation Rate: 40,000 gallons/min Equipped with mist eliminator with 0.001% Drift Loss Non-contact Cooling Tower Date of Construction: 1959

APPLICABLE REGULATIONS:

401 KAR 61:020, Existing process operations

401 KAR 63:002, Section 2(4)(a), 40 C.F.R. 63.100 through 63.107, Tables 1 through 4 (Subpart F), National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry

PRECLUDED REGULATIONS:

401 KAR 63:002, Section 2(4)(j), 40 C.F.R. 63.400 through 63.407, Table 1 (Subpart Q), National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers

1. Operating Limitations:

Pursuant to 401 KAR 52:020, Section 10, to preclude 40 CFR 63, Subpart Q, the permittee shall not use chromium-based water treatment chemicals in any affected IPCT.

Compliance Demonstration Method:

Refer to **5. Specific Recordkeeping Requirements d.**

2. Emission Limitations:

- a. Pursuant to 40 CFR 63.104(a), unless one or more of the conditions specified in 40 CFR 63.104(a)(1) through (a)(6) are met, the permittee of sources subject to 40 CFR 63, Subpart F shall monitor each heat exchange system used to cool process equipment in a chemical manufacturing process unit meeting the conditions of 40 CFR 63.100(b)(1) through (b)(3) of 40 CFR 63, Subpart F, except for chemical manufacturing process units meeting the condition specified in 40 CFR 63.100(c), according to the provisions in either 40 CFR 63.104(b) or (c).

Compliance Demonstration Method:

Pursuant to 40 CFR 63.104(a), the EPN 052 is in compliance with 40 CFR 63.104(a) by monitoring the cooling tower for indication of leaks in accordance with 40 CFR 63.104(b). Refer to **Section F.9.** for compliance reporting.

- b. Pursuant to 401 KAR 61:020, Section 3(1)(a), no permittee shall cause, suffer, allow or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than forty (40) percent opacity.
- c. Pursuant to 401 KAR 61:020, Section 3(2)(a), no permittee shall cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of 2.58 lb/hr as specified in Appendix A to 401 KAR 61:020.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration Method:

The permittee is assumed to be in compliance with **2. Emission Limitations** b. and c. based on the information provided in the application.

3. Testing Requirements:

- a. Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.
- b. Refer to **4. Specific Monitoring Requirements** a.(3).

4. Specific Monitoring Requirements:

- a. Pursuant to 40 CFR 63.104(b), a permittee who elects to comply with the requirements of 40 CFR 63.104(a) by monitoring the cooling water for the presence of one or more organic hazardous air pollutants or other representative substances whose presence in cooling water indicates a leak shall comply with the requirements specified in 40 CFR 63.104(b)(1) through (b)(6). The cooling water shall be monitored for total hazardous air pollutants, total volatile organic compounds, total organic carbon, one or more speciated HAP compounds, or other representative substances that would indicate the presence of a leak in the heat exchange system.
 - (1) The cooling water shall be monitored monthly for the first 6 months and quarterly thereafter to detect leaks.
 - (2)
 - (i) For recirculating heat exchange systems (cooling tower systems), the monitoring of speciated hazardous air pollutants or total hazardous air pollutants refers to the hazardous air pollutants listed in Table 4 of 40 CFR 63, Subpart F.
 - (ii) For once-through heat exchange systems, the monitoring of speciated hazardous air pollutants or total hazardous air pollutants refers to the hazardous air pollutants listed in Table 9 of 40 CFR 63, Subpart G.
 - (3) The concentration of the monitored substance(s) in the cooling water shall be determined using any EPA-approved method listed 40 CFR 63.136 as long as the method is sensitive to concentrations as low as 10 parts per million and the same method is used for both entrance and exit samples. Alternative methods may be used upon approval by the Administrator.
 - (4) The samples shall be collected either at the entrance and exit of each heat exchange system or at locations where the cooling water enters and exits each heat exchanger or any combination of heat exchangers.
 - (i) For samples taken at the entrance and exit of recirculating heat exchange systems, the entrance is the point at which the cooling water leaves the cooling tower prior to being returned to the process equipment and the exit is the point at which the cooling water is introduced to the cooling tower after being used to cool the process fluid.
 - (ii) For samples taken at the entrance and exit of once-through heat exchange systems, the entrance is the point at which the cooling water enters and the exit is the point at which the cooling water exits the plant site or chemical manufacturing process units.
 - (iii) For samples taken at the entrance and exit of each heat exchanger or any combination of heat exchangers in chemical manufacturing process units, the

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

entrance is the point at which the cooling water enters the individual heat exchanger or group of heat exchangers and the exit is the point at which the cooling water exits the heat exchanger or group of heat exchangers.

- (5) A minimum of three sets of samples shall be taken at each entrance and exit as defined in 40 CFR 63.104(b)(4). The average entrance and exit concentrations shall then be calculated. The concentration shall be corrected for the addition of any makeup water or for any evaporative losses, as applicable.
 - (6) A leak is detected if the exit mean concentration is found to be greater than the entrance mean using a one-sided statistical procedure at the 0.05 level of significance and the amount by which it is greater is at least 1 part per million or 10 percent of the entrance mean, whichever is greater.
- b. Pursuant to 40 CFR 63.104(d)(1), if a leak is detected according to the criteria of 40 CFR 63.104(b) or (c), the permittee shall comply with the requirements in 40 CFR 63.104(d)(1) and (d)(2), except as provided in 40 CFR 63.104(e).
 - (1) The leak shall be repaired as soon as practical but not later than 45 calendar days after the permittee receives results of monitoring tests indicating a leak. The leak shall be repaired unless the permittee demonstrates that the results are due to a condition other than a leak.
 - (2) Once the leak has been repaired, the permittee shall confirm that the heat exchange system has been repaired within 7 calendar days of the repair or startup, whichever is later.
 - c. Pursuant to 40 CFR 63.104(e), delay of repair of heat exchange systems for which leaks have been detected is allowed if the equipment is isolated from the process. Delay of repair is also allowed if repair is technically infeasible without a shutdown and any one of the conditions in 40 CFR 63.104(e)(1) or (e)(2) is met. All time periods in 40 CFR 63.104(e)(1) and (e)(2) shall be determined from the date when the permittee determines that delay of repair is necessary.
 - d. Pursuant to 401 KAR 52:020, Section 10, the permittee shall monitor the hours of operation of EPN 052 on a weekly basis.
 - e. Pursuant to 401 KAR 52:020, Section 10, the permittee shall monitor the total dissolved solids concentration or conductivity in the cooling water of EPN 052 on a weekly basis.

5. Specific Recordkeeping Requirements:

- a. Pursuant to 40 CFR 63.104(f)(1), the permittee shall retain the records identified in 40 CFR 63.104(f)(1)(i) through (f)(1)(iv) as specified in 40 CFR 63.103(c)(1) as follows:
 - (1) Monitoring data required by 40 CFR 63.104 indicating a leak and the date when the leak was detected, and if demonstrated not to be a leak, the basis for that determination;
 - (2) Records of any leaks detected by procedures subject to 40 CFR 63.104(c)(2) and the date the leak was discovered;
 - (3) The dates of efforts to repair leaks; and
 - (4) The method or procedure used to confirm repair of a leak and the date repair was confirmed.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- b. Pursuant to 401 KAR 52:020, Section 10:
- (1) The permittee shall maintain weekly records of the hours of operation of EPN 052 and the total dissolved solids concentration or conductivity.
 - (2) All routine and non-routine maintenance activities performed on the corresponding control device shall be recorded.

- c. The permittee shall calculate and maintain monthly records of PM emissions based on the following equation:

$$E_{PM} = C_w \times \frac{60 \text{ min}}{\text{hour}} \times H_M \times \frac{8.34 \text{ pound water}}{\text{gallon}} \times \text{TDS} \times \frac{DL}{100}$$

Where:

E_{PM} = PM emission rate from the cooling tower during the month (pounds per month)

C_w = Water circulation rate in (gallons per minute)

H_M = Hours of operation during the month (hours per month)

DL = Drift loss from the mist eliminator (percent)

TDS = Monthly average total dissolved solids in the cooling water (ppmw)

- d. Pursuant to 401 KAR 52:020, Section 10, to preclude 40 CFR 63, Subpart Q, the permittee shall maintain records to demonstrate that chromium-based water treatment chemicals are not used.

6. Specific Reporting Requirements:

- a. Pursuant to 40 CFR 63.104(f)(2), if a permittee invokes the delay of repair provisions for a heat exchange system, the following information shall be submitted in the next semi-annual periodic report required by 40 CFR 63.152(c) of 40 CFR 63, Subpart G. If the leak remains unrepaired, the information shall also be submitted in each subsequent periodic report, until repair of the leak is reported.
- (1) The permittee shall report the presence of the leak and the date that the leak was detected.
 - (2) The permittee shall report whether or not the leak has been repaired.
 - (3) The permittee shall report the reason(s) for delay of repair. If delay of repair is invoked due to the reasons described in 40 CFR 63.104(e)(2), documentation of emissions estimates must also be submitted.
 - (4) If the leak remains unrepaired, the permittee shall report the expected date of repair.
 - (5) If the leak is repaired, the permittee shall report the date the leak was successfully repaired.
- b. See **Section F**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- 032 (EPN 453) Oxy Incinerator**
033 (EPN 530) Primary Thermal Incinerator

The following are routed to either the Oxy Incinerator or Primary Thermal Incinerator in the Monomers Plant through a closed vent system.

(EPN 445)	Contaminated Wastewater Storage Tank
Description:	1,200,000-gallon capacity Fixed Roof Date of construction: 1981 Control: EPN 453 or EPN 530 for organic HAPs

(EPN 446)	Stormwater Storage Tank
Description:	1,200,000-gallon capacity Fixed Roof Date of construction: 1985 Control: EPN 453 or EPN 530 for organic HAPs

APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(b), 40 C.F.R. 63.110 through 63.153, Tables 1 through 37, and Figure 1 (Subpart G), National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater

1. Operating Limitations:

For each of the tanks listed above:

- a. Pursuant to 40 CFR 63.149(a), the permittee shall comply with the provisions of table 35 of 40 CFR 63, Subpart G, for each item of equipment meeting all the criteria specified in 40 CFR 63.149(b) through (d) and either 40 CFR 63.149(e)(1) or (e)(2) as follows:
 - (1) The item of equipment is of a type identified in table 35 of 40 CFR 63, Subpart G;
 - (2) The item of equipment is part of a chemical manufacturing process unit that meets the criteria of 40 CFR 63.100(b);
 - (3) The item of equipment is controlled less stringently than in table 35 and is not listed in 40 CFR 63.100(f), and the item of equipment is not otherwise exempt from controls by the provisions of 40 CFR Subparts, A, F, G, or H; and
 - (4) The item of equipment is a tank that receives one or more streams that contain water with a total annual average concentration greater than or equal to 1,000 ppm (by weight) of Table 9 compounds at an annual average flowrate greater than or equal to 10 liters per minute. At a chemical manufacturing process unit subject to the new source requirements of 40 CFR 63.100(l)(1) or 40 CFR 63.100(l)(2), the criteria of 40 CFR 63.149(e)(2) are also met if the tank receives one or more streams that contain water with an annual average concentration greater than or equal to 10 parts per million by weight of any Table 8 compound at an annual average flow rate greater than or equal to 0.02 liter per minute. The permittee of the source shall determine the characteristics of the stream as specified in 40 CFR 63.149(e)(2)(i) and (ii).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration Method:

- (1) Pursuant to 401 KAR 52:020, Section 10, the permittee shall route all emissions from each tank to either the Oxy or Primary Incinerators (EPN 453 or EPN 530). Refer to **Section F.9** for compliance reporting.
- (2) Pursuant to table 35 of 40 CFR 63, Subpart G, the permittee shall maintain a fixed roof on tanks with capacities of 38 m³ or greater. If the tank is sparged or used for heating or treating by means of an exothermic reaction, a fixed roof and a system shall be maintained that routes the organic hazardous air pollutants vapors to other process equipment or a fuel gas system, or a closed vent system that routes vapors to a control device that meets the requirements of 40 CFR 63.119(e)(1) or (e)(2).
- (3) Refer to **3. Testing Requirements**.

2. Emission Limitations:

Refer to **1. Operating Limitations a**.

3. Testing Requirements:

- a. Pursuant to 40 CFR 63.149(e)(2)(i), the permittee shall determine the characteristics of the stream being received at the inlet to each tank.
- b. Pursuant to 40 CFR 63.149(e)(2)(ii), the characteristics of each stream shall be determined according to the procedures in 40 CFR 63.144(b) and (c).

4. Specific Monitoring Requirements:

None

5. Specific Recordkeeping Requirements:

See **Section F**

6. Specific Reporting Requirements:

See **Section F**.

7. Specific Control Equipment Operating Conditions:

See **7. Specific Control Equipment Operating Conditions** for the Oxy Incinerator (EPN 453) and Primary Thermal Incinerator (EPN 530).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- 032 (EPN 453) Oxy Incinerator**
033 (EPN 530) Primary Thermal Incinerator

The following is routed to either the Oxy Incinerator or Primary Thermal Incinerator in the Monomers Plant through a closed vent system.

(EPN EE-4)

Description:

EDC Recovery Columns

The EDC Recovery Columns recover VOCs, primarily Ethylene Dichloride and Vinyl Chloride, from process wastewater streams.

A-Column Date of Construction: 1979

B-Column Date of Construction: 2023

Control: EPN 453 or EPN 530 for organic HAPs

APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(b), 40 C.F.R. 63.110 through 63.153, Tables 1 through 37, and Figure 1 (Subpart G), National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater

1. Operating Limitations:

Pursuant to 40 CFR 63.132(a)(3), for wastewater streams that are Group 2 for table 9 compounds in 40 CFR 63, Subpart G, the permittee shall comply with the applicable recordkeeping and reporting requirements specified in 40 CFR 63.146(b)(1) and 63.147(b)(8).

Compliance Demonstration Method:

For compliance, refer to **5. Specific Recordkeeping Requirements** and **6. Specific Reporting Requirements**.

2. Emission Limitations:

None

3. Testing Requirements:

a. Pursuant to 40 CFR 63.132(c), total annual average concentration shall be determined according to the procedures specified in 40 CFR 63.144(b). Annual average flow rate shall be determined according to the procedures specified in 40 CFR 63.144(c).

(1) A wastewater stream is a Group 1 wastewater stream for Table 9 compounds if:

- (i) The total annual average concentration of Table 9 compounds is greater than or equal to 10,000 parts per million by weight at any flow rate; or
- (ii) The total annual average concentration of Table 9 compounds is greater than or equal to 1,000 parts per million by weight and the annual average flow rate is greater than or equal to 10 liters per minute.

(2) A wastewater stream is a Group 2 wastewater stream for Table 9 compounds if it is not a Group 1 wastewater stream for Table 9 compounds by the criteria in 40 CFR 63.132(c)(1).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (3) The permittee of a Group 2 wastewater stream shall re-determine group status for each Group 2 stream, as necessary, to determine whether the stream is Group 1 or Group 2 whenever process changes are made that could reasonably be expected to change the stream to a Group 1 stream. For purposes of 40 CFR 63.132(c)(3), process changes do not include: Process upsets; unintentional, temporary process changes; and changes that are within the range on which the original determination was based.

4. Specific Monitoring Requirements:

None

5. Specific Recordkeeping Requirements:

- a. Pursuant to 40 CFR 63.146(b)(1), for Group 2 wastewater streams, the permittee shall include the information specified in 40 CFR 63.146(b)(1)(i) through (iv) in the Notification of Compliance Status Report as follows:
- (1) Process unit identification and description of process unit;
 - (2) Stream identification code;
 - (3) For existing sources, concentration of Table 9 compounds in parts per million, by weight. Include documentation of the methodology used to determine concentration; and
 - (4) Flow rate in liter per minute.

6. Specific Reporting Requirements:

- a. Pursuant to 40 CFR 63.152(c)(2), except as provided in 40 CFR 63.152(c)(2)(iv), for a permittee of a source complying with the provisions of 40 CFR 63.113 through 40 CFR 63.147 for any emission points, Periodic Reports shall include all information specified in 40 CFR 63.146 for process wastewater, including reports of periods when monitored parameters are outside their established ranges.
- b. Pursuant to 40 CFR 63.152(c)(4)(iii), Periodic Reports shall include notification if any Group 2 emission point becomes a Group 1 emission point, including a compliance schedule as required in 40 CFR 63.100.
- c. See **Section F**.

7. Specific Control Equipment Operating Conditions:

See **7. Specific Control Equipment Operating Conditions** for the Oxy Incinerator (EPN 453) and Primary Thermal Incinerator (EPN 530).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**028 (EPN EE-5) Activated Sludge Biotreatment System/
Secondary Wastewater Treatment System**

Description: The secondary water treatment system consists of a primary clarifier, EQ tank, biotreater, secondary clarifier, and a sludge biotreater.

Date of Construction: 1979

APPLICABLE REGULATIONS:

401 KAR 57:002, Section 2, 40 C.F.R. 61.340 through 61.359, Appendices A to E (Subpart FF)
National emission standard for benzene waste operations

STATE ORIGIN REQUIREMENTS:

401 KAR 63:020, Potentially hazardous matter or toxic substances

1. Operating Limitations:

- a. Pursuant to 40 CFR 61.348(a)(5), if a permittee aggregates or mixes any combination of process wastewater, product tank drawdown, or landfill leachate subject to 40 CFR 61.342(c)(1) together with other waste streams to create a combined waste stream for the purpose of facilitating management or treatment of waste in a wastewater treatment system, then the wastewater treatment system shall be operated in accordance with 40 CFR 61.348(b). These provisions apply to above-ground wastewater treatment systems as well as those that are at or below ground level.
- b. Refer to **2. Emission Limitations**.

Compliance Demonstration Method:

- (1) Pursuant to 40 CFR 61.348(g), compliance with 40 CFR 61, Subpart FF will be determined by review of the facility records and results from tests and inspections using the methods and procedures specified in 40 CFR 61.355.
- (2) Refer to **3. Testing Requirements**.

2. Emission Limitations:

- a. Pursuant to 40 CFR 61.348(b), except for facilities complying with 40 CFR 61.342(e), the permittee that aggregates or mixes individual waste streams as defined in 40 CFR 63.348(a)(5) for management and treatment in a wastewater treatment system shall comply with the following requirements:
 - (1) The permittee shall design and operate each waste management unit that comprises the wastewater treatment system in accordance with the appropriate standards specified in 40 CFR 61.343 through 40 CFR 61.347.
 - (2) The provisions of 40 CFR 61.348(b)(1) do not apply to any waste management unit that the permittee demonstrates to meet the following conditions initially and, thereafter, at least once per year:
 - (i) The benzene content of each waste stream entering the waste management unit is less than 10 ppmw on a flow-weighted annual average basis as determined by the procedures specified in 40 CFR 61.355(c); and

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (ii) The total annual benzene quantity contained in all waste streams managed or treated in exempt waste management units comprising the facility wastewater treatment systems is less than 1 Mg/yr (1.1 ton/yr). For this determination, total annual benzene quantity shall be calculated as follows:
 - (A) The total annual benzene quantity shall be calculated as the sum of the individual benzene quantities determined at each location where a waste stream first enters an exempt waste management unit. The benzene quantity discharged from an exempt waste management unit shall not be included in this calculation.
 - (B) The annual benzene quantity in a waste stream managed or treated in an enhanced biodegradation unit shall not be included in the calculation of the total annual benzene quantity, if the enhanced biodegradation unit is the first exempt unit in which the waste is managed or treated. A unit shall be considered enhanced biodegradation if it is a suspended-growth process that generates biomass, uses recycled biomass, and periodically removes biomass from the process. An enhanced biodegradation unit typically operates at a food-to-microorganism ratio in the range of 0.05 to 1.0 kg of biological oxygen demand per kg of biomass per day, a mixed liquor suspended solids ratio in the range of 1 to 8 grams per liter (0.008 to 0.7 pounds per liter), and a residence time in the range of 3 to 36 hours.

Compliance Demonstration Method:

For compliance, refer to **3. Testing Requirements**, **4. Specific Monitoring Requirements**, **5. Specific Recordkeeping Requirements**, and **6. Specific Reporting Requirements**.

- b. Pursuant to 401 KAR 63:020, Section 3, persons responsible for a source from which hazardous matter or toxic substances may be emitted shall provide the utmost care and consideration, in the handling of these materials, to the potentially harmful effects of the emissions resulting from such activities. No owner or operator shall allow any affected facility to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals and plants. Evaluation of such facilities as to adequacy of controls and/or procedures and emission potential will be made on an individual basis by the cabinet.

Compliance Demonstration Method:

Based on the rates of emissions of airborne toxics provided in the applications submitted by the source, the source is in compliance with 401 KAR 63:020.

3. Testing Requirements:

- a. Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.
- b. Pursuant to 40 CFR 61.355(c), the permittee shall determine the flow-weighted annual average benzene concentration in a manner that meets the requirements given in 40 CFR 61.355(c)(1) using either of the methods given in 40 CFR 61.355(c)(2) and (c)(3).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

4. Specific Monitoring Requirements:

Pursuant to 40 CFR 61.354(b)(2), for each enhanced biodegradation unit that is the first exempt waste management unit in a treatment train, the permittee shall measure the benzene concentration of each waste stream entering the unit at least once per month by collecting and analyzing one or more samples using the procedures specified in 40 CFR 61.355(c)(3).

5. Specific Recordkeeping Requirements:

- a. Pursuant to 40 CFR 61.356(b), each permittee shall maintain records that identify each waste stream at the facility subject to 40 CFR 61, Subpart FF, and indicate whether or not the waste stream is controlled for benzene emissions in accordance with 40 CFR 61, Subpart FF. In addition the permittee shall maintain records in accordance with 40 CFR 61.356(b)(1) through (b)(6) as applicable.
- b. Pursuant to 40 CFR 61.356(e), a permittee using a treatment process or wastewater treatment system unit in accordance with 40 CFR 61.348 shall maintain the following records. The documentation shall be retained for the life of the unit.
 - (1) A statement signed and dated by the permittee certifying that the unit is designed to operate at the documented performance level when the waste stream entering the unit is at the highest waste stream flow rate and benzene content expected to occur.
 - (2) If engineering calculations are used to determine treatment process or wastewater treatment system unit performance, then the permittee shall maintain the complete design analysis for the unit. The design analysis shall include for example the following information: Design specifications, drawings, schematics, piping and instrumentation diagrams, and other documentation necessary to demonstrate the unit performance.
 - (3) If performance tests are used to determine treatment process or wastewater treatment system unit performance, then the permittee shall maintain all test information necessary to demonstrate the unit performance.
- c. Pursuant to 40 CFR 61.356(i), for each treatment process and wastewater treatment system unit operated to comply with 40 CFR 61.348, the permittee shall maintain documentation that includes the following information regarding the unit operation:
 - (1) Dates of startup and shutdown of the unit.
 - (2) If measurements of waste stream benzene concentration are performed in accordance with 40 CFR 61.354(b), the permittee shall maintain records that include the date each test is performed and all test results.
 - (3) Periods when the unit is not operated as designed.

6. Specific Reporting Requirements:

Pursuant to 40 CFR 61.357(d)(7)(iii), if a treatment process or wastewater treatment system unit is monitored in accordance with 40 CFR 61.354(b), beginning 3 months after the date that the equipment necessary to comply with 40 CFR 61, Subpart FF has been certified in accordance with 40 CFR 61.357(d)(1), the permittee shall submit a report quarterly to the Administrator that includes each period of operation during which the flow-weighted annual average concentration of benzene in the monitored waste stream entering the unit is equal to or greater than 10 ppmw and/or the total annual benzene quantity is equal to or greater than 1.0 mg/yr.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

029	(EPN 407)	Catoxid Reactor Startup Vent
	Description:	Date of Construction: 1974
		Control: Scrubber
		Emissions: Catoxid reactor exhaust is released during startup.
CAP	(EPN 437)	Catoxid Air Preheater
	Description:	Maximum Operating Rate: 8.70 mmBtu/hr
		Fuel: Process fuel gas*
		Date of Construction: 1973
		Control: None

- * Process fuel gas includes natural gas, ethylene plant fuel gas, hydrogen, propane, ethane, recovered flare gas, and mixtures thereof.

APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(iii), 40 C.F.R. 63.7480 through 63.7575, Tables 1 through 13 (Subpart DDDDD), National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

401 KAR 59:015, New indirect heat exchangers

1. Operating Limitations:

- a. Pursuant to 40 CFR 63.7500, by reference Table 3, Item 2 to 40 CFR 63, Subpart DDDDD, the permittee shall conduct a tune-up of the boiler or process heater (EPN 437) biennially as specified in 40 CFR 63.7540(a)(11).
- b. Pursuant to 40 CFR 63.7500(a)(3), at all times, the permittee must operate and maintain any affected source (as defined in 40 CFR 63.7490) (EPN 437), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.
- c. Pursuant to 40 CFR 63.7500(f), the requirements of 40 CFR 63, Subpart DDDDD apply at all times the affected unit (EPN 437) is operating, except during periods of startup and shutdown during which time the permittee must comply only with items 5 and 6 of Table 3 to 40 CFR 63, Subpart DDDDD.

Compliance Demonstration Method:

- (1) Pursuant to 40 CFR 63.7495(b), for EPN 437, the permittee must comply with 40 CFR 63, Subpart DDDDD no later than January 31, 2016, except as provided in 40 CFR 63.6(i).
- (2) Pursuant to 40 CFR 63.7540(a), the permittee must demonstrate continuous compliance with each emission limit in Tables 1 and 2 or 11 through 13 to 40 CFR 63, Subpart

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

DDDDD, the work practice standards in Table 3 to 40 CFR 63, Subpart DDDDD, and the operating limits in Table 4 to 40 CFR 63, Subpart DDDDD that applies to EPN 437 according to the methods specified in Table 8 to 40 CFR 63, Subpart DDDDD and 40 CFR 63.7540(a)(1) through (19).

(3) Refer to **4. Specific Monitoring Requirements b**, **5. Specific Recordkeeping Requirements b** and **6. Specific Reporting Requirements d** for EPN 437.

- d. Pursuant to 401 KAR 59:015, Section 7(2)(a) for EPN 437, during a startup period or shutdown period, the permittee shall meet the work practice standards established in 40 C.F.R. Part 63, Table 3 to Subpart DDDDD, as established in 401 KAR 63:002, Section 2(4)(iii).
- e. Pursuant to 401 KAR 52:020, Section 10 for EPN 407, the permittee shall operate the Catoxid Vent Scrubber at all times the Catoxid Startup Vent is used.

Compliance Demonstration Method:

Pursuant to 401 KAR 52:020, Section 10, for compliance with **1. Operating Limitations e.**, refer to **5. Specific Recordkeeping Requirements a.** and **6. Specific Reporting Requirements a.**

2. Emission Limitations:

For any combination of fuels at EPN 437 -

Particulate Matter (PM) and Sulfur Dioxide (SO₂) Mass Emission Limits:

- a. Pursuant to 401 KAR 59:015, Section 4(1)(b), the permittee shall not cause emissions of particulate matter in excess of 0.10 lb/mmBtu actual heat input.
- b. Pursuant to 401 KAR 59:015, Section 5(1)(b), the permittee shall not cause emissions of gases that contain sulfur dioxide in excess of 0.8 lb/mmBtu actual heat input.

Compliance Demonstration Method:

Compliance with the applicable mass emission standards (lb/mmBtu) for particulate matter and sulfur dioxide is assumed while only burning gaseous fuel as defined in 40 CFR 63.7575 at EPN 437.

Visible Emission Limits:

- c. Pursuant to 401 KAR 59:015, Section 4(2), the opacity of visible emissions shall not exceed 20 percent, except as provided below:
 - (1) A maximum of twenty-seven (27) percent opacity shall be allowed for one (1) six (6) minute period in any sixty (60) consecutive minutes; and
 - (2) For emissions from an affected facility caused by building a new fire, emissions during the period required to bring the boiler up to operating conditions shall be allowed, if the method used is recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration Method:

Compliance with the applicable visible emission standard is assumed while only burning gaseous fuel as defined in 40 CFR 63.7575 at EPN 437.

3. Testing Requirements:

Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.

4. Specific Monitoring Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain monthly records of the process fuel gas consumption for EPN 437.
- b. Pursuant to 40 CFR 63.7540(a)(11), the permittee must conduct a biennial tune-up of the boiler or process heater (EPN 437) as specified in 40 CFR 63.7540(a)(10)(i) through (vi) to demonstrate continuous compliance as follows:
 - (1) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the permittee may perform the burner inspection any time prior to the tune-up or delay the burner inspection until the next scheduled unit shutdown).
 - (2) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;
 - (3) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the permittee may delay the inspection until the next scheduled unit shutdown);
 - (4) Optimize total emissions of carbon monoxide (CO). This optimization should be consistent with the manufacturer's specifications, if available, and with any nitrogen oxides (NO_x) requirement to which the unit is subject; and
 - (5) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer.

5. Specific Recordkeeping Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall record and maintain records of any times in which the Catoxid Startup Vent is used and the Vent Scrubber is not in operation.
- b. Pursuant to 40 CFR 63.7540(a)(10)(vi) for EPN 437, the permittee must maintain on-site and submit, if requested by the Administrator, a report containing the following information in 40 CFR 63.7540(a)(10)(vi)(A) through (C):
 - (1) The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater;
 - (2) A description of any corrective actions taken as a part of the tune-up; and

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (3) The type and amount of fuel used over the 12 months prior to the tune-up, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel used by each unit.
- c. Pursuant to 40 CFR 63.7555(a) for EPN 437, the permittee must keep records according to 40 CFR 63.7555(a)(1) and (2) as follows:
- (1) A copy of each notification and report that the permittee submitted to comply with 40 CFR 63, Subpart DDDDD, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report that the permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv).
- (2) Records of performance tests, fuel analyses, or other compliance demonstrations and performance evaluations as required in 40 CFR 63.10(b)(2)(viii).
- d. Pursuant to 40 CFR 63.7560(a) for EPN 437, records must be in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1).
- e. Pursuant to 40 CFR 63.7560(b) for EPN 437, as specified in 40 CFR 63.10(b)(1), the permittee must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
- f. Pursuant to 40 CFR 63.7560(c) for EPN 437, the permittee must keep each record on site, or they must be accessible from on site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The permittee can keep the records off site for the remaining 3 years.
- g. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain records of the monthly consumption records for fuel used at EPN 437. Refer to **4. Specific Monitoring Requirements**.

6. Specific Reporting Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall report any times in which the EPN 407 is used and the Vent Scrubber is not in operation.
- b. Pursuant to 40 CFR 63.7550(b) for EPN 437, the permittee must submit each report, according to 40 CFR 63.7550(h), by the date in Table 9 to 40 CFR 63, Subpart DDDDD and according to the requirements in 40 CFR 63.7550(b)(1) through (4). For units that are subject only to a requirement to conduct subsequent biennial tune-up according to 40 CFR 63.7540(a)(11), and not subject to emission limits or Table 4 operating limits, the permittee may submit only a biennial compliance report, as applicable, as specified in 40 CFR 63.7550(b)(1) through (4), instead of a semi-annual compliance report.
- c. Pursuant to 40 CFR 63.7550(c)(1) for EPN 437, the permittee must submit a compliance report with the information in 40 CFR 63.7550(c)(5)(i) through (iii), (xiv) and (xvii) as follows:

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (1) Company and Facility name and address.
 - (2) Process unit information, emissions limitations, and operating parameter limitations.
 - (3) Date of report and beginning and ending dates of the reporting period.
 - (4) Include the date of the most recent tune-up for each unit subject to only the requirement to conduct a biennial tune-up according to 40 CFR 63.7540(a)(11). Include the date of the most recent burner inspection if it was not done biennially and was delayed until the next scheduled or unscheduled unit shutdown.
 - (5) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.
- d. Pursuant to 40 CFR 63.7540(a)(10)(vi) for EPN 437, the permittee shall maintain on-site and submit, if requested by the Administrator, a report containing the information in 40 CFR 63.7540(a)(10)(vi)(A) through (C).
- e. Pursuant to 40 CFR 63.7550(h)(3) for EPN 437, the permittee must submit all reports required by Table 9 of 40 CFR 63, Subpart DDDDD electronically to the EPA via the CEDRI. (CEDRI can be accessed through the EPA's CDX.) The permittee must use the appropriate electronic report in CEDRI for 40 CFR 63, Subpart DDDDD. Instead of using the electronic report in CEDRI for 40 CFR 63, Subpart DDDDD, the permittee may submit an alternate electronic file consistent with the XML schema listed on the CEDRI Web site (<http://www.epa.gov/ttn/chief/cedri/index.html>), once the XML schema is available. If the reporting form specific to 40 CFR 63, Subpart DDDDD is not available in CEDRI at the time that the report is due, the permittee must submit the report to the Administrator at the appropriate address listed in 40 CFR 63.13. The permittee must begin submitting reports via CEDRI no later than 90 days after the form becomes available in CEDRI.
- f. See **Section F**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

030	(EPN 438) Description:	No. 1 EDC Shore Tank/ Alternate Vacuum Feed Tank 599,466-gallon capacity Internal Floating Roof Date of construction: 1980 Maximum Vapor Pressure: 1.23 pounds per square inch (psi)
	(EPN 454) Description:	No. 5 EDC Shore Tank 1,387,000-gallon capacity Internal Floating Roof Date of construction: 1978 Maximum Vapor Pressure: 1.23 psi
	(EPN 455) Description:	No. 6 EDC Shore Tank 1,387,000-gallon capacity Internal Floating Roof Date of construction: 1978 Maximum Vapor Pressure: 1.23 psi

APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(b), 40 C.F.R. 63.110 through 63.153, Tables 1 through 37, and Figure 1 (Subpart G), National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater

NON-APPLICABLE REGULATIONS:

401 KAR 60:005, Section 2(2)(q), 40 C.F.R. 60.110a through 60.115a (Subpart Ka), Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984

401 KAR 60:005, Section 2(2)(r), 40 C.F.R. 60.110b through 60.117b (Subpart Kb), Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984

1. Operating Limitations:

Pursuant to 40 CFR 63.119(a)(1), for each Group 1 storage vessel (as defined in table 5 of 40 CFR 63, Subpart G for existing sources and table 6 of 40 CFR 63, Subpart G for new sources) storing a liquid for which the maximum true vapor pressure of the total organic hazardous air pollutants in the liquid is less than 76.6 kilopascals (11.11 psi), the permittee shall reduce hazardous air pollutants emissions to the atmosphere by operating and maintaining a fixed roof and internal floating roof, in accordance with the requirements in 40 CFR 63.119(b).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration Method:

- (1) Pursuant to 40 CFR 63.119(b)(1), the internal floating roof shall be floating on the liquid surface at all times except when the floating roof must be supported by the leg supports during the periods specified in 40 CFR 63.119(b)(1)(i) through (b)(1)(iii) as follows:
 - (i) During the initial fill.
 - (ii) After the vessel has been completely emptied and degassed.
 - (iii) When the vessel is completely emptied before being subsequently refilled.
- (2) Pursuant to 40 CFR 63.119(b)(2), when the floating roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as soon as practical.
- (3) Pursuant to 40 CFR 63.119(b)(3), each internal floating roof shall be equipped with a closure device between the wall of the storage vessel and the roof edge. Except as provided in 40 CFR 63.119(b)(3)(iv), the closure device shall consist of one of the devices listed in 40 CFR 63.119(b)(3)(i), (b)(3)(ii), or (b)(3)(iii) as follows:
 - (i) A liquid-mounted seal as defined in 40 CFR 63.111.
 - (ii) A metallic shoe seal as defined in 40 CFR 63.111.
 - (iii) Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor- mounted, but both must be continuous seals.
- (4) Pursuant to 40 CFR 63.119(b)(4), automatic bleeder vents are to be closed at all times when the roof is floating, except when the roof is being floated off or is being landed on the roof leg supports.
- (5) Pursuant to 40 CFR 63.119(b)(5), except as provided in 40 CFR 63.119(b)(5)(viii), each internal floating roof shall meet the specifications listed in 40 CFR 63.119(b)(5)(i) through (b)(5)(vii) as follows:
 - (i) Each opening in a non-contact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and rim space vents is to provide a projection below the liquid surface.
 - (ii) Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains shall be equipped with a cover or lid. The cover or lid shall be equipped with a gasket.
 - (iii) Each penetration of the internal floating roof for the purposes of sampling shall be a sample well. Each sample well shall have a slit fabric cover that covers at least 90 percent of the opening.
 - (iv) Each automatic bleeder vent shall be gasketed.
 - (v) Each rim space vent shall be gasketed.
 - (vi) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.
 - (vii) Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

(6) Pursuant to 40 CFR 63.119(b)(6), each cover or lid on any opening in the internal floating roof shall be closed (i.e., no visible gaps), except when the cover or lid must be open for access. Covers on each access hatch and each gauge float well shall be bolted or fastened so as to be airtight when they are closed. Rim space vents are to be set to open only when the internal floating roof is not floating or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.

2. Emission Limitations:

None

3. Testing Requirements:

a. Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.

b. Refer to **4. Specific Monitoring Requirements.**

4. Specific Monitoring Requirements:

a. Pursuant to 40 CFR 63.120(a), to demonstrate compliance with 40 CFR 63.119(b) (storage vessel equipped with a fixed roof and internal floating roof) or with 40 CFR 63.119(d) (storage vessel equipped with an external floating roof converted to an internal floating roof), the permittee shall comply with the requirements in 40 CFR 63.120(a)(1) through (a)(7) as follows:

(1) The permittee shall visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), according to the schedule specified in 40 CFR 63.120(a)(2) and (a)(3).

(2) For vessels equipped with a single-seal system, the permittee shall perform the inspections specified in 40 CFR 63.120(a)(2)(i) and (a)(2)(ii) as follows:

(i) Visually inspect the internal floating roof and the seal through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill, or at least once every 12 months after the compliance date specified in 40 CFR 63.100 of 40 CFR 63, Subpart F.

(ii) Visually inspect the internal floating roof, the seal, gaskets, slotted membranes, and sleeve seals (if any) each time the storage vessel is emptied and degassed, and at least once every 10 years after the compliance date specified in 40 CFR 63.100.

(3) For vessels equipped with a double-seal system as specified in 40 CFR 63.119(b)(3)(iii), the permittee shall perform either the inspection required in 40 CFR 63.120(a)(3)(i) or the inspections required in both 40 CFR 63.120(a)(3)(ii) and (a)(3)(iii) as follows:

(i) The permittee shall visually inspect the internal floating roof, the primary seal, the secondary seal, gaskets, slotted membranes, and sleeve seals (if any) each time the storage vessel is emptied and degassed and at least once every 5 years after the compliance date specified in 40 CFR 63.100 of 40 CFR 63, Subpart F; or

(ii) The permittee shall visually inspect the internal floating roof and the secondary seal through manholes and roof hatches on the fixed roof at least once every 12

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- months after initial fill, or at least once every 12 months after the compliance date specified in 40 CFR 63.100 of 40 CFR 63, Subpart F; and
- (iii) Visually inspect the internal floating roof, the primary seal, the secondary seal, gaskets, slotted membranes, and sleeve seals (if any) each time the vessel is emptied and degassed and at least once every 10 years after the compliance date specified in 40 CFR 63.100 of 40 CFR 63, Subpart F.
- (4) If during the inspections required by 40 CFR 63.120(a)(2)(i) or (a)(3)(ii), the internal floating roof is not resting on the surface of the liquid inside the storage vessel and is not resting on the leg supports; or there is liquid on the floating roof; or the seal is detached; or there are holes or tears in the seal fabric; or there are visible gaps between the seal and the wall of the storage vessel, the permittee shall repair the items or empty and remove the storage vessel from service within 45 calendar days. If a failure that is detected during inspections required by 40 CFR 63.120(a)(2)(i) or (a)(3)(ii) cannot be repaired within 45 calendar days and if the vessel cannot be emptied within 45 calendar days, the permittee may utilize up to 2 extensions of up to 30 additional calendar days each. Documentation of a decision to utilize an extension shall include a description of the failure, shall document that alternate storage capacity is unavailable, and shall specify a schedule of actions that will ensure that the control equipment will be repaired or the vessel will be emptied as soon as practical.
 - (5) Except as provided in 40 CFR 63.120(a)(6), for all the inspections required by 40 CFR 63.120(a)(2)(ii), (a)(3)(i), and (a)(3)(iii), the permittee shall notify the Administrator in writing at least 30 calendar days prior to the refilling of each storage vessel to afford the Administrator the opportunity to have an observer present.
 - (6) If the inspection required by 40 CFR 63.120(a)(2)(ii), (a)(3)(i), or (a)(3)(iii) is not planned and the permittee could not have known about the inspection 30 calendar days in advance of refilling the vessel, the permittee shall notify the Administrator at least 7 calendar days prior to the refilling of the storage vessel. Notification may be made by telephone and immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, the notification including the written documentation may be made in writing and sent so that it is received by the Administrator at least 7 calendar days prior to refilling.
 - (7) If during the inspections required by 40 CFR 63.120(a)(2)(ii), (a)(3)(i), or (a)(3)(iii), the internal floating roof has defects; or the primary seal has holes, tears, or other openings in the seal or the seal fabric; or the secondary seal has holes, tears, or other openings in the seal or the seal fabric; or the gaskets no longer close off the liquid surface from the atmosphere; or the slotted membrane has more than 10 percent open area, the permittee shall repair the items as necessary so that none of the conditions specified in 40 CFR 63.120(a)(7) exist before refilling the storage vessel with organic HAP.

5. Specific Recordkeeping Requirements:

- a. Pursuant to 40 CFR 63.123(a), each permittee of a Group 1 or Group 2 storage vessel shall keep readily accessible records showing the dimensions of the storage vessel and an analysis showing the capacity of the storage vessel. This record shall be kept as long as the storage vessel retains Group 1 or Group 2 status and is in operation. For each Group 2 storage vessel, the permittee is not required to comply with any other provisions of 40 CFR

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

63.119 through 63.123 other than those required by 40 CFR 63.123(a) unless such vessel is part of an emissions average as described in 40 CFR 63.150.

- b. Pursuant to 40 CFR 63.123(c), a permittee who elects to comply with 40 CFR 63.119(b) shall keep a record that each inspection required by 40 CFR 63.120(a) was performed.
- c. Pursuant to 40 CFR 63.123(g), a permittee who elects to utilize an extension in emptying a storage vessel in accordance with 40 CFR 63.120(a)(4), (b)(7)(ii), or (b)(8) shall keep in a readily accessible location, the documentation specified in 40 CFR 63.120(a)(4), (b)(7)(ii), or (b)(8), as applicable.
- d. Pursuant to 401 KAR 52:020, Section 10, the permittee shall keep records of all visual inspections performed under 40 CFR 63.120(a)(3). Deficiencies shall be noted.

6. Specific Reporting Requirements:

- a. Pursuant to 40 CFR 63.122(d), a permittee who elects to comply with 40 CFR 63.119(b) by using a fixed roof and an internal floating roof or with 40 CFR 63.119(d) by using an external floating roof converted to an internal floating roof shall submit, as part of the Periodic Report required under 40 CFR 63.152(c), the results of each inspection conducted in accordance with 40 CFR 63.120(a) in which a failure is detected in the control equipment as follows:
 - (1) For vessels for which annual inspections are required under 40 CFR 63.120(a)(2)(i) or (a)(3)(ii), the specifications and requirements listed in 40 CFR 63.122(d)(1)(i) through (d)(1)(iii) apply as follows:
 - (i) A failure is defined as any time in which the internal floating roof is not resting on the surface of the liquid inside the storage vessel and is not resting on the leg supports; or there is liquid on the floating roof; or the seal is detached from the internal floating roof; or there are holes, tears, or other openings in the seal or seal fabric; or there are visible gaps between the seal and the wall of the storage vessel.
 - (ii) Except as provided in 40 CFR 63.122(d)(1)(iii), each Periodic Report shall include the date of the inspection, identification of each storage vessel in which a failure was detected, and a description of the failure. The Periodic Report shall also describe the nature of and date the repair was made or the date the storage vessel was emptied.
 - (iii) If an extension is utilized in accordance with 40 CFR 63.120(a)(4), the permittee shall, in the next Periodic Report, identify the vessel; include the documentation specified in 40 CFR 63.120(a)(4); and describe the date the storage vessel was emptied and the nature of and date the repair was made.
 - (2) For vessels for which inspections are required under 40 CFR 63.120(a)(2)(ii), (a)(3)(i), or (a)(3)(iii), the specifications and requirements listed in 40 CFR 63.122(d)(2)(i) and (d)(2)(ii) apply as follows:
 - (i) A failure is defined as any time in which the internal floating roof has defects; or the primary seal has holes, tears, or other openings in the seal or the seal fabric; or the secondary seal (if one has been installed) has holes, tears, or other openings in the seal or the seal fabric; or the gaskets no longer close off the liquid surface

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

from the atmosphere; or the slotted membrane has more than 10 percent open area.

- (ii) Each Periodic Report required under 40 CFR 63.152(c) shall include the date of the inspection, identification of each storage vessel in which a failure was detected, and a description of the failure. The Periodic Report shall also describe the nature of and date the repair was made.

b. See **Section F**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**032 (EPN 453) Oxy Incinerator****033 (EPN 530) Primary Thermal Incinerator**

The following are routed to either the Oxy Incinerator or Primary Thermal Incinerator in the Monomers Plant through a closed vent system.

(EPN 439) No. 2 EDC Shore Tank
Description: 599,458-gallon capacity
Fixed Roof
Date of construction: 1980
Control: EPN 453 or EPN 530 for organic HAPs

(EPN 609) EDC Truck Loading
Description: 52 Trucks/year @ 208,000 gallons each
Date of construction: 2014
Control: EPN 453 or EPN 530 for organic HAPs

(EPN 734) No. 7 EDC Shore Tank
Description: 1,325,825-gallon capacity
Fixed Roof
Date of construction: 1990
Control: EPN 453 or EPN 530 for organic HAPs

(EPN 735) No. 8 EDC Shore Tank
Description: 1,325,825-gallon capacity
Fixed Roof
Date of construction: 1992
Control: EPN 453 or EPN 530 for organic HAPs

(EPN 736) No. 9 EDC Shore Tank
Description: 1,325,825-gallon capacity
Fixed Roof
Date of construction: 1994
Control: EPN 453 or EPN 530 for organic HAPs

(EPN TK-30-B2) Light Ends Tank
Description: 100,000-gallon capacity
Fixed Roof
Date of construction: 1978
*Date of Modification: 2004
Control: EPN 453 or EPN 530 for organic HAPs
*Not a modification as defined in 40 CFR Part 63 & 40 CFR Part 60.

NOTE: All of the above tanks (2, 7, 8, 9, Vac Feed) are >151 m³ in capacity and the maximum true vapor pressure of the stored liquid is greater than 5.2 kPa, therefore the Tanks are Group 1 vessels, pursuant to Table 5 to 40 CFR 63, subpart G for existing sources or Table 6 for new sources.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

APPLICABLE REGULATIONS:

401 KAR 60:005, Section 2(2)(r), 40 C.F.R. 60.110b through 60.117b (Subpart Kb), Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984

401 KAR 63:002, Section 2(4)(b), 40 C.F.R. 63.110 through 63.153, Tables 1 through 37, and Figure 1 (Subpart G), National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater

1. Operating Limitations:

- a. Pursuant to 40 CFR 63.110(b)(1) *Overlap with other regulations for storage vessels*, after the compliance dates specified in 40 CFR 63.100 of 40 CFR 63, Subpart F, a Group 1 or Group 2 storage vessel that is also subject to the provisions of 40 CFR 60, Subpart Kb is required to comply only with the provisions of 40 CFR 63, Subpart G.
- b. Pursuant to 40 CFR 63.119(a)(1), for each Group 1 storage vessel (as defined in table 5 of 40 CFR 63, Subpart G for existing sources and table 6 of 40 CFR 63, Subpart G for new sources) storing a liquid for which the maximum true vapor pressure of the total organic hazardous air pollutants in the liquid is less than 76.6 kilopascals (11.11 psi), the permittee shall reduce hazardous air pollutants emissions to the atmosphere by operating and maintaining a fixed roof and internal floating roof, an external floating roof, an external floating roof converted to an internal floating roof, a closed vent system and control device, routing the emissions to a process or a fuel gas system, or vapor balancing in accordance with the requirements in 40 CFR 63.119(b), (c), (d), (e), (f), or (g), or equivalent as provided in 40 CFR 63.121.
- c. Pursuant to 40 CFR 63.119(e), the permittee who elects to use a closed vent system and control device, as defined in 40 CFR 63.111, to comply with the requirements 40 CFR 63.119(a)(1) shall comply with the requirements specified in 40 CFR 63.119(e)(1) through (e)(5) as follows:
 - (1) Except as provided in 40 CFR 63.119(e)(2), the control device shall be designed and operated to reduce inlet emissions of total organic HAP by 95 percent or greater.
 - (2) Periods of planned routine maintenance of the control device, during which the control device does not meet the specifications of 40 CFR 63.119(e)(1) or (e)(2), as applicable, shall not exceed 240 hours per year.
 - (3) The specifications and requirements in 40 CFR 63.119(e)(1) and (e)(2) for control devices do not apply during periods of planned routine maintenance.
 - (4) The specifications and requirements in 40 CFR 63.119(e)(1) and (e)(2) for control devices do not apply during a control system malfunction.

Compliance Demonstration Method:

Pursuant to 401 KAR 52:020, Section 10, during planned routine maintenance of the control device, emissions from these tanks shall be vented to a backup control device, except for up to 240 hours per year as allowed by 40 CFR 63.119(e)(3). Refer to **4. Specific Monitoring**

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Requirements, 5. Specific Recordkeeping Requirements, 6. Specific Reporting Requirements and 7. Specific Control Equipment Operating Conditions.

2. Emission Limitations:

Except as provided in 40 CFR 63.119(e)(1), the control device shall be designed and operated to reduce inlet emissions of total organic HAP by 95 percent or greater.

Compliance Demonstration Method:

Refer to **4. Specific Monitoring Requirements, 5. Specific Recordkeeping Requirements, 6. Specific Reporting Requirements and 7. Specific Control Equipment Operating Conditions.**

3. Testing Requirements:

a. Pursuant to 40 CFR 63.120(d)(1)(ii), if the control device used to comply with 40 CFR 63.119(e) is also used to comply with 40 CFR 63.113(a)(2), 40 CFR 63.126(b)(1), or 40 CFR 63.139(c), the performance test required by 40 CFR 63.116(c), 40 CFR 63.128(a), or 40 CFR 63.139(d)(1) is acceptable to demonstrate compliance with 40 CFR 63.119(e). The permittee is not required to prepare a design evaluation for the control device as described in 40 CFR 63.120(d)(1)(i), if the performance tests meets the criteria specified in 40 CFR 63.120(d)(1)(ii)(A) and (d)(1)(ii)(B).

b. See **3. Testing Requirements** for the Oxy Incinerator (EPN 453) and the Primary Thermal Incinerator (EPN 530).

4. Specific Monitoring Requirements:

See **4. Specific Monitoring Requirements** for the Oxy Incinerator (EPN 453) and the Primary Thermal Incinerator (EPN 530).

5. Specific Recordkeeping Requirements:

a. Pursuant to 40 CFR 63.123(a), each permittee of a Group 1 or Group 2 storage vessel shall keep readily accessible records showing the dimensions of the storage vessel and an analysis showing the capacity of the storage vessel. This record shall be kept as long as the storage vessel retains Group 1 or Group 2 status and is in operation. For each Group 2 storage vessel, the permittee is not required to comply with any other provisions of 40 CFR 63.119 through 63.123 other than those required by 40 CFR 63.123(a) unless such vessel is part of an emissions average as described in 40 CFR 63.150.

b. Pursuant to 40 CFR 63.123(f), a permittee who elects to comply with 40 CFR 63.119(e) shall keep in a readily accessible location the records specified in 40 CFR 63.123(f)(1) and (f)(2) as follows:

(1) A record of the measured values of the parameters monitored in accordance with 40 CFR 63.120(d)(5).

(2) A record of the planned routine maintenance performed on the control device including the duration of each time the control device does not meet the specifications of 40 CFR 63.119(e)(1) or (e)(2), as applicable, due to the planned routine maintenance. Such a record shall include the information specified in 40 CFR 63.123(f)(2)(i) and (f)(2)(ii) as follows:

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (i) The first time of day and date the requirements of 40 CFR 63.119(e)(1) or (e)(2), as applicable, were not met at the beginning of the planned routine maintenance, and
 - (ii) The first time of day and date the requirements of 40 CFR 63.119(e)(1) or (e)(2), as applicable, were met at the conclusion of the planned routine maintenance.
- c. Pursuant to 401 KAR 52:020, Section 10, the permittee shall record and maintain record of the occurrence and duration of each malfunction of the control device or the continuous monitoring systems, when the back-up control device was not available, including the action taken and whether it complies with the permittee's startup, shutdown, and malfunction plan.

6. Specific Reporting Requirements:

- a. Pursuant to 40 CFR 63.122(a), for each Group 1 storage vessel, the permittee shall comply with the requirements of 40 CFR 63.122(a)(1) through (a)(5) as applicable:
 - (1) The permittee shall submit an Initial Notification as required by 40 CFR 63.151(b).
 - (2) The permittee shall submit a Notification of Compliance Status as required by 40 CFR 63.152(b) and shall submit as part of the Notification of Compliance Status the information specified in 40 CFR 63.122(c).
 - (3) The permittee shall submit Periodic Reports as required by 40 CFR 63.152(c) and shall submit as part of the Periodic Reports the information specified in 40 CFR 63.152(g) as follows:
 - (i) A permittee who elects to comply with 40 CFR 63.119(e) by installing a closed vent system and control device shall submit, as part of the next Periodic Report required by 40 CFR 63.152(c), the information specified in 40 CFR 63.152(g)(1) through (g)(3) as follows:
 - (A) As required by 40 CFR 63.120(e)(3), the Periodic Report shall include the information specified in 40 CFR 63.152(g)(1)(i) and (g)(1)(ii) for those planned routine maintenance operations that would require the control device not to meet the requirements of 40 CFR 63.119 (e)(1) or (e)(2), as applicable.
 - (1) A description of the planned routine maintenance that is anticipated to be performed for the control device during the next 6 months. This description shall include the type of maintenance necessary, planned frequency of maintenance, and lengths of maintenance periods.
 - (2) A description of the planned routine maintenance that was performed for the control device during the previous 6 months. This description shall include the type of maintenance performed and the total number of hours during those 6 months that the control device did not meet the requirements of 40 CFR 63.119(e)(1) or (e)(2), as applicable, due to planned routine maintenance.
 - (B) If a control device other than a flare is used, the Periodic Report shall describe each occurrence when the monitored parameters were outside of the parameter ranges documented in the Notification of Compliance Status in accordance with 40 CFR 63.120(d)(3)(i). The description shall include the information specified in 40 CFR 63.152(g)(2)(i) and (g)(2)(ii).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- b. See **Section F**.

7. Specific Control Equipment Operating Conditions:

- a. Pursuant to 401 KAR 52:020, Section 10, the storage tanks shall be operated at all times with a closed vent system and a control device with 95 percent control efficiency, except during control system malfunctions. During planned routine maintenance, this vessel shall be vented to a back-up control device to meet the requirements of 40 CFR 63.119(e)(1). The control device shall be operated and maintained such that the monitored parameters remain within the range specified in the Notification of Compliance Status. Planned routine maintenance of the control device, during which the control device does not meet the requirements of 40 CFR 63.119(e)(1) shall not exceed 240 hours per year.
- b. See Requirements for the Oxy Incinerator (EPN 453) and the Primary Thermal Incinerator (EPN 530).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

039	(EPN 410)	South Synthesis Solvesso Tank
	Description:	Former Strip out tank moved to replace EPN 410 and EPN 411 (8/8/2007 Minor Revision) 10,575-gallon capacity Fixed Roof Date of Modification: 2004 (Converted to a Solvesso Storage Tank) Maximum Vapor Pressure: 0.0026 psi

APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(b), 40 C.F.R. 63.110 through 63.153, Tables 1 through 37, and Figure 1 (Subpart G), National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater

1. Operating Limitations:

None

2. Emission Limitations:

None

3. Testing Requirements:

Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.

4. Specific Monitoring Requirements:

None

5. Specific Recordkeeping Requirements:

Pursuant to 40 CFR 63.123(a), each permittee of a Group 1 or Group 2 storage vessel shall keep readily accessible records showing the dimensions of the storage vessel and an analysis showing the capacity of the storage vessel. This record shall be kept as long as the storage vessel retains Group 1 or Group 2 status and is in operation. For each Group 2 storage vessel, the permittee is not required to comply with any other provisions of 40 CFR 63.119 through 63.123 other than those required by 40 CFR 63.123(a) unless such vessel is part of an emissions average as described in 40 CFR 63.150.

6. Specific Reporting Requirements:

See Section F.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- 032 (EPN 453) Oxy Incinerator**
033 (EPN 530) Primary Thermal Incinerator

The following are routed to either the Oxy Incinerator or Primary Thermal Incinerator in the Monomers Plant through a closed vent system.

(EPN 441)	North/South Cracking Sump Tank
Description:	3,000-gallon capacity Fixed Roof Date of construction: 1979 Control: EPN 453 or EPN 530 for organic HAPs

(EPN 442)	East Cracking Sump Tank
Description:	3,000-gallon capacity Fixed Roof Date of construction: 1979 Control: EPN 453 or EPN 530 for organic HAPs

APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(a), 40 C.F.R. 63.100 through 63.107, Tables 1 through 4 (Subpart F), National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry

NON-APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(b), 40 C.F.R. 63.110 through 63.153, Tables 1 through 37, and Figure 1 (Subpart G), National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater

1. Operating Limitations:

- a. Pursuant to 40 CFR 63.105(b), the permittee shall prepare a description of maintenance procedures for management of wastewaters generated from the emptying and purging of equipment in the process during temporary shutdowns for inspections, maintenance, and repair (i.e., a maintenance-turnaround) and during periods which are not shutdowns (i.e., routine maintenance). The descriptions shall:
 - (1) Specify the process equipment or maintenance tasks that are anticipated to create wastewater during maintenance activities.
 - (2) Specify the procedures that will be followed to properly manage the wastewater and control organic HAP emissions to the atmosphere; and
 - (3) Specify the procedures to be followed when clearing materials from process equipment.

2. Emission Limitations:

None

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

3. Testing Requirements:

Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.

4. Specific Monitoring Requirements:

- a. Pursuant to 40 CFR 63.105(c), the permittee shall modify and update the information required by 40 CFR 63.105(b) as needed following each maintenance procedure based on the actions taken and the wastewaters generated in the preceding maintenance procedure.
- b. Pursuant to 40 CFR 63.105(d), the permittee shall incorporate the procedures described in 40 CFR 63.105(b) and (c) as part of the startup, shutdown, and malfunction plan required under 40 CFR 63.6(e)(3).

5. Specific Recordkeeping Requirements:

- a. Pursuant to 40 CFR 63.103(c), each permittee of a source subject to 40 CFR 63, Subpart F, G, and H shall keep copies of all applicable reports and records required by 40 CFR 63, Subpart F, G, and H for at least 5 years; except that, if 40 CFR 63, Subpart G or H require records to be maintained for a time period different than 5 years, those records shall be maintained for the time specified in 40 CFR 63, Subpart G or H. If a permittee submits copies of reports to the applicable EPA Regional Office, the permittee is not required to maintain copies of reports. If the EPA Regional Office has waived the requirement of 40 CFR 63.10(a)(4)(ii) for submittal of copies of reports, the permittee is not required to maintain copies of reports.
- b. Pursuant to 40 CFR 63.105(e), the permittee shall maintain a record of the information required by 40 CFR 63.105(b) and (c) as part of the start-up, shutdown, and malfunction plan required under 40 CFR 63.6(e)(3) of 40 CFR 63, Subpart A.
- c. Pursuant to 40 CFR 63.6(e)(3)(C)(iii), when 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 (including actions taken to correct a malfunction) are consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the permittee must keep records for that event which demonstrate that the procedures specified in the plan were followed. These records may take the form of a "checklist," or other effective form of recordkeeping that confirms conformance with the startup, shutdown, and malfunction plan and describes the actions taken for that event. In addition, the permittee must keep records of these events as specified in 40 CFR 63.10(b), including records of the occurrence and duration of each startup or shutdown (if the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), or malfunction of operation and each malfunction of the air pollution control and monitoring equipment. Furthermore, the permittee shall confirm that actions taken during the relevant reporting period during periods of startup, shutdown, and malfunction were consistent with the affected source's startup, shutdown and malfunction plan in the semiannual (or more frequent) startup, shutdown, and malfunction report required in 40 CFR 63.10(d)(5).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

6. Specific Reporting Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall submit all reports as required by **5. Specific Recordkeeping Requirements** b.
- b. See **Section F**.

7. Specific Control Equipment Operating Conditions:

See Operating Conditions for EPN 453 (Oxy Incinerator) and EPN 530 (Primary Incinerator).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**031 (EPN 449) South Synthesis EDC Absorber (High Point Vent)**

Description The South Synthesis Absorber recovers EDC and other organics from the vents to the Oxychlorination reactor off gases before being vented to the atmosphere, rendering the vent a HON Group 2 process vent. The requirements below only apply during times in which the Absorber vent is vented to the atmosphere directly after the South Synthesis Absorber, instead of going to the Oxy Incinerator (453) or the Primary Thermal Incinerator (530).

The process vent is defined as the point of discharge into the atmosphere or point of entry to a control device. For purposes of the HON, the Solvesso Recovery Outlet Process Vent acts as the process vent for the Oxychlorination EDC Reactor System.

* The Solvesso Recovery System Outlet Process Vent is a Group 2 process vent under the HON that meets the following conditions:

- Flow rate greater than or equal to 0.005 standard cubic meter per minute;
- HAP concentration greater than or equal to 50 parts per million by volume; and,
- Total Resource Effectiveness (TRE) value of 1.0 but less than or equal to 4.0.

APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(b), 40 C.F.R. 63.110 through 63.153, Tables 1 through 37, and Figure 1 (Subpart G), National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater

401 KAR 57:002, Section 2, 40 C.F.R. 61.60 through 61.71, (Subpart F), National Emission Standard for Vinyl Chloride

1. Operating Limitations:

- a. Pursuant to 40 CFR 63.110(f)(2), after the compliance dates specified in 40 CFR 63.100, the permittee of any Group 2 process vent that is also subject to the provisions of 40 CFR 61, Subpart F shall comply with the provisions specified in either 40 CFR 63.110(f)(2)(i) or (f)(2)(ii) as follows:
 - (1) If the process vent is not already controlled by a combustion device, then the permittee shall comply with the provisions of both 40 CFR 63, Subpart G and 40 CFR 61, Subpart F.
- b. Pursuant to 401 KAR 52:020, Section 10, during times in which the absorber vent is vented directly to the atmosphere, the process vent shall be controlled by the South Synthesis Absorber such that:
 - (1) Pursuant to 40 CFR 63.113(d), the permittee of a Group 2 process vent having a flow rate greater than or equal to 0.005 standard cubic meter per minute, a HAP concentration greater than or equal to 50 parts per million by volume, and a TRE index value greater than 1.0 but less than or equal to 4.0 shall maintain a TRE index value greater than 1.0 and shall comply with the monitoring of recovery device parameters in 40 CFR 63.114(b) or (c), the TRE index calculations of 40 CFR 63.115, and the

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- applicable reporting and recordkeeping provisions of 40 CFR 63.117 and 63.118. Such permittee is not subject to any other provisions of 40 CFR 63.114 through 63.118.
- (2) Pursuant to 40 CFR 63.114(b), each permittee of a process vent with a TRE index value greater than 1.0 as specified under 40 CFR 63.113(a)(3) or 63.113(d) that uses one or more recovery devices shall install either an organic monitoring device equipped with a continuous recorder or the monitoring equipment specified in 40 CFR 63.114(b)(1), (b)(2), or (b)(3), depending on the type of recovery device used. All monitoring equipment shall be installed, calibrated, and maintained according to the manufacturer's specifications or other written procedures that provide adequate assurance that the equipment would reasonably be expected to monitor accurately. Monitoring is not required for process vents with TRE index values greater than 4.0 as specified in 40 CFR 63.113(e).
- (i) Where an absorber is the final recovery device in the recovery system, a scrubbing liquid temperature monitoring device and a specific gravity monitoring device, each equipped with a continuous recorder shall be used.
- (A) Pursuant to 40 CFR 63.114(c), as an alternative to 40 CFR 63.114(b)(1), the permittee may request approval to monitor other parameters.
- (3) Pursuant to 40 CFR 63.114(e), the permittee shall establish a range that indicates proper operation of the control or recovery device for each parameter monitored under 40 CFR 63.114(a), (b), and (c). In order to establish the range, the information required in 40 CFR 63.152(b) shall be submitted in the Notification of Compliance Status or the operating permit application or amendment. The range may be based upon a prior performance test conducted for determining compliance with a regulation promulgated by the EPA, and the permittee is not required to conduct a performance test under 40 CFR 63.116, if the prior performance test was conducted using the same methods specified in 40 CFR 63.116 and either no process changes have been made since the test, or the permittee can demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process changes.

Compliance Demonstration Method:

For compliance, refer to **4. Specific Monitoring Requirements** a.(1) through (5), **5. Specific Recordkeeping Requirements** b., **6. Specific Reporting Requirements**.

2. Emission Limitations:

Pursuant to 401 KAR 52:020, Section 10, during times in which the absorber vent is vented directly to the atmosphere, the process vent shall be controlled by the South Synthesis Absorber such that:

- a. The conditions in **1. Operating Limitations** b.(1) apply.
- b. Pursuant to 40 CFR 61.62(b), except as provided in 40 CFR 61.65(a), emissions of vinyl chloride to the atmosphere from each oxychlorination reactor are not to exceed 0.2 g/kg (0.4 lb/ton)(0.02 lb/100 lb)(average for 3-hour period) of the 100 percent ethylene dichloride product from the oxychlorination process.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration:

For compliance, refer to **4. Specific Monitoring Requirements** a.(6), **5. Specific Recordkeeping Requirements** b., and **6. Specific Reporting Requirements**.

3. Testing Requirements:

Pursuant to 401 KAR 52:020, Section 10, within 180 days of the issuance of the final permit V-19-016 or within 5 years of the last performance test approved by the Division, whichever is later, the permittee shall conduct a performance test on the South Synthesis EDC Absorber to show compliance with **2. Emission Limitations**.

4. Specific Monitoring Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall monitor the following parameters during times in which the Absorber vent is vented directly to the atmosphere:
 - (1) Solvent Feed Temperature;
 - (2) Solvent Feed Flow Rate;
 - (3) Absorber Vent Feed Temperature;
 - (4) EDC Stripper Vacuum;
 - (5) EDC Stripper Bottoms Temperature; and
 - (6) VCI Ratio (lb VCI emitted/100 lbs EDC produced).

5. Specific Recordkeeping Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain daily average records of the following when the Absorber vent is vented directly to the atmosphere:
 - (1) Solvent Feed Temperature;
 - (2) Solvent Feed Flow Rate;
 - (3) Absorber Vent Feed Temperature;
 - (4) EDC Stripper Vacuum; and
 - (5) EDC Stripper Bottoms Temperature.
- b. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain hourly average records of the VCI Ratio (lb VCI emitted/100 lbs EDC produced) when the Absorber vent is vented directly to the atmosphere.
- c. Pursuant to 40 CFR 63.117(a)(7), the permittee shall record the following when achieving and maintaining a TRE index value greater than 1.0 but less than 4.0 as specified in 40 CFR 63.113(a)(3) or 40 CFR 63.113(d):
 - (1) The parameter monitoring results for absorbers, condensers, or carbon adsorbers, as specified in table 4 of 40 CFR 63, Subpart G, and averaged over the same time period of the measurements of vent stream flow rate and concentration used in the TRE determination (both measured while the vent stream is normally routed and constituted), and
 - (2) The measurements and calculations performed to determine the TRE index value of the vent stream.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- d. Pursuant to 40 CFR 63.118(b), each permittee using a recovery device or other means to achieve and maintain a TRE index value greater than 1.0 but less than 4.0 as specified in 40 CFR 63.113(a)(3) or 40 CFR 63.113(d) shall keep the following records up-to-date and readily accessible:
 - (1) Continuous records of the equipment operating parameters specified to be monitored under 40 CFR 63.114(b) and listed in table 4 of 40 CFR 63, Subpart G or specified by the Administrator in accordance with 40 CFR 63.114(c) and 40 CFR 63.114(e).
 - (2) Records of the daily average value of each continuously monitored parameter for each operating day determined according to the procedures specified in 40 CFR 63.152(f).

6. Specific Reporting Requirements:

- a. Pursuant to 40 CFR 63.117(a)(7), the permittee shall report the information listed under **5. Specific Recordkeeping** c.
- b. Pursuant to 40 CFR 63.118(f)(1), each permittee who elects to comply with the requirements of 40 CFR 63.113 shall submit to the Administrator Periodic Reports of the daily average values of monitored parameters for all operating days when the daily average values recorded under 40 CFR 63.118(a) and (b) were outside the ranges established in the Notification of Compliance Status or operating permit according to the schedule in 40 CFR 63.152. Refer to **7. Specific Control Equipment Operating Conditions**.
- c. Pursuant to 40 CFR 61.70(c)(1), the permittee shall submit to the Administrator a quarterly report in writing including the record of the vinyl chloride content of emissions for each 3-hour period during which average emissions are in excess of the emission limits in 40 CFR 61.62(b). The number of 3-hour periods for which average emissions were determined during the reporting period shall be reported. If emissions in excess of the emission limits are not detected, the report shall contain a statement that no excess emissions have been detected. The emissions are to be determined in accordance with 40 CFR 61.68(e).
- d. See **Section F**.

7. Specific Control Equipment Operating Conditions:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain the following parameters in the proper ranges as established during the latest stack test for the times in which the Absorber vent is vented directly to the atmosphere:
 - (1) Solvent Feed Temperature;
 - (2) Solvent Feed Flow Rate;
 - (3) Absorber Vent Feed Temperature;
 - (4) EDC Stripper Vacuum;
 - (5) EDC Stripper Bottoms Temperature; and
 - (6) VCl Ratio (lb VCl emitted/100 lbs EDC produced).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

032	(EPN 453)	Oxy Incinerator
	Description:	Capacity: 75.6 mmBtu/hr
		Fuel: Process fuel gas*
		Emissions: Process gas, waste gas, and natural gas combustion emissions
		Controls: Packed wet scrubber following incinerator for acid gas
		Constructed: 1982
033	(EPN 530)	Primary Thermal Incinerator
	Description:	Capacity: 60.0 mmBtu/hr
		Fuel: Process fuel gas*
		Emissions: Process gas, waste gas, and natural gas combustion emissions
		Controls: Quench, absorber, and packed wet scrubber following incinerator for acid gas
		Constructed: 1977
		Modification: 2015 (New Scrubber)

* Process fuel gas includes natural gas, ethylene plant fuel gas, hydrogen, propane, ethane, recovered flare gas, and mixtures thereof.

In addition to the process vent gas covered by EPN 453 and 530, the following emission units may be vented to either the Oxy Incinerator (453) and/or the Primary Thermal Incinerator (530).

From Westlake Vinyls, Inc. – Vinyls Plant Monomers Plant:

No. 2 EDC Shore Tank (439)
 No. 7 EDC Shore Tank (734)
 No. 8 EDC Shore Tank (735)
 No. 9 EDC Shore Tank (736)
 Light Ends Tank (TK-30-B2)

From Westlake Vinyls, Inc. – Vinyls Plant Energy and Environmental Operations:

Contaminated Water Storage Tank (445)
 Storm water Storage Tank (446)
 A and B EDC Recovery Columns (EE-4)

Sources from Avient Corporation/Goodrich Corporation:

Bioventing Operation
 C Stripper in Groundwater Stripping System

All vent gases are routed to the incinerators via the following vent headers:

Dry EDC Vent Header	Dry VCM Vent Header
Wet EDC Vent Header	Wet VCM Vent Header
Depressuring Header	Vacuum Vent Header (No. 7 Vent Header)
EDC Absorber Vent Header	HTDC/LTC/Product Column Vent Header*

* (Only connected to the Oxy Incinerator)

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

APPLICABLE REGULATIONS:

401 KAR 57:002, Section 2, 40 C.F.R. 61.60 through 61.71, (Subpart F), National Emission Standard for Vinyl Chloride

401 KAR 60:005, Section 2(2)(ppp), 40 C.F.R. 60.660 through 60.668 (Subpart NNN), Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations

401 KAR 60:005, Section 2(2)(ttt), 40 C.F.R. 60.700 through 60.708 (Subpart RRR), Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes

401 KAR 63:002, Section 2(4)(b), 40 C.F.R. 63.110 through 63.153, Tables 1 through 37, and Figure 1 (Subpart G), National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater

STATE ORIGIN REQUIREMENTS:

401 KAR 63:020, Potentially hazardous matter or toxic substances

1. Operating Limitations:

- a. Pursuant to 40 CFR 60.660(d)(1), the permittee of process vents that are subject to 40 CFR 60, Subpart NNN may choose to comply with the provisions of 40 CFR 65, Subpart D, to satisfy the requirements of 40 CFR 60.662 through 40 CFR 60.665 and 40 CFR 60.668. The provisions of 40 CFR Part 65 also satisfy the criteria of 40 CFR 60.660(c)(4) and (6). Other provisions applying to a permittee who chooses to comply with 40 CFR Part 65 are provided in 40 CFR 65.1.
- b. Pursuant to 40 CFR 60.700(d)(1), the permittee of process vents that are subject to 40 CFR 60, Subpart RRR may choose to comply with the provisions of 40 CFR 65, Subpart D, to satisfy the requirements of 40 CFR 60.702 through 40 CFR 60.705 and 40 CFR 60.708. The provisions of 40 CFR Part 65 also satisfy the criteria of 40 CFR 60.700(c)(2), (4), and (8). Other provisions applying to a permittee who chooses to comply with 40 CFR Part 65 are provided in 40 CFR 65.1.
- c. Pursuant to 40 CFR 65.63(a)(2) as referenced by 40 CFR 60.660(d)(1) and 40 CFR 60.700(d)(1), the permittee must reduce emissions of regulated material or TOC by at least 98 weight-percent or to a concentration of less than 20 parts per million by volume, whichever is less stringent. For combustion devices, the emission reduction or concentration shall be calculated on a dry basis, and corrected to 3 percent oxygen. The permittee shall meet the requirements in 40 CFR 65.142(b) and 40 CFR 65.63(a)(2)(i) and/or 40 CFR 65.63(a)(2)(ii).
 - (1) Pursuant to 40 CFR 65.142(b)(2), a permittee subject to 40 CFR 65.63(a)(2) who routes process vent emissions to a nonflare control device shall meet the applicable requirements in 40 CFR 65.143 for closed vent systems; the requirements applicable to the control devices being used in 40 CFR 65.148 as follows; the applicable general

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

monitoring requirements of 40 CFR 65.156; the applicable performance test requirements and procedures of 40 CFR 65.157 and 40 CFR 65.158; and the monitoring, recordkeeping, and reporting requirements referenced therein. The requirements of 40 CFR 65.144 through 40 CFR 65.146 do not apply to process vents. No other provisions of 40 CFR 65, Subpart G apply to process vent emissions routed through a closed vent system to a nonflare control device.

- (i) (A) A permittee using incinerators to meet the 98 weight-percent emission reduction or 20 parts per million by volume outlet concentration requirement as specified in 40 CFR 65.63(a)(2), or 40 CFR 60.562-1(a)(1)(i)(A) for process vents, or 40 CFR 65.83(a)(1) for high-throughput transfer racks, as applicable, shall meet the requirements of 40 CFR 65.148.
- (B) Incinerators used to comply with the provisions of 40 CFR 65, Subpart G shall be operated at all times when emissions are vented to them.
- (2) Pursuant to 40 CFR 65.63(a)(2)(i), compliance with 40 CFR 65.63(a)(2) may be achieved by using any combination of recovery and/or control device to meet the 20 parts per million by volume concentration standard; or by using any combination of recovery and/or control device to meet the 98 weight percent reduction standard, if the recovery device meets the conditions of 40 CFR 65.63(a)(2)(ii).
- (3) Pursuant to 40 CFR 65.63(a)(2)(ii), a permittee may use a recovery device alone or in combination with one or more control devices to reduce emissions of total regulated material by 98 weight-percent if all of the following conditions are met:
 - (i) The recovery device that will be used to reduce emissions of total regulated material by 98 weight-percent is the last recovery device before emission to the atmosphere.
 - (ii) The recovery device alone or in combination with one or more control devices is capable of reducing emissions of total regulated material by 98 weight-percent but is not capable of reliably reducing emissions of total regulated material to a concentration of 20 parts per million by volume.
 - (iii) If the permittee disposed of the recovered material, the recovery device would be considered a control device and comply with the requirements of 40 CFR 65, Subpart D and 40 CFR 65.142(b) for control devices.

2. Emission Limitations:

- a. Pursuant to 40 CFR 63.113(a)(2), the permittee shall reduce emissions of total organic hazardous air pollutants by 98 weight-percent or to a concentration of 20 parts per million by volume, whichever is less stringent. For combustion devices, the emission reduction or concentration shall be calculated on a dry basis, corrected to 3-percent oxygen, and compliance can be determined by measuring either organic hazardous air pollutants or total organic carbon using the procedures in 40 CFR 63.116.
- b. Pursuant to 40 CFR 63.113(c)(1)(ii) for EPN 453, if a scrubber or other halogen reduction device was installed prior to December 31, 1992, the device shall reduce overall emissions of hydrogen halides and halogens, as defined in 40 CFR 63.111, by 95 percent or shall reduce the outlet mass of total hydrogen halides and halogens to less than 0.45 kilograms per hour, whichever is less stringent.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- c. Pursuant to 40 CFR 63.113(c)(1)(i) for EPN 530, except as provided in 40 CFR 63.113(c)(1)(ii), the halogen reduction device shall reduce overall emissions of hydrogen halides and halogens, as defined in 40 CFR 63.111, by 99 percent or shall reduce the outlet mass of total hydrogen halides and halogens to less than 0.45 kilogram per hour, whichever is less stringent.

Compliance Demonstration Method:

Refer to **3. Testing Requirements**, **4. Specific Monitoring Requirements**, **5. Specific Recordkeeping Requirements**, **6. Specific Reporting Requirements** and **7. Specific Control Equipment Operating Conditions**.

- d. Pursuant to 401 KAR 63:020, Section 3, persons responsible for a source from which hazardous matter or toxic substances may be emitted shall provide the utmost care and consideration, in the handling of these materials, to the potentially harmful effects of the emissions resulting from such activities. No owner or operator shall allow any affected facility to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals and plants. Evaluation of such facilities as to adequacy of controls and/or procedures and emission potential will be made on an individual basis by the cabinet.

Compliance Demonstration Method:

Based on the rates of emissions of airborne toxics provided in the applications submitted by the source, the source is in compliance with 401 KAR 63:020.

3. Testing Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, within 180 days of the issuance of the final permit V-19-016 or within 5 years of the last performance test approved by the Division, whichever is later, the permittee shall conduct a performance test on EPN 453 and EPN 530 using the procedures specified in 40 CFR 63.116 to demonstrate compliance with **2. Emission Limitations a**.
- b. Pursuant to 401 KAR 52:020, Section 10, within 180 days of the issuance of the final permit V-19-016 or within 5 years of the last performance test approved by the Division, whichever is later, the permittee shall conduct performance tests to determine compliance with the control efficiency or emission limits for hydrogen halides and halogens on EPN 453 and EPN 530 according to 40 CFR 63.116(d) to demonstrate compliance with **2. Emission Limitations b and c**.

4. Specific Monitoring Requirements:

- a. Pursuant to 40 CFR 63.114(a), each permittee of a process vent that uses a combustion device to comply with the requirements in 40 CFR 63.113(a)(1) or (a)(2), or that uses a recovery device or recapture device to comply with the requirements in 40 CFR 63.113(a)(2), shall install monitoring equipment specified in 40 CFR 63.114(a)(1), (a)(2), (a)(3), (a)(4), or (a)(5), depending on the type of device used. All monitoring equipment shall be installed, calibrated, maintained, and operated according to manufacturer's

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

specifications or other written procedures that provide adequate assurance that the equipment would reasonably be expected to monitor accurately.

- b. Pursuant to 40 CFR 65.148(c)(1)(i), where an incinerator other than a catalytic incinerator is used, a temperature monitoring device shall be installed in the fire box or in the ductwork immediately downstream of the fire box in a position before any substantial heat exchange occurs.
- c. Pursuant to 40 CFR 65.148(c)(2), the permittee shall establish a range for monitored parameters that indicates proper operation of the incinerator. In order to establish the range, the information required in 40 CFR 65.165(c) shall be submitted in the Initial Compliance Status Report or the operating permit application or amendment. The range may be based upon a prior performance test meeting the specifications of 40 CFR 65.157(b)(1) or upon existing ranges or limits established under a referencing subpart.
- d. Pursuant to 40 CFR 63.114(a)(4), where a scrubber is used with an incinerator, boiler, or process heater in the case of halogenated vent streams, the following monitoring equipment is required for the scrubber:
 - (1) A pH monitoring device equipped with a continuous recorder shall be installed to monitor the pH of the scrubber effluent.
 - (2) A flow meter equipped with a continuous recorder shall be located at the scrubber influent for liquid flow. Gas flow rate shall be determined using one of the procedures specified in 40 CFR 63.114(a)(4)(ii)(A) through (C).
- e. Pursuant to 40 CFR 63.114(a)(4)(ii)(C), the permittee may prepare and implement a gas flow rate determination plan that documents an appropriate method which will be used to determine the gas flow rate. The plan shall require determination of gas flow rate by a method which will at least provide a value for either a representative or the highest gas flow rate anticipated in the scrubber during representative operating conditions other than startups, shutdowns, or malfunctions. The plan shall include a description of the methodology to be followed and an explanation of how the selected methodology will reliably determine the gas flow rate, and a description of the records that will be maintained to document the determination of gas flow rate. The permittee shall maintain the plan as specified in 40 CFR 63.103(c).

5. Specific Recordkeeping Requirements:

- a. Pursuant to 40 CFR 63.118(a), each permittee using a control device to comply with 40 CFR 63.113(a)(1) or (a)(2) shall keep the following records up-to-date and readily accessible:
 - (1) Continuous records of the equipment operating parameters specified to be monitored under 40 CFR 63.114(a) and listed in table 3 of 40 CFR 63, Subpart G or specified by the Administrator in accordance with 40 CFR 63.114(c) and 40 CFR 63.117(e).
 - (2) Records of the daily average value of each continuously monitored parameter for each operating day determined according to the procedures specified in 40 CFR 63.152(f).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- b. Pursuant to 40 CFR 65.162(b)(1), each permittee using a combustion control or halogen reduction device to comply with 40 CFR 65, Subpart G shall keep, as applicable, up-to-date and readily accessible continuous records, as specified in 40 CFR 65.161(a); and records of the equipment operating parameters specified to be monitored under 40 CFR 65.148(c) (incinerator monitoring); or specified by the Administrator in accordance with 40 CFR 65.148(e).
- c. Pursuant to 40 CFR 65.162(b)(3), each permittee subject to the provisions of 40 CFR 65, Subpart G shall keep up-to-date, readily accessible records of periods of operation during which the parameter boundaries are exceeded and report these exceedances as specified in 40 CFR 65.166(f)(1). The parameter boundaries are established pursuant to 40 CFR 65.148(c)(2) (incinerator monitoring).

6. Specific Reporting Requirements:

- a. Pursuant to 40 CFR 63.118(f), each permittee who elects to comply with the requirements of 40 CFR 63.113 shall submit to the Administrator Periodic Reports of the following recorded information according to the schedule in 40 CFR 63.152 as follows:
 - (1) Reports of daily average values of monitored parameters for all operating days when the daily average values recorded under 40 CFR 63.118(a) and (b) were outside the ranges established in the Notification of Compliance Status or operating permit.
 - (2) For Group 1 points, reports of the duration of periods when monitoring data is not collected for each excursion caused by insufficient monitoring data as defined in 40 CFR 63.152(c)(2)(ii)(A).
- b. Pursuant to 40 CFR 63.152(d)(1), reports of start-up, shutdown, and malfunction required by 40 CFR 63.10(d)(5) shall be submitted as specified in 40 CFR 63, Subpart A or in 40 CFR 63.113 through 40 CFR 63.151. The start-up, shutdown and malfunction reports may be submitted on the same schedule as the Periodic Reports required under 40 CFR 63.152(c) instead of the schedule specified in 40 CFR 63.10(d)(5).
- c. Pursuant to 40 CFR 65.166(a), periodic reports shall include the reporting period dates, the total source operating time for the reporting period, and, as applicable, all information specified in 40 CFR 65.166 and in other subparts of 40 CFR 65, including reports of periods when monitored parameters are outside their established ranges.
- d. See **Section F**.

7. Specific Control Equipment Operating Conditions:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain the following parameters within the specified ranges for the daily averages determined in the last performance test approved by the Division (refer to **Section G.5** for testing requirements) that showed compliance with the emission limits:
 - (1) The firebox temperature;
 - (2) The pressure drop in the scrubber;
 - (3) The pH of the scrubber circulation water;
 - (4) The liquid circulation flow in the scrubber; and

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

(5) The liquid/gas ratio in the scrubber.

A deviation from the operating range specified above for any parameter is any daily average period during which the parameter monitored was outside the range specified in the last performance test approved by the Division that showed compliance with the emission limits. Refer to **Section G.5** for testing requirements and **Section F.5** for reporting requirements.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

010	(EPN 514) Description:	South Cracking Furnace #13 Rating: 60.0 mmBtu/hr Fuel: Process fuel gas* Date of construction: 1973 Date of modification: 2015 (Low NO _x Burners Installed) Controls: None
011	(EPN 526) Description:	North Cracking Furnace #1A Rating: 56.0 mmBtu/hr Fuel: Process fuel gas* Date of construction: 1981 Date of modification: 2015 (Low NO _x Burners Installed) Controls: None
	(EPN 527) Description:	North Cracking Furnace #2A Rating: 56.0 mmBtu/hr Fuel: Process fuel gas* Date of construction: 1981 Date of modification: 2015 (Low NO _x Burners Installed) Controls: None
012D	(EPN 534A) Description:	EDC Cracking Furnace #3A Rating: 106.68 mmBtu/hr (w/Low NO _x Burners) Fuel: Process fuel gas* Date of construction: January 2023 (Proposed) Controls: None
012B	(EPN 535) Description:	EDC Cracking Furnace #4 Rating: 106.68 mmBtu/hr Fuel: Process fuel gas* Date of construction: 1995 Date of modification: 2023 (Low NO _x Burners Installed) Controls: None
012C	(EPN 536) Description:	EDC Cracking Furnace #5 Rating: 106.68 mmBtu/hr Fuel: Process fuel gas* Date of construction: 2014 Controls: None

* Process fuel gas includes natural gas, ethylene plant fuel gas, hydrogen, propane, ethane, recovered flare gas, and mixtures thereof.

APPLICABLE REGULATIONS:

401 KAR 51:017, Prevention of Significant Deterioration of Air Quality [EPN 534A for CO, VOC, PM, PM₁₀, PM_{2.5} and CO_{2e}]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

401 KAR 59:015, New indirect heat exchangers

401 KAR 60:005, Section 2(2)(ppp), 40 C.F.R. 60.660 through 60.668 (Subpart NNN), Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations

401 KAR 60:005, Section 2(2)(ttt), 40 C.F.R. 60.700 through 60.708 (Subpart RRR), Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes

401 KAR 63:002, Section 2(4)(iiii), 40 C.F.R. 63.7480 through 63.7575, Tables 1 through 13 (Subpart DDDDD), National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

NON-APPLICABLE REGULATIONS:

401 KAR 60:005, Section 2(2)(a), 40 C.F.R. 60.40 through 60.46 (Subpart D), Standards of Performance for Fossil-Fuel-Fired Steam Generators

401 KAR 60:005, Section 2(2)(b), 40 C.F.R. 60.40Da through 60.52Da (Subpart Da), Standards of Performance for Electric Utility Steam Generating Units

401 KAR 60:005, Section 2(2)(c), 40 C.F.R. 60.40b through 60.49b (Subpart Db), Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

401 KAR 60:005, Section 2(2)(d), 40 C.F.R. 60.40c through 60.48c (Subpart Dc), Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

1. Operating Limitations:

- a. Pursuant to 401 KAR 52:020, Section 10, the following Maximum Hourly Firing Rates shall not be exceeded on a 24-hour average basis:

- (1) For EPN 514: 66.0 mmBtu/hr;
- (2) For EPN 526: 65.0 mmBtu/hr;
- (3) For EPN 527: 65.0 mmBtu/hr;
- (4) For EPN 534A: 106.68 mmBtu/hr;
- (5) For EPN 535: 115.0 mmBtu/hr; and
- (6) For EPN 536: 115.0 mmBtu/hr

- b. Pursuant to 401 KAR 52:020, Section 10, the following Annual Average Firing Rates shall not be exceeded on 12-month rolling basis:

- (1) For EPN 514: 60.0 mmBtu/hr;
- (2) For EPN 526: 56.0 mmBtu/hr;
- (3) For EPN 527: 56.0 mmBtu/hr;
- (4) For EPN 534A: 106.68 mmBtu/hr;
- (5) For EPN 535: 106.68 mmBtu/hr; and
- (6) For EPN 536: 106.68 mmBtu/hr

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration Method:

See **3. Source Operating Limitations** under **Section D**.

- c. Pursuant to 40 CFR 63.7500(a)(1), the permittee must meet each emission limit and work practice standard in Tables 1 through 3, and 11 through 13 to 40 CFR 63, Subpart DDDDD that applies, for each boiler or process heater at the source, except as provided under 40 CFR 63.7522. The permittee must meet these requirements at all times the affected unit is operating, except as provided in 40 CFR 63.7500(f).
 - (1) Pursuant to Item 3 of Table 3 to 40 CFR 63, Subpart DDDDD, the permittee shall conduct an annual tune-up on all new or existing boilers or process heaters without a continuous oxygen trim system and with heat input capacities of 10 million Btu per hour or greater as specified in 40 CFR 63.7540.
- d. Pursuant to 40 CFR 63.7500(a)(3), at all times, the permittee must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.
- e. Pursuant to 40 CFR 63.7500(f), the requirements of 40 CFR 63, Subpart DDDDD apply at all times the affected unit is operating, except during periods of startup and shutdown during which time the permittee must comply only with items 5 and 6 of Table 3 to 40 CFR 63, Subpart DDDDD.

Compliance Demonstration Method:

- (1) Pursuant to 40 CFR 63.7495(a) for EPN 534A, the permittee must comply with 40 CFR 63, Subpart DDDDD by April 1, 2013, or upon startup of the permittee's boiler or process heater, whichever is later.
- (2) Pursuant to 40 CFR 63.7540(a), the permittee must demonstrate continuous compliance with each emission limit in Tables 1 and 2 or 11 through 13 to 40 CFR 63, Subpart DDDDD, the work practice standards in Table 3 to 40 CFR 63, Subpart DDDDD, and the operating limits in Table 4 to 40 CFR 63, Subpart DDDDD that applies according to the methods specified in Table 8 to 40 CFR 63, Subpart DDDDD and 40 CFR 63.7540(a)(1) through (19).
- (3) Refer to **4. Specific Monitoring Requirements**, **5. Specific Recordkeeping Requirements**, and **6. Specific Reporting Requirements**.
- f. Pursuant to 40 CFR 60.660(d)(1), the permittee of process vents that are subject to 40 CFR 60, Subpart NNN may choose to comply with the provisions of 40 CFR 65, Subpart D, to satisfy the requirements of 40 CFR 60.662 through 40 CFR 60.665 and 40 CFR 60.668. The provisions of 40 CFR Part 65 also satisfy the criteria of 40 CFR 60.660(c)(4) and (6).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Other provisions applying to a permittee who chooses to comply with 40 CFR Part 65 are provided in 40 CFR 65.1.

- g. Pursuant to 40 CFR 60.700(d)(1), the permittee of process vents that are subject to 40 CFR 60, Subpart RRR may choose to comply with the provisions of 40 CFR 65, Subpart D, to satisfy the requirements of 40 CFR 60.702 through 40 CFR 60.705 and 40 CFR 60.708. The provisions of 40 CFR Part 65 also satisfy the criteria of 40 CFR 60.700(c)(2), (4), and (8). Other provisions applying to a permittee who chooses to comply with 40 CFR Part 65 are provided in 40 CFR 65.1.
- h. Pursuant to 40 CFR 65.63(a)(2) as referenced by 40 CFR 60.660(d)(1) and 40 CFR 60.700(d)(1), the permittee must reduce emissions of regulated material or TOC by at least 98 weight-percent or to a concentration of less than 20 parts per million by volume, whichever is less stringent. For combustion devices, the emission reduction or concentration shall be calculated on a dry basis, and corrected to 3 percent oxygen. The permittee shall meet the requirements in 40 CFR 65.142(b) and 40 CFR 65.63(a)(2)(i) and/or 40 CFR 65.63(a)(2)(ii).
 - (1) Pursuant to 40 CFR 65.142(b)(2), a permittee subject to 40 CFR 65.63(a)(2) who route process vent emissions to a nonflare control device shall meet the applicable requirements in 40 CFR 65.143 for closed vent systems; the requirements applicable to the control devices being used in 40 CFR 65.149 as follows; the applicable general monitoring requirements of 40 CFR 65.156; the applicable performance test requirements and procedures of 40 CFR 65.157 and 40 CFR 65.158; and the monitoring, recordkeeping, and reporting requirements referenced therein. The requirements of 40 CFR 65.144 through 40 CFR 65.146 do not apply to process vents. No other provisions of 40 CFR 65, Subpart G apply to process vent emissions routed through a closed vent system to a nonflare control device.
 - (i) (A) A permittee using boilers and process heaters to meet the 98 weight-percent emission reduction or 20 parts per million by volume outlet concentration requirement as specified in 40 CFR 65.63(a)(2), shall meet the requirements of 40 CFR 65.149.
 - (B) The vent stream shall be introduced into the flame zone of the boiler or process heater.
 - (C) Boilers and process heaters used to comply with the provisions of 40 CFR 65, Subpart G shall be operated at all times when emissions are vented to them.
 - (2) Pursuant to 40 CFR 65.63(a)(2)(i), compliance with 40 CFR 65.63(a)(2) may be achieved by using any combination of recovery and/or control device to meet the 20 parts per million by volume concentration standard; or by using any combination of recovery and/or control device to meet the 98 weight percent reduction standard, if the recovery device meets the conditions of 40 CFR 65.63(a)(2)(ii).
 - (3) Pursuant to 40 CFR 65.63(a)(2)(ii), a permittee may use a recovery device alone or in combination with one or more control devices to reduce emissions of total regulated material by 98 weight-percent if all of the following conditions are met:
 - (i) The recovery device that will be used to reduce emissions of total regulated material by 98 weight-percent is the last recovery device before emission to the atmosphere.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (ii) The recovery device alone or in combination with one or more control devices is capable of reducing emissions of total regulated material by 98 weight-percent but is not capable of reliably reducing emissions of total regulated material to a concentration of 20 parts per million by volume.
 - (iii) If the permittee disposed of the recovered material, the recovery device would be considered a control device and comply with the requirements of 40 CFR 65, Subpart D and 40 CFR 65.142(b) for control devices.
- i. Pursuant to 401 KAR 59:015, Section 7(2)(a), during a startup period or shutdown period, the permittee shall meet the work practice standards established in 40 C.F.R. Part 63, Table 3 to Subpart DDDDD, as established in 401 KAR 63:002, Section 2(4)(iii).
- j. Pursuant to 401 KAR 51:017, Section 8, for EPN 534A, the following control technology, equipment and method are required to meet Best Available Control Technology (BACT) demonstration for Carbon Monoxide (CO), Volatile Organic Compounds (VOC), Particulate Matter (PM), PM₁₀, and PM_{2.5} emissions:
 - (1) Utilizing clean, gaseous fuel;
 - (2) Proper design and operation; and
 - (3) Conducting good combustion practices.

Compliance Demonstration Method:

- (1) Continuous compliance with **1. Operating Limitations j.(1)** shall be demonstrated by keeping records in accordance with the **Compliance Demonstration Method for 3. Source Operating Limitations in Section D.**
- (2) Continuous compliance with **1. Operating Limitations j.(2) and j.(3)** shall be demonstrated by keeping records in accordance with the **Compliance Demonstration Method for 3. Source Operating Limitations in Section D.** and by the following:
 - (i) Calibrations of the excess oxygen analyzer as per the manufacturer's recommendations;
 - (ii) Calibrations and filter checks on the fuel gas analyzer as per the manufacturer's recommendations;
 - (iii) Calibration of the fuel gas flow meter as per the manufacturer's recommendations;
 - (iv) Inspect the furnace, insulation, piping and refractory, and repair / replace components as per the manufacturer's recommendations;
 - (v) Inspect the burners and clean / replace components as per the manufacturer's recommendations;
 - (vi) Inspect the burner flame pattern and adjust as per the manufacturer's recommendations; and
 - (vii) Conducting a tune-up of the process heater in accordance with 40 CFR 63.7540(a)(10)(i)-(iii) and 40 CFR 63.7540(a)(10)(vi)(B).
- k. Pursuant to 401 KAR 51:017, Section 8, for EPN 534A, the following control technology, equipment and method are required to meet Best Available Control Technology (BACT) demonstration for Greenhouse Gases (as CO_{2e}) emissions:

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (1) Utilizing clean, gaseous fuel;
- (2) Good heater design, including insulation and minimization of potential for air infiltration;
- (3) Good combustion practices and proper burner design and operation;
- (4) Proper furnace operation and maintenance;
- (5) Preheating of combustion gases through a heat recovery system to reduce heat load and fuel consumption at the furnace; and
- (6) Designing a furnace with a minimum thermal efficiency as guaranteed by the manufacturer for each fuel used.

Compliance Demonstration Method:

- (1) Continuous compliance with **1. Operating Limitations** k.(1) shall be demonstrated by keeping records in accordance with the **Compliance Demonstration Method** for **3. Source Operating Limitations** in Section D.
- (2) Continuous compliance with **1. Operating Limitations** k.(2) through k.(6) shall be demonstrated by keeping records of the following:
 - (i) Calibrations of the excess oxygen analyzer as per the manufacturer's recommendations following 40 CFR Part 60 Appendix B4, but no less than once every quarter;
 - (ii) Calibrations and filter checks on the fuel gas analyzer as per the manufacturer's recommendations following the procedures in 40 CFR 98.33 and quality assurance requirements of 40 CFR 98.34;
 - (iii) Calibration of the fuel gas flow meter as per the manufacturer's recommendations;
 - (iv) Inspect the furnace, insulation, piping and refractory, and repair / replace components as per the manufacturer's recommendations;
 - (v) Inspect the burners and clean / replace components as per the manufacturer's recommendations;
 - (vi) Inspect the burner flame pattern and adjust as per the manufacturer's recommendations;
 - (vii) Conduct periodic thermography readings of the furnace shell in areas recommended by the manufacturer and according to the schedule recommended by the manufacturer (at least annually).
 - (viii) Conducting a tune-up of the process heater in accordance with 40 CFR 63.7540(a)(10)(i)-(iii) and 40 CFR 63.7540(a)(10)(vi)(B).
- (3) Initial compliance with **1. Operating Limitations** k.(6) shall be demonstrated by providing the thermal efficiency of the furnace from the manufacturer. In addition the facility will conduct maintenance at a frequency as provided in the manufacturer's specifications for EPN 534A.
- (4) Continuous compliance with **1. Operating Limitations** k.(6) shall be demonstrated by keeping continuous records of the exhaust temperature, and any other parameters as recommended by the manufacturer.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- l. Pursuant to 401 KAR 51:017 Section 8, the permittee shall prepare and maintain for EPN 534A, within 60 days of achieving the maximum rate to which the unit is to be operated, but no later than 180 days of startup, a good combustion and operation practices plan (GCOPP) that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing CO, VOC, PM, PM₁₀, PM_{2.5} and GHG emissions. The permittee shall develop and maintain a GCOPP which shall be submitted to the Division for review. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to:
 - (1) A list of combustion optimization practices and a means of verifying the practices have occurred.
 - (2) A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.
- m. Pursuant to 401 KAR 51:017 Section 8, for EPN 534A, within 9 months of startup, the permittee shall define the maximum exhaust temperature of the gas exiting the furnace. The maximum exhaust temperature will be that recommended by the manufacturer or based on engineering estimates and analysis of the combined furnace and heat recovery system being installed. The analysis shall be maintained on site and shall be made available for the Division's inspection.
- n. Pursuant to 401 KAR 52:020, Section 10, EPN 534 (EDC Cracking Furnace #3) shall not be operated upon startup of EPN 534A (EDC Cracking Furnace #3A). See **Section H-ALTERNATE OPERATING SCENARIOS**.

2. Emission Limitations:

For any combination of fuels -

Particulate Matter (PM) and Sulfur Dioxide (SO₂) Mass Emission Limits:

- a. Pursuant to 401 KAR 59:015, Section 4(1)(b), the permittee shall not cause emissions of particulate matter in excess of 0.10 lb/mmBtu actual heat input for the cracking furnaces.
- b. Pursuant to 401 KAR 59:015, Section 5(1)(b), the permittee shall not cause emissions of gases that contain sulfur dioxide in excess of 0.8 lb/mmBtu actual heat input for the cracking furnaces.

Compliance Demonstration Method:

Compliance with the applicable mass emission standards (lb/mmBtu) for particulate matter and sulfur dioxide is assumed while only burning gaseous fuel as defined in 40 CFR 63.7575 at the cracking furnaces.

Visible Emission Limits:

- c. Pursuant to 401 KAR 59:015, Section 4(2), the opacity of visible emissions shall not exceed 20 percent except as provided below:
 - (1) A maximum of twenty-seven (27) percent opacity shall be allowed for one (1) six (6) minute period in any sixty (60) consecutive minutes; and

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (2) For emissions from an affected facility caused by building a new fire, emissions during the period required to bring the furnace up to operating conditions shall be allowed, if the method used is recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

Compliance Demonstration Method:

Compliance with the applicable visible emission standard is assumed while only burning gaseous fuel as defined in 40 CFR 63.7575 at the cracking furnaces.

- d. Pursuant to 401 KAR 51:017, Section 8, emissions from EPN 534A shall not exceed the following:
- (1) 0.039 lb/mmBtu and 18.22 tons per year on a 12-month rolling basis of CO;
 - (2) 0.005 lb/mmBtu and 2.34 tons per year on a 12-month rolling basis of PM;
 - (3) 0.005 lb/mmBtu and 2.34 tons per year on a 12-month rolling basis of PM₁₀;
 - (4) 0.005 lb/mmBtu and 2.34 tons per year on a 12-month rolling basis of PM_{2.5};
 - (5) 0.0054 lb/mmBtu and 2.52 tons per year on a 12-month rolling basis of VOC; and
 - (6) 54,920 tons per year on a 12-month rolling basis of CO_{2e} while burning natural gas.

Compliance Demonstration Method:

- (1) For compliance with **2. Emission Limitations** d., see **1. Operating Limitations** j. and **5. Specific Recordkeeping Requirements** h.

- (2) For compliance with **2. Emission Limitations** d.(1) through (5), see **3. Testing Requirements** c.

- e. Pursuant to 401 KAR 52:020, Section 10, emissions of NO_x from EPN 534A shall not exceed 0.033 lb/mmBtu.

Compliance Demonstration Method:

For compliance with **2. Emission Limitations** e., EPN 534A shall be operated with low NO_x burners and in a manner consistent with good air pollution control practice for minimizing emissions per the manufacturer's recommendations and guarantee. See **3. Testing Requirements** c.

3. Testing Requirements:

- a. Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.
- b. Pursuant to 40 CFR 65.149(b)(2)(ii), a permittee is not required to conduct a performance test when a boiler or process heater into which the vent stream is introduced with the primary fuel or is used as the primary fuel is used. The permittee shall report as specified in 40 CFR 65.165(f).
- c. Pursuant to 401 KAR 52:020, Section 10, the permittee shall conduct an initial performance test for EPN 534A using reference methods in 401 KAR 50:015 to determine the NO_x, CO, PM, PM₁₀ (filterable + condensable), PM_{2.5} (filterable + condensable), and VOC outlet

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

concentrations in terms of ppmv, lb/mmBtu, and lb/mmscf. The permittee shall also measure the heat content of the gaseous fuel being combusted during the test. See **Section G. 4.** and **5.** Subsequent performance testing shall be conducted within 5 years of the previous test approved by the Division.

4. Specific Monitoring Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain monthly records of the process fuel gas consumption for each cracking furnace.
- b. Pursuant to 40 CFR 65.149(c)(1) any boiler or process heater in which all vent streams are introduced with primary fuel or are used as the primary fuel is exempt from monitoring.
- c. Pursuant to 40 CFR 63.7540(a)(10), the permittee must conduct an annual tune-up of the boiler or process heater to demonstrate continuous compliance as specified in 40 CFR 63.7540(a)(10)(i) through (vi) as follows. The permittee must conduct the tune-up while burning the type of fuel (or fuels in case of units that routinely burn a mixture) that provided the majority of the heat input to the boiler or process heater over the 12 months prior to the tune-up.
 - (1) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the permittee may perform the burner inspection any time prior to the tune-up or delay the burner inspection until the next scheduled unit shutdown).
 - (2) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;
 - (3) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the permittee may delay the inspection until the next scheduled unit shutdown);
 - (4) Optimize total emissions of carbon monoxide (CO). This optimization should be consistent with the manufacturer's specifications, if available, and with any nitrogen oxides (NO_x) requirement to which the unit is subject; and
 - (5) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer.
- d. Pursuant to 401 KAR 52:020, Section 10, the permittee shall continuously monitor the exhaust temperature and any other parameters as recommended by the manufacturer for EPN 534A.

5. Specific Recordkeeping Requirements:

- a. Pursuant to 40 CFR 63.7555(a), the permittee must keep records according to 40 CFR 63.7555(a)(1) and (2) as follows:
 - (1) A copy of each notification and report that the permittee submitted to comply with 40 CFR 63, Subpart DDDDD, including all documentation supporting any Initial

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- Notification or Notification of Compliance Status or semiannual compliance report that the permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv).
- (2) Records of performance tests, fuel analyses, or other compliance demonstrations and performance evaluations as required in 40 CFR 63.10(b)(2)(viii).
- b. Pursuant to 40 CFR 63.7540(a)(10)(vi), the permittee must maintain on-site and submit, if requested by the Administrator, a report containing the following information in 40 CFR 63.7540(a)(10)(vi)(A) through (C):
- (1) The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater;
 - (2) A description of any corrective actions taken as a part of the tune-up; and
 - (3) The type and amount of fuel used over the 12 months prior to the tune-up, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel used by each unit.
- c. Pursuant to 40 CFR 63.7560(a), records must be in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1).
- d. Pursuant to 40 CFR 63.7560(b), as specified in 40 CFR 63.10(b)(1), the permittee must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
- e. Pursuant to 40 CFR 63.7560(c), the permittee must keep each record on site, or they must be accessible from on site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The permittee can keep the records off site for the remaining 3 years.
- f. Pursuant to 401 KAR 52:020, Section 10, for EPN 534A, the permittee shall keep records to show that the monthly average exhaust temperature and any other parameters as provided by the manufacturer are within the range specified by the manufacturer or that is based on the analysis required by **1. Operating Limitations** 1.
- g. Pursuant to 401 KAR 59:015, Section 7(1)(d), the actions, including duration of the startup period, during startup periods, and shutdown periods, shall be documented by signed, contemporaneous logs or other relevant evidence.
- h. Pursuant to 401 KAR 52:020, Section 10, the permittee shall calculate and keep records of the emissions of each pollutant - CO, VOC, PM, PM₁₀, PM_{2.5} and CO_{2e} from EPN 534A on a monthly basis as well as a 12-month rolling total.
- (1) The monthly emissions for each pollutant shall be calculated based on the emission factors and fuel usage. The emission factor shall be determined from the most recent performance test approved by the Division.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

(2) The CO_{2e} emission factor shall be based on the monthly average carbon content of the fuel gas used, the monthly average heat value of the fuel gas, the monthly average molecular weight of the fuel gas and the monthly volume of fuel consumed.

- i. Pursuant to 401 KAR 52:020, Section 10 for EPN 534A, the permittee shall keep records of NO_x emissions based on an average monthly fuel consumption, average monthly heat content, and an emission factor determined from the most recent performance test approved by the Division.
- j. For EPN 534A, as an alternative, compliance with CO_{2e} in **5. Specific Recordkeeping Requirements** h.(2), the permittee may install, calibrate, maintain, and operate a CEMS, and record the output of the system, for measuring O₂ (or CO₂) emissions discharged to the atmosphere.

6. Specific Reporting Requirements:

- a. Pursuant to 40 CFR 63.7540(a)(10)(vi), if requested by the Administrator, the permittee shall submit the information from **5. Specific Recordkeeping Requirements** b. regarding the most recent tune-up for each unit.
- b. The permittee shall submit notifications and reports as specified in 40 CFR 63.7545 and 40 CFR 63.7550.
- c. Pursuant to 40 CFR 65.165(f), the permittee shall identify in the Initial Compliance Status Report whether an exemption from performance testing or conducting a design evaluation, as provided in 40 CFR 65.145(b)(2), 40 CFR 65.148(b)(2), or 40 CFR 65.149(b)(2), is being invoked, and which of the provisions of 40 CFR 65.145(b)(2), 40 CFR 65.148(b)(2), or 40 CFR 65.149(b)(2) apply.
- d. See **Section F**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

034A	(EPN 519)	North Cracking Decoking Pot (Furnace #1A and #2A)
	Description:	Decoking Duration: 192 hrs per year for both furnaces Max Processing Rate: 83.69 lb/hr Coke + 12,600 lb/hr Steam (total = 6.34 tons per hour) Control Device: Quench Scrubber Construction: 1973
034D	(EPN 520A)	South Cracking Decoking Pot (Furnace #13 and #5)
	Description:	Decoking Duration: 168 hrs per year for both furnaces Max Processing Rate: 198.39 lb/hr Coke + 18,900 lb/hr Steam (total = 9.55 tons per hour) Control Device: Quench Scrubber Construction: 2023
034C	(EPN 521)	East Cracking Decoking Pot (Furnace #3 and #4)
	Description:	Decoking Duration: 216 hrs per year per furnace Max Processing Rate: 253.58 lb/hr Coke + 12,727 lb/hr Steam (total = 6.49 tons per hour) Control Device: Quench Scrubber Construction: 1973

APPLICABLE REGULATIONS:

401 KAR 59:010, New process operations

401 KAR 61:020, Existing process operations

1. Operating Limitations:

Refer to **Compliance Demonstration Method** for **2. Emission Limitations**.

2. Emission Limitations:

- a. Pursuant to 401 KAR 59:010, Section 3(2), for EPN 520A, for emissions from a control device or stack no person shall cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in Appendix A to 401 KAR 59:010 and summarized below:

- (1) For process weight rates of 0.50 ton/hour or less: $E = 2.34$
 (2) For process weight rates > 0.5 ton/hr up to 30 tons/hr: $E = 3.59 \times P^{0.62}$
 Where: E = rate of particulate emissions in lb/hr, and
 P = process weight rate in tons/hr.

- b. Pursuant to 401 KAR 61:020, Section 3(2)(a), for EPN's 519 and 521, no permittee shall cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in Appendix A to 401 KAR 61:020 and summarized below:

- (1) For process weight rates of 0.50 ton/hour or less: $E = 2.58$
 (2) For process weight rates > 0.5 ton/hr up to 30 tons/hr: $E = 4.10 \times P^{0.67}$
 Where: E = rate of particulate emissions in lb/hr, and
 P = process weight rate in tons/hr.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**Compliance Demonstration Method:**

- (1) Pursuant to 401 KAR 52:020, Section 10, for each Cracking Decoking Pot, the submerged quench scrubber associated with each Cracking Decoking Pot shall control emissions of particulate matter and be operated properly in accordance with standard operating procedures at all times the associated furnace coils are decoked. The permittee is required to use the submerged quench scrubber associated with each Cracking Decoking Pot in order to meet the respective particulate matter emission standard for each pot. During periods of normal operation of the submerged quench scrubber, compliance is demonstrated for the mass emission standard.
- (2) Refer to **4. Specific Monitoring Requirements** a., and **5. Specific Recordkeeping Requirements** a.(2).
- c. Pursuant to 401 KAR 59:010, Section 3(1)(a), for EPN 520A, no person shall cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than twenty (20) percent opacity.
- d. Pursuant to 401 KAR 61:020, Section 3(1)(a), for EPN's 519 and 521, no permittee shall cause, suffer, allow or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than forty (40) percent opacity.

Compliance Demonstration Method:

For compliance with the opacity standards, refer to **4. Specific Monitoring Requirements** b. and **5. Specific Recordkeeping Requirements** a.(3).

3. Testing Requirements:

Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.

4. Specific Monitoring Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall keep a record of the scrubber liquid flowrate taken once daily, when each associated Cracking Decoking Pot is in operation.
- b. Pursuant to 401 KAR 52:020, Section 10, during decoking operations, the permittee shall perform a qualitative visual observation of the emissions no less than once daily while the decoking pots are in operation. If visible emissions are observed (not including condensed water in the plume), the permittee shall determine the opacity using EPA Reference Method 9. In lieu of determining the opacity using U.S. EPA Method 9, the permittee shall immediately perform a corrective action which results in no visible emissions (not including condensed water in the plume).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

5. Specific Recordkeeping Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall record the following:
 - (1) All routine and non-routine maintenance activities performed on each corresponding control devices.
 - (2) A daily record of scrubber liquid flowrate shall be maintained as specified in **4. Specific Monitoring Requirements a.**
 - (3) A log of the qualitative visual observations made during decoking operations as specified in **4. Specific Monitoring Requirements b.** including the date, time, initials of observer, whether any emissions were observed (yes/no), and any Method 9 readings taken.
 - (4) The occurrence, duration, cause, and any corrective action taken for each incident when a cracking furnace is decoked but the corresponding submerged quench scrubber was not in operation.
 - (5) Pursuant to 401 KAR 52:020, Section 10, the permittee shall keep record of the number of decoking events per furnace, the dates of the event, and the duration of each event.

6. Specific Reporting Requirements:

See **Section F.**

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**009 (EPN 524) Vinyl Chloride Flare (Unassisted)**

Description The Vinyl Chloride Flare is used for emergency relief valve discharges from equipment in the EDC-VCl plant and as a control device for residual leaked material from relief valves, rupture disks and emergency shutdown equipment. The presence of the flare pilot flame will be monitored to ensure proper operation of the flare for safety purposes. In the event of a relief valve discharge subject to the requirements of 40 CFR 61.65(d), then only the requirements listed under **8. Alternative Operating Scenario** shall apply.

Constructed: 1967, Increased Natural Gas to flare: 2021

APPLICABLE REGULATIONS:

401 KAR 63:015, Flares

401 KAR 57:002, Section 2, 40 C.F.R. 61.60 through 61.71 (Subpart F), National Emission Standard for Vinyl Chloride [**8. Alternative Operating Scenario**]

Consent Decree (referenced herein as CD) 2:22-cv-01577-JDC-KK between United States of America and Westlake Vinyls, Inc., entered on October 26, 2022.

1. Operating Limitations:

- a. Pursuant to 401 KAR 52:020, Section 10, the flare shall be operated with a pilot flame present at all times.

Compliance Demonstration Method:

Refer to **4. Specific Monitoring Requirements** a.

- b. Pursuant to 401 KAR 52:020, Section 10, for the purposes of emission unit 009 (EPN 524), the following definitions shall apply:
 - (1) "Calvert City Vinyls Flare" means the Unassisted Vinyls Flare at the Calvert City Vinyls Plant. [CD, Paragraph 12.i.]
 - (2) "Calvert City Vinyls Plant" means the petrochemical manufacturing plant owned and operated by Westlake Vinyls, Inc., located at 2468 Industrial Parkway, Calvert City, Kentucky 42029. [CD Paragraph 12.h.]
 - (3) "Capable of Receiving Sweep, Supplemental, and/or Waste Gas" means, for a Flare, that the flow of Sweep, Supplemental, and/or Waste Gas is/are not prevented from being directed to the Flare by means of an isolation device such as closed valves, blinds, or stopples. [CD, Paragraph 12.j.]
 - (4) "Combustion Efficiency" or "CE" means a Flare's efficiency in converting the organic carbon compounds found in Vent Gas to carbon dioxide. [CD, Paragraph 12.k.]
 - (5) "Covered Flare" means the Calvert City Vinyls Flare, as well as any Newly Installed Covered Flare or Portable Flare in use at the Calvert City Vinyls Plant, provided however that once a Covered Flare is permanently taken out of service after October 26, 2022 and that change is reported in the subsequent Semi-Annual Report, that Flare is no longer a Covered Flare. [CD, Paragraph 12.s.]
 - (6) "In Operation" or "Being In Operation" or "Operating," with respect to a Flare, means any and all times that Sweep, Supplemental, and/or Waste Gas is or may be vented to

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- a Flare. A Flare that is In Operation is Capable of Receiving Sweep, Supplemental, and/or Waste Gas unless all Sweep, Supplemental, and Waste Gas flow is prevented by means of an isolation device, such as closed valves, blinds and/or stopples. [CD, Paragraph 12.hh.]
- (7) “Net Heating Value” means the theoretical total quantity of heat liberated by the complete combustion of a unit volume or weight of a fuel initially at 25 degrees Centigrade and 760 mmHg, assuming that the produced water is vaporized and all combustion products remain at, or are returned to, 25 degrees Centigrade; however, the standard for determining the volume corresponding to one mole is 20 degrees Centigrade. [CD, Paragraph 12.rr.]
- (8) “Net Heating Value Analyzers” or “NHV Analyzers” means an instrument capable of measuring the Net Heating Value of Vent Gas in BTU/scf. The sample extraction point of a Net Heating Value Analyzer may be located upstream of the introduction of Supplemental and/or Sweep and/or Purge Gas if the composition and flow rate of any such Supplemental and/or Sweep and/or Purge Gas are known constants or measured and if the constant or measurements are then used in the calculation of the Net Heating Value of the Vent Gas. [CD, Paragraph 12.ss.]
- (9) “Net Heating Value of Vent Gas” or “NHV_{vg}” means the Net Heating Value, in Btu/scf, of the Vent Gas directed to a Flare. NHV_{vg} must be calculated in accordance with **1. Operating Limitations** e.(4) through (6). [CD, Paragraph 12.vv.]
- (10) “Newly Installed Covered Flare(s)” means any Air-Assisted Flare or Steam-Assisted Flare that is permanently installed, receives Waste Gas that has been redirected to it from the Calvert City Vinyls Flare (existing as of October 26, 2022), and commences operation at the Calvert City Vinyls Plant after October 26, 2022. [CD, Paragraph 12.ww.]
- (11) “Portable Flare” means a Flare that is not permanently installed and that receives Waste Gas that has been redirected to it from a Covered Flare. [CD, Paragraph 12.ccc.]
- (12) “Supplemental Gas” means all gas introduced to a Flare in order to improve the combustible characteristics of the Combustion Zone Gas. [CD, Paragraph 12.qqq.]
- (13) “Sweep Gas” means: Gas intentionally introduced into a Flare header system to maintain a constant flow of gas through the Flare header and out the Flare tip in order to prevent oxygen building in the Flare header and to prevent infiltration (backflow) into the Flare tip. [CD, Paragraph 12.rrr.(2)]
- (14) “Unassisted Flare” means a Flare that does not use Assist Steam or Assist Air. [CD, Paragraph 12.uuu.]
- (15) “Unobstructed Cross Sectional Area of the Flare Tip” or “A_{tip-unob}” means the open, unobstructed area of a Flare tip through which Vent Gas passes. Diagrams of four common Flare types are set forth as Figures 1 and 2 in **1. Operating Limitations** e. [CD, Paragraph 12.www.]
- (16) “Vent Gas” means all gas found just before the Flare tip. This gas includes all Waste Gas, that portion of Sweep Gas that is not recovered, Purge Gas, and Supplemental Gas, but does not include Pilot Gas, Total Steam, or Assist Air. [CD, Paragraph 12.zzz.]
- (17) “Visible Emissions” means five minutes or more of Smoke Emissions during any two consecutive hours. [CD, Paragraph 12.aaaa.]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (18) “Waste Gas” means the mixture of all gases from plant operations that is directed to a Flare for the purpose of disposing of the gas. “Waste Gas” does not include gas introduced to a Flare exclusively to make it operate safely and as intended; therefore, “Waste Gas” does not include Pilot Gas, Total Steam, Assist Air, or the minimum amount of Sweep Gas and Purge Gas that is necessary to perform the functions of Sweep Gas and Purge Gas. “Waste Gas” also does not include the minimum amount of gas introduced to a Flare to comply with regulatory and/or enforceable permit requirements regarding the combustible characteristics of Combustion Zone Gas; therefore, “Waste Gas” does not include Supplemental Gas. Figure 3 in **1. Operating Limitations** e. depicts the meaning of “Waste Gas,” together with its relation to other gases associated with Flares. [CD, Paragraph 12.cccc.]
- c. Pursuant to 401 KAR 52:020, Section 10, the permittee must operate each of the instruments and monitoring systems required by **4. Specific Monitoring Requirements** c. and d. and collect data on a continuous basis at all times when the Covered Flare that the instrument and/or monitoring system is associated with is In Operation and Capable of Receiving Sweep, Supplemental, and/or Waste Gas, except for periods of instrument downtime specified in **1. Operating Limitations** i. [CD, Paragraph 28.]
- d. Pursuant to 401 KAR 52:020, Section 10, the permittee must comply with the following requirements at the Covered Flare at all times when the Covered Flare, including a Portable Flare, is In Operation:
- (1) Operation during Emissions Venting. The permittee must operate the Covered Flare at all times when emissions may be vented to it. [CD, Paragraph 40.a.]
 - (2) No Visible Emissions. The permittee must specify the smokeless design capacity of the Covered Flare and operate with no Visible Emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours, when the Covered Flare is In Operation and the Vent Gas flow is less than the smokeless design capacity of the Covered Flare. Visible Emissions may be determined by a person trained pursuant to Method 22 or documented by a video camera. The permittee must monitor for Visible Emissions from the Covered Flare while it is In Operation as specified below in **1. Operating Limitations** d.(2)(i) and (ii). Subsequent Visible Emissions observations must be conducted using either method listed in **1. Operating Limitations** d.(2)(i) and (ii). The permittee must record and report any instances where Visible Emissions are observed for more than 5 minutes during any 2 consecutive hours as specified in 40 CFR 63.655(g)(11)(ii). [CD, Paragraph 40.b.]
 - (i) At least once per day, the permittee must conduct Visible Emissions observations using an observation period of 5 minutes using Method 22 at 40 CFR Part 60, Appendix A–7. If at any time the permittee sees Visible Emissions, even if the minimum required daily Visible Emissions monitoring has already been performed, the permittee must immediately begin an observation period of 5 minutes using Method 22 at 40 CFR Part 60, Appendix A–7. If Visible Emissions are observed for more than one continuous minute during any 5-minute observation period, the observation period using Method 22 at 40 CFR Part 60, Appendix A–7 must be extended to 2 hours or until 5 minutes of Visible Emissions are observed. [CD, Paragraph 40.b.(1)]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (ii) Alternatively, the permittee may use a video camera to continuously record (at least one frame every 15 seconds with time and date stamps) images of the Flare flame and a reasonable distance above the Flare flame at an angle suitable for Visible Emissions observations. The permittee must provide real-time video camera output to the control room or other continuously staffed location where the camera images may be viewed at any time. [CD, Paragraph 40.b.(2)]
 - (3) Pilot Flame Presence. The permittee must operate the Covered Flare with a pilot flame present at all times. The permittee must continuously monitor the presence of the pilot flame(s) using a device (including, but not limited to, a thermocouple, ultraviolet beam sensor, or infrared sensor) capable of detecting that the pilot flame is present. [CD, Paragraph 40.c.]
 - (4) Monitoring According to Applicable Provisions. The permittee must comply with all applicable Subparts of 40 CFR Parts 60, 61, or 63 that state how a particular Covered Flare must be monitored. [CD, Paragraph 40.d.]
 - (5) Good Air Pollution Control Practices. At all times, including during periods of startup, shutdown, and/or Malfunction, the permittee must implement good air pollution control practices to minimize emissions from the Covered Flare; provided however that the permittee is not in violation of this requirement for any practice that permit V-19-016 R2 requires the permittee to implement after October 26, 2022 for the period between October 26, 2022 and the compliance requirements. Nothing in **1. Operating Limitations** d.(5) requires the permittee to install or maintain Flare monitoring equipment in addition to or different from the equipment required by **4. Specific Monitoring Requirements** c. and d. [CD, Paragraph 40.e.]
- e. Pursuant to 401 KAR 52:020, Section 10, the permittee must operate the Covered Flare in compliance with either **1. Operating Limitations** e.(1) or (2), as follows, provided that the appropriate monitoring systems are in place, whenever the Vent Gas flow rate is less than the smokeless design capacity of the Covered Flare.
- (1) The actual Flare Tip Velocity (V_{tip}) must be less than 60 feet per second. The permittee must monitor V_{tip} using the procedures specified in **1. Operating Limitations** e.(3); or [CD, Paragraph 41.a.]
 - (2) V_{tip} must be less than 400 feet per second and also less than the maximum allowed Flare Tip Velocity (V_{max}) as calculated according to Equation 2 as specified by **1. Operating Limitations** e.(3)(iv). The permittee must monitor V_{tip} and gas composition and must determine NHV_{vg} using the procedures specified in **1. Operating Limitations** e.(4). The Unobstructed Cross Sectional Area of the Flare Tip must be calculated consistent with Figures 1 and 2 below. [CD, Paragraph 41.b.]
 - (3) **Calculation Method for Determining Compliance with V_{tip} Operating Limits.** The permittee shall determine V_{tip} on a 15-minute Block Average basis according to the following requirements:
 - (i) The permittee shall use design and engineering principles and the guidance in Figures 1 and 2 below to determine the Unobstructed Cross Sectional Area of the Flare Tip. The Unobstructed Cross Sectional Area of the Flare Tip is the total tip area that Vent Gas can pass through. This area does not include any stability tabs, stability rings, and Upper Steam or air tubes because Vent Gas does not exit through them.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (ii) The permittee shall determine the cumulative volumetric flow of Vent Gas for each 15-minute Block Average Period using the data from the continuous flow monitoring system required in **4. Specific Monitoring Requirements** c. according to the requirements in **1. Operating Limitations** e.(7).
- (iii) The 15-minute Block Average V_{tip} shall be calculated using Equation 1.

$$V_{tip} = \frac{Q_{cum}}{Area \times 900}$$

Equation 1

- (iv) If the permittee chooses to comply with **1. Operating Limitation** e.(1), the permittee shall also determine the NHV_{vg} using **1. Operating Limitation** e.(4) and calculate V_{max} using Equation 2 in order to compare V_{tip} to V_{max} on a 15-minute Block Average basis.

$$\log_{10}(V_{max}) = \frac{NHV_{vg} + 1,212}{850}$$

Equation 2

(4) Step 1: Determine the Net Heating Value of the Vent Gas (NHV_{vg})

The permittee shall determine the Net Heating Value of the Vent Gas (NHV_{vg}) based on composition monitoring data on a 15-minute block average basis according to the following requirements. If the permittee monitors separate gas streams that combine to comprise the total vent gas flow to a Covered Flare, the 15-minute block average Net Heating Value shall be determined separately for each measurement location according to the following requirements and a flow-weighted average of the gas stream Net Heating Values shall be used to determine the 15-minute block average Net Heating Value of the cumulative Vent Gas. The NHV_{vg} 15-minute block averages shall be calculated for set 15-minute time periods starting at 12 midnight to 12:15 AM, 12:15 AM to 12:30 AM and so on, concluding at 11:45 PM to midnight.

(5) Step 1a: Equation or Output to be Used to Determine NHV_{vg} at a Measurement Location

- (i) For any gas stream for which the Company complies with **4. Specific Monitoring Requirements** d. by collecting compositional analysis data in accordance with the method set forth in **4. Specific Monitoring Requirements** d.(1): Equation 3 shall be used to determine the NHV_{vg} of a specific sample by summing the Net Heating Value for each individual component by individual component volume fractions. Individual component Net Heating Values are listed in Table 1 below.

$$NHV_{vg} = \sum_{i=1}^n x_i \times NHV_i$$

Equation 3

- (ii) For any gas stream for which the permittee complies with **4. Specific Monitoring Requirements** d by collecting direct Net Heating Value monitoring data in accordance with the method set forth in **4. Specific Monitoring Requirements** d.(2) but for which a Hydrogen Concentration Monitor is not used: Use the direct output (measured value) of the monitoring system(s) (in Btu/scf) to determine the NHV_{vg} for the sample.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (iii) For any gas stream for which the permittee complies with **4. Specific Monitoring Requirements** d by collecting direct Net Heating Value monitoring data in accordance with the method set forth in **4. Specific Monitoring Requirements** d.(2) and for which a Hydrogen Concentration Monitor is also used: Equation 4 shall be used to determine the NHV_{vg} for each sample measured via the Net Heating Value monitoring system. Where hydrogen concentration data is collected, Equation 4 performs a net correction for the measured heating value of hydrogen since the theoretical Net Heating Value for hydrogen is 274 Btu/scf, but for the purposes of permit V-19-016 R2, a Net Heating Value of 1,212 Btu/scf may be used ($1,212 - 274 = 938$ Btu/scf).

$$NHV_{vg} = NHV_{measured} + 938x_{H2}$$

Equation 4

(6) Step 1b: Calculation Method to be Used in Applying Equation/Output to Determine NHV_{vg}

- (i) For any Covered Flare for which the permittee complies with **4. Specific Monitoring Requirements** d by using a continuous monitoring system in accordance with the method set forth in **4. Specific Monitoring Requirements** d.(1) or (2): The permittee may elect to determine the 15-minute block average NHV_{vg} using either the Feed-Forward Calculation Method or the Direct Calculation Method (both described below). The permittee need not elect to use the same methodology at all Covered Flares with a continuous monitoring system; however, for each such Covered Flare, the permittee must elect one calculation method that will apply at all times, and use that method for all continuously monitored flare vent streams associated with that Covered Flare. If the permittee intends to change the calculation method that applies to a Covered Flare, the permittee must notify the EPA 30 days in advance of such a change.
- (ii) **Feed-Forward Calculation Method.** When calculating NHV_{vg} for a specific 15-minute block:
- (A) Use the results from the first sample collected during an event (for periodic Vent Gas flow events) for the first 15-minute block associated with that event.
 - (B) If the results from the first sample collected during an event (for periodic Vent Gas flow events) are not available until after the second 15-minute block starts, use the results from the first sample collected during an event for the second 15-minute block associated with that event.
 - (C) For all other cases, use the results that are available from the most recent sample prior to the 15-minute block period for that 15-minute block period for all Vent Gas streams. For the purpose of this requirement, use the time that the results become available rather than the time the sample was collected. For example, if a sample is collected at 12:25 AM and the analysis is completed at 12:38 AM, the results are available at 12:38 AM and these results would be used to determine compliance during the 15-minute block period from 12:45 AM to 1:00 AM.
- (iii) **Direct Calculation Method.** When calculating NHV_{vg} for a specific 15-minute block:

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (A) If the results from the first sample collected during an event (for periodic Vent Gas flow events) are not available until after the second 15-minute block starts, use the results from the first sample collected during an event for the first 15-minute block associated with that event.
- (B) For all other cases, use the arithmetic average of all NHVvg measurement data results that become available during a 15-minute block to calculate the 15-minute block average for that period. For the purpose of this requirement, use the time that the results become available rather than the time the sample was collected. For example, if a sample is collected at 12:25 AM and the analysis is completed at 12:38 AM, the results are available at 12:38 AM and these results would be used to determine compliance during the 15-minute block period from 12:30 AM to 12:45 AM.

(7) Step 2: Determine Volumetric Flow Rates of Gas Streams

The permittee shall determine the volumetric flow rate in standard cubic feet (scf) of vent gas, along with the volumetric flow rates (in scf) of any Supplemental Gas, Assist Steam, and Premix Assist Air, over a 15-minute block average basis. The 15-minute block average volumetric flow rates shall be calculated for set 15-minute time periods starting at 12 midnight to 12:15 AM, 12:15 AM to 12:30 AM and so on, concluding at 11:45 PM to midnight.

- (i) **For any gas streams for which the permittee complies with 4. Specific Monitoring Requirements c. by using a monitoring system that directly records volumetric flow rate:** Use the direct output (measured value) of the monitoring system(s) (in scf), as corrected for the temperature and pressure of the system to standard conditions (i.e., a temperature of 20 °C (68 °F) and a pressure of 1 atmosphere) to then calculate the average volumetric flow rate of that gas stream for the 15-minute block period.
- (ii) **For Vent Gas, Assist Steam, or Premix Assist Air gas streams for which the permittee complies with 4. Specific Monitoring Requirements c. by using a mass flow monitor to determine volumetric flow rate:** Equation 3 shall be used to determine the volumetric flow rate of Vent Gas, Assist Air, or Assist Steam by converting mass flow rate to volumetric flow at standard conditions (i.e., a temperature of 20 °C (68 °F) and a pressure of 1 atmosphere). Equation 5 uses the molecular weight of the gas stream as an input to the equation; therefore, if the permittee elects to use a mass flow monitor to determine volumetric flow rate of Vent Gas, the permittee must collect compositional analysis data for such Vent Gas in accordance with the method set forth in **4. Specific Monitoring Requirements d.(1)**. For assist steam, use a molecular weight of 18 pounds per pound-mole. For assist air, use a molecular weight of 29 pounds per pound-mole. The converted volumetric flow rates at standard conditions from Equation 5 shall then be used to calculate the average volumetric flow rate of that gas stream for the 15-minute block period.

$$Q_{vol} = \frac{Q_{mass} \times 385.3}{MWt}$$

Equation 5

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

(iii) For gas streams for which the molecular weight of the gas is known and for which the permittee complies with 4. Specific Monitoring Requirements c. by using continuous pressure/temperature monitoring system(s): Use appropriate engineering calculations to determine the average volumetric flow rate of that gas stream for the 15-minute block period. For assist steam, use a molecular weight of 18 pounds per pound-mole. For assist air, use a molecular weight of 29 pounds per pound-mole. For Vent Gas, molecular weight must be determined by collecting compositional analysis data for such Vent Gas in accordance with the method set forth in 4. Specific Monitoring Requirements d.(1).

(8) Key to the Abbreviations:

385.3	= conversion factor (scf/lb-mol)
850	= Constant
900	= Conversion factor, (seconds/15-minute block average)
1,212	= Constant for heating value of hydrogen (H ₂)
Area	= The unobstructed cross-sectional area of the flare tip is the total tip area that vent gas can pass through, ft ² . This area does not include any stability tabs, stability rings, and upper steam or air tubes because flare vent gas does not exit through them. Use design and engineering principles to determine the unobstructed cross-sectional area of the flare tip.
i	= individual component in Vent Gas (unitless)
MW _t	= molecular weight of the gas at the flow monitoring location (lb/lbmol)
n	= number of components in Vent Gas (unitless)
NHV _i	= Net Heating Value of component i according to Table 1 below (Btu/scf)
NHV _{measured}	= Net Heating Value of Vent Gas stream as measured by monitoring system (Btu/scf)
NHV _{vg}	= Net Heating Value of Vent Gas (Btu/scf)
Q _{cum}	= cumulative volumetric flow over 15-minute block average period (scf)
Q _{mass}	= mass flow rate (pounds per second)
Q _{vol}	= volumetric flow rate (scf per second)
V _{max}	= Maximum allowed flare tip velocity (feet per second)
V _{tip}	= Flare tip velocity (feet per second)
X _i	= concentration of component i in Vent Gas (vol fraction)

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Table 1. Individual Component Properties:

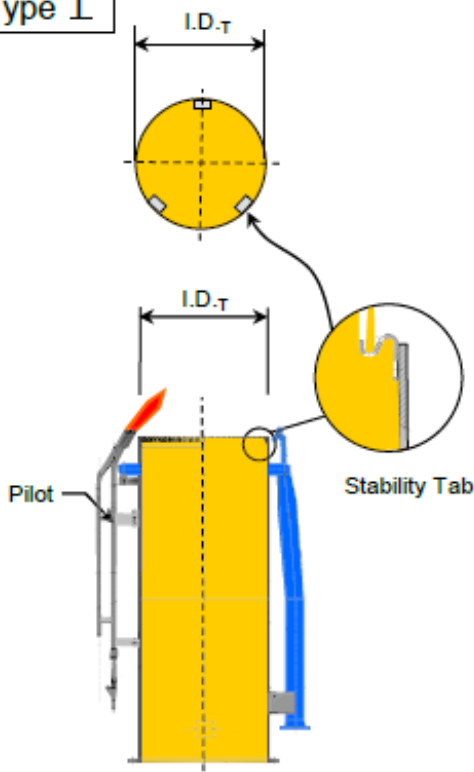
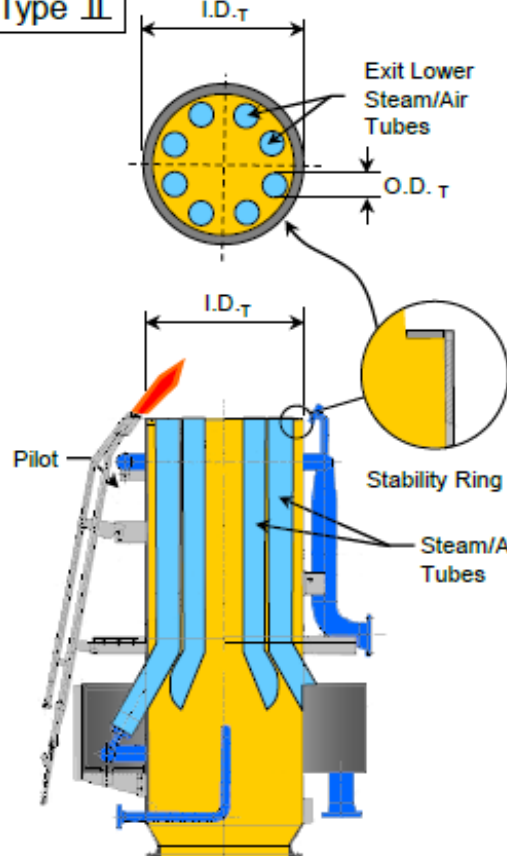
Component	Molecular Formula	MW _i (pounds per pound-mole)	CMN _i (mole per mole)	NHV _i (Btu per scf)	LFL _i (volume %)
Acetylene	C ₂ H ₂	26.04	2	1,404	2.5
Benzene	C ₆ H ₆	78.11	6	3,591	1.3
1,2-Butadiene	C ₄ H ₆	54.09	4	2,794	2.0
1,3-Butadiene	C ₄ H ₆	54.09	4	2,690	2.0
iso-Butane	C ₄ H ₁₀	58.12	4	2,957	1.8
n-Butane	C ₄ H ₁₀	58.12	4	2,968	1.8
cis-Butene	C ₄ H ₈	56.11	4	2,830	1.6
iso-Butene	C ₄ H ₈	56.11	4	2,928	1.8
trans-Butene	C ₄ H ₈	56.11	4	2,826	1.7
Carbon Dioxide	CO ₂	44.01	1	0	∞
Carbon Monoxide	CO	28.01	1	316	12.5
Cyclopropane	C ₃ H ₆	42.08	3	2,185	2.4
Ethane	C ₂ H ₆	30.07	2	1,595	3.0
Ethylene	C ₂ H ₄	28.05	2	1,477	2.7
Hydrogen	H ₂	2.02	0	1,212 ^A	4.0
Hydrogen Sulfide	H ₂ S	34.08	0	587	4.0
Methane	CH ₄	16.04	1	896	5.0
Methyl-Acetylene	C ₃ H ₄	40.06	3	2,088	1.7
Nitrogen	N ₂	28.01	0	0	∞
Oxygen	O ₂	32.00	0	0	∞
Pentane+ (C5+)	C ₅ H ₁₂	72.15	5	3,655	1.4
Propadiene	C ₃ H ₄	40.06	3	2,066	2.16
Propane	C ₃ H ₈	44.1	3	2,281	2.1
Propylene	C ₃ H ₆	42.08	3	2,150	2.4
Water	H ₂ O	18.02	0	0	∞

^A The theoretical Net Heating Value for hydrogen is 274 Btu/scf, but for the purposes of this section of this permit, a Net Heating Value of 1,212 Btu/scf shall be used.

Note: If a component is not specified in Table 1, the heats of combustion may be determined using any published values where the net enthalpy per mole of offgas is based on combustion at 25 °C and 1 atmosphere (or constant pressure) with offgas water in the gaseous state, but the standard temperature for determining the volume corresponding to one mole of vent gas is 20 °C.

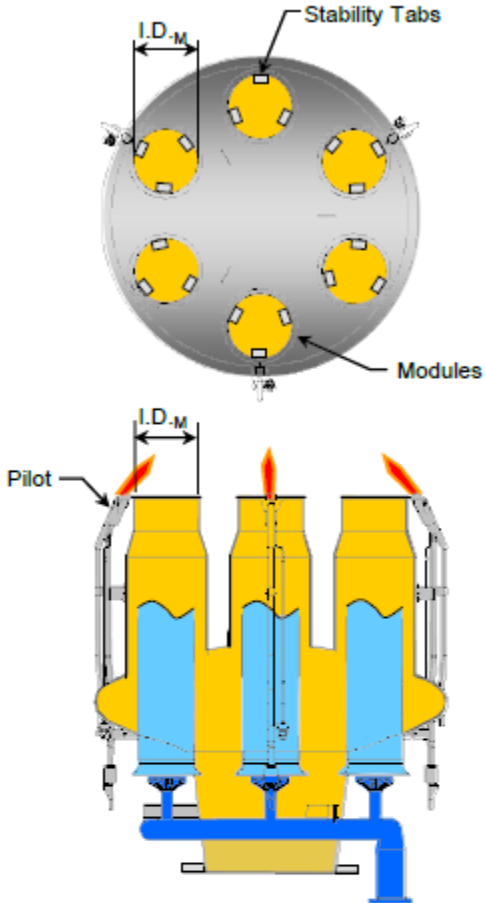
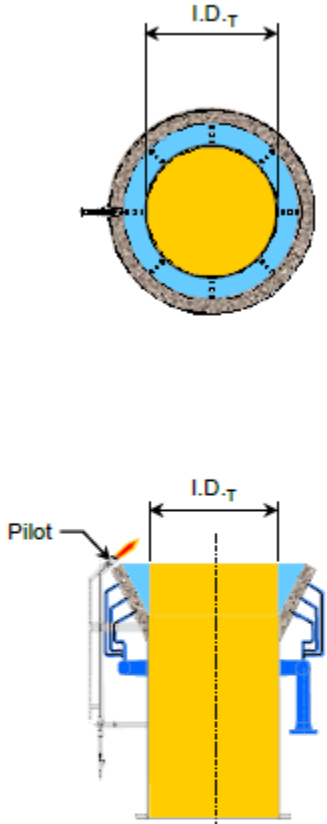
SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Figure 1. Diagram of Common Flare Tip Type I and II

<p>Type I</p>  $A_{tip-unob} = \pi(I.D.-T)^2/4 - (X_T * A_{ST})$	<p>Type II</p>  $A_{tip-unob} = \pi(I.D.-T)^2/4 - A_{ST} - N_T * \pi(O.D.-T)^2/4$
<p>Where:</p> <p>$A_{tip-unob}$ = Unobstructed Cross Sectional Area of Flare Tip</p> <p>$I.D.-T$ = Inside Diameter Flare Tip</p> <p>X_T = Number of Stability Tabs</p> <p>A_{ST} = Area of a Stability Tab</p>	<p>Where:</p> <p>$A_{tip-unob}$ = Unobstructed Cross Sectional Area of Flare Tip</p> <p>$I.D.-T$ = Inside Diameter Flare Tip</p> <p>A_{ST} = Area of Stability Ring</p> <p>$O.D.-T$ = Outside Diameter of Steam/Air Tubes</p> <p>N_T = Number of Steam/Air Tubes</p>
<p>Example: $I.D.-T$ = 41.5 inches</p> <p>X_T = 3</p> <p>A_{ST} = 3 Sq. inches</p>	<p>Example: $I.D.-T$ = 47.5 inches</p> <p>A_{ST} = 100 Sq. inches</p> <p>$O.D.-T$ = 6.5 inches</p> <p>N_T = 8</p>
<p>$A_{tip-unob} = \pi(41.5)^2/4 - (3 * 3)$</p> <p>$A_{tip-unob} = 1344$ Sq. inches</p>	<p>$A_{tip-unob} = \pi(47.5)^2/4 - 100 - 8 * \pi(6.5)^2/4$</p> <p>$A_{tip-unob} = 1322$ Sq. inches</p>

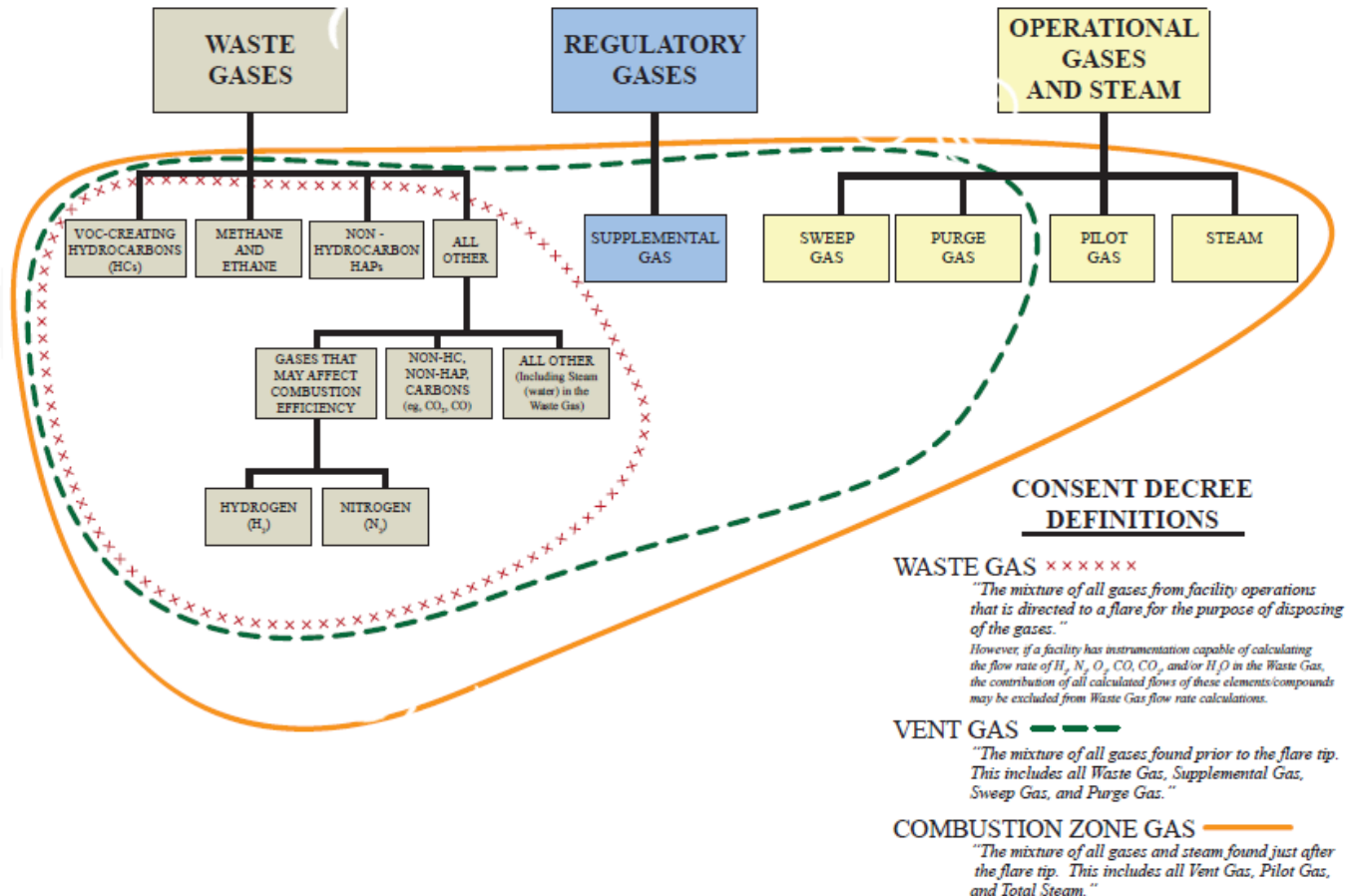
SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Figure 2. Diagram of Common Flare Tip Type III and IV

Type III	Type IV
 $A_{tip-unob} = N_M * (\pi * (I.D.M)^2 / 4 - X_T * A_{ST})$	 $A_{tip-unob} = \pi (I.D.T)^2 / 4$
<p>Where: $A_{tip-unob}$ = Unobstructed Cross Sectional Area of Flare Tip</p> <p>$I.D.M$ = Inside Diameter of One Tip Module</p> <p>N_M = Number of Modules</p> <p>X_T = Number of Stability Tabs per Module</p> <p>A_{ST} = Area of a Stability Tab</p>	<p>Where: $A_{tip-unob}$ = Unobstructed Cross Sectional Area of Flare Tip</p> <p>$I.D.T$ = Inside Diameter of Flare Tip</p>
<p>Example: $I.D.M$ = 17 inches</p> <p>N_M = 6 X_T = 3</p> <p>A_{ST} = 3 Sq. inches</p>	<p>Example: $I.D.T$ = 41.5 inches</p>
<p>$A_{tip-unob} = 6 * (\pi * (17)^2 / 4 - 3 * 3)$</p> <p>$A_{tip-unob} = 1308$ Sq. inches</p>	<p>$A_{tip-unob} = \pi (41.5)^2 / 4$</p> <p>$A_{tip-unob} = 1353$ Sq. inches</p>

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Figure 3. Depiction of Gases Associated with Flares



- f. Pursuant to 401 KAR 52:020, Section 10, the permittee must operate and maintain the Covered Flare in accordance with its design and the requirements of permit V-19-016 R2.
- g. Pursuant to 401 KAR 52:020, Section 10, the permittee must comply with the following Net Heating Value standards, except as provided in **1. Operating Limitations** i. (Standard During Instrument Downtime):
 - (1) Net Heating Value of Vent Gas (NHV_{vg}) for the Vinyls Flare. The permittee must operate the Vinyls Flare with an NHV_{vg} of greater than or equal to 200 Btu/scf determined on a 15-minute block period basis when Waste Gas is routed to the Vinyls Flare for at least 15 minutes. The permittee must monitor and calculate NHV_{vg} at the Vinyls Flare in accordance with **1. Operating Limitations** e.(6). [CD, Paragraph 44.d.]
- h. Pursuant to 401 KAR 52:020, Section 10, the permittee must operate the Covered Flare with a minimum of a 98% Combustion Efficiency at all times when Waste Gas is routed to the Covered Flare for at least 15 minutes. To demonstrate continuous compliance with the 98% Combustion Efficiency, the permittee must operate the Covered Flare in compliance with the applicable requirements in **1. Operating Limitations** g.(1). [CD, Paragraph 45.]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- i. Pursuant to 401 KAR 52:020, Section 10, if one or more of the following conditions (collectively referred to as “Instrument Downtime”) is present and renders the permittee incapable of operating a Covered Flare in accordance with the applicable NHV standards in **1. Operating Limitations** g.(1), the permittee must operate that Covered Flare in accordance with good air pollution control practices so as to minimize emissions and ensure good Combustion Efficiency at that Covered Flare [CD, Paragraph 46.]:

- (1) Malfunction of an instrument needed to meet the requirement(s); [CD, Paragraph 46.a.]
- (2) Repairs following the Malfunction of an instrument needed to meet the requirement(s); [CD, Paragraph 46.b.]
- (3) Recommended scheduled maintenance of an instrument in accordance with the manufacturer’s recommended schedule, for an instrument needed to meet the requirement(s); and/or [CD, Paragraph 46.c.]
- (4) Quality Assurance/Quality Control activities on an instrument needed to meet the requirement(s). Instrument Downtime must be calculated in accordance with 40 CFR 60.13(h)(2). [CD, Paragraph 46.d.]

In no event shall Instrument Downtime exceed 5% of the time in each Semi-Annual Period that the Covered Flare affected by the Instrument Downtime is In Operation. For purposes of calculating the 5%, the time used for NHV Analyzer, mass spectrometer, or gas chromatograph calibration and validation activities may be excluded.

Compliance Demonstration Method:

Refer to **4. Specific Monitoring Requirements** c. through e., **5. Specific Recordkeeping** b. and e., and **6. Specific Reporting Requirements** b.

2. Emission Limitations:

Pursuant to 401 KAR 63:015, Section 3, no permittee shall cause, suffer, or allow the emission into the open air of particulate matter from any flare which is greater than twenty (20) percent opacity for more than three (3) minutes in any one (1) day.

Compliance Demonstration Method:

For compliance with the opacity standards, refer to **4. Specific Monitoring Requirements** and **5. Specific Recordkeeping Requirements** a.(1).

3. Testing Requirements:

Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.

4. Specific Monitoring Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.
- b. Pursuant to 401 KAR 52:020, Section 10, when waste gases are sent to the flare, the permittee shall perform daily qualitative visual observations of the opacity of emissions at the flare. If visible emissions from the flare are observed (not including condensed water in the plume), the permittee shall determine the opacity using Reference Method 9. In lieu

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of determining the opacity using U.S. EPA Method 9, the permittee shall immediately perform a corrective action which results in no visible emissions (not including condensed water in the plume).

c. Pursuant to 401 KAR 52:020, Section 10:

- (1) For the Covered Flare, the permittee must install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the volumetric flow rate of Vent Gas in the header or headers feeding that Covered Flare. This system must also be able to continuously analyze pressure and temperature at each point of Vent Gas flow measurement. Different flow monitoring methods may be used to measure different gaseous streams that make up the Vent Gas provided that the flow rates of all gas streams that contribute to the Vent Gas are determined. Flow must be calculated in scfm. [CD, Paragraph 20.a.]
- (2) Each flow rate monitoring system must be able to correct for the temperature and pressure of the system and output parameters in Standard Conditions.[CD, Paragraph 20.d.]

d. Pursuant to 401 KAR 52:020, Section 10, for the Covered Flare, the permittee must either determine the concentration of individual components in the Vent Gas or directly monitor the Net Heating Value of the Vent Gas (NHV_{vg}) in compliance with one of the methods specified below. The permittee may elect to use different monitoring methods (of the methods provided below) for different gaseous streams that make up the Vent Gas provided the composition or Net Heating Value of all gas streams that contribute to the Vent Gas are determined. The permittee must [CD Paragraph 24.]:

- (1) Install, operate, calibrate, and maintain a monitoring system capable of continuously measuring (*i.e.*, at least once every 15 minutes), calculating, and recording the individual component concentrations present in the Vent Gas; or [CD, Paragraph 24.a.]
- (2) Install, operate, calibrate, and maintain a calorimeter capable of continuously measuring (*i.e.*, at least once every 15 minutes), calculating, and recording the NHV_{vg} at Standard Conditions. If the permittee elects this method, the permittee may install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the hydrogen concentration in the Vent Gas. The sample extraction point of the calorimeter may be located upstream of the introduction of Supplemental Gas and/or Sweep Gas and/or Purge Gas if the composition and flow rate of any such Supplemental Gas and/or Sweep Gas and/or Purge Gas is a known constant and if this constant then is used in the calculation of the Net Heating Value of the Vent Gas. [CD, Paragraph 24.b.]
- (3) If the permittee elects the method in **4. Specific Monitoring Requirements** d.(1), and the Net Heating Value of the Vent Gas exceeds the upper calibrated span of the calorimeter on the Covered Flare, then the permittee must use the value of the upper calibrated span of that calorimeter for calculating the NHV_{vg} at Standard Conditions until the Net Heating Value of the Vent Gas returns to within the measured calibrated span. Use of this method will not constitute instrument system downtime for the period of time that the Net Heating Value of the Vent Gas exceeds the upper calibrated span of the calorimeter. [CD, Paragraph 24.c.]

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- (4) Direct compositional or Net Heating Value monitoring is not required for purchased (“pipeline quality”) natural gas streams. The Net Heating Value of purchased natural gas streams may be determined using annual or more frequent grab sampling at any one representative location. Alternatively, the Net Heating Value of any purchased natural gas stream can be assumed to be 920 Btu/scf. [CD, Paragraph 24.d.]
- e. Pursuant to 401 KAR 52:020, Section 10:
- (1) The instrumentation and monitoring systems identified in **4. Specific Monitoring Requirements** c. and d. must: [CD, Paragraph 26.a.]
 - (i) Meet or exceed all applicable minimum accuracy, calibration and quality control requirements specified in Table 13 of 40 CFR 63, Subpart CC; [CD, Paragraph 26.a.(1)]
 - (ii) Have an associated readout (*i.e.*, a visual display or record) or other indication of the monitored operating parameter that is readily accessible onsite for operational control or inspection by the permittee; [CD, Paragraph 26.a.(2)]
 - (iii) Be capable of measuring the appropriate parameter over the range of values expected for that measurement location; and [CD, Paragraph 26.a.(3)]
 - (iv) Have an associated data recording system with a resolution that is equal to or better than the required instrumentation/system accuracy. [CD, Paragraph 26.a.(4)]
 - (2) The permittee must operate, maintain, and calibrate each instrument and monitoring system identified in **4. Specific Monitoring Requirements** c. and d. according to a monitoring plan that contains the information listed in 40 CFR 63.671(b)(1)-(5). However, if a permittee is determining NHV_{vg} using a process mass spectrometer, the permittee may use the methods established for determining NHV_{vg} as outlined in the February 5, 2018 letter to representatives of Extrel CMS, LLC and AMETEK, Energy & Process Division from Steffan M. Johnson, Group Leader, Measurement Technology Group, Office of Air Quality Planning and Standards in lieu of complying with 40 CFR 63.671(b)(1)-(5)’s requirements for determining NHV_{vg} using gas chromatographs. [CD, Paragraph 26.b.]
 - (3) All gas chromatograph systems permitted by **4. Specific Monitoring Requirements** d.(1) must also meet the requirements of 40 CFR 63.671(e)(1)-(3) (Additional Requirements for Gas Chromatographs) regardless of whether the gas chromatographs are complying with 40 CFR 63.671(e)(1)-(3) or the methods outlined in the February 5, 2018 letter to representatives of Extrel CMS, LLC and AMETEK, Energy & Process Division from Steffan M. Johnson, Group Leader, Measurement Technology Group, Office of Air Quality Planning and Standards. [CD, Paragraph 26.c.]
 - (4) For each instrumentation and monitoring system required by **4. Specific Monitoring Requirements** c. and d., the permittee must comply with the out-of-control procedures described in 40 CFR 63.671(c)(1) and (2), and with the data reduction requirements specified in 40 CFR 63.671(d)(1) through (3). [CD, Paragraph 26.d.]
 - (5) The permittee may elect to utilize exceptions set forth in 40 CFR 63.1103(e)(4)(i)-(ix) when complying with **4. Specific Monitoring Requirements** e. [CD, Paragraph 26.f.]
- f. Pursuant to 401 KAR 52:020, Section 10, the permittee must maintain and operate at the Calvert City Plant a Fenceline Monitoring Mitigation Project. [CD, Paragraph 48.]

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- g. Refer to **Section D** for Fenceline Monitoring Mitigation Project requirements.

5. **Specific Recordkeeping Requirements:**

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall record the following:
- (1) A log of the qualitative visual observations as specified in **4. Specific Monitoring Requirements** b. including the date, time, initials of observer, whether any emissions were observed (yes/no), any Method 9 readings taken, and any corrective action taken including results due to observed emissions.
 - (2) All routine and non-routine maintenance activities performed on the flare.
- b. Pursuant to 401 KAR 52:020, Section 10, the instrumentation and monitoring systems identified in **4. Specific Monitoring Requirements** c. through d. must be able to produce and record data measurements and calculations for each parameter at the following time intervals:

<u>Instrumentation and Monitoring System</u>	<u>Recording and Averaging Times</u>
Vent Gas, Assist Steam Flow Monitoring Systems, Assist Air Flow Monitoring Systems and (if installed) Pilot Gas Flow	Measure continuously and record 15-minute block averages
Vent Gas Compositional Monitoring (if using the methodology in 4. Specific Monitoring Requirements d.(1))	Measure no less than once every 15-minutes and record that value
Vent Gas Net Heating Value Analyzer (if using the methodology in 4. Specific Monitoring Requirements d.(2))	Measure continuously and record 15-minute block averages

The term “continuously” means to make a measurement as often as the manufacturer’s stated design capabilities of the flow monitors (for Vent Gas, Assist Steam, Assist Air, and if installed Pilot Gas) and the Vent Gas Net Heating Value Analyzers during each fifteen (15) minute block period, but in no case shall the flow monitors or the Vent Gas Net Heating Value Analyzers make less than one measurement in each fifteen (15) minute block period. The measurement results are then averaged and recorded to represent each fifteen (15) minute block period. Nothing in **5. Specific Recordkeeping Requirements** b. is intended to prohibit the permittee from setting up process control logic that uses different averaging times from those in this table provided that the recording and averaging times in this table are available and used for determining compliance. [CD, Paragraph 27.]

Until the termination of CD 2:22-cv-01577-JDC-KK between United States of America and Westlake Vinyls, Inc. the permittee shall comply **5. Specific Recordkeeping Requirements** c. and d. as follows:

- c. Pursuant to 401 KAR 52:020, Section 10, commencing no later than the applicable compliance dates set forth in Appendix 1.1 to the Consent Decree, except as provided in **6. Specific Reporting Requirements** d., the permittee must conduct an investigation into the root cause(s) of each Reportable Flaring Incident at any of the Covered Plants and prepare and keep as a record an internal report that contains the information listed below. The

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

permittee must conduct the investigation into the root cause(s) of each Reportable Flaring Incident and prepare the internal report by no later than 45 Days following the end of a Reportable Flaring Incident. The internal report must include, at a minimum, the following information:

- (1) The date and time that the Reportable Flaring Incident started and ended; [CD, Paragraph 35.a.(1)]
- (2) The measured volume of Waste Gas flared and an estimate of the individual quantities of VOCs and HAPs that were emitted during the Reportable Flaring Incident and the calculations that were used to determine the quantities; [CD, Paragraph 35.a.(2)]
- (3) The steps, if any, the permittee took to limit the duration of the Reportable Flaring Incident, and to limit the quantity of VOC and HAP emissions associated with the Reportable Flaring Incident; [CD, Paragraph 35.a.(3)]
- (4) A detailed analysis that sets forth the root cause and all contributing causes of the Reportable Flaring Incident, to the extent determinable; [CD, Paragraph 35.a.(4)]
- (5) An analysis of the measures, if any, that are available to reduce the likelihood of a recurrence of a Reportable Flaring Incident resulting from the same root cause or contributing causes. The analysis must discuss the alternatives, if any, that are available, the probable effectiveness and the cost of the alternatives, if an alternative is eliminated based on cost. Possible design, operation, and maintenance changes must be evaluated. If the permittee concludes that corrective action(s) is (are) required under **5. Specific Recordkeeping Requirements** d., the report must include a description of the action(s) and, if not already completed, a schedule for its (their) implementation, including proposed commencement and completion dates. If the permittee concludes that corrective action is not required under **5. Specific Recordkeeping Requirements** d., the report must explain the basis for that conclusion; and [CD, Paragraph 35.a.(5)]
- (6) To the extent that investigations of the causes or possible corrective actions are still underway 45 Days after the Reportable Flaring Incident ended, a statement of the anticipated date by which a follow-up report fully conforming to the requirements of **5. Specific Recordkeeping Requirements** c. of the Consent Decree will be completed. [CD, Paragraph 35.a.(6)]

- d. Pursuant to 401 KAR 52:020, Section 10, In response to any Reportable Flaring Incident, the Applicable Defendant must take, as expeditiously as practicable, such interim and long-term corrective actions, if any, as are consistent with good engineering practice to minimize the likelihood of a recurrence of the root cause and all contributing causes of that Reportable Flaring Incident. [CD, Paragraph 36.]
- e. Pursuant to 401 KAR 52:020, Section 10:
 - (1) For the Vinyls Flare, the permittee shall only calculate and record the NHV_{vg} (in Btu/scf) (in 15-minute block averages in accordance with **1. Operating Limitations** e.(4) through (6)). [CD, Paragraph 47.a.(7)]
 - (2) For the Covered Flare, the permittee must record the duration of all periods of Instrument Downtime for the Covered Flare that exceed 5% of the time in a Semi-Annual Period that the Covered Flare is In Operation. The permittee must record which instrument(s) experienced the downtime, which Covered Flare was affected by the

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downtime, an explanation of the cause(s) of the deviation, and a description of the corrective action(s) that the permittee took. [CD, Paragraph 47.b.]

- (3) At any time that the permittee deviates from the emissions standards in **1. Operating Limitations** g. – h. at the Covered Flare, the permittee must record the duration of the deviation, an explanation of the cause(s) of the deviation, and a description of the corrective action(s) that the permittee took. [CD, Paragraph 47.d.]

6. Specific Reporting Requirements:

- a. See **Section F**.

Until the termination of CD 2:22-cv-01577-JDC-KK between United States of America and Westlake Vinyls, Inc. the permittee shall comply with **6. Specific Reporting Requirements** b. – 1. as follows:

- b. For the Covered Flare, the permittee must submit a report, to the EPA that includes the following:
- (1) The information, diagrams, and drawings specified as follows [CD, Paragraph 18.a.];:
 - (i) Facility-Wide
 - (A) Facility plot plan showing the location of the Flare in relation to the general plant layout
 - (ii) General Description of Flare
 - (A) Ground or elevated
 - (B) Type of assist system
 - (C) Simple or integrated (e.g., sequential, staged)
 - (D) Date first installed
 - (E) History of any physical changes to the Flare
 - (F) Whether the Flare is a Temporary-Use Flare, and if so, the duration and time periods of use
 - (G) Flare Gas Recovery System (“FGRS”), if any, and date first installed
 - (iii) Flare Components: Complete description of each major component of the Flare, except the Flare Gas Recovery System (*see 6. Specific Reporting Requirements* b.(1)(v)), including but not limited to:
 - (A) Flare stack (for elevated flares)
 - (B) Flare tip
 - (1) Date installed
 - (2) Manufacturer
 - (3) Tip Size
 - (4) Tip Drawing
 - (5) Smokeless Design Capacity
 - (C) Knockout or surge drum(s) or pot(s), including dimensions and design capacities
 - (D) Water seal(s), including dimensions and design parameters
 - (E) Flare header(s)
 - (F) Sweep Gas system
 - (G) Purge gas system
 - (H) Pilot gas system
 - (I) Supplemental gas system

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- (J) Assist system
- (K) Ignition system
- (iv) Simplified process diagram(s) showing the configuration of the components listed in **6. Specific Reporting Requirements b.(1)(iii)**
- (v) Calvert Flare Gas Recovery Systems ("FGRSs")
 - (A) Complete description of each major component, including but not limited to:
 - (1) Compressor(s), including design capacities
 - (2) Water seal(s), rupture disk, or similar device to divert the flow
 - (B) Maximum actual past flow on an scfm basis and the annual average flow in scfm for the five years preceding Date of Lodging
 - (C) Simplified schematic showing the FGRSs
 - (D) Process Flow Diagram that adds the FGRSs to the PDF(s) in **6. Specific Reporting Requirements b.(1)(iv)**
- (vi) Flare Design Parameters
 - (A) Maximum Vent Gas Flow Rate and/or Mass Rate
 - (B) Maximum Sweep Gas Flow Rate and/or Mass Rate
 - (C) Maximum Purge Gas Flow and/or Mass Rate, if applicable
 - (D) Maximum Pilot Gas Flow and/or Mass Rate
 - (E) Maximum Supplemental Gas Flow Rate and/or Mass Rate
 - (F) If steam-assisted, Minimum Total Steam Rate, including all available information on how that Rate was derived
- (vii) Gases Venting to Flare
 - (A) Sweep Gas
 - (1) Type of gas used
 - (2) Actual set operating flow rate (in scfm)
 - (3) Average lower heating value expected for each type of gas used
 - (B) Purge Gas, if applicable
 - (1) Type of gas used
 - (2) Actual set operating flow rate (in scfm)
 - (3) Average lower heating value expected for each type of gas used
 - (C) Pilot Gas
 - (1) Type of gas used
 - (2) Actual set operating flow rate (in scfm)
 - (3) Average lower heating value expected for each type of gas used
 - (D) Supplemental Gas
 - (1) Type of gas used
 - (2) Average lower heating value expected for each type of gas used
 - (E) Steam (if applicable)
 - (1) Drawing showing points of introduction of Lower, Center, Upper, and any other steam
 - (F) Simplified flow diagram that depicts the points of introduction of all gases, including Waste Gases, at the Flare (in this diagram, the detailed drawings of **6. Specific Reporting Requirements b.(1)(vii)(1)** may be simplified; in addition, detailed Waste Gas mapping is not required; a simple identification of the header(s) that carries(y) the Waste Gas to the Flare and show(s)

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- its(their) location in relation to the location of the introduction of the other gases is all that is required)
- (2) A detailed description of each instrument and piece of monitoring equipment, including the specific model and manufacturer, that the permittee has installed or will install in compliance with **4. Specific Monitoring Requirements** c. – d. as follows [CD, Paragraph 18.b.]; and:
- (i) Existing Monitoring Systems
- (A) A brief narrative description, including manufacturer and date of installation, of all existing monitoring systems, including but not limited to:
- (1) Waste Gas and/or Vent Gas flow monitoring
 - (2) Waste Gas and/or Vent Gas heat content analyzer
 - (3) Sweep Gas flow monitoring
 - (4) Purge Gas flow monitoring
 - (5) Supplemental Gas flow monitoring
 - (6) Steam flow monitoring
 - (7) Waste Gas or Vent Gas molecular weight analyzer
 - (8) Gas Chromatograph
 - (9) Sulfur analyzer(s)
 - (10) Video camera
 - (11) Thermocouple
- (B) Drawing(s) showing locations of all existing monitoring systems
- (ii) Monitoring Equipment to be Installed to show compliance.
- (3) A narrative description of the monitoring methods and calculations that the permittee will use to comply with the requirements of **1. Operating Limitations** g. as follows [CD, Paragraph 18.c.]:
- (i) Narrative Description of the Monitoring Methods and Calculations that will be used to comply with the NHV_{CZ} Requirements.
- c. For each Semi-Annual Report, the permittee must include a summary of the following items for each Reportable Flaring Incident that occurred during the six-month period that the Semi-Annual Report covers [CD, Paragraph 35 b]:
- (1) Date;
 - (2) Duration;
 - (3) Amount of VOCs and HAPs emitted;
 - (4) Root cause(s);
 - (5) Corrective action(s) completed;
 - (6) Corrective action(s) still outstanding; and
 - (7) An analysis of any trends identified by the permittee in the number of Reportable Flaring Incidents, the root causes, or the types of corrective action(s).
- d. In lieu of preparing a new report under **6. Specific Reporting Requirements** c. and analyzing and implementing corrective action for a Reportable Flaring Incident that has as its root cause the same root cause as a previously reported Reportable Flaring Incident, the permittee may cross-reference and use the prior report and analysis when preparing the report required by **6. Specific Reporting Requirements** c. [CD, Paragraph 37]

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- e. By no later than February 28th and August 31st of each year after the Effective Date, until termination of the Consent Decree pursuant to Section XX of the Consent Decree, the permittee must submit a "Semi-Annual Report" to the EPA and to the KDEP, except that the first Semi-Annual Report shall be due 60 Days after the first full half year after the Effective Date of the Consent Decree (a "half year" runs between January 1 and June 30 and between July 1 and December 31). Each Semi-Annual Report must contain the following information for the preceding six months (i.e., January through June will be addressed in the report to be submitted by August 31, and July through December will be addressed in the report submitted by February 28, except that the first Semi-Annual Report will cover the period between the Effective Date through the end of the first full half year) [CD, Paragraph 55]:
- (1) A description of the status of work performed and progress made toward implementing all requirements of Section V (Compliance Requirements) at the Covered Plants. This topic should describe any major milestones completed and remaining to be completed; [CD, Paragraph 55.a.]
 - (2) A description of any problems encountered or anticipated in meeting the requirements in Section V (Compliance Requirements) at the Covered Plants, together with implemented or proposed solutions; [CD, Paragraph 55.b.]
 - (3) A description of the status of any permit applications, including a summary of all permitting activity, pertaining to compliance with the Consent Decree; [CD, Paragraph 55.c.]
 - (4) A copy of any reports that were submitted only to the KDEP and that pertain to compliance with the Consent Decree; [CD, Paragraph 55.d.]
 - (5) Any summary of internal flaring incident reports as required by Paragraphs 35-36 of the Consent Decree; [CD, Paragraph 55.f.]
 - (6) A summary of the following, per Covered Flare per Semi-Annual Period (hours shall be rounded to the nearest tenth): [CD, Paragraph 55.g.]
 - (i) The total number of hours of Instrument Downtime claimed pursuant to **1. Operating Limitations** i., expressed as both an absolute number and a percentage of time the Covered Flare that the instrument/equipment monitors is In Operation and Capable of Receiving Sweep, Supplemental, and/or Waste Gas; [CD, Paragraph 55.g.(1)]
 - (ii) If the total number of hours of Instrument Downtime claimed pursuant to **1. Operating Limitations** i. exceeds 5% of the time in a Semi-Annual Period, the Covered Flare affected by the downtime is In Operation, an identification of the periods of downtime by date, time, cause (including Malfunction or maintenance), and, if the cause is asserted to be a Malfunction, the corrective action taken; [CD, Paragraph 55.g.(2)]
 - (iii) The total number of hours, expressed as both an absolute number of hours and a percentage of time that the Covered Flare was In Operation, in which the requirements of **1. Operating Limitations** f. and g. were not applicable because the only gas or gases being vented were Pilot Gas or Purge Gas; [CD, Paragraph 55.g.(3)]
 - (iv) Exceedances of Emissions Standards. [CD, Paragraph 55.g.(4)]
 - (A) The total number of hours, expressed as both an absolute number of hours and a percentage of time the Covered Flare was In Operation, of exceedances of the

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- emissions standards in **1. Operating Limitations** g. and h.; provided however, that if the exceedance of these standards was less than 5% of the time in a Semi-Annual Period and was due to one or more of the exceptions set forth in **1. Operating Limitations** i., the report shall so note; [CD, Paragraph 55.g.(4)(a)]
- (B) If the exceedance of the emissions standards in **1. Operating Limitations** g. and h. was not due to one of the exceptions in **1. Operating Limitations** i. (Standard During Instrument Downtime), or if the exceedance was due to one or more of the exceptions in Paragraph 45 of the Consent Decree and the total number of hours caused by the exceptions exceeds 5% of the time in a Semi-Annual Period that the Covered Flare affected by the Instrument Downtime was In Operation, an identification of each block period that exceeded the standard, by time and date; the cause of the exceedance (including startup, shutdown, maintenance, or Malfunction), and if the cause is asserted to be a Malfunction, an explanation and any corrective actions taken; [CD, Paragraph 55.g.(4)(b)]
- (7) Any additional matters that the permittee believes should be brought to the attention of the EPA or the KDEP. [CD, Paragraph 55.h.]
- f. In the Semi-Annual report that is submitted by February 28 of each year, the permittee must provide, for the Covered Flare, for the prior calendar year, the amount of emissions of the following compounds (in tons per year): VOCs, HAPs, CO₂, methane, and ethane. [CD, Paragraph 57]
- g. Each Semi-Annual report must also include a description of any non-compliance with the requirements of the Consent Decree not otherwise identified in **6. Specific Reporting Requirements** e. and an explanation of the violation's likely cause and of the remedial steps taken, or to be taken, to prevent or minimize such violation. If the cause of a violation cannot be fully explained at the time the report is due, the permittee must so state in the report. The permittee must investigate the cause of the violation and must then submit an amendment to the report, including a full explanation of the cause of the violation, within 30 Days of the Day the permittee becomes aware of the cause of the violation. Nothing in **6. Specific Reporting Requirements** g. or h. relieves the permittee of its obligation to provide the notice required by **6. Specific Reporting Requirements** i. [CD, Paragraph 58]
- h. All reports required under Section VIII of the Consent Decree must be submitted to the persons and in the manner designated in Section XVI of the Consent Decree (Notices). [CD, Paragraph 59]
- i. Each report submitted by the permittee under Section VIII of the Consent Decree must be signed by an official of the Covered Plant and include the following certification [CD, Paragraph 60]
- I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information

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submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

- j. The reporting requirements of the Consent Decree do not relieve the permittee of any reporting obligations required by the CAA, state or local laws, or their implementing regulations, or by any other federal, state, or local law, regulation, permit, or other requirement. [CD, Paragraph 61]
- k. Any information provided pursuant to the Consent Decree may be used by the United States, and KDEP in any proceeding to enforce the provisions of the Consent Decree and as otherwise permitted by law. [CD, Paragraph 62]
- l. "Force Majeure," for purposes of the Consent Decree, is defined as any event beyond the control of the permittee, of any entity controlled by the permittee, or of the permittee's contractors, which delays or prevents the performance of any obligation under the Consent Decree despite the permittee's best efforts to fulfill the obligation. Refer to Paragraphs 76 through 80 of the Consent Decree. [CD, Paragraphs 76]

7. Specific Control Equipment Operating Conditions:

None

8. Alternate Operating Scenario:

- a. Pursuant to 40 CFR 61.65(d)(2), a relief valve discharge that is ducted to a flare that is continually operating while emissions from the release are present at the flare shall comply with the requirements of 40 CFR 60.18 as follows:
 - (1) Pursuant to 40 CFR 60.18(c)(1), flares shall be designed for and operated with no visible emissions as determined by the methods specified in 40 CFR 60.18(f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
 - (2) Pursuant to 40 CFR 60.18(c)(2), flares shall be operated with a flame present at all times, as determined by the methods specified in 40 CFR 60.18(f).

Compliance Demonstration Method:

- (1) Pursuant to 40 CFR 60.18(f)(1), method 22 of appendix A to 40 CFR Part 60 shall be used to determine the compliance of flares with the visible emission provisions of 40 CFR 60, Subpart A. The observation period is 2 hours and shall be used according to Method 22.
- (2) Pursuant to 40 CFR 61.65(d)(2)(i), flare operations shall be monitored in accordance with the requirements of 40 CFR 60.18(d) and 60.18(f)(2). For the purposes of 40 CFR 60.18(d), the volume and component concentration of each relief valve discharge shall be estimated and calculation shall be made to verify ongoing compliance with the design and operating requirements of 40 CFR 60.18(c)(3) through (c)(6). If more than one relief valve is discharged simultaneously to a single flare, these calculations shall account for the cumulative effect of all such relief valve discharges. These calculations shall be made and reported quarterly for all discharges within the quarter. Failure to comply with any of the requirements of 40 CFR 61.65(d)(2)(i) will be a violation of 40 CFR 61.65(d)(2).

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Monitoring for the presence of a flare pilot flame shall be conducted in accordance with 40 CFR 60.18(f)(2). If the results of this monitoring or any other information shows that the pilot flame is not present 100 percent of the time during which a relief valve discharge is routed to the flare, the relief valve discharge is subject to the provisions of 40 CFR 61.65(a).

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036 (EPN FUG) Monomers Plant Fugitives

Description: The following is an approximate count of the total pipeline equipment at the entire Monomers and E&E plants.

(FUG-MON-H) Monomers Plant Fugitives Subject to MACT H

Process's 1-6, 19-24 Includes all pipeline equipment at the Monomers plant to which 40 CFR 63, Subpart H, 40 CFR 60, Subpart VV; or 40 CFR 61, Subparts F or V, are applicable.

3,612	Gas/Vapor Valves	9,024	Light Liquid Valves
0	Heavy Liquid Valves	14,995	Gas/Vapor Connectors
34,151	Light Liquid Connectors	0	Heavy Liquid Connectors
124	Light Liquid Pumps	0	Heavy Liquid Pumps
9	Compressors	49	Relief Valves

(FUG-MON) Monomers Plant Fugitives not Subject to MACT H

Process's 7-14 Includes all pipeline equipment at the Monomers plant to which 40 CFR 63, Subpart H, 40 CFR 60, Subpart VV; or 40 CFR 61, Subparts F or V, are not applicable.

1,642	Gas/Vapor Valves	128	Light Liquid Valves
118	Heavy Liquid Valves	5,929	Gas/Vapor Connectors
5,929	Light Liquid Connectors	1,376	Heavy Liquid Connectors
0	Light Liquid Pumps	3	Heavy Liquid Pumps
0	Compressors	6	Relief Valves

(FUG-MON-NG) Monomers Plant Fugitives in Natural Gas Service

Process's 15-16 Includes all pipeline equipment at the Monomers and E&E plants in Natural Gas Service for which 40 CFR 63, Subpart H, 40 CFR 60, Subpart VV; or 40 CFR 61, Subparts F or V, are not applicable.

1,389	Gas Valves	15,199	Gas Connectors
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NOTE - The pipeline equipment count listed above reflects an accurate count of the equipment as of the date of issuance of this permit but is not intended to limit the permittee to the exact numbers specified. The permittee may add or remove pipeline equipment without a permit revision as long as the equipment continues to comply with the applicable requirements listed below and the changes do not result in a significant increase in emissions on potential to emit.

Monomers Plant Fugitives Subject to 401 KAR 51:017 from 2020 Expansion Project

The following pipeline equipment are from the 2020 Expansion Project at the Monomers Plant. The pipeline equipment count listed below are from Monomers Plant Fugitives and Monomers Plant Fugitives in Natural Gas Service; and reflects an accurate count of the equipment as of the date of issuance of permit V-19-016 and reflects the number of each type of equipment subject to Best Available Control Technology (BACT) pursuant to 401 KAR 51:017, Section 8.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Monomers Plant Fugitives Subject to 401 KAR 51:017

Process 17

225	Gas/Vapor Valves	414	Light Liquid Valves
6	Heavy Liquid Valves	958	Gas/Vapor Connectors
1,580	Light Liquid Connectors	18	Heavy Liquid Connectors
6	Light Liquid Pumps	1	Heavy Liquid Pumps
0	Compressors	4	Relief Valves

Monomers Plant Fugitives in Natural Gas Service Fugitives Subject to 401 KAR 51:017

Process 18

278	Gas Valves	3,040	Gas Connectors
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APPLICABLE REGULATIONS:

401 KAR 57:002, Section 2, 40 C.F.R. 61.60 through 61.71, (Subpart F), National Emission Standard for Vinyl Chloride

401 KAR 57:002, Section 2, 40 C.F.R. 61.240 through 61.247, Tables 1 through 2 (Subpart V) National Emission Standard for Equipment Leaks (Fugitive Emission Sources)

401 KAR 60:005, Section 2(2)(bbb), 40 C.F.R. 60.480 through 60.489 (Subpart VV), Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After January 5, 1981, and on or Before November 7, 2006

40 CFR 60, Subpart VV applies only to the following equipment in the Monomers Plant:

East EDC Oxy Reactor Off-Gas Recycling	#8 EDC Shore Tank
South EDC Oxy A Reactor Off-Gas Recycling	#9 EDC Shore Tank
South EDC Oxy B Reactor Off-Gas Recycling	#3 EDC Cracking Furnace
Oxy Crude EDC Stripper	

401 KAR 63:002, Section 2(4)(c), 40 C.F.R. 63.160 through 63.183, Tables 1 through 4 (Subpart H), National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks

401 KAR 51:017, Prevention of Significant Deterioration of Air Quality [VOC and CO_{2e}]

STATE ORIGIN REQUIREMENTS:

401 KAR 63:020, Potentially hazardous matter or toxic substances

1. Operating Limitations:

- a. Pursuant to 40 CFR 63.160(b)(1) and (2), after the compliance date for a process unit, equipment to which 40 CFR 63, Subpart H applies that are also subject to the provisions of 40 CFR Part 60 and 40 CFR Part 61 will be required to comply only with the provisions of 40 CFR 63, Subpart H.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

For the pipeline equipment, the permittee shall implement a leak detection and repair (LDAR) program containing the following elements:

- b. Pursuant to 40 CFR 63.162(c), each piece of equipment in a process unit to which 40 CFR 63, Subpart H applies shall be identified such that it can be distinguished readily from equipment that is not subject to 40 CFR 63, Subpart H. Identification of the equipment does not require physical tagging of the equipment. For example, the equipment may be identified on a plant site plan, in log entries, or by designation of process unit boundaries by some form of weatherproof identification.
- c. Pursuant to 40 CFR 63.162(f), when each leak is detected as specified in 40 CFR 63.163 and 40 CFR 63.164; 40 CFR 63.168 and 40 CFR 63.169; and 40 CFR 63.172 through 40 CFR 63.174, the following requirements apply:
 - (3) Clearly identify the leaking equipment.
 - (4) The identification on a valve may be removed after it has been monitored as specified in 40 CFR 63.168(f)(3), and 40 CFR 63.175(e)(7)(i)(D), and no leak has been detected during the follow-up monitoring. If the permittee elects to comply using the provisions of 40 CFR 63.174(c)(1)(i), the identification on a connector may be removed after it is monitored as specified in 40 CFR 63.174(c)(1)(i) and no leak is detected during that monitoring.
 - (5) The identification which has been placed on equipment determined to have a leak, except for a valve or for a connector that is subject to the provisions of 40 CFR 63.174(c)(1)(i), may be removed after it is repaired.

Compliance Demonstration Method:

Pursuant to 40 CFR 63.162(a), compliance with 40 CFR 63, Subpart H will be determined by review of the records required by 40 CFR 63.181 and the reports required by 40 CFR 63.182, review of performance test results, and by inspections.

- d. Specific standards for each type of pipeline equipment are described under **2. Emission Limitations** below.
- e. Pursuant to 401 KAR 51:017, Section 8, the following control technology, equipment and method are required to meet Best Available Control Technology (BACT) demonstration for Volatile Organic Compounds (VOC) emissions:
 - (1) The permittee shall keep records of the count of fugitive components added which are subject to 401 KAR 51:017 and identify and label them as subject to 401 KAR 51:017 using the procedures of 40 CFR 63, Subpart H.
 - (2) For units subject to 40 CFR 63, Subpart H, the permittee shall implement the requirements from 40 CFR 63, Subpart H (LDAR) and the requirements in the following **Compliance Demonstration Method**.
 - (3) For units not subject to 40 CFR 63, Subpart H, but subject to 401 KAR 51:017, the permittee shall comply with the requirements of 40 CFR 63, Subpart H and the requirements in the following **Compliance Demonstration Method**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (4) For pumps subject to 401 KAR 51:017, the permittee shall install leak-less pumps with dual mechanical seals or with a barrier fluid to reduce leaks. If a leak-less pump is not feasible, the permittee shall submit justification as to its technical infeasibility.
- f. Pursuant to 401 KAR 51:017, Section 8, the following control technology, equipment and method are required to meet Best Available Control Technology (BACT) demonstration for Greenhouse Gases (as CO₂e) emissions:
 - (1) The permittee shall keep records of the count of fugitive components added which are subject to 401 KAR 51:017 and identify and label them as subject to 401 KAR 51:017 using the procedures of 40 CFR 63, Subpart H.
 - (2) For units subject to 40 CFR 63, Subpart H, (if any) the permittee shall implement the requirements from 40 CFR 63, Subpart H (LDAR) and the requirements in the following **Compliance Demonstration Method**.
 - (3) For units not subject to 40 CFR 63, Subpart H, but subject to 401 KAR 51:017, the permittee shall comply with the requirements of 40 CFR 63, Subpart H and the requirements in the following **Compliance Demonstration Method**.

Compliance Demonstration Method:

- (1) Pursuant to 401 KAR 51:017, for continuous compliance with **1. Operating Limitations** e. and f., the permittee shall comply with the following requirements for a leak as defined as a reading of 500 ppmv:
 - (i) Construction of new and reworked piping, valves, pump systems, and compressor systems shall conform to applicable American National Standards Institute (ANSI), American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), or equivalent codes.
 - (ii) New and reworked underground process pipelines shall contain no buried valves such that fugitive emission monitoring is rendered impractical. New and reworked buried connectors shall be welded.
 - (iii) To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be so located to be reasonably accessible for leak-checking during plant operation. Difficult-to-monitor and unsafe-to-monitor valves, as defined by 40 CFR 63, Subpart H, shall be identified in a list to be made available upon request. The difficult-to-monitor and unsafe-to-monitor valves may be identified by one or more of the methods described in 40 CFR 63.162(c). If an unsafe to monitor component is not considered safe to monitor within a calendar year, then it shall be monitored as soon as possible during safe to monitor times. A difficult to monitor component for which quarterly monitoring is specified may instead be monitored annually.
 - (iv) New and reworked piping connections shall be welded or flanged. Screwed connections are permissible only on piping smaller than two-inch diameter. Gas or hydraulic testing of the new and reworked piping connections at no less than operating pressure shall be performed prior to returning the components to service or they shall be monitored for leaks using an approved gas analyzer within 15 days of the components being returned to service. Adjustments shall be made as necessary to obtain leak-free performance. Connectors shall be inspected by visual, audible, and/or olfactory means at least weekly by operating personnel walk-through.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (v) Each open-ended valve or line shall be equipped with an appropriately sized cap, blind flange, plug, or a second valve to seal the line. Except during sampling, both valves shall be closed. If the isolation of equipment for hot work or the removal of a component for repair or replacement results in an open ended line or valve, it is exempt from the requirement to install a cap, blind flange, plug, or second valve for 72 hours. If the repair or replacement is not completed within 72 hours, the permit holder must complete either of the following actions within that time period;
 - (A) A cap, blind flange, plug, or second valve must be installed on the line or valve; or
 - (B) The open-ended valve or line shall be monitored once for leaks above background for a plant or unit turnaround lasting up to 45 days with an approved gas analyzer and the results recorded. For all other situations, the open-ended valve or line shall be monitored once by the end of the 72 hours period following the creation of the open ended line and monthly thereafter with an approved gas analyzer and the results recorded. For turnarounds and all other situations, leaks are indicated by readings of 500 ppmv and must be repaired within 24 hours or a cap, blind flange, plug, or second valve must be installed on the line or valve.
- (vi) Accessible valves shall be monitored by leak checking for fugitive emissions at least quarterly using an approved gas analyzer. Sealless/leak-less valves (including, but not limited to, welded bonnet bellows and diaphragm valves) and relief valves equipped with a rupture disc upstream or venting to a control device are not required to be monitored. If a relief valve is equipped with rupture disc, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity.
 - (A) A check of the reading of the pressure-sensing device to verify disc integrity shall be performed at least quarterly and recorded in the unit log or equivalent.
 - (B) Pressure-sensing devices that are continuously monitored with alarms are exempt from recordkeeping requirements specified in this paragraph. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.
 - (C) A gas analyzer shall conform to requirements listed in Method 21 of 40 CFR 60, appendix A. The gas analyzer shall be calibrated with methane. In addition, the response factor of the instrument for a specific VOC of interest shall be determined and meet the requirements of Section 8 of Method 21. If a mixture of VOCs is being monitored, the response factor shall be calculated for the average composition of the process fluid. A calculated average is not required when all of the compounds in the mixture have a response factor less than 10 using methane. If a response factor less than 10 cannot be achieved using methane, then the instrument may be calibrated with one of the VOC to be measured or any other VOC so long as the instrument has a response factor of less than 10 for each of the VOC to be measured.
 - (D) Replacements for leaking components shall be re-monitored within 15 days of being placed back into VOC service.
- (vii) All pump and compressor seals shall be monitored with an approved gas analyzer at least quarterly or be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. Seal systems designed and operated to prevent

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

emissions or seals equipped with an automatic seal failure detection and alarm system need not be monitored. These seal systems may include (but are not limited to) dual pump seals with barrier fluid at higher pressure than process pressure, seals degassing to vent control systems kept in good working order, or seals equipped with an automatic seal failure detection and alarm system. Submerged pumps or sealless pumps (including, but not limited to, diaphragm, canned, or magnetic-driven pumps) may be used to satisfy the requirements of this condition and need not be monitored.

- (viii) Damaged or leaking valves, connectors, pump seals, and compressor seals found to be emitting VOC in excess of 500 parts per million by volume (ppmv) or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A first attempt to repair the leak must be made within 5 days and a record of the attempt shall be maintained.
- (ix) A leaking component shall be repaired as soon as practicable, but no later than 15 days after the leak is found. If the repair of a component would require a unit shutdown that would create more emissions than the repair would eliminate, the repair may be delayed until the next scheduled shutdown. All leaking components which cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging within 15 days of the detection of the leak. A listing of all components that qualify for delay of repair shall be maintained on a delay of repair list. The cumulative daily emissions from all components on the delay of repair list shall be estimated by multiplying by 24 the mass emission rate for each component calculated in accordance with the methods in the EPA correlation approach in Section 2.3.3 alone or in combination with the mass emission sampling approach in Chapter 4 of the EPA guidance document *Protocol for Equipment Leak Emission Estimates* (EPA-453/R-95-017, November 1995). The calculations of the cumulative daily emissions from all components on the delay of repair list shall be updated within ten days of when the latest leaking component is added to the delay of repair list. When the cumulative daily emission rate of all components on the delay of repair list times the number of days until the next scheduled unit shutdown is equal to or exceeds the total emissions from a unit shutdown, the Division shall be notified and may require early unit shutdown or other appropriate action based on the number and severity of tagged leaks awaiting shutdown. This notification shall be made within 15 days of making this determination.
- (x) Records of repairs shall include date of repairs, repair results, justification for delay of repairs, and corrective actions taken for all components. Records of instrument monitoring shall indicate dates and times, test methods, and instrument readings. The instrument monitoring record shall include the time that monitoring took place for no less than 95% of the instrument readings recorded. Records of physical inspections shall be noted in the permittee's log or equivalent.
- (xi) In addition to the weekly physical inspection required by **Compliance Demonstration Method** (1)(iv), all connectors in gas/vapor and light liquid service shall be monitored annually with an approved gas analyzer in accordance with **Compliance Demonstration Method** (1)(vi) through (ix).
- (xii) New relief valves are required to vent to a control device for any potential releases and as a result, any fugitive emissions are reduced. Exceptions may be made if venting relief valves to control will result in a safety concern, but this does not exempt

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

the company from controls such as equipping the valve with a rupture disk and pressure-sensing device.

- g. Pursuant to 401 KAR 52:020, Section 10, the permittee shall use the following control efficiencies while calculating emissions from each fugitive component that is subject to the requirements in **1. Operating Limitations** e. and f.:
- (1) 97% for valves in gas/vapor and light liquid service;
 - (2) 0% for valves in heavy liquid service;
 - (3) 85% for pumps in light liquid service;
 - (4) 0% for pumps in heavy liquid service;
 - (5) 75% for connectors in gas/vapor and light liquid service;
 - (6) 85% for all compressors; and
 - (7) 97% for relief valves in gas/vapor service.

2. Emission Limitations:

Pursuant to 401 KAR 63:020, Section 3, persons responsible for a source from which hazardous matter or toxic substances may be emitted shall provide the utmost care and consideration, in the handling of these materials, to the potentially harmful effects of the emissions resulting from such activities. No owner or operator shall allow any affected facility to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals and plants. Evaluation of such facilities as to adequacy of controls and/or procedures and emission potential will be made on an individual basis by the cabinet.

Compliance Demonstration Method:

Based on the rates of emissions of airborne toxics provided in the applications submitted by the source, the source is in compliance with 401 KAR 63:020.

3. Testing Requirements:

- a. Pursuant to 40 CFR 63.180(a), each permittee subject to the provisions of 40 CFR 63, Subpart H shall comply with the test methods and procedures requirements provided in 40 CFR 63.180 as follows:
- (1) Monitoring, as required under 40 CFR 63, Subpart H, shall comply with the following requirements:
 - (i) Monitoring shall comply with Method 21 of 40 CFR part 60, appendix A.
 - (ii) (A) Except as provided for in 40 CFR 63.180(b)(2)(ii), the detection instrument shall meet the performance criteria of Method 21 of 40 CFR part 60, appendix A, except the instrument response factor criteria in Section 3.1.2(a) of Method 21 shall be for the average composition of the process fluid not each individual VOC in the stream. For process streams that contain nitrogen, water, air, or other inerts which are not organic HAP's or VOC's, the average stream response factor may be calculated on an inert-free basis. The response factor may be determined at any concentration for which monitoring for leaks will be conducted.
 - (B) If no instrument is available at the plant site that will meet the performance criteria specified in 40 CFR 63.180(b)(2)(i), the instrument readings may be

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

adjusted by multiplying by the average response factor of the process fluid, calculated on an inert-free basis as described in 40 CFR 63.180(b)(2)(i).

- (iii) The instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21 of 40 CFR part 60, appendix A.
- (iv) Calibration gases shall be:
 - (A) Zero air (less than 10 parts per million of hydrocarbon in air); and
 - (B) Mixtures of methane in air at the concentrations specified in 40 CFR 63.180(b)(4)(ii)(A) through (b)(4)(ii)(C). A calibration gas other than methane in air may be used if the instrument does not respond to methane or if the instrument does not meet the performance criteria specified in 40 CFR 63.180(b)(2)(i). In such cases, the calibration gas may be a mixture of one or more of the compounds to be measured in air.
 - (1) For Phase I, a mixture of methane or other compounds, as applicable, in air at a concentration of approximately, but less than, 10,000 parts per million.
 - (2) For Phase II, a mixture of methane or other compounds, as applicable, and air at a concentration of approximately, but less than, 10,000 parts per million for agitators, 5,000 parts per million for pumps, and 500 parts per million for all other equipment, except as provided in 40 CFR 63.180(b)(4)(iii).
 - (3) For Phase III, a mixture of methane or other compounds, as applicable, and air at a concentration of approximately, but less than, 10,000 parts per million methane for agitators; 2,000 parts per million for pumps in food/medical service; 5,000 parts per million for pumps in polymerizing monomer service; 1,000 parts per million for all other pumps; and 500 parts per million for all other equipment, except as provided in 40 CFR 63.180(b)(4)(iii).
 - (C) The instrument may be calibrated at a higher methane concentration than the concentration specified for that piece of equipment. The concentration of the calibration gas may exceed the concentration specified as a leak by no more than 2,000 parts per million. If the monitoring instrument's design allows for multiple calibration scales, then the lower scale shall be calibrated with a calibration gas that is no higher than 2,000 parts per million above the concentration specified as a leak and the highest scale shall be calibrated with a calibration gas that is approximately equal to 10,000 parts per million. If only one scale on an instrument will be used during monitoring, the permittee need not calibrate the scales that will not be used during that day's monitoring.
- (v) Monitoring shall be performed when the equipment is in organic HAP service, in use with an acceptable surrogate volatile organic compound which is not an organic HAP, or is in use with any other detectable gas or vapor.
- (vi) Monitoring data that do not meet the criteria specified in 40 CFR 63.180(b)(1) through (b)(5) may be used to qualify for less frequent monitoring under the provisions in 40 CFR 63.168(d)(2) and (d)(3) or 40 CFR 63.174(b)(3)(ii) or (b)(3)(iii) provided the data meet the conditions specified in 40 CFR 63.180(b)(6)(i) and (b)(6)(ii).
 - (A) The data were obtained before April 22, 1994.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (B) The departures from the criteria specified in 40 CFR 63.180(b)(1) through (b)(5) or from the specified monitoring frequency of 40 CFR 63.168(c) are minor and do not significantly affect the quality of the data. Examples of minor departures are monitoring at a slightly different frequency (such as every six weeks instead of monthly or quarterly), following the performance criteria of section 3.1.2(a) of Method 21 of appendix A of 40 CFR part 60 instead of 40 CFR 63.180(b)(2), or monitoring at a different leak definition if the data would indicate the presence or absence of a leak at the concentration specified in this subpart. Failure to use a calibrated instrument is not considered a minor departure.
- (2) When equipment is monitored for compliance as required in 40 CFR 63.164(i), 40 CFR 63.165(a), and 40 CFR 63.172(f) or when equipment subject to a leak definition of 500 ppm is monitored for leaks as required by 40 CFR 63, Subpart H, the permittee may elect to adjust or not to adjust the instrument readings for background. If a permittee elects to not adjust instrument readings for background, the permittee shall monitor the equipment according to the procedures specified in 40 CFR 63.180(b)(1) through (b)(4). In such case, all instrument readings shall be compared directly to the applicable leak definition to determine whether there is a leak. If a permittee elects to adjust instrument readings for background, the permittee shall monitor the equipment according to the procedures specified in 40 CFR 63.180(c)(1) through (c)(4).
- (i) The requirements of 40 CFR 63.180(b)(1) through (4) shall apply.
 - (ii) The background level shall be determined, using the same procedures that will be used to determine whether the equipment is leaking.
 - (iii) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Method 21 of 40 CFR part 60, appendix A.
 - (iv) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 parts per million for determining compliance.
- (3) (i) Each piece of equipment within a process unit that can reasonably be expected to contain equipment in organic HAP service is presumed to be in organic HAP service unless a permittee demonstrates that the piece of equipment is not in organic HAP service. For a piece of equipment to be considered not in organic HAP service, it must be determined that the percent organic HAP content can be reasonably expected not to exceed 5 percent by weight on an annual average basis. For purposes of determining the percent organic HAP content of the process fluid that is contained in or contacts equipment, Method 18 of 40 CFR part 60, appendix A shall be used.
- (ii) (A) A permittee may use good engineering judgment rather than the procedures in 40 CFR 63.180(d)(1) to determine that the percent organic HAP content does not exceed 5 percent by weight. When a permittee and the Administrator do not agree on whether a piece of equipment is not in organic HAP service, however, the procedures in 40 CFR 63.180(d)(1) shall be used to resolve the disagreement.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (B) Conversely, the permittee may determine that the organic HAP content of the process fluid does not exceed 5 percent by weight by, for example, accounting for 98 percent of the content and showing that organic HAP is less than 3 percent.
 - (iii) If a permittee determines that a piece of equipment is in organic HAP service, the determination can be revised after following the procedures in 40 CFR 63.180(d)(1), or by documenting that a change in the process or raw materials no longer causes the equipment to be in organic HAP service.
 - (iv) Samples used in determining the percent organic HAP content shall be representative of the process fluid that is contained in or contacts the equipment.
- b. Refer to **4. Specific Monitoring Limitations** for additional requirements.
 - c. See **Section G**.

4. Specific Monitoring Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall incorporate the requirements specified in 40 CFR 63, Subpart H in the required leak detection and repair (LDAR) program. If any of the equipment qualifies for the specific exemptions available in 40 CFR 63, Subpart H, the permittee shall maintain records of the reason(s) why the equipment is exempt.

Compliance Demonstration Method:

A copy of the leak detection and repair (LDAR) program meeting the criteria listed above shall be kept available at a readily accessible location for inspection.

- b. Pursuant to 40 CFR 63.163, Standards: Pumps in light liquid service:
 - (1) The provisions of 40 CFR 63.163(a) apply to each pump that is in light liquid service.
 - (2) (i) The permittee of a process unit subject to 40 CFR 63, Subpart H shall monitor each pump monthly to detect leaks by the method specified in 40 CFR 63.180(b) and shall comply with the requirements of 40 CFR 63.163(a) through (d), except as provided in 40 CFR 63.162(b) and 40 CFR 63.162(e) through (j).
 - (ii) The instrument reading, as determined by the method as specified in 40 CFR 63.180(b), that defines a leak in each phase of the standard is:
 - (A) For Phase I, an instrument reading of 10,000 parts per million or greater.
 - (B) For Phase II, an instrument reading of 5,000 parts per million or greater.
 - (C) For Phase III, an instrument reading of:
 - (1) 5,000 parts per million or greater for pumps handling polymerizing monomers;
 - (2) 2,000 parts per million or greater for pumps in food/medical service; and
 - (3) 1,000 parts per million or greater for all other pumps.
 - (iii) Each pump shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal. If there are indications of liquids dripping from the pump seal, a leak is detected.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (3) (i) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR 63.163(c)(3) or 40 CFR 63.171.
- (ii) A first attempt at repair shall be made no later than 5 calendar days after the leak is detected. First attempts at repair include, but are not limited to, the following practices where practicable:
 - (A) Tightening of packing gland nuts.
 - (B) Ensuring that the seal flush is operating at design pressure and temperature.
- (iii) For pumps in Phase III to which a 1,000 parts per million leak definition applies, repair is not required unless an instrument reading of 2,000 parts per million or greater is detected.
- (4) (i) The permittee shall decide no later than the first monitoring period whether to calculate percent leaking pumps on a process unit basis or on a source-wide basis. Once the permittee has decided, all subsequent percent calculations shall be made on the same basis.
- (ii) If, in Phase III, calculated on a 6-month rolling average, the greater of either 10 percent of the pumps in a process unit or three pumps in a process unit leak, the permittee shall implement a quality improvement program for pumps that complies with the requirements of 40 CFR 63.176.
- (iii) The number of pumps at a process unit shall be the sum of all the pumps in organic HAP service, except that pumps found leaking in a continuous process unit within 1 month after start-up of the pump shall not count in the percent leaking pumps calculation for that one monitoring period only.
- (iv) Percent leaking pumps shall be determined by the following equation:
$$\%P_L = ((P_L - P_s) / (P_T - P_s)) \times 100$$
where:
 - $\%P_L$ = Percent leaking pumps
 - P_L = Number of pumps found leaking as determined through monthly monitoring as required in 40 CFR 63.163(b)(1) and (b)(2).
 - P_T = Total pumps in organic HAP service, including those meeting the criteria in 40 CFR 63.163(e) and (f).
 - P_s = Number of pumps leaking within 1 month of start-up during the current monitoring period.
- (5) Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of 40 CFR 63.163(a) through (d), provided the following requirements are met:
 - (i) Each dual mechanical seal system is:
 - (A) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or
 - (B) Equipped with a barrier fluid degassing reservoir that is routed to a process or fuel gas system or connected by a closed-vent system to a control device that complies with the requirements of 40 CFR 63.172; or
 - (C) Equipped with a closed-loop system that purges the barrier fluid into a process stream.
 - (ii) The barrier fluid is not in light liquid service.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (iii) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.
- (iv) Each pump is checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.
 - (A) If there are indications of liquids dripping from the pump seal at the time of the weekly inspection, the pump shall be monitored as specified in 40 CFR 63.180(b) to determine if there is a leak of organic HAP in the barrier fluid.
 - (B) If an instrument reading of 1,000 parts per million or greater is measured, a leak is detected.
- (v) Each sensor as described in 40 CFR 63.163(e)(3) is observed daily or is equipped with an alarm unless the pump is located within the boundary of an unmanned plant site.
- (vi) (A) The permittee determines, based on design considerations and operating experience, criteria applicable to the presence and frequency of drips and to the sensor that indicates failure of the seal system, the barrier fluid system, or both.
 - (B) If indications of liquids dripping from the pump seal exceed the criteria established in 40 CFR 63.163(e)(6)(i), or if, based on the criteria established in 40 CFR 63.163(e)(6)(i), the sensor indicates failure of the seal system, the barrier fluid system, or both, a leak is detected.
 - (C) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR 63.171.
 - (D) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.
- (6) Any pump that is designed with no externally actuated shaft penetrating the pump housing is exempt from the requirements of 40 CFR 63.163(a) through (c).
- (7) Any pump equipped with a closed-vent system capable of capturing and transporting any leakage from the seal or seals to a process or to a fuel gas system or to a control device that complies with the requirements of 40 CFR 63.172 is exempt from the requirements of 40 CFR 63.163(b) through (e).
- (8) Any pump that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirement of 40 CFR 63.163(b)(3) and (e)(4), and the daily requirements of 40 CFR 63.163(e)(5), provided that each pump is visually inspected as often as practicable and at least monthly.
- (9) If more than 90 percent of the pumps at a process unit meet the criteria in either 40 CFR 63.163(e) or (f), the process unit is exempt from the requirements of 40 CFR 63.163(d).
- (10) Any pump that is designated, as described in 40 CFR 63.181(b)(7)(i), as an unsafe-to-monitor pump is exempt from the requirements of 40 CFR 63.163(b) through (e) if:
 - (A) The permittee of the pump determines that the pump is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with 40 CFR 63.163(b) through (d); and
 - (B) The permittee of the pump has a written plan that requires monitoring of the pump as frequently as practical during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)c. Pursuant to 40 CFR 63.164, Standards: Compressors:

- (1) Each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of process fluid to the atmosphere, except as provided in 40 CFR 63.162(b) and 40 CFR 63.164(h) and (i).
- (2) Each compressor seal system as required in 40 CFR 63.164(a) shall be:
 - (i) Operated with the barrier fluid at a pressure that is greater than the compressor stuffing box pressure; or
 - (ii) Equipped with a barrier fluid system degassing reservoir that is routed to a process or fuel gas system or connected by a closed-vent system to a control device that complies with the requirements of 40 CFR 63.172; or
 - (iii) Equipped with a closed-loop system that purges the barrier fluid directly into a process stream.
- (3) The barrier fluid shall not be in light liquid service.
- (4) Each barrier fluid system as described in 40 CFR 63.164(a) through (c) shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.
- (5)
 - (i) Each sensor as required in 40 CFR 63.164(d) shall be observed daily or shall be equipped with an alarm unless the compressor is located within the boundary of an unmanned plant site.
 - (ii) The permittee shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.
- (6) If the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined under 40 CFR 63.164(e)(2), a leak is detected.
- (7)
 - (i) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR 63.171.
 - (ii) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.
- (8) A compressor is exempt from the requirements of 40 CFR 63.164(a) through (g) if it is equipped with a closed-vent system to capture and transport leakage from the compressor drive shaft seal back to a process or a fuel gas system or to a control device that complies with the requirements of 40 CFR 63.172.
- (9) Any compressor that is designated, as described in 40 CFR 63.181(b)(2)(ii), to operate with an instrument reading of less than 500 parts per million above background, is exempt from the requirements of 40 CFR 63.164(a) through (h) if the compressor:
 - (i) Is demonstrated to be operating with an instrument reading of less than 500 parts per million above background, as measured by the method specified in 40 CFR 63.180(c); and
 - (ii) Is tested for compliance with 40 CFR 63.164(i)(1) initially upon designation, annually, and at other times requested by the Administrator.

d. Pursuant to 40 CFR 63.165, Standards: Pressure relief devices in gas/vapor service:

- (1) Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with an instrument reading of less than 500 parts per million above background except as provided in 40 CFR 63.165(b), as measured by the method specified in 40 CFR 63.180(c).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (2) (i) After each pressure release, the pressure relief device shall be returned to a condition indicated by an instrument reading of less than 500 parts per million above background, as soon as practicable, but no later than 5 calendar days after each pressure release, except as provided in 40 CFR 63.171.
 - (ii) No later than 5 calendar days after the pressure release and being returned to organic HAP service, the pressure relief device shall be monitored to confirm the condition indicated by an instrument reading of less than 500 parts per million above background, as measured by the method specified in 40 CFR 63.180(c).
 - (3) Any pressure relief device that is routed to a process or fuel gas system or equipped with a closed-vent system capable of capturing and transporting leakage from the pressure relief device to a control device as described in 40 CFR 63.172 is exempt from the requirements of 40 CFR 63.165(a) and (b).
 - (4) (i) Any pressure relief device that is equipped with a rupture disk upstream of the pressure relief device is exempt from the requirements of 40 CFR 63.165(a) and (b), provided the permittee complies with the requirements in 40 CFR 63.165(d)(2).
 - (ii) After each pressure release, a rupture disk shall be installed upstream of the pressure relief device as soon as practicable, but no later than 5 calendar days after each pressure release, except as provided in 40 CFR 63.171.
- e. Pursuant to 40 CFR 63.166, Standards: Sampling Connection Systems:
- (1) Each sampling connection system shall be equipped with a closed-purge, closed-loop, or closed-vent system, except as provided in 40 CFR 63.162(b). Gases displaced during filling of the sample container are not required to be collected or captured.
 - (2) Each closed-purge, closed-loop, or closed-vent system as required in 40 CFR 63.166(a) shall:
 - (i) Return the purged process fluid directly to the process line; or
 - (ii) Collect and recycle the purged process fluid to a process; or
 - (iii) Be designed and operated to capture and transport the purged process fluid to a control device that complies with the requirements of 40 CFR 63.172; or
 - (iv) Collect, store, and transport the purged process fluid to a system or facility identified in 40 CFR 63.166(b)(4)(i), (ii), or (iii).
 - (A) A waste management unit as defined in 40 CFR 63.111, if the waste management unit is subject to, and operated in compliance with the provisions of 40 CFR 63, Subpart G applicable to group 1 wastewater streams. If the purged process fluid does not contain any organic HAP listed in Table 9 of 40 CFR 63, Subpart G, the waste management unit need not be subject to, and operated in compliance with the requirements of 40 CFR 63, Subpart G applicable to group 1 wastewater streams provided the facility has an NPDES permit or sends the wastewater to an NPDES permitted facility.
 - (B) A treatment, storage, or disposal facility subject to regulation under 40 CFR 262, 264, 265, or 266; or
 - (C) A facility permitted, licensed, or registered by a State to manage municipal or industrial solid waste, if the process fluids are not hazardous waste as defined in 40 CFR 261.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (3) In-situ sampling systems and sampling systems without purges are exempt from the requirements of 40 CFR 63.166(a) and (b).
- f. Pursuant to 40 CFR 63.167, Standards: Open-Ended Valves or Lines:
- (1) (i) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in 40 CFR 63.162(b) and 40 CFR 63.167(d) and (e).
 - (ii) The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line, or during maintenance or repair.
 - (2) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.
 - (3) When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with 40 CFR 63.167(a) at all other times.
 - (4) Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from the requirements of 40 CFR 63.167(a), (b) and (c).
 - (5) Open-ended valves or lines containing materials which would autocatalytically polymerize or, would present an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block and bleed system as specified in 40 CFR 63.16 (a) through (c) are exempt from the requirements of 40 CFR 63.167(a) through (c).
- g. Pursuant to 40 CFR 63.168, Standards: Valves in Gas/Vapor Service and in Light Liquid Service:
- (1) The provisions of 40 CFR 63.168 apply to valves that are either in gas service or in light liquid service.
 - (i) The provisions are to be implemented on the dates set forth in the specific subpart in 40 CFR Part 63 that references 40 CFR 63, Subpart H as specified in 40 CFR 63.168(a)(1)(i), (a)(1)(ii), or (a)(1)(iii).
 - (A) For each group of existing process units at existing sources subject to the provisions of 40 CFR 63, Subpart F or I, the phases of the standard are:
 - (1) Phase I, beginning on the compliance date;
 - (2) Phase II, beginning no later than 1 year after the compliance date; and
 - (3) Phase III, beginning no later than 2½ years after the compliance date.
 - (B) For new sources subject to the provisions of 40 CFR 63, Subpart F or I, the applicable phases of the standard are:
 - (1) After initial start-up, comply with the Phase II requirements; and
 - (2) Beginning no later than 1 year after initial start-up, comply with the Phase III requirements.
 - (C) Sources subject to other subparts in 40 CFR Part 63 that reference 40 CFR 63, Subpart H shall comply on the dates specified in the applicable subpart.
 - (ii) The permittee of a source subject to 40 CFR 63, Subpart H may elect to meet the requirements of a later phase during the time period specified for an earlier phase.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (iii) The use of monitoring data generated before April 22, 1994 to qualify for less frequent monitoring is governed by the provisions of 40 CFR 63.180(b)(6).
- (2) The permittee of a source subject to 40 CFR 63, Subpart H shall monitor all valves, except as provided in 40 CFR 63.162(b) and 40 CFR 63.168(h) and (i), at the intervals specified in 40 CFR 63.168(c) and (d) and shall comply with all other provisions of 40 CFR 63.168, except as provided in 40 CFR 63.171, 40 CFR 63.177, 40 CFR 63.178, and 40 CFR 63.179.
 - (i) The valves shall be monitored to detect leaks by the method specified in 40 CFR 63.180(b).
 - (ii) The instrument reading that defines a leak in each phase of the standard is:
 - (A) For Phase I, an instrument reading of 10,000 parts per million or greater.
 - (B) For Phase II, an instrument reading of 500 parts per million or greater.
 - (C) For Phase III, an instrument reading of 500 parts per million or greater.
- (3) In Phases I and II, each valve shall be monitored quarterly.
- (4) In Phase III, the permittee shall monitor valves for leaks at the intervals specified below:
 - (i) At process units with 2 percent or greater leaking valves, calculated according to 40 CFR 63.168(e), the permittee shall either:
 - (A) Monitor each valve once per month; or
 - (B) Within the first year after the onset of Phase III, implement a quality improvement program for valves that complies with the requirements of 40 CFR 63.175(d) or (e) and monitor quarterly.
 - (ii) At process units with less than 2 percent leaking valves, the permittee shall monitor each valve once each quarter, except as provided in 40 CFR 63.168(d)(3) and (d)(4).
 - (iii) At process units with less than 1 percent leaking valves, the permittee may elect to monitor each valve once every 2 quarters.
 - (iv) At process units with less than 0.5 percent leaking valves, the permittee may elect to monitor each valve once every 4 quarters.
- (5) (i) Percent leaking valves at a process unit shall be determined by the following equation:
$$\%V_L = (V_L / (V_T + V_C)) \times 100$$
where:
 - $\%V_L$ = Percent leaking valves as determined through periodic monitoring required in 40 CFR 63.168(b) through (d).
 - V_L = Number of valves found leaking excluding nonrepairables as provided in 40 CFR 63.168(e)(3)(i).
 - V_T = Total valves monitored, in a monitoring period excluding valves monitored as required by 40 CFR 63.168(f)(3).
 - V_C = Optional credit for removed valves = $0.67 \times$ net number (i.e., total removed–total added) of valves in organic HAP service removed from process unit after the date set forth in 40 CFR 63.100(k) for existing process units, and after the date of initial start-up for new sources. If credits are not taken, then $V_C = 0$.
- (ii) For use in determining monitoring frequency, as specified in 40 CFR 63.168(d), the percent leaking valves shall be calculated as a rolling average of two

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

consecutive monitoring periods for monthly, quarterly, or semiannual monitoring programs; and as an average of any three out of four consecutive monitoring periods for annual monitoring programs.

- (iii) (A) Nonrepairable valves shall be included in the calculation of percent leaking valves the first time the valve is identified as leaking and nonrepairable and as required to comply with 40 CFR 63.168(e)(3)(ii). Otherwise, a number of nonrepairable valves (identified and included in the percent leaking calculation in a previous period) up to a maximum of 1 percent of the total number of valves in organic HAP service at a process unit may be excluded from calculation of percent leaking valves for subsequent monitoring periods.
- (B) If the number of nonrepairable valves exceeds 1 percent of the total number of valves in organic HAP service at a process unit, the number of nonrepairable valves exceeding 1 percent of the total number of valves in organic HAP service shall be included in the calculation of percent leaking valves.
- (6) (i) When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in 40 CFR 63.171.
- (ii) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.
- (iii) When a leak has been repaired, the valve shall be monitored at least once within the first 3 months after its repair.
 - (A) The monitoring shall be conducted as specified in 40 CFR 63.180(b) and (c), as appropriate, to determine whether the valve has resumed leaking.
 - (B) Periodic monitoring required by 40 CFR 63.168(b) through (d) may be used to satisfy the requirements of 40 CFR 63.168(f)(3), if the timing of the monitoring period coincides with the time specified in 40 CFR 63.168(f)(3). Alternatively, other monitoring may be performed to satisfy the requirements of 40 CFR 63.168(f)(3), regardless of whether the timing of the monitoring period for periodic monitoring coincides with the time specified in 40 CFR 63.168(f)(3).
 - (C) If a leak is detected by monitoring that is conducted pursuant to 40 CFR 63.168(f)(3), the permittee shall follow the provisions of 40 CFR 63.168(f)(3)(iii)(A) and (f)(3)(iii)(B), to determine whether that valve must be counted as a leaking valve for purposes of 40 CFR 63.168(e).
 - (1) If the permittee elected to use periodic monitoring required by 40 CFR 63.168(b) through (d) to satisfy the requirements of 40 CFR 63.168(f)(3), then the valve shall be counted as a leaking valve.
 - (2) (B) If the permittee elected to use other monitoring, prior to the periodic monitoring required by 40 CFR 63.168(b) through (d), to satisfy the requirements of 40 CFR 63.168(f)(3), then the valve shall be counted as a leaking valve unless it is repaired and shown by periodic monitoring not to be leaking.
- (7) First attempts at repair include, but are not limited to, the following practices where practicable:
 - (i) Tightening of bonnet bolts,

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (ii) Replacement of bonnet bolts,
 - (iii) Tightening of packing gland nuts, and
 - (iv) Injection of lubricant into lubricated packing.
- (8) Any valve that is designated, as described in 40 CFR 63.181(b)(7)(i), as an unsafe-to-monitor valve is exempt from the requirements of 40 CFR 63.168(b) through (f) if:
 - (i) The permittee of the valve determines that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with 40 CFR 63.168(b) through (d); and
 - (ii) The permittee of the valve has a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable.
- (9) Any valve that is designated, as described in 40 CFR 63.181(b)(7)(ii), as a difficult-to-monitor valve is exempt from the requirements of 40 CFR 63.168(b) through (d) if:
 - (i) The permittee of the valve determines that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface or it is not accessible at anytime in a safe manner;
 - (ii) The process unit within which the valve is located is an existing source or the permittee designates less than 3 percent of the total number of valves in a new source as difficult-to-monitor; and
 - (iii) The permittee of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.
- h. Pursuant to 40 CFR 63.169, Standards: Pumps, Valves, Connectors, Agitators in Heavy Liquid Service; Instrumentation Systems; and Pressure Relief Devices in Liquid Service:
 - (1) Pumps, valves, connectors, and agitators in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and instrumentation systems shall be monitored within 5 calendar days by the method specified in 40 CFR 63.180(b) if evidence of a potential leak to the atmosphere is found by visual, audible, olfactory, or any other detection method. If such a potential leak is repaired as required in 40 CFR 63.169(c) and (d), it is not necessary to monitor the system for leaks by the method specified in 40 CFR 63.180(b).
 - (2) If an instrument reading of 10,000 parts per million or greater for agitators, 5,000 parts per million or greater for pumps handling polymerizing monomers, 2,000 parts per million or greater for all other pumps (including pumps in food/medical service), or 500 parts per million or greater for valves, connectors, instrumentation systems, and pressure relief devices is measured, a leak is detected.
 - (3)
 - (i) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR 63.171.
 - (ii) The first attempt at repair shall be made no later than 5 calendar days after each leak is detected.
 - (iii) For equipment identified in 40 CFR 63.169(a) that is not monitored by the method specified in 40 CFR 63.180(b), repaired shall mean that the visual, audible, olfactory, or other indications of a leak to the atmosphere have been eliminated; that no bubbles are observed at potential leak sites during a leak check using soap solution; or that the system will hold a test pressure.

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- (4) First attempts at repair include, but are not limited to, the practices described under 40 CFR 63.163(c)(2) and 40 CFR 63.168(g), for pumps and valves, respectively.
- i. Pursuant to 40 CFR 63.171, Standards: Delay of Repair:
 - (1) Delay of repair of equipment for which leaks have been detected is allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur by the end of the next process unit shutdown.
 - (2) Delay of repair of equipment for which leaks have been detected is allowed for equipment that is isolated from the process and that does not remain in organic HAP service.
 - (3) Delay of repair for valves, connectors, and agitators is also allowed if:
 - (i) The permittee determines that emissions of purged material resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair, and
 - (ii) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with 40 CFR 63.172.
 - (4) Delay of repair for pumps is also allowed if:
 - (i) Repair requires replacing the existing seal design with a new system that the permittee has determined under the provisions of 40 CFR 63.176(d) will provide better performance or:
 - (A) A dual mechanical seal system that meets the requirements of 40 CFR 63.163(e),
 - (B) A pump that meets the requirements of 40 CFR 63.163(f), or
 - (C) A closed-vent system and control device that meets the requirements of 40 CFR 63.163(g); and
 - (ii) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.
 - (5) Delay of repair beyond a process unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the second process unit shutdown will not be allowed unless the third process unit shutdown occurs sooner than 6 months after the first process unit shutdown.
- j. Pursuant to 40 CFR 63.174, Standards: Connectors in Gas/Vapor Service and in Light Liquid Service:
 - (1) The permittee of a process unit subject to 40 CFR 63, Subpart H shall monitor all connectors in gas/vapor and light liquid service, except as provided in 40 CFR 63.162(b), and in 40 CFR 63.174(f) through (h), at the intervals specified in 40 CFR 63.174(b).
 - (i) The connectors shall be monitored to detect leaks by the method specified in 40 CFR 63.180(b).
 - (ii) If an instrument reading greater than or equal to 500 parts per million is measured, a leak is detected.
 - (2) The permittee shall monitor for leaks at the intervals specified in either 40 CFR 63.174(b)(1) or (b)(2) and in 40 CFR 63.174(b)(3).

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- (i) For each group of existing process units within an existing source, by no later than 12 months after the compliance date, the permittee shall monitor all connectors, except as provided in 40 CFR 63.174(f) through (h).
- (ii) For new sources, within the first 12 months after initial start-up or by no later than 12 months after the date of promulgation of a specific subpart that references 40 CFR 63, Subpart H, whichever is later, the permittee shall monitor all connectors, except as provided in 40 CFR 63.174(f) through (h).
- (iii) After conducting the initial survey required in 40 CFR 63.174(b)(1) or (b)(2), the permittee shall perform all subsequent monitoring of connectors at the frequencies specified in 40 CFR 63.147(b)(3)(i) through (b)(3)(v), except as provided in 40 CFR 63.147(c)(2):
 - (A) Once per year (i.e., 12-month period), if the percent leaking connectors in the process unit was 0.5 percent or greater during the last required annual or biennial monitoring period.
 - (B) Once every 2 years, if the percent leaking connectors was less than 0.5 percent during the last required monitoring period. A permittee may comply with 40 CFR 63.174(b)(3)(ii) by monitoring at least 40 percent of the connectors in the first year and the remainder of the connectors in the second year. The percent leaking connectors will be calculated for the total of all monitoring performed during the 2-year period.
 - (C) If the permittee of a process unit in a biennial leak detection and repair program calculates less than 0.5 percent leaking connectors from the 2-year monitoring period, the permittee may monitor the connectors one time every 4 years. A permittee may comply with the requirements of 40 CFR 63.174(b)(3)(iii) by monitoring at least 20 percent of the connectors each year until all connectors have been monitored within 4 years.
 - (D) If a process unit complying with the requirements of 40 CFR 63.174(b) using a 4-year monitoring interval program has greater than or equal to 0.5 percent but less than 1 percent leaking connectors, the permittee shall increase the monitoring frequency to one time every 2 years. A permittee may comply with the requirements of 40 CFR 63.174(b)(3)(iv) by monitoring at least 40 percent of the connectors in the first year and the remainder of the connectors in the second year. The permittee may again elect to use the provisions of 40 CFR 63(b)(3)(iii) when the percent leaking connectors decreases to less than 0.5 percent.
 - (E) If a process unit complying with requirements of 40 CFR 63.174(b)(3)(iii) using a 4-year monitoring interval program has 1 percent or greater leaking connectors, the permittee shall increase the monitoring frequency to one time per year. The permittee may again elect to use the provisions of 40 CFR 63.174(b)(3)(iii)g connectors decreases to less than 0.5 percent.
- (iv) The use of monitoring data generated before April 22, 1994 to qualify for less frequent monitoring is governed by the provisions of 40 CFR 63.180(b)(6).
- (3) (i) (A) Except as provided in 40 CFR 63.174(c)(1)(ii), each connector that has been opened or has otherwise had the seal broken shall be monitored for leaks when it is reconnected or within the first 3 months after being returned to organic hazardous air pollutants service. If the monitoring detects a leak, it shall be

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- repaired according to the provisions of 40 CFR 63.147(d), unless it is determined to be nonrepairable, in which case it is counted as a nonrepairable connector for the purposes of 40 CFR 63.174(i)(2).
- (B) As an alternative to the requirements in 40 CFR 63.174(c)(1)(i), a permittee may choose not to monitor connectors that have been opened or otherwise had the seal broken. In this case, the permittee may not count nonrepairable connectors for the purposes of 40 CFR 63.174(i)(2). The permittee shall calculate the percent leaking connectors for the monitoring periods described in 40 CFR 63.174(b), by setting the nonrepairable component, C_{AN} , in the equation in 40 CFR 63.174(i)(2) to zero for all monitoring periods.
- (C) A permittee may switch alternatives described in 40 CFR 63.174(c)(1)(i) and (ii) at the end of the current monitoring period he is in, provided that it is reported as required in 40 CFR 63.182 and begin the new alternative in annual monitoring. The initial monitoring in the new alternative shall be completed no later than 12 months after reporting the switch.
- (ii) As an alternative to the requirements of 40 CFR 63.174(b)(3), each screwed connector 2 inches or less in nominal inside diameter installed in a process unit before the dates specified in 40 CFR 63.174(c)(2)(iii) or (c)(2)(iv) may:
- (A) Comply with the requirements of 40 CFR 63.169, and
- (B) Be monitored for leaks within the first 3 months after being returned to organic hazardous air pollutants service after having been opened or otherwise had the seal broken. If that monitoring detects a leak, it shall be repaired according to the provisions of 40 CFR 63.174(d).
- (C) For sources subject to 40 CFR 63, Subparts F and I, the provisions of 40 CFR 63.174(c)(2) apply to screwed connectors installed before December 31, 1992.
- (D) For sources not identified in 40 CFR 63.174(c)(2)(iii), the provisions of 40 CFR 63.174(c)(2) apply to screwed connectors installed before the date of proposal of the applicable subpart of 40 CFR Part 63 that references 40 CFR 63, Subpart H.
- (4) When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in 40 CFR 63.174(g) and in 40 CFR 63.171. A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
- (5) Any connector that is designated, as described in 40 CFR 63.181(b)(7)(i), as an unsafe-to-monitor connector is exempt from the requirements of 40 CFR 63.174(a) if:
- (i) The permittee determines that the connector is unsafe to monitor because personnel would be exposed to an immediate danger as a result of complying with 40 CFR 63.174(a) through (e); and
- (ii) The permittee has a written plan that requires monitoring of the connector as frequently as practicable during safe to monitor periods, but not more frequently than the periodic schedule otherwise applicable.
- (6) Any connector that is designated, as described in 40 CFR 63.181(b)(7)(iii), as an unsafe-to-repair connector is exempt from the requirements of 40 CFR 63.174(a), (d), and (e) if:

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (i) The permittee determines that repair personnel would be exposed to an immediate danger as a consequence of complying with 40 CFR 63.174(d); and
 - (ii) The connector will be repaired before the end of the next scheduled process unit shutdown.
- (7) (i) Any connector that is inaccessible or is ceramic or ceramic-lined (e.g., porcelain, glass, or glass-lined), is exempt from the monitoring requirements of 40 CFR 63.174(a) and (c) and from the recordkeeping and reporting requirements of 40 CFR 63.181 and 40 CFR 63.182. An inaccessible connector is one that is:
- (A) Buried;
 - (B) Insulated in a manner that prevents access to the connector by a monitor probe;
 - (C) Obstructed by equipment or piping that prevents access to the connector by a monitor probe;
 - (D) Unable to be reached from a wheeled scissor-lift or hydraulic-type scaffold which would allow access to connectors up to 7.6 meters (25 feet) above the ground;
 - (E) Inaccessible because it would require elevating the monitoring personnel more than 2 meters above a permanent support surface or would require the erection of scaffold; or
 - (F) Not able to be accessed at any time in a safe manner to perform monitoring. Unsafe access includes, but is not limited to, the use of a wheeled scissor-lift on unstable or uneven terrain, the use of a motorized man-lift basket in areas where an ignition potential exists, or access would require near proximity to hazards such as electrical lines, or would risk damage to equipment.
- (ii) If any inaccessible or ceramic or ceramic-lined connector is observed by visual, audible, olfactory, or other means to be leaking, the leak shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in 40 CFR 63.171 and 40 CFR 63.174(g).
- (iii) A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
- (8) For use in determining the monitoring frequency, as specified in 40 CFR 63.174(b), the percent leaking connectors shall be calculated as specified in 40 CFR 63.174(i)(1) and (i)(2).
- (i) For the first monitoring period, use the following equation:
- $$\% C_L = C_L / (C_t + C_c) \times 100$$
- where:
- $\% C_L$ = Percent leaking connectors as determined through periodic monitoring required in 40 CFR 63.174(a) and (b).
- C_L = Number of connectors measured at 500 parts per million or greater, by the method specified in 40 CFR 63.180(b).
- C_t = Total number of monitored connectors in the process unit.
- C_c = Optional credit for removed connectors = $0.67 \times$ net (i.e., total removed—total added) number of connectors in organic hazardous air pollutants service removed from the process unit after the compliance date set forth in the applicable subpart for existing process units, and after the date of initial start-up for new process units. If credits are not taken, then $C_c = 0$.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (ii) For subsequent monitoring periods, use the following equation:
$$\% C_L = [(C_L - C_{AN}) / (C_t + C_C)] \times 100$$

where:
 $\% C_L$ = Percent leaking connectors as determined through periodic monitoring required in 40 CFR 63.174(a) and (b).
 C_L = Number of connectors, including nonrepairables, measured at 500 parts per million or greater, by the method specified in 40 CFR 63.180(b).
 C_{AN} = Number of allowable nonrepairable connectors, as determined by monitoring required in 40 CFR 63.174(b)(3) and (c), not to exceed 2 percent of the total connector population, C_t .
 C_t = Total number of monitored connectors, including nonrepairables, in the process unit.
 C_C = Optional credit for removed connectors = $0.67 \times$ net number (i.e., total removed—total added) of connectors in organic hazardous air pollutants service removed from the process unit after the compliance date set forth in the applicable subpart for existing process units, and after the date of initial start-up for new process units. If credits are not taken, then $C_C = 0$.
- (9) Optional credit for removed connectors. If a permittee eliminates a connector subject to monitoring under 40 CFR 63.174(b), the permittee may receive credit for elimination of the connector, as described in 40 CFR 63.174(i), provided the requirements in 40 CFR 63.174(j)(1) through (j)(4) are met.
- (i) The connector was welded after the date of proposal of the specific subpart that references 40 CFR 63, Subpart H.
 - (ii) The integrity of the weld is demonstrated by monitoring it according to the procedures in 40 CFR 63.180(b) or by testing using X-ray, acoustic monitoring, hydrotesting, or other applicable method.
 - (iii) Welds created after the date of proposal but before the date of promulgation of a specific subpart that references 40 CFR 63, Subpart H are monitored or tested by 3 months after the compliance date specified in the applicable subpart.
 - (iv) Welds created after promulgation of the subpart that references 40 CFR 63, Subpart H are monitored or tested within 3 months after being welded.
 - (v) If an inadequate weld is found or the connector is not welded completely around the circumference, the connector is not considered a welded connector and is therefore not exempt from the provisions of 40 CFR 63, Subpart H.
- k. Pursuant to 40 CFR 63.175, Quality Improvement Program for Valves:
- (1) In Phase III, a permittee may elect to comply with one of the alternative quality improvement programs specified in 40 CFR 63.175(d) and (e). The decision to use one of these alternative provisions to comply with the requirements of 40 CFR 63.168(d)(1)(ii) must be made during the first year of Phase III for existing process units and for new process units.
 - (2) A permittee of a process unit subject to the requirements of 40 CFR 63.175(d) or (e) shall comply with those requirements until the process unit has fewer than 2 percent leaking valves, calculated as a rolling average of 2 consecutive quarters, as specified in 40 CFR 63.168(e).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (3) After the process unit has fewer than 2 percent leaking valves, the permittee may elect to comply with the requirements in 40 CFR 63.168, to continue to comply with the requirements in 40 CFR 63.175(e) (or (d), if appropriate), or comply with both the requirements in 40 CFR 63.168 and 40 CFR 63.175.
- (i) If the permittee elects to continue the quality improvement program, the permittee is exempt from the requirements for performance trials as specified in 40 CFR 63.175(e)(6), or further progress as specified in 40 CFR 63.175(d)(4), as long as the process unit has fewer than 2 percent leaking valves calculated according to 40 CFR 63.168(e).
 - (ii) If the permittee elects to comply with both 40 CFR 63.175(e) and 40 CFR 63.168, he may also take advantage of the lower monitoring frequencies associated with lower leak rates in 40 CFR 63.168(d)(2), (d)(3), and (d)(4).
 - (iii) If the owner or operator elects not to continue the quality improvement program, the program is no longer an option if the process unit again exceeds 2 percent leaking valves, and in such case, monthly monitoring will be required.
- (4) The following requirements shall be met if a permittee elects to use a quality improvement program to demonstrate further progress:
- (i) The permittee shall continue to comply with the requirements in 40 CFR 63.168 except each valve shall be monitored quarterly.
 - (ii) The permittee shall collect the following data, and maintain records as required in 40 CFR 63.181(h)(1), for each valve in each process unit subject to the quality improvement program:
 - (A) The maximum instrument reading observed in each monitoring observation before repair, the response factor for the stream if appropriate, the instrument model number, and date of the observation.
 - (B) Whether the valve is in gas or light liquid service.
 - (C) If a leak is detected, the repair methods used and the instrument readings after repair.
 - (iii) The permittee shall continue to collect data on the valves as long as the process unit remains in the quality improvement program.
 - (iv) The permittee must demonstrate progress in reducing the percent leaking valves each quarter the process unit is subject to the requirements of 40 CFR 63.175(d), except as provided in 40 CFR 63.175(d)(4)(ii) and (d)(4)(iii).
 - (A) Demonstration of progress shall mean that for each quarter there is at least a 10-percent reduction in the percent leaking valves from the percent leaking valves determined for the preceding monitoring period. The percent leaking valves shall be calculated as a rolling average of two consecutive quarters of monitoring data. The percent reduction shall be calculated using the rolling average percent leaking valves, according to the following:

$$\%LV_R = (\%LV_{AVG1} - \%LV_{AVG2} / \%LV_{AVG1} \times 100$$
 where:

$$\%LV_R = \text{Percent leaking valve reduction.}$$

$$\%LV_{AVG1} = (\%V_{Li} + \%V_{Li=1})/2.$$

$$\%LV_{AVG2} = (\%V_{Li=1} + \%V_{Li=2})/2.$$

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

where:

$\%V_{Li}$, $\%V_{Li=1}$, $\%V_{Li=2}$ are percent leaking valves calculated for subsequent monitoring periods, i , $i + 1$, $i + 2$.

- (B) A permittee who fails for two consecutive rolling averages to demonstrate at least a 10-percent reduction per quarter in percent leaking valves, and whose overall average percent reduction based on two or more rolling averages is less than 10 percent per quarter, shall either comply with the requirements in 40 CFR 63.168(d)(1)(i) using monthly monitoring or shall comply using a quality improvement program for technology review as specified in 40 CFR 63.175(e). If the permittee elects to comply with the requirements of 40 CFR 63.175(e), the schedule for performance trials and valve replacements remains as specified in 40 CFR 63.175(e).
- (C) As an alternative to the provisions in 40 CFR 63.175(d)(4)(i), an permittee may use the procedure specified in 40 CFR 63.175(d)(4)(iii)(A) and (d)(4)(iii)(B) to demonstrate progress in reducing the percent leaking valves.
 - (1) The percent reduction that must be achieved each quarter shall be calculated as follows:

$$\%RR = \frac{\%V_L - 2\%}{0.10}$$

$\%RR$ = percent reduction required each quarter, as calculated according to 40 CFR 63.168(e).

$\%V_L$ = percent leaking valves, calculated according to 40 CFR 63.168(e), at the time elected to use provisions of 40 CFR 63.168(d)(1)(ii).

- (2) The permittee shall achieve less than 2 percent leaking valves no later than 2 years after electing to use the demonstration of progress provisions in 40 CFR 63.175(d).
- (5) The following requirements shall be met if an permittee elects to use a quality improvement program of technology review and improvement:
 - (i) The permittee shall comply with the requirements in 40 CFR 63.168 except the requirement for monthly monitoring in 40 CFR 63.168(d)(1)(i) does not apply.
 - (ii) The permittee shall collect the data specified below, and maintain records as required in 40 CFR 63.181(h)(2), for each valve in each process unit subject to the quality improvement program. The data may be collected and the records may be maintained on a process unit or group of process units basis. The data shall include the following:
 - (A) Valve type (e.g., ball, gate, check); valve manufacturer; valve design (e.g., external stem or actuating mechanism, flanged body); materials of construction; packing material; and year installed.
 - (B) Service characteristics of the stream such as operating pressure, temperature, line diameter, and corrosivity.
 - (C) Whether the valve is in gas or light liquid service.
 - (D) The maximum instrument readings observed in each monitoring observation before repair, response factor for the stream if adjusted, instrument model number, and date of the observation.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (E) If a leak is detected, the repair methods used and the instrument readings after repair.
- (F) If the data will be analyzed as part of a larger analysis program involving data from other plants or other types of process units, a description of any maintenance or quality assurance programs used in the process unit that are intended to improve emission performance.
- (iii) The permittee shall continue to collect data on the valves as long as the process unit remains in the quality improvement program.
- (iv) The permittee shall inspect all valves removed from the process unit due to leaks. The inspection shall determine which parts of the valve have failed and shall include recommendations, as appropriate, for design changes or changes in specifications to reduce leak potential.
- (v) (A) The permittee shall analyze the data collected to comply with the requirements of 40 CFR 63.175(e)(2) to determine the services, operating or maintenance practices, and valve designs or technologies that have poorer than average emission performance and those that have better than average emission performance. The analysis shall determine if specific trouble areas can be identified on the basis of service, operating conditions or maintenance practices, equipment design, or other process specific factors.
- (B) The analysis shall also be used to identify any superior performing valve technologies that are applicable to the service(s), operating conditions, or valve designs associated with poorer than average emission performance. A superior performing valve technology is one for which a group of such valves has a leak frequency of less than 2 percent for specific applications in such a process unit. A candidate superior performing valve technology is one demonstrated or reported in the available literature or through a group study as having low emission performance and as being capable of achieving less than 2 percent leaking valves in the process unit.
- (C) The analysis shall include consideration of:
 - (1) The data obtained from the inspections of valves removed from the process unit due to leaks,
 - (2) Information from the available literature and from the experience of other plant sites that will identify valve designs or technologies and operating conditions associated with low emission performance for specific services, and
 - (3) Information on limitations on the service conditions for the valve design and operating conditions as well as information on maintenance procedures to ensure continued low emission performance.
- (D) The data analysis may be conducted through an inter- or intra-company program (or through some combination of the two approaches) and may be for a single process unit, a company, or a group of process units.
- (E) The first analysis of the data shall be completed no later than 18 months after the start of Phase III. The first analysis shall be performed using a minimum of two quarters of data. An analysis of the data shall be done each year the process unit is in the quality improvement program.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (vi) A trial evaluation program shall be conducted at each plant site for which the data analysis does not identify superior performing valve designs or technologies that can be applied to the operating conditions and services identified as having poorer than average performance, except as provided in 40 CFR 63.175(e)(6)(v). The trial program shall be used to evaluate the feasibility of using in the process unit the valve designs or technologies that have been identified by others as having low emission performance.
 - (A) The trial program shall include on-line trials of valves or operating and maintenance practices that have been identified in the available literature or in analysis by others as having the ability to perform with leak rates below 2 percent in similar services, as having low probability of failure, or as having no external actuating mechanism in contact with the process fluid. If any of the candidate superior performing valve technologies is not included in the performance trials, the reasons for rejecting specific technologies from consideration shall be documented as required in 40 CFR 63.181(h)(5)(ii).
 - (B) The number of valves in the trial evaluation program shall be the lesser of 1 percent or 20 valves for programs involving single process units and the lesser of 1 percent or 50 valves for programs involving groups of process units.
 - (C) The trial evaluation program shall specify and include documentation of:
 - (1) The candidate superior performing valve designs or technologies to be evaluated, the stages for evaluating the identified candidate valve designs or technologies, including the estimated time period necessary to test the applicability;
 - (2) The frequency of monitoring or inspection of the equipment;
 - (3) The range of operating conditions over which the component will be evaluated; and
 - (4) Conclusions regarding the emission performance and the appropriate operating conditions and services for the trial valves.
 - (D) The performance trials shall initially be conducted for, at least, a 6-month period beginning not later than 18 months after the start of Phase III. Not later than 24 months after the start of Phase III, the owner or operator shall have identified valve designs or technologies that, combined with appropriate process, operating, and maintenance practices, operate with low emission performance for specific applications in the process unit. The owner or operator shall continue to conduct performance trials as long as no superior performing design or technology has been identified, except as provided in 40 CFR 63.175(e)(6)(vi). The compilation of candidate and demonstrated superior emission performance valve designs or technologies shall be amended in the future, as appropriate, as additional information and experience is obtained.
 - (E) Any plant site with fewer than 400 valves and owned by a corporation with fewer than 100 total employees shall be exempt from trial evaluations of valves. Plant sites exempt from the trial evaluations of valves shall begin the program at the start of the fourth year of Phase III.
 - (F) A permittee who has conducted performance trials on all candidate superior emission performance technologies suitable for the required applications in

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

the process unit may stop conducting performance trials provided that a superior performing design or technology has been demonstrated or there are no technically feasible candidate superior technologies remaining. The permittee shall prepare an engineering evaluation documenting the physical, chemical, or engineering basis for the judgment that the superior emission performance technology is technically infeasible or demonstrating that it would not reduce emissions.

- (vii) Each permittee who elects to use a quality improvement program for technology review and improvement shall prepare and implement a valve quality assurance program that details purchasing specifications and maintenance procedures for all valves in the process unit. The quality assurance program may establish any number of categories, or classes, of valves as needed to distinguish among operating conditions and services associated with poorer than average emission performance as well as those associated with better than average emission performance. The quality assurance program shall be developed considering the findings of the data analysis required under 40 CFR 63.175(e)(5), if applicable, the findings of the trial evaluation required in 40 CFR 63.175(e)(6), and the operating conditions in the process unit. The quality assurance program shall be reviewed and, as appropriate, updated each year as long as the process unit has 2 percent or more leaking valves.

(A) The quality assurance program shall:

- (1) Establish minimum design standards for each category of valves. The design standards shall specify known critical parameters such as tolerance, manufacturer, materials of construction, previous usage, or other applicable identified critical parameters;
- (2) Require that all equipment orders specify the design standard (or minimum tolerances) for the valve;
- (3) Include a written procedure for bench testing of valves that specifies performance criteria for acceptance of valves and specifies criteria for the precision and accuracy of the test apparatus. All valves repaired off-line after preparation of the quality assurance plan shall be bench-tested for leaks. This testing may be conducted by the permittee of the process unit, by the vendor, or by a designated representative. The permittee shall install only those valves that have been documented through bench-testing to be nonleaking.
- (4) Require that all valves repaired on-line be monitored using the method specified in 40 CFR 63.180(b) for leaks for 2 successive months, after repair.
- (5) Provide for an audit procedure for quality control of purchased equipment to ensure conformance with purchase specifications. The audit program may be conducted by the owner or operator of the process unit or by a designated representative.
- (6) Detail off-line valve maintenance and repair procedures. These procedures shall include provisions to ensure that rebuilt or refurbished valves will meet the design specifications for the valve type and will operate such that emissions are minimized.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (B) The quality assurance program shall be established no later than the start of the third year of Phase III for plant sites with 400 or more valves or owned by a corporation with 100 or more employees; and no later than the start of the fourth year of Phase III for plant sites with less than 400 valves and owned by a corporation with less than 100 employees.
 - (viii) Beginning at the start of the third year of Phase III for plant sites with 400 or more valves or owned by a corporation with 100 or more employees and at the start of the fourth year of Phase III for plant sites with less than 400 valves and owned by a corporation with less than 100 employees, each valve that is replaced for any reason shall be replaced with a new or modified valve that complies with the quality assurance standards for the valve category and that is identified as superior emission performance technology. Superior emission performance technology means valves or valve technologies identified with emission performance that, combined with appropriate process, operating, and maintenance practices, will result in less than 2 percent leaking valves for specific applications in a large population, except as provided in 40 CFR 63.175(e)(8)(ii).
 - (A) The valves shall be maintained as specified in the quality assurance program.
 - (B) If a superior emission performance technology cannot be identified, then valve replacement shall be with one of (if several) the lowest emission performance technologies that has been identified for the specific application.
- I. Pursuant to 40 CFR 63.176, Quality Improvement Program for Pumps:
- (1) In Phase III, if, on a 6-month rolling average, the greater of either 10 percent of the pumps in a process unit (or plant site) or three pumps in a process unit (or plant site) leak, the permittee shall comply with the requirements of this section as specified below:
 - (i) Pumps that are in food/medical service or in polymerizing monomer service shall comply with all requirements except for those specified in 40 CFR 63.176(d)(8).
 - (ii) Pumps that are not in food/medical or polymerizing monomer service shall comply with all requirements of 40 CFR 63.176.
 - (2) The permittee shall comply with the requirements of 40 CFR 63.176 until the number of leaking pumps is less than the greater of either 10 percent of the pumps or three pumps, calculated as a 6-month rolling average, in the process unit (or plant site). Once the performance level is achieved, the permittee shall comply with the requirements in 40 CFR 63.163.
 - (3) If in a subsequent monitoring period, the process unit (or plant site) has greater than 10 percent of the pumps leaking or three pumps leaking (calculated as a 6-month rolling average), the permittee shall resume the quality improvement program starting at performance trials.
 - (4) The quality improvement program shall include the following:
 - (i) The permittee shall comply with the requirements in 40 CFR 63.163.
 - (ii) The permittee shall collect the following data, and maintain records as required in 40 CFR 63.181(h)(3), for each pump in each process unit (or plant site) subject to the quality improvement program. The data may be collected and the records may be maintained on a process unit or plant site basis.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (A) Pump type (e.g., piston, horizontal or vertical centrifugal, gear, bellows); pump manufacturer; seal type and manufacturer; pump design (e.g., external shaft, flanged body); materials of construction; if applicable, barrier fluid or packing material; and year installed.
 - (B) Service characteristics of the stream such as discharge pressure, temperature, flow rate, corrosivity, and annual operating hours.
 - (C) The maximum instrument readings observed in each monitoring observation before repair, response factor for the stream if appropriate, instrument model number, and date of the observation.
 - (D) If a leak is detected, the repair methods used and the instrument readings after repair.
 - (E) If the data will be analyzed as part of a larger analysis program involving data from other plants or other types of process units, a description of any maintenance or quality assurance programs used in the process unit that are intended to improve emission performance.
- (iii) The permittee shall continue to collect data on the pumps as long as the process unit (or plant site) remains in the quality improvement program.
 - (iv) The permittee shall inspect all pumps or pump seals which exhibited frequent seal failures and were removed from the process unit due to leaks. The inspection shall determine the probable cause of the pump seal failure or of the pump leak and shall include recommendations, as appropriate, for design changes or changes in specifications to reduce leak potential.
 - (v)
 - (A) The permittee shall analyze the data collected to comply with the requirements of 40 CFR 63.176(d)(2) to determine the services, operating or maintenance practices, and pump or pump seal designs or technologies that have poorer than average emission performance and those that have better than average emission performance. The analysis shall determine if specific trouble areas can be identified on the basis of service, operating conditions or maintenance practices, equipment design, or other process specific factors.
 - (B) The analysis shall also be used to determine if there are superior performing pump or pump seal technologies that are applicable to the service(s), operating conditions, or pump or pump seal designs associated with poorer than average emission performance. A superior performing pump or pump seal technology is one with a leak frequency of less than 10 percent for specific applications in the process unit or plant site. A candidate superior performing pump or pump seal technology is one demonstrated or reported in the available literature or through a group study as having low emission performance and as being capable of achieving less than 10 percent leaking pumps in the process unit (or plant site).
 - (C) The analysis shall include consideration of:
 - (1) The data obtained from the inspections of pumps and pump seals removed from the process unit due to leaks;
 - (2) Information from the available literature and from the experience of other plant sites that will identify pump designs or technologies and operating conditions associated with low emission performance for specific services; and

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (3) Information on limitations on the service conditions for the pump seal technology operating conditions as well as information on maintenance procedures to ensure continued low emission performance.
- (D) The data analysis may be conducted through an inter- or intra-company program (or through some combination of the two approaches) and may be for a single process unit, a plant site, a company, or a group of process units.
- (E) The first analysis of the data shall be completed no later than 18 months after the start of the quality improvement program. The first analysis shall be performed using a minimum of 6 months of data. An analysis of the data shall be done each year the process unit is in the quality improvement program.
- (vi) A trial evaluation program shall be conducted at each plant site for which the data analysis does not identify use of superior performing pump seal technology or pumps that can be applied to the areas identified as having poorer than average performance, except as provided in 40 CFR 63.176(d)(6)(v). The trial program shall be used to evaluate the feasibility of using in the process unit (or plant site) the pump designs or seal technologies, and operating and maintenance practices that have been identified by others as having low emission performance.
- (A) The trial program shall include on-line trials of pump seal technologies or pump designs and operating and maintenance practices that have been identified in the available literature or in analysis by others as having the ability to perform with leak rates below 10 percent in similar services, as having low probability of failure, or as having no external actuating mechanism in contact with the process fluid. If any of the candidate superior performing pump seal technologies or pumps is not included in the performance trials, the reasons for rejecting specific technologies from consideration shall be documented as required in 40 CFR 63.181(h)(5)(ii).
- (B) The number of pump seal technologies or pumps in the trial evaluation program shall be the lesser of 1 percent or two pumps for programs involving single process units and the lesser of 1 percent or five pumps for programs involving a plant site or groups of process units. The minimum number of pumps or pump seal technologies in a trial program shall be one.
- (C) The trial evaluation program shall specify and include documentation of:
 - (1) The candidate superior performing pump seal designs or technologies to be evaluated, the stages for evaluating the identified candidate pump designs or pump seal technologies, including the time period necessary to test the applicability;
 - (2) The frequency of monitoring or inspection of the equipment;
 - (3) The range of operating conditions over which the component will be evaluated; and
 - (4) Conclusions regarding the emission performance and the appropriate operating conditions and services for the trial pump seal technologies or pumps.
- (D) The performance trials shall initially be conducted, at least, for a 6-month period beginning not later than 18 months after the start of the quality improvement program. No later than 24 months after the start of the quality improvement program, the owner or operator shall have identified pump seal

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

technologies or pump designs that, combined with appropriate process, operating, and maintenance practices, operate with low emission performance for specific applications in the process unit. The permittee shall continue to conduct performance trials as long as no superior performing design or technology has been identified, except as provided in 40 CFR 63.176(d)(6)(vi). The initial list of superior emission performance pump designs or pump seal technologies shall be amended in the future, as appropriate, as additional information and experience is obtained.

- (E) Any plant site with fewer than 400 valves and owned by a corporation with fewer than 100 employees shall be exempt from trial evaluations of pump seals or pump designs. Plant sites exempt from the trial evaluations of pumps shall begin the pump seal or pump replacement program at the start of the fourth year of the quality improvement program.
- (F) A permittee who has conducted performance trials on all alternative superior emission performance technologies suitable for the required applications in the process unit may stop conducting performance trials provided that a superior performing design or technology has been demonstrated or there are no technically feasible alternative superior technologies remaining. The owner or operator shall prepare an engineering evaluation documenting the physical, chemical, or engineering basis for the judgment that the superior emission performance technology is technically infeasible or demonstrating that it would not reduce emissions.
- (vii) Each permittee shall prepare and implement a pump quality assurance program that details purchasing specifications and maintenance procedures for all pumps and pump seals in the process unit. The quality assurance program may establish any number of categories, or classes, of pumps as needed to distinguish among operating conditions and services associated with poorer than average emission performance as well as those associated with better than average emission performance. The quality assurance program shall be developed considering the findings of the data analysis required under 40 CFR 63.176(d)(5), if applicable, the findings of the trial evaluation required in 40 CFR 63.176(d)(6), and the operating conditions in the process unit. The quality assurance program shall be updated each year as long as the process unit has the greater of either 10 percent or more leaking pumps or has three leaking pumps.
 - (A) The quality assurance program shall:
 - (1) Establish minimum design standards for each category of pumps or pump seal technology. The design standards shall specify known critical parameters such as tolerance, manufacturer, materials of construction, previous usage, or other applicable identified critical parameters;
 - (2) Require that all equipment orders specify the design standard (or minimum tolerances) for the pump or the pump seal;
 - (3) Provide for an audit procedure for quality control of purchased equipment to ensure conformance with purchase specifications. The audit program may be conducted by the permittee of the plant site or process unit or by a designated representative; and

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (4) Detail off-line pump maintenance and repair procedures. These procedures shall include provisions to ensure that rebuilt or refurbished pumps and pump seals will meet the design specifications for the pump category and will operate such that emissions are minimized.
- (B) The quality assurance program shall be established no later than the start of the third year of the quality improvement program for plant sites with 400 or more valves or 100 or more employees; and no later than the start of the fourth year of the quality improvement program for plant sites with less than 400 valves and less than 100 employees.
- (viii) Beginning at the start of the third year of the quality improvement program for plant sites with 400 or more valves or 100 or more employees and at the start of the fourth year of the quality improvement program for plant sites with less than 400 valves and less than 100 employees, the permittee shall replace, as described in 40 CFR 63.176(d)(8)(i) and (d)(8)(ii), the pumps or pump seals that are not superior emission performance technology with pumps or pump seals that have been identified as superior emission performance technology and that comply with the quality assurance standards for the pump category. Superior emission performance technology is that category or design of pumps or pump seals with emission performance which, when combined with appropriate process, operating, and maintenance practices, will result in less than 10 percent leaking pumps for specific applications in the process unit or plant site. Superior emission performance technology includes material or design changes to the existing pump, pump seal, seal support system, installation of multiple mechanical seals or equivalent, or pump replacement.
 - (A) Pumps or pump seals shall be replaced at the rate of 20 percent per year based on the total number of pumps in light liquid service. The calculated value shall be rounded to the nearest nonzero integer value. The minimum number of pumps or pump seals shall be one. Pump replacement shall continue until all pumps subject to the requirements of 40 CFR 63.163 are pumps determined to be superior performance technology.
 - (B) The permittee may delay replacement of pump seals or pumps with superior technology until the next planned process unit shutdown, provided the number of pump seals and pumps replaced is equivalent to the 20 percent or greater annual replacement rate.
 - (C) The pumps shall be maintained as specified in the quality assurance program.

Compliance Demonstration Method:

- (1) Pursuant to 401 KAR 52:020, Section 10, as an alternative for units subject to 40 CFR 63, Subpart H, the permittee shall comply with the following requirements for a leak as defined as a reading of 500 ppmv:
 - (i) Construction of new and reworked piping, valves, pump systems, and compressor systems shall conform to applicable American National Standards Institute (ANSI), American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), or equivalent codes.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (ii) New and reworked underground process pipelines shall contain no buried valves such that fugitive emission monitoring is rendered impractical. New and reworked buried connectors shall be welded.
- (iii) To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be so located to be reasonably accessible for leak-checking during plant operation. Difficult-to-monitor and unsafe-to-monitor valves, as defined by 40 CFR 63, Subpart H, shall be identified in a list to be made available upon request. The difficult-to-monitor and unsafe-to-monitor valves may be identified by one or more of the methods described in 40 CFR 63.162(c). If an unsafe to monitor component is not considered safe to monitor within a calendar year, then it shall be monitored as soon as possible during safe to monitor times. A difficult to monitor component for which quarterly monitoring is specified may instead be monitored annually.
- (iv) New and reworked piping connections shall be welded or flanged. Screwed connections are permissible only on piping smaller than two-inch diameter. Gas or hydraulic testing of the new and reworked piping connections at no less than operating pressure shall be performed prior to returning the components to service or they shall be monitored for leaks using an approved gas analyzer within 15 days of the components being returned to service. Adjustments shall be made as necessary to obtain leak-free performance. Connectors shall be inspected by visual, audible, and/or olfactory means at least weekly by operating personnel walk-through.
- (v) Each open-ended valve or line shall be equipped with an appropriately sized cap, blind flange, plug, or a second valve to seal the line. Except during sampling, both valves shall be closed. If the isolation of equipment for hot work or the removal of a component for repair or replacement results in an open ended line or valve, it is exempt from the requirement to install a cap, blind flange, plug, or second valve for 72 hours. If the repair or replacement is not completed within 72 hours, the permit holder must complete either of the following actions within that time period;
 - (A) A cap, blind flange, plug, or second valve must be installed on the line or valve;
or
 - (B) The open-ended valve or line shall be monitored once for leaks above background for a plant or unit turnaround lasting up to 45 days with an approved gas analyzer and the results recorded. For all other situations, the open-ended valve or line shall be monitored once by the end of the 72 hours period following the creation of the open ended line and monthly thereafter with an approved gas analyzer and the results recorded. For turnarounds and all other situations, leaks are indicated by readings of 500 ppmv and must be repaired within 24 hours or a cap, blind flange, plug, or second valve must be installed on the line or valve.
- (vi) Accessible valves shall be monitored by leak checking for fugitive emissions at least quarterly using an approved gas analyzer. Sealless/leak-less valves (including, but not limited to, welded bonnet bellows and diaphragm valves) and relief valves equipped with a rupture disc upstream or venting to a control device are not required to be monitored. If a relief valve is equipped with rupture disc, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (A) A check of the reading of the pressure-sensing device to verify disc integrity shall be performed at least quarterly and recorded in the unit log or equivalent.
- (B) Pressure-sensing devices that are continuously monitored with alarms are exempt from recordkeeping requirements specified in this paragraph. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.
- (C) A gas analyzer shall conform to requirements listed in Method 21 of 40 CFR 60, appendix A. The gas analyzer shall be calibrated with methane. In addition, the response factor of the instrument for a specific VOC of interest shall be determined and meet the requirements of Section 8 of Method 21. If a mixture of VOCs is being monitored, the response factor shall be calculated for the average composition of the process fluid. A calculated average is not required when all of the compounds in the mixture have a response factor less than 10 using methane. If a response factor less than 10 cannot be achieved using methane, then the instrument may be calibrated with one of the VOC to be measured or any other VOC so long as the instrument has a response factor of less than 10 for each of the VOC to be measured.
- (vii) All pump and compressor seals shall be monitored with an approved gas analyzer at least quarterly or be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. Seal systems designed and operated to prevent emissions or seals equipped with an automatic seal failure detection and alarm system need not be monitored. These seal systems may include (but are not limited to) dual pump seals with barrier fluid at higher pressure than process pressure, seals degassing to vent control systems kept in good working order, or seals equipped with an automatic seal failure detection and alarm system. Submerged pumps or sealless pumps (including, but not limited to, diaphragm, canned, or magnetic-driven pumps) may be used to satisfy the requirements of this condition and need not be monitored.
- (viii) Damaged or leaking valves, connectors, pump seals, and compressor seals found to be emitting VOC in excess of 500 parts per million by volume (ppmv) or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A first attempt to repair the leak must be made within 5 days and a record of the attempt shall be maintained.
- (ix) A leaking component shall be repaired as soon as practicable, but no later than 15 days after the leak is found. If the repair of a component would require a unit shutdown that would create more emissions than the repair would eliminate, the repair may be delayed until the next scheduled shutdown. All leaking components which cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging within 15 days of the detection of the leak. A listing of all components that qualify for delay of repair shall be maintained on a delay of repair list. The cumulative daily emissions from all components on the delay of repair list shall be estimated by multiplying by 24 the mass emission rate for each component calculated in accordance with the methods in the EPA correlation approach in Section 2.3.3 alone or in combination with the mass emission sampling approach in Chapter 4 of the EPA guidance document *Protocol for Equipment Leak Emission Estimates* (EPA-453/R-95-017, November 1995). The calculations of the cumulative daily emissions from all components on the delay of repair list shall be updated within ten

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

days of when the latest leaking component is added to the delay of repair list. When the cumulative daily emission rate of all components on the delay of repair list times the number of days until the next scheduled unit shutdown is equal to or exceeds the total emissions from a unit shutdown, the Division shall be notified and may require early unit shutdown or other appropriate action based on the number and severity of tagged leaks awaiting shutdown. This notification shall be made within 15 days of making this determination.

- (x) Records of repairs shall include date of repairs, repair results, justification for delay of repairs, and corrective actions taken for all components. Records of instrument monitoring shall indicate dates and times, test methods, and instrument readings. The instrument monitoring record shall include the time that monitoring took place for no less than 95% of the instrument readings recorded. Records of physical inspections shall be noted in the permittee's log or equivalent.
 - (xi) In addition to the weekly physical inspection required by **Compliance Demonstration Method** (1)(iv), all connectors in gas/vapor and light liquid service shall be monitored annually with an approved gas analyzer in accordance with **Compliance Demonstration Method** (1)(vi) through (ix).
- (2) Pursuant to 401 KAR 52:020, Section 10, the permittee shall use the following control efficiencies while calculating emissions from each fugitive component that is subject to the requirements in **Compliance Demonstration Method** (1):
- (1) 97% for valves in gas/vapor and light liquid service;
 - (2) 0% for valves in heavy liquid service;
 - (3) 85% for pumps in light liquid service;
 - (4) 0% for pumps in heavy liquid service;
 - (5) 75% for connectors in gas/vapor and light liquid service;
 - (6) 85% for all compressor seals, however, 100% if the barrier fluid seal pot is controlled or the barrier fluid is at a higher pressure than process pressure; and
 - (7) 97% for relief valves in gas/vapor service.

5. Specific Recordkeeping Requirements:

- a. Pursuant to 40 CFR 63.181(a), a permittee of more than one process unit subject to the provisions of 40 CFR 63, Subpart H may comply with the recordkeeping requirements for these process units in one recordkeeping system if the system identifies each record by process unit and the program being implemented (e.g., quarterly monitoring, quality improvement) for each type of equipment. All records and information required by 40 CFR 63.181 shall be maintained in a manner that can be readily accessed at the plant site. This could include physically locating the records at the plant site or accessing the records from a central location by computer at the plant site.
- b. Pursuant to 40 CFR 63.181(b), except as provided in 40 CFR 63.181(e), the following information pertaining to all equipment in each process unit subject to the requirements in 40 CFR 63.162 through 40 CFR 63.174 shall be recorded:
 - (1) (i) A list of identification numbers for equipment (except connectors exempt from monitoring and recordkeeping identified in 40 CFR 63.174 and instrumentation systems) subject to the requirements of 40 CFR 63, Subpart H. Connectors need

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

not be individually identified if all connectors in a designated area or length of pipe subject to the provisions of 40 CFR 63, Subpart H are identified as a group, and the number of connectors subject is indicated. With respect to connectors, the list shall be complete no later than the completion of the initial survey required by 40 CFR 63.174 (b)(1) or (b)(2).

- (ii) A schedule by process unit for monitoring connectors subject to the provisions of 40 CFR 63.174(a) and valves subject to the provisions of 40 CFR 63.168(d).
- (iii) Physical tagging of the equipment to indicate that it is in organic HAP service is not required. Equipment subject to the provisions of this subpart may be identified on a plant site plan, in log entries, or by other appropriate methods.
- (2) (i) A list of identification numbers for equipment that the permittee elects to equip with a closed-vent system and control device, under the provisions of 40 CFR 63.163(g), 40 CFR 63.164(h), 40 CFR 63.165(c), or 40 CFR 63.173(f).
- (ii) A list of identification numbers for compressors that the permittee elects to designate as operating with an instrument reading of less than 500 parts per million above background, under the provisions of 40 CFR 63.164(i).
- (iii) Identification of surge control vessels or bottoms receivers subject to the provisions of 40 CFR 63, Subpart H that the permittee elects to equip with a closed-vent system and control device, under the provisions of 40 CFR 63.170.
- (3) (i) A list of identification numbers for pressure relief devices subject to the provisions in 40 CFR 63.165(a).
- (ii) A list of identification numbers for pressure relief devices equipped with rupture disks, under the provisions of 40 CFR 63.165(d).
- (4) Identification of instrumentation systems subject to the provisions of 40 CFR 63, Subpart H. Individual components in an instrumentation system need not be identified.
- (5) Identification of screwed connectors subject to the requirements of 40 CFR 63.174(c)(2). Identification can be by area or grouping as long as the total number within each group or area is recorded.
- (6) The following information shall be recorded for each dual mechanical seal system:
 - (i) Design criteria required in 40 CFR 63.163(e)(6)(i), 40 CFR 63.164(e)(2), and 40 CFR 63.173(d)(6)(i) and an explanation of the design criteria; and
 - (ii) Any changes to these criteria and the reasons for the changes.
- (7) The following information pertaining to all pumps subject to the provisions of 40 CFR 63.163(j), valves subject to the provisions of 40 CFR 63.168(h) and (i), agitators subject to the provisions of 40 CFR 63.173(h) through (j), and connectors subject to the provisions of 40 CFR 63.174(f) and (g) shall be recorded:
 - (i) Identification of equipment designated as unsafe to monitor, difficult to monitor, or unsafe to inspect and the plan for monitoring or inspecting this equipment.
 - (ii) A list of identification numbers for the equipment that is designated as difficult to monitor, an explanation of why the equipment is difficult to monitor, and the planned schedule for monitoring this equipment.
 - (iii) A list of identification numbers for connectors that are designated as unsafe to repair and an explanation why the connector is unsafe to repair.
- (8) (i) A list of valves removed from and added to the process unit, as described in 40 CFR 63.168(e)(1), if the net credits for removed valves is expected to be used.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (ii) A list of connectors removed from and added to the process unit, as described in 40 CFR 63.174(i)(1), and documentation of the integrity of the weld for any removed connectors, as required in 40 CFR 63.174(j). This is not required unless the net credits for removed connectors is expected to be used.
 - (9)
 - (i) For batch process units that the permittee elects to monitor as provided under 40 CFR 63.178(c), a list of equipment added to batch product process units since the last monitoring period required in 40 CFR 63.178(c)(3)(ii) and (3)(iii).
 - (ii) Records demonstrating the proportion of the time during the calendar year the equipment is in use in a batch process that is subject to the provisions of 40 CFR 63, Subpart H. Examples of suitable documentation are records of time in use for individual pieces of equipment or average time in use for the process unit. These records are not required if the permittee does not adjust monitoring frequency by the time in use, as provided in 40 CFR 63.178(c)(3)(iii).
 - (10) For any leaks detected as specified in 40 CFR 63.163 and 40 CFR 63.164; 40 CFR 63.168 and 40 CFR 63.169; and 40 CFR 63.172 through 40 CFR 63.174, a weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.
- c. Pursuant to 40 CFR 63.181(c), for visual inspections of equipment subject to the provisions of 40 CFR 63, Subpart H (e.g., 40 CFR 63.163(b)(3), 40 CFR 63.163(e)(4)(i)), the permittee shall document that the inspection was conducted and the date of the inspection. The permittee shall maintain records as specified in 40 CFR 63.181(d) for leaking equipment identified in this inspection, except as provided in 40 CFR 63.181(e). These records shall be retained for 2 years.
- d. Pursuant to 40 CFR 63.181(d), when each leak is detected as specified in 40 CFR 63.163 and 40 CFR 63.164; 40 CFR 63.168 and 40 CFR 63.169; and 40 CFR 63.172 through 40 CFR 63.174, the following information shall be recorded and kept for 2 years:
- (1) The instrument and the equipment identification number and the operator name, initials, or identification number.
 - (2) The date the leak was detected and the date of first attempt to repair the leak.
 - (3) The date of successful repair of the leak.
 - (4) Maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A after it is successfully repaired or determined to be nonrepairable.
 - (5) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.
 - (i) The permittee may develop a written procedure that identifies the conditions that justify a delay of repair. The written procedures may be included as part of the startup/shutdown/malfunction plan, required by 40 CFR 63.6(e)(3), for the source or may be part of a separate document that is maintained at the plant site. In such cases, reasons for delay of repair may be documented by citing the relevant sections of the written procedure.
 - (ii) If delay of repair was caused by depletion of stocked parts, there must be documentation that the spare parts were sufficiently stocked on-site before depletion and the reason for depletion.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (6) Dates of process unit shutdowns that occur while the equipment is unrepaired.
 - (7) (i) Identification, either by list, location (area or grouping), or tagging of connectors that have been opened or otherwise had the seal broken since the last monitoring period required in 40 CFR 63.174(b), as described in 40 CFR 63.174(c)(1), unless the permittee elects to comply with the provisions of 40 CFR 63.174(c)(1)(ii).
 - (ii) The date and results of monitoring as required in 40 CFR 63.174(c). If identification of connectors that have been opened or otherwise had the seal broken is made by location under 40 CFR 63.181(d)(7)(i), then all connectors within the designated location shall be monitored.
 - (8) The date and results of the monitoring required in 40 CFR 63.178(c)(3)(i) for equipment added to a batch process unit since the last monitoring period required in 40 CFR 63.178 (c)(3)(ii) and (c)(3)(iii). If no leaking equipment is found in this monitoring, the permittee shall record that the inspection was performed. Records of the actual monitoring results are not required.
 - (9) Copies of the periodic reports as specified in 40 CFR 63.182(d), if records are not maintained on a computerized database capable of generating summary reports from the records.
- e. Pursuant to 40 CFR 63.181(h), each permittee of a process unit subject to the requirements of 40 CFR 63.175 and 40 CFR 63.176 shall maintain the records specified in 40 CFR 63.181(h)(1) through (h)(9) for the period of the quality improvement program for the process unit.
- (1) For a permittee who elects to use a reasonable further progress quality improvement program, as specified in 40 CFR 63.175(d):
 - (i) All data required in 40 CFR 63.175(d)(2).
 - (ii) The percent leaking valves observed each quarter and the rolling average percent reduction observed in each quarter.
 - (iii) The beginning and ending dates while meeting the requirements of 40 CFR 63.175(d).
 - (2) For a permittee who elect to use a quality improvement program of technology review and improvement, as specified in 40 CFR 63.175(e):
 - (i) All data required in 40 CFR 63.175(e)(2).
 - (ii) The percent leaking valves observed each quarter.
 - (iii) Documentation of all inspections conducted under the requirements of 40 CFR 63.175(e)(4), and any recommendations for design or specification changes to reduce leak frequency.
 - (iv) The beginning and ending dates while meeting the requirements of 40 CFR 63.175(e).
 - (3) For a permittee subject to the requirements of the pump quality improvement program as specified in 40 CFR 63.176:
 - (i) All data required in 40 CFR 63.176(d)(2).
 - (ii) The rolling average percent leaking pumps.
 - (iii) Documentation of all inspections conducted under the requirements of 40 CFR 63.176(d)(4), and any recommendations for design or specification changes to reduce leak frequency.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (iv) The beginning and ending dates while meeting the requirements of 40 CFR 63.176(d).
 - (4) If a leak is not repaired within 15 calendar days after discovery of the leak, the reason for the delay and the expected date of successful repair.
 - (5) Records of all analyses required in 40 CFR 63.175(e) and 40 CFR 63.176(d). The records will include the following:
 - (i) A list identifying areas associated with poorer than average performance and the associated service characteristics of the stream, the operating conditions and maintenance practices.
 - (ii) The reasons for rejecting specific candidate superior emission performing valve or pump technology from performance trials.
 - (iii) The list of candidate superior emission performing valve or pump technologies, and documentation of the performance trial program items required under 40 CFR 63.175(e)(6)(iii) and 40 CFR 63.176(d)(6)(iii).
 - (iv) The beginning date and duration of performance trials of each candidate superior emission performing technology.
 - (6) All records documenting the quality assurance program for valves or pumps as specified in 40 CFR 63.175(e)(7) and 40 CFR 63.176(d)(7).
 - (7) Records indicating that all valves or pumps replaced or modified during the period of the quality improvement program are in compliance with the quality assurance requirements in 40 CFR 63.175(e)(7) and 40 CFR 63.176(d)(7).
 - (8) Records documenting compliance with the 20 percent or greater annual replacement rate for pumps as specified in 40 CFR 63.176(d)(8).
 - (9) Information and data to show the corporation has fewer than 100 employees, including employees providing professional and technical contracted services.
- f. Pursuant to 401 KAR 52:020, Section 10, the permittee shall keep records, on a 5 year basis, of all monitoring requirements for units subject to 401 KAR 51:017.
- g. Pursuant to 401 KAR 52:020, Section 10, the permittee shall keep records, on a 5 year basis, in accordance to the **Compliance Demonstration Method to 1. Operating Limitations** e. and f.

6. Specific Reporting Requirements:

- a. Pursuant to 40 CFR 63.182(a), each permittee of a source subject to 40 CFR 63, Subpart H shall submit the reports listed in 40 CFR 63.182(a)(1) through (a)(5) as applicable. A permittee requesting an extension of compliance shall also submit the report listed in 40 CFR 63.182(a)(6).
 - (1) An Initial Notification described in 40 CFR 63.182(b), and
 - (2) A Notification of Compliance Status described in 40 CFR 63.182(c),
 - (3) Periodic Reports described in 40 CFR 63.182(d).
- b. Pursuant to 40 CFR 63.182(d)(2), the permittee of a source subject to 40 CFR 63, Subpart H shall submit Periodic Reports for each process unit complying with the provisions of 40 CFR 63.163 through 40 CFR 63.174, containing the summary information listed in 40 CFR 63.182(d)(2)(i) through (xvi) for each monitoring period during the 6-month period.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (1) The number of valves for which leaks were detected as described in 40 CFR 63.168(b), the percent leakers, and the total number of valves monitored;
- (2) The number of valves for which leaks were not repaired as required in 40 CFR 63.168(f), identifying the number of those that are determined nonrepairable;
- (3) The number of pumps for which leaks were detected as described in 40 CFR 63.163(b), the percent leakers, and the total number of pumps monitored;
- (4) The number of pumps for which leaks were not repaired as required in 40 CFR 63.163(c);
- (5) The number of compressors for which leaks were detected as described in 40 CFR 63.164(f);
- (6) The number of compressors for which leaks were not repaired as required in 40 CFR 63.164(g);
- (7) The number of agitators for which leaks were detected as described in 40 CFR 63.173(a) and (b);
- (8) The number of agitators for which leaks were not repaired as required in 40 CFR 63.173(c);
- (9) The number of connectors for which leaks were detected as described in 40 CFR 63.174(a), the percent of connectors leaking, and the total number of connectors monitored;
- (10) The number of connectors for which leaks were not repaired as required in 40 CFR 63.174(d), identifying the number of those that are determined nonrepairable;
- (11) The facts that explain any delay of repairs and, where appropriate, why a process unit shutdown was technically infeasible.
- (12) The results of all monitoring to show compliance with 40 CFR 63.164(i), 40 CFR 63.165(a), and 40 CFR 63.172(f) conducted within the semiannual reporting period.
- (13) If applicable, the initiation of a monthly monitoring program under 40 CFR 63.168(d)(1)(i), or a quality improvement program under either 40 CFR 63.175 or 40 CFR 63.176.
- (14) If applicable, notification of a change in connector monitoring alternatives as described in 40 CFR 63.174(c)(1).
- (15) If applicable, the compliance option that has been selected under 40 CFR 63.172(n).

c. See **Section F**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

035	(EPN 457) Description:	South Synthesis Cooling Tower CT-1A Recirculation Rate: 30,000 gallons/min Equipped with mist eliminator with 0.001% Drift Loss Non-contact Cooling Tower Date of Construction: 1981, Reconstructed 2017
037	(EPN 458) Description:	East Cracking Cooling Tower CT-1B Recirculation Rate: 18,000 gallons/min Equipped with mist eliminator with 0.001% Drift Loss Non-contact Cooling Tower Date of Construction: 1967
038	(EPN 459) Description:	South Cracking Cooling Tower CT-2 Recirculation Rate: 18,000 gallons/min Equipped with mist eliminator with 0.001% Drift Loss Non-contact Cooling Tower Date of Construction: 1965, Reconstructed 2018

APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(a), 40 C.F.R. 63.100 through 63.107, Tables 1 through 4 (Subpart F), National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry

401 KAR 59:010, New process operations

401 KAR 61:020, Existing process operations

PRECLUDED REGULATIONS:

401 KAR 63:002, Section 2(4)(j), 40 C.F.R. 63.400 through 63.407, Table 1 (Subpart Q), National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers

1. Operating Limitations:

Pursuant to 401 KAR 52:020, Section 10, to preclude 40 CFR 63, Subpart Q, the permittee shall not use chromium-based water treatment chemicals in any affected IPCT.

Compliance Demonstration Method:

Refer to **5. Specific Recordkeeping Requirements d.**

2. Emission Limitations:

- a. Pursuant to 40 CFR 63.104(a), unless one or more of the conditions specified in 40 CFR 63.104(a)(1) through (a)(6) are met, the permittee of sources subject to 40 CFR 63, Subpart F shall monitor each heat exchange system used to cool process equipment in a chemical manufacturing process unit meeting the conditions of 40 CFR 63.100(b)(1) through (b)(3), except for chemical manufacturing process units meeting the condition specified in 40 CFR 63.100(c), according to the provisions in either 40 CFR 63.104(b) or (c). Whenever a leak is detected, the permittee shall comply with the requirements in 40 CFR 63.104(d).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**Compliance Demonstration Method:**

For compliance with **2. Emission Limitations** a., refer to **4. Specific Monitoring Requirements** a.

- b. Pursuant to 401 KAR 59:010, Section 3(1)(a), for EPN 457 and 459, no person shall cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than twenty (20) percent opacity.
- c. Pursuant to 401 KAR 59:010, Section 3(2), for EPN 457 and 459, for emissions from a control device or stack no person shall cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of 2.34 lb/hr as specified in Appendix A to 401 KAR 59:010,

Compliance Demonstration Method:

The permittee is assumed to be in compliance with **2. Emission Limitations** b. and c. based on the information provided in the application.

- d. Pursuant to 401 KAR 61:020, Section 3(1)(a), for EPN 458, no permittee shall cause, suffer, allow or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than forty (40) percent opacity.
- e. Pursuant to 401 KAR 61:020, Section 3(2)(a), for EPN 458, no permittee shall cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of 2.58 lb/hr as specified in Appendix A to 401 KAR 61:020.

Compliance Demonstration Method:

The permittee is assumed to be in compliance with **2. Emission Limitations** d. and e. based on the information provided in the application.

3. Testing Requirements:

Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.

4. Specific Monitoring Requirements:

- a. Pursuant to 40 CFR 63.104(b), the permittee who elects to comply with the requirements of 40 CFR 63.104(a) by monitoring the cooling water for the presence of one or more organic hazardous air pollutants or other representative substances whose presence in cooling water indicates a leak shall comply with the requirements specified in 40 CFR 63.104(b)(1) through (b)(6). The cooling water shall be monitored for total hazardous air pollutants, total volatile organic compounds, total organic carbon, one or more speciated HAP compounds, or other representative substances that would indicate the presence of a leak in the heat exchange system.
 - (1) The cooling water shall be monitored monthly for the first 6 months and quarterly thereafter to detect leaks.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (2) (i) For recirculating heat exchange systems (cooling tower systems), the monitoring of speciated hazardous air pollutants or total hazardous air pollutants refers to the hazardous air pollutants listed in table 4 of 40 CFR 63, Subpart F.
 - (ii) For once-through heat exchange systems, the monitoring of speciated hazardous air pollutants or total hazardous air pollutants refers to the hazardous air pollutants listed in Table 9 of 40 CFR 63, Subpart G.
 - (3) The concentration of the monitored substance(s) in the cooling water shall be determined using any EPA-approved method listed in 40 CFR 63.136 as long as the method is sensitive to concentrations as low as 10 parts per million and the same method is used for both entrance and exit samples. Alternative methods may be used upon approval by the Administrator.
 - (4) The samples shall be collected either at the entrance and exit of each heat exchange system or at locations where the cooling water enters and exits each heat exchanger or any combination of heat exchangers.
 - (i) For samples taken at the entrance and exit of recirculating heat exchange systems, the entrance is the point at which the cooling water leaves the cooling tower prior to being returned to the process equipment and the exit is the point at which the cooling water is introduced to the cooling tower after being used to cool the process fluid.
 - (ii) For samples taken at the entrance and exit of once-through heat exchange systems, the entrance is the point at which the cooling water enters and the exit is the point at which the cooling water exits the plant site or chemical manufacturing process units.
 - (iii) For samples taken at the entrance and exit of each heat exchanger or any combination of heat exchangers in chemical manufacturing process units, the entrance is the point at which the cooling water enters the individual heat exchanger or group of heat exchangers and the exit is the point at which the cooling water exits the heat exchanger or group of heat exchangers.
 - (5) A minimum of three sets of samples shall be taken at each entrance and exit as defined in 40 CFR 63.104(b)(4). The average entrance and exit concentrations shall then be calculated. The concentration shall be corrected for the addition of any makeup water or for any evaporative losses, as applicable.
 - (6) A leak is detected if the exit mean concentration is found to be greater than the entrance mean using a one-sided statistical procedure at the 0.05 level of significance and the amount by which it is greater is at least 1 part per million or 10 percent of the entrance mean, whichever is greater.
- b. Pursuant to 401 KAR 52:020, Section 10, for EPN 457, 458, and 459:
- (1) The permittee shall monitor the hours of operation of each cooling tower on a weekly basis.
 - (2) The permittee shall monitor the total dissolved solids concentration or conductivity in the cooling water of each cooling tower on a weekly basis.

5. Specific Recordkeeping Requirements:

- a. Pursuant to 40 CFR 63.104(f)(1), the permittee shall retain the records identified in 40 CFR 63.104(f)(1)(i) through (f)(1)(iv) as specified in 40 CFR 63.103(c)(1).

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- b. Pursuant to 401 KAR 52:020, Section 10, for EPN 457, 458, and 459:
 - (1) The permittee shall maintain weekly records of the hours of operation of each cooling tower and the total dissolved solids concentration or conductivity.
 - (2) All routine and non-routine maintenance activities performed on the corresponding control device shall be recorded.
- c. The permittee shall calculate and maintain monthly records of PM emissions based on the following equation:

$$E_{PM} = C_w \times \frac{60 \text{ min}}{\text{hour}} \times H_M \times \frac{8.34 \text{ pound water}}{\text{gallon}} \times \text{TDS} \times \frac{DL}{100}$$

Where:

E_{PM} = PM emission rate from the cooling tower during the month (pounds per month)

C_w = Water circulation rate in (gallons per minute)

H_M = Hours of operation during the month (hours per month)

DL = Drift loss from the mist eliminator (percent)

TDS = Monthly average total dissolved solids in the cooling water (ppmw)

- d. Pursuant to 401 KAR 52:020, Section 10, to preclude 40 CFR 63, Subpart Q, the permittee shall maintain records to demonstrate that chromium-based water treatment chemicals are not used.

6. Specific Reporting Requirements:

- a. Pursuant to 40 CFR 63.104(f)(2), if a permittee invokes the delay of repair provisions for a heat exchange system, the following information shall be submitted in the next semi-annual periodic report required by 40 CFR 63.152(c). If the leak remains unrepaired, the information shall also be submitted in each subsequent periodic report, until repair of the leak is reported.
 - (1) The permittee shall report the presence of the leak and the date that the leak was detected.
 - (2) The permittee shall report whether or not the leak has been repaired.
 - (3) The permittee shall report the reason(s) for delay of repair. If delay of repair is invoked due to the reasons described in 40 CFR 63.104(e)(2), documentation of emissions estimates must also be submitted.
 - (4) If the leak remains unrepaired, the owner or operator shall report the expected date of repair.
 - (5) If the leak is repaired, the owner or operator shall report the date the leak was successfully repaired.
- b. See **Section F**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

080	(EPN 080)	#1 Fire Water Pump
	Description:	Detroit GM Engine
	Power Rating:	170 hp
	Primary Fuel:	Fuel Oil #2 (Diesel)
	Fuel Rate:	0.0087 ₁₀₀₀ gallons/hr
	Date of construction:	1975

APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

1. Operating Limitations:

- a. Pursuant to 40 CFR 63.6602 and Item 1 in Table 2c to 40 CFR 63, Subpart ZZZZ, the permittee of an existing emergency stationary CI RICE with a site rating of equal to or less than 500 brake hp located at a major source of HAP emissions, must comply with the emission limitations and other requirements in Table 2c to 40 CFR 63, Subpart ZZZZ as follows:
 - (1) Change oil and filter every 500 hours of operation or annually, whichever comes first;
 - (2) Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; and replace as necessary; and
 - (3) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.
- b. Pursuant to 40 CFR 63.6604(b), beginning January 1, 2015, if the permittee owns or operates an existing emergency CI stationary RICE with a site rating of more than 100 brake hp and a displacement of less than 30 liters per cylinder that uses diesel fuel and operates for the purpose specified in 40 CFR 63.6640(f)(4)(ii), the permittee must use diesel fuel that meets the requirements in 40 CFR 1090.305 for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.
- c. Pursuant to 40 CFR 63.6605(a), the permittee must be in compliance with the emission limitations and operating limitations in 40 CFR 63, Subpart ZZZZ that apply at all times.
- d. Pursuant to 40 CFR 63.6605(b), at all times the permittee must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the permittee to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- e. Pursuant to 40 CFR 63.6625(e)(2), the permittee must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop their own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions
- f. Pursuant to 40 CFR 63.6640(f), the permittee must operate the emergency stationary RICE according to the requirements in 40 CFR 63.6640(f)(1) through (4). In order for the engine to be considered an emergency stationary RICE under 40 CFR 63, Subpart ZZZZ, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in 40 CFR 63.6640(f)(1) through (4), is prohibited. If the permittee does not operate the engine according to the requirements in 40 CFR 63.6640(f)(1) through (4), the engine will not be considered an emergency engine under 40 CFR 63, Subpart ZZZZ and must meet all requirements for non-emergency engines.
 - (1) There is no time limit on the use of emergency stationary RICE in emergency situations.
 - (2) The permittee may operate their emergency stationary RICE for the purpose specified in 40 CFR 63.6640(f)(2)(i) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by 40 CFR 63.6640(f)(3) and (4) counts as part of the 100 hours per calendar year allowed by 40 CFR 63.6640(f)(2).
 - (i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.
 - (3) Emergency stationary RICE located at major sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in 40 CFR 63.6640(f)(2). The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

Compliance Demonstration Method:

- (1) Pursuant to 40 CFR 63.6640(a), the permittee must demonstrate continuous compliance with each emission limitation, operating limitation, and other requirements in Table 2c to 40 CFR 63, Subpart ZZZZ according to methods specified by Item 9 in Table 6 to 40 CFR 63, Subpart ZZZZ as follows:
 - (i) Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (ii) Develop and follow your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

(2) Refer to **5. Specific Recordkeeping Requirements.**

2. Emission Limitations:

None

3. Testing Requirements:

Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.

4. Specific Monitoring Requirements:

- a. Pursuant to 40 CFR 63.6625(f), if a permittee owns or operates an existing emergency stationary RICE with a site rating of less than or equal to 500 brake hp located at a major source of HAP emissions, the permittee must install a non-resettable hour meter if one is not already installed.
- b. Pursuant to 40 CFR 63.6625(h), the permittee must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to 40 CFR 63, Subpart ZZZZ apply.
- c. Pursuant to 40 CFR 63.6625(i), the permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to 40 CFR 63, Subpart ZZZZ. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to 40 CFR 63, Subpart ZZZZ. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine permittee is not required to change the oil. If any of the limits are exceeded, the engines permittee must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engines permittee must change the oil within 2 business days or before commencing operation, whichever is later. The permittee must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.
- d. Pursuant to 401 KAR 52:020, Section 10, the permittee shall monitor the hours of operation taken from the non-resettable hour meter installed pursuant to **4. Specific Monitoring Requirements** a., on a monthly basis.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

5. Specific Recordkeeping Requirements:

- a. Pursuant to 40 CFR 63.6655(a), the permittee must keep the records described in 40 CFR 63.6655(a)(1) through (5), (b)(1) through (3) and (c) as applicable:
 - (1) A copy of each notification and report that the permittee submitted to comply with 40 CFR 63, Subpart ZZZZ, including all documentation supporting any Initial Notification or Notification of Compliance Status that the permittee submitted, according to the requirement in 40 CFR 63.10(b)(2)(xiv).
 - (2) Records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment.
 - (3) Records of performance tests and performance evaluations as required in 40 CFR 63.10(b)(2)(viii).
 - (4) Records of all required maintenance performed on the air pollution control and monitoring equipment.
 - (5) Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.
- b. Pursuant to 40 CFR 63.6655(b), for each CEMS or CPMS, the permittee must keep the records listed in 40 CFR 63.6655(b)(1) through (3) as follows:
 - (1) Records described in 40 CFR 63.10(b)(2)(vi) through (xi).
 - (2) Previous (i.e., superseded) versions of the performance evaluation plan as required in 40 CFR 63.8(d)(3).
 - (3) Requests for alternatives to the relative accuracy test for CEMS or CPMS as required in 40 CFR 63.8(f)(6)(i), if applicable.
- c. Pursuant to 40 CFR 63.6655(d), the permittee must keep the records required in Table 6 of 40 CFR 63, Subpart ZZZZ to show continuous compliance with each emission or operating limitation that applies.
- d. Pursuant to 40 CFR 63.6655(e)(2), the permittee must keep records of the maintenance conducted on stationary RICE in order to demonstrate that the engine is operated and maintained the stationary RICE and after-treatment control device (if any) according to the permittee's own maintenance plan.
- e. Pursuant to 40 CFR 63.6655(f)(1), the permittee must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The permittee must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.
- f. Pursuant to 40 CFR 63.6660(a), records must be in a form suitable and readily available for expeditious review according to 40 CFR 63.10(b)(1).
- g. Pursuant to 40 CFR 63.6660(b), as specified in 40 CFR 63.10(b)(1), the permittee must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- h. Pursuant to 40 CFR 63.6660(c), the permittee must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1).
- i. Pursuant to 401 KAR 52:020, Section 10, the permittee shall calculate and record the amount of diesel fuel usage, in 1000 gallons from the hours of operation monitored pursuant to **4. Specific Monitoring Requirements** d. using the calculation below, on a monthly basis:

$$\text{Fuel Used} = \text{Manufacturer Fuel Consumption} \times \text{Hours of Operation}$$

6. Specific Reporting Requirements:

- a. Pursuant to 40 CFR 63.6640(b), the permittee must report each instance in which the permittee did not meet each emission limitation or operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to 40 CFR 63, Subpart ZZZZ that apply. These instances are deviations from the emission and operating limitations in 40 CFR 63, Subpart ZZZZ. These deviations must be reported according to the requirements in 40 CFR 63.6650. If the permittee changes their catalyst, the permittee must reestablish the values of the operating parameters measured during the initial performance test. When the permittee reestablishes the values of their operating parameters, the permittee must also conduct a performance test to demonstrate that the permittee is meeting the required emission limitation applicable to their stationary RICE.
- b. Pursuant to 40 CFR 63.6640(e), the permittee must report each instance in which the permittee did not meet the requirements in Table 8 to 40 CFR 63, Subpart ZZZZ that apply.
- c. Pursuant to 40 CFR 63.6650(f), each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in 40 CFR 63, Subpart ZZZZ in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a Compliance report pursuant to Table 7 of 40 CFR 63, Subpart ZZZZ along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the Compliance report includes all required information concerning deviations from any emission or operating limitation in 40 CFR 63, Subpart ZZZZ, submission of the Compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a Compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.
- d. Pursuant to Footnote 1 of Table 2c to 40 CFR 63, Subpart ZZZZ, if an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in Table 2c of 40 CFR 63, Subpart ZZZZ, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under federal, state, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable.

- e. See **Section F**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

081B	(EPN 081B)	#2B Fire Water Pump
	Description:	Cummins CFP9E-F20 EPA Tier 3
		Power Rating: 282 hp
		Primary Fuel: Fuel Oil #2 (Diesel)
		Fuel Rate: 0.0146 ¹⁰⁰⁰ gallons/hr
		Manufacture Date: May 2021
		Date of construction: 2021
082A	(EPN 082A)	#3A Fire Water Pump
	Description:	Cummins Engine (EPA Certified)
		Power Rating: 327 hp
		Primary Fuel: Fuel Oil #2 (Diesel)
		Fuel Rate: 0.017 ¹⁰⁰⁰ gallons/hr
		Manufacture Date: February 2014
		Date of construction: 2014
083	(EPN 083)	#4 Fire Water Pump
	Description:	John Deere Engine (EPA Certified)
		Power Rating: 305 hp
		Primary Fuel: Fuel Oil #2 (Diesel)
		Fuel Rate: 0.016 ¹⁰⁰⁰ gallons/hr
		Manufacture Date: April 2011
		Date of construction: 2011

APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

401 KAR 60:005, Section 2(2)(dddd), 40 C.F.R. 60.4200 through 60.4219, Tables 1 through 8 (Subpart IIII), Standards of Performance for Stationary Compression Ignition Internal Combustion Engines,

1. Operating Limitations:

- a. Pursuant to 40 CFR 63.6590(c)(6), an affected source must meet the requirements of 40 CFR 63, Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart IIII. No further requirements apply for such engines under 40 CFR 63, Subpart ZZZZ.
- b. Pursuant to 40 CFR 60.4206, the permittee of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in 40 CFR 60.4204 and 40 CFR 60.4205 over the entire life of the engine.
- c. Pursuant to 40 CFR 60.4207(b), beginning October 1, 2010, the permittee of stationary CI ICE subject to 40 CFR 60, Subpart IIII with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.

Compliance Demonstration Method:

See 5. Specific Recordkeeping Requirements d.

- d. Pursuant to 40 CFR 60.4211(a), the permittee must do all of the following, except as permitted under 40 CFR 60.4211(g):
 - (1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;
 - (2) Change only those emission-related settings that are permitted by the manufacturer; and
 - (3) Meet the requirements of 40 CFR part 1068, as they apply.
- e. Pursuant to 40 CFR 60.4211(c), the permittee must purchase an engine certified to the emission standards in 40 CFR 60.4204(b), or 40 CFR 60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in 40 CFR 60.4211(g).
- f. Pursuant to 40 CFR 60.4211(f), the permittee must operate the emergency stationary ICE according to the requirements in 40 CFR 60.4211(f)(1) through (3). In order for the engine to be considered an emergency stationary ICE under 40 CFR 60, Subpart IIII, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in 40 CFR 60.4211(f)(1) through (3), is prohibited. If the permittee does not operate the engine according to the requirements in 40 CFR 60.4211(f)(1) through (3), the engine will not be considered an emergency engine under 40 CFR 60, Subpart IIII and must meet all requirements for non-emergency engines.
 - (1) There is no time limit on the use of emergency stationary ICE in emergency situations.
 - (2) The permittee may operate the emergency stationary ICE for the purpose specified in 40 CFR 60.4211(f)(2)(i) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by 40 CFR 60.4211(f)(3) counts as part of the 100 hours per calendar year allowed by 40 CFR 60.4211(f)(2).
 - (i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The permittee may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the permittee maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.
 - (3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in 40 CFR 60.4211(f)(2). Except as provided in 40 CFR 60.4211(f)(3)(i), the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

- (i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:
 - A. The engine is dispatched by the local balancing authority or local transmission and distribution system operator;
 - B. The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
 - C. The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
 - D. The power is provided only to the facility itself or to support the local transmission and distribution system.
 - E. The permittee identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.
- g. Pursuant to 40 CFR 60.4211(g)(2), if the permittee does not install, configure, operate, and maintain their engine greater than or equal to 100 hp and less than or equal to 500 hp and control device according to the manufacturer's emission-related written instructions, or the permittee changes emission-related settings in a way that is not permitted by the manufacturer, the permittee must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the permittee must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after the permittee changes emission-related settings in a way that is not permitted by the manufacturer.

2. Emission Limitations:

- a. Pursuant to 40 CFR 60.4205(c), the permittee of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in table 4 to 40 CFR 60, Subpart IIII, for all pollutants from each engine as follows:
 - (1) NMHC+NO_x emissions shall not exceed 3.0 g/hp-hr;
 - (2) CO emissions shall not exceed 2.6 g/hp-hr; and
 - (3) PM emissions shall not exceed 0.15 g/hp-hr.

Compliance Demonstration Method:

See 1. Operating Limitations e.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

3. Testing Requirements:

- a. Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.
- b. Pursuant to 40 CFR 60.4212, the permittee of stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests pursuant to 40 CFR 60, Subpart IIII must do so according to 40 CFR 60.4212(a) through (e).

4. Specific Monitoring Requirements:

- a. Pursuant to 40 CFR 60.4209(a), the permittee of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, must install a non-resettable hour meter prior to startup of the engine.
- b. Pursuant to 401 KAR 52:020, Section 10, the permittee shall monitor the hours of operation on a monthly basis.

5. Specific Recordkeeping Requirements:

- a. Pursuant to 40 CFR 60.4214(b), the permittee of an emergency stationary internal combustion engine is not required to submit an initial notification. Starting with the model years in table 5 to 40 CFR 60, Subpart IIII, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the permittee must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The permittee must record the time of operation of the engine and the reason the engine was in operation during that time.
- b. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain a copy of the Certification of Compliance for each engine certified to the standards of 40 CFR 60, Subpart IIII.
- c. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain a copy of the certificate of analysis, MSDS or other documentation from the fuel supplier certifying the sulfur content of each load of No. 2 fuel oil received.
- d. Pursuant to 401 KAR 52:020, Section 10, the permittee shall calculate and record the amount of diesel fuel usage at each engine, in 1000 gallons from the hours of operation monitored pursuant to **4. Specific Monitoring Requirements** b. using the calculation below, on a monthly basis:

$$\text{Fuel Used} = \text{Manufacturer Fuel Consumption} \times \text{Hours of Operation}$$

6. Specific Reporting Requirements:

See Section F.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

084	(EPN 084) Description:	Emergency Generator for Fire Water Pump Caterpillar Engine (EPA Certified) Power Rating: 546 hp Primary Fuel: Fuel Oil #2 (Diesel) Fuel Rate: 0.028 ¹⁰⁰⁰ gallons/hr Manufacture Date: August 2016 Date of construction: 2016
085	(EPN 085) Description:	Emergency Generator for Sodium Hypochlorite Tower Caterpillar Engine (EPA Certified) Power Rating: 546 hp Primary Fuel: Fuel Oil #2 (Diesel) Fuel Rate: 0.028 ¹⁰⁰⁰ gallons/hr Manufacture Date: August 2017 Date of construction: 2017
090	(EPN 090) Description:	Chlorine Plant Emergency Generator Caterpillar D500 GC Engine (EPA Certified) Power Rating: 670.5 hp (500 kW) Primary Fuel: Fuel Oil #2 (Diesel) Fuel Rate: 0.0357 ¹⁰⁰⁰ gallons/hr Manufacture Date: 2022 Date of construction: 2023 (Proposed)
091	(EPN 091) Description:	E&E Plant Emergency Generator Caterpillar C18 Engine (EPA Certified) Power Rating: 1,005.8 hp (750 kW) Primary Fuel: Fuel Oil #2 (Diesel) Fuel Rate: 0.0497 ¹⁰⁰⁰ gallons/hr Manufacture Date: 2023 (Proposed) Date of construction: 2024 (Proposed)
092	(EPN 092) Description:	Chlorine Plant Emergency Generator Caterpillar C18 PGAM Engine (EPA Certified) Power Rating: 804.6 hp (600 kW) Primary Fuel: Fuel Oil #2 (Diesel) Fuel Rate: 0.0427 ¹⁰⁰⁰ gallons/hr Manufacture Date: 2024 (Proposed) Date of construction: 2024 (Proposed)

APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

401 KAR 60:005, Section 2(2)(dddd), 40 C.F.R. 60.4200 through 60.4219, Tables 1 through 8 (Subpart IIII), Standards of Performance for Stationary Compression Ignition Internal Combustion Engines,

1. Operating Limitations:

- a. Pursuant to 40 CFR 63.6590(b)(1)(i), a new emergency stationary RICE with a site rating of more than 500 brake hp located at a major source of HAP emissions does not have to meet the requirements of 40 CFR 63, Subpart ZZZZ and of 40 CFR 63, Subpart A, except for initial notification requirements of 40 CFR 63.6645(f).
- b. Pursuant to 40 CFR 60.4206, the permittee of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in 40 CFR 60.4204 and 40 CFR 60.4205 over the entire life of the engine.
- c. Pursuant to 40 CFR 60.4207(b), beginning October 1, 2010, the permittee of stationary CI ICE subject to 40 CFR 60, Subpart IIII with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.

Compliance Demonstration Method:

See **5. Specific Recordkeeping Requirements c.**

- d. Pursuant to 40 CFR 60.4211(a), the permittee must do all of the following, except as permitted under 40 CFR 60.4211(g):
 - (1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;
 - (2) Change only those emission-related settings that are permitted by the manufacturer; and
 - (3) Meet the requirements of 40 CFR part 1068, as they apply.
- e. Pursuant to 40 CFR 60.4211(c), the permittee must purchase an engine certified to the emission standards in 40 CFR 60.4204(b), or 40 CFR 60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in 40 CFR 60.4211(g).
- f. Pursuant to 40 CFR 60.4211(f), the permittee must operate the emergency stationary ICE according to the requirements in 40 CFR 60.4211(f)(1) through (3). In order for the engine to be considered an emergency stationary ICE under 40 CFR 60, Subpart IIII, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in 40 CFR 60.4211(f)(1) through (3), is prohibited. If the permittee does not operate the engine according to the requirements in 40 CFR 60.4211(f)(1) through (3), the engine will not be considered an emergency engine under 40 CFR 60, Subpart IIII and must meet all requirements for non-emergency engines.
 - (1) There is no time limit on the use of emergency stationary ICE in emergency situations.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- (2) The permittee may operate the emergency stationary ICE for the purpose specified in 40 CFR 60.4211(f)(2)(i) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by 40 CFR 60.4211(f)(3) counts as part of the 100 hours per calendar year allowed by 40 CFR 60.4211(f)(2).
 - (i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The permittee may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the permittee maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.
- (3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in 40 CFR 60.4211(f)(2). Except as provided in 40 CFR 60.4211(f)(3)(i), the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.
 - (i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:
 - A. The engine is dispatched by the local balancing authority or local transmission and distribution system operator;
 - B. The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
 - C. The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
 - D. The power is provided only to the facility itself or to support the local transmission and distribution system.
 - E. The permittee identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.
- g. Pursuant to 40 CFR 60.4211(g)(3), if the permittee does not install, configure, operate, and maintain their engine greater than 500 hp and control device according to the manufacturer's emission-related written instructions, or the permittee changes emission-related settings in a way that is not permitted by the manufacturer, the permittee must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the permittee must conduct an initial

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after the permittee changes emission-related settings in a way that is not permitted by the manufacturer. The permittee must conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

2. Emission Limitations:

- a. Pursuant to 40 CFR 60.4205(b), the permittee of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in 40 CFR 60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.
- b. Pursuant to 40 CFR 60.4202(a)(2), for engines with a rated power greater than or equal to 37 KW (50 hp), the Tier 2 or Tier 3 emission standards for new nonroad CI engines for the same rated power as described in 40 CFR part 1039, appendix I, for all pollutants beginning in model year 2007.
 - (1) For EPNs 084 and 085, the Tier 3 emission standards are as follows:
 - (i) NMHC+NO_x emissions shall not exceed 4.0 g/kW-hr;
 - (ii) CO emissions shall not exceed 3.5 g/kW-hr; and
 - (iii) PM emissions shall not exceed 0.20 g/kW-hr.
 - (2) For EPNs 090, 091, and 092, the Tier 2 emission standards are as follows:
 - (i) NMHC+NO_x emissions shall not exceed 6.4 g/kW-hr;
 - (ii) CO emissions shall not exceed 3.5 g/kW-hr; and
 - (iii) PM emissions shall not exceed 0.20 g/kW-hr.

Compliance Demonstration Method:

See **1. Operating Limitations e.**

3. Testing Requirements:

- a. Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.
- b. Pursuant to 40 CFR 60.4212, the permittee of stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests pursuant to 40 CFR 60, Subpart IIII must do so according to 40 CFR 60.4212(a) through (e).

4. Specific Monitoring Requirements:

- a. Pursuant to 40 CFR 60.4209(a), the permittee of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, must install a non-resettable hour meter prior to startup of the engine.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- b. Pursuant to 401 KAR 52:020, Section 10, the permittee shall monitor the hours of operation on a monthly basis.

5. Specific Recordkeeping Requirements:

- a. Pursuant to 40 CFR 60.4214(b), the permittee of an emergency stationary internal combustion engine is not required to submit an initial notification. Starting with the model years in table 5 to 40 CFR 60, Subpart IIII, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the permittee must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The permittee must record the time of operation of the engine and the reason the engine was in operation during that time.
- b. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain a copy of the certificate of analysis, MSDS or other documentation from the fuel supplier certifying the sulfur content of each load of No. 2 fuel oil received.
- c. Pursuant to 401 KAR 52:020, Section 10, the permittee shall calculate and record the amount of diesel fuel usage at each engine, in 1000 gallons from the hours of operation monitored pursuant to **4. Specific Monitoring Requirements** b. using the calculation below, on a monthly basis:

$$\text{Fuel Used} = \text{Manufacturer Fuel Consumption} \times \text{Hours of Operation}$$

6. Specific Reporting Requirements:

See **Section F**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

088	(EPN 088)	Portable Air Compressor
	Description:	Caterpillar Engine
		Power Rating: 540 hp
		Primary Fuel: Fuel Oil #2 (Diesel)
		Date of construction: 2018

APPLICABLE REGULATIONS:

None

NON-APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

401 KAR 60:005, Section 2(2)(dddd), 40 C.F.R. 60.4200 through 60.4219, Tables 1 through 8 (Subpart IIII), Standards of Performance for Stationary Compression Ignition Internal Combustion Engines,

1. Operating Limitations:

Pursuant to 401 KAR 52:020, Section 10, to preclude each portable internal combustion engine from being classified as “not a nonroad engine” as defined in 40 CFR 1068.30, the engine shall not remain at any location for more than 12 consecutive months. For any engine (engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced, the time period of both engines shall be used in calculating the consecutive time period.

Compliance Demonstration Method:

Refer to **5. Specific Recordkeeping Requirements.**

2. Emission Limitations:

None

3. Testing Requirements:

Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.

4. Specific Monitoring Requirements:

Pursuant to 401 KAR 52:020, Section 10, the permittee shall monitor the hours of operation of the engine on a monthly basis.

5. Specific Recordkeeping Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain a log, located with the engine at all times, specifying each location of the engine; including the initial date at that location, and the date moved from that location.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- b. Pursuant to 401 KAR 52:020, Section 10, the permittee shall calculate and record the amount of diesel fuel usage, in 1000 gallons from the hours of operation monitored pursuant to **4. Specific Monitoring Requirements** using the calculation below, on a monthly basis:

$$\text{Fuel Used} = \text{Manufacturer Fuel Consumption} \times \text{Hours of Operation}$$

6. **Specific Reporting Requirements:**
See **Section F**.

SECTION C - INSIGNIFICANT ACTIVITIES

The following listed activities have been determined to be insignificant activities for this source pursuant to 401 KAR 52:020, Section 6. Although these activities are designated as insignificant the permittee must comply with the applicable regulation. Process and emission control equipment at each insignificant activity subject to an opacity standard shall be inspected monthly and a qualitative visible emissions evaluation made. Results of the inspection, evaluation, and any corrective action shall be recorded in a log.

<u>EPN</u>	<u>Description</u>	<u>Generally Applicable Regulation</u>
WESTLAKE CHLOR-ALKALI PLANT		
823	HCl Acid Tank (17,000 gallons)	401 KAR 63:020
824	HCl Acid Pump Tank (21,150 gallons)	401 KAR 63:020
825	HCl Acid Head Tank (6,400 gallons)	401 KAR 63:020
825A	HCl Acid Head Tank #2	401 KAR 63:020
826	Sulfuric Acid Truck Loading (Emissions reported in EPN 813A & FUG-CA)	401 KAR 63:020
827	Firewater Diesel Fuel Tank #1 (300 gallons)	None
828	Firewater Diesel Fuel Tank #2 (300 gallons)	None
830	#1 Caustic Tank (845,000 gallons)	None
831	#2 Caustic Tank (845,000 gallons)	None
832	#3 Caustic Tank (845,000 gallons)	None
833	#4 Caustic Tank (845,000 gallons)	None
834	#5 Caustic Tank (30,000 gallons)	None
835	#6 Caustic Tank (30,000 gallons)	None
836	Caustic Tank	None
842	Chilled Water Tank (1,900 gallons)	None
845	Sulfuric Acid Head Tank (500 gallons)	None
848	Diesel Fuel Tank (1,000 gallons)	None

SECTION C - INSIGNIFICANT ACTIVITIES (CONTINUED)

<u>EPN</u>	<u>Description</u>	<u>Generally Applicable Regulation</u>
WESTLAKE CHLOR-ALKALI PLANT		
850A	Regenerate Effluent Tank (37,600 gallons)	None
850B	Regenerate Effluent Tank (14,200 gallons)	None
855	Sulfuric Acid (H ₂ SO ₄) Head Tank (1,300 gallons)	None
855A	Sulfuric Acid Head Tank #3	None
867	Prime H ₂ SO ₄ Tank (24,000 gallons)	None
877A	20% Caustic Scrubber (Control Loading from EPN 893 and rail car, Tank 866D)	None
877B	20% Caustic Scrubber (Control HCl tanks 886A – C)	None
878	Strong H ₂ SO ₄ Tank (75 gallons)	None
879	5% H ₂ SO ₄ Tank (200 gallons)	None
886A	HCl Tank	401 KAR 63:020
886B	HCl Tank	401 KAR 63:020
886C	HCl Tank	401 KAR 63:020
886D	HCl Tank (70,000 gallons)	401 KAR 63:020
888	Drum Loading – Carbon Tetrachloride	401 KAR 63:020
890	Chilled Water Tank – Propylene Glycol, Water	None
891	Miscellaneous Treatment Chemical Tanks and Vendor-Supplied Totes < 500 gallons	None
892	Miscellaneous Additive and Treatment – Chemical Bag Dumping	None
893	HCl Truck Loading (Bulk Loading of HCl from HCl Burner in Chlorine)	401 KAR 63:020

SECTION C - INSIGNIFICANT ACTIVITIES (CONTINUED)

<u>EPN</u>	<u>Description</u>	<u>Generally Applicable Regulation</u>
WESTLAKE CHLOR-ALKALI PLANT		
895	Chilled Water Machine	None
896	Ultra Pure Brine Tank (Brine Head Tank) 9,500 gallons	None
897	Ultra-Pure Brine Tank 15,000 gallons	None
WESTLAKE ENERGY AND ENVIRONMENTAL PLANT		
022	HCl Acid Tank (19,000 gallons)	401 KAR 63:020
036	Gasoline Storage Tank (1,000 gallons)	401 KAR 61:050, Section 3(3)
037	Diesel Storage Tank (1,000 gallons)	None
042	Firewater Diesel Fuel Storage Tank (500 gallons)	None
043	Firewater Diesel Fuel Storage Tank (300 gallons)	None
051	Pump, Barrier Fluid Tank (500 gallons)	None
067	Polymer Tank (16 gallons)	None
068	Polymer Tank (10 gallons)	None
069	Polymer Tank (4,000 gallons)	None
070	Wastewater Storage Tank – Settling Tank (240,000 gallons)	None
071	Polymer Tank (700 gallons)	None
072	Polymer Tote Tanks (400 gallons)	None
073	Wastewater Storage Tank – Carbon Filter Backwash (240,000 gallons)	None
075	Mix Tank Bag Unloading	401 KAR 59:010
077	Miscellaneous Treatment Chemical Tanks and Vendor-Supplied Totes < 500 gallons	None

SECTION C - INSIGNIFICANT ACTIVITIES (CONTINUED)

<u>EPN</u>	<u>Description</u>	<u>Generally Applicable Regulation</u>
WESTLAKE ENERGY AND ENVIRONMENTAL PLANT		
079	Temporary/Portable Diesel Storage Tanks (1,000 gallons)	None
086	001 Outfall Recycle Water	None
087	002 Outfall Recycle Water	None
084A	#2A Fire Water Pump Diesel Tank Capacity: 654 gal	None
085A	Emergency Fire Water Generator Diesel Tank Capacity: 654 gal	None
088A	Portable Diesel Engine Tank Capacity: 240 gal	None
089	Skid Mounted Diesel Tank Capacity: 1,000 gal	None
093	Urea Tank (8,500 gallons)	None
WESTLAKE MONOMERS PLANT		
402A	South Synthesis Optimeen Tank (560 gallons)	None
402B	East Optimeen Tank (300 gallons)	None
402C	North Synthesis Optimeen Tank (300 gallons)	None
404	East Catalyst System 25,000 lb/hr	401 KAR 59:010
406	Catoxid Kerosene Tank (5,000 gallons)	401 KAR 63:020
408	Catoxid Kerosene Tank (15,000 gallons)	401 KAR 63:020
425	Caustic Tank (45,000 gallons)	None
428A	Caustic Tank (1,000 gallons)	None
428B	Caustic Tank (100 gallons)	None
430	East Cracking Brine Storage Tank (1,700 gallons)	None

SECTION C - INSIGNIFICANT ACTIVITIES (CONTINUED)

<u>EPN</u>	<u>Description</u>	<u>Generally Applicable Regulation</u>
WESTLAKE MONOMERS PLANT		
448	South Catalyst System 50,000 lb/hr	401 KAR 59:010
452	South Synthesis Brine Storage Tank (4,136 gallons)	None
456	South Synthesis Caustic Day Tank (13,668 gallons)	None
460	P-7206 (2,000 gallons)	None
461	South Synthesis Lubricant Oil Tank (264 gallons)	None
462	Propylene Glycol Tank (330 gallons)	None
463	Seal Oil Totes (359 gallons)	None
464	North Cracking Lubricant Oil Totes < 500 gallons	None
465	Tank Farm Lubricant Oil Totes < 500 gallons	None
466	A Oxy Reactor Catalyst Addition	401 KAR 59:010
467	B Oxy Reactor Catalyst Addition	401 KAR 59:010
468	No. 4 Oxy Reactor Catalyst Addition	401 KAR 59:010
469	Catoxid Catalyst Addition	401 KAR 59:010
470	HTDC Ferric Chloride Addition	401 KAR 59:010
471	Amine Injection System Totes < 500 gallons	None
472	Lab Fume Hood	401 KAR 63:021
475	#1A Vinyl Sphere – TK-1BA-1 (322,450 gallons)	401 KAR 63:020
476	#1B Vinyl Sphere – TK-912 (322,450 gallons)	401 KAR 63:020
477	#1C Vinyl Sphere – M-TK-730 (322,831 gallons)	401 KAR 63:020
478	#2 Vinyl Sphere – TK-7B (128,345 gallons)	401 KAR 63:020

SECTION C - INSIGNIFICANT ACTIVITIES (CONTINUED)

<u>EPN</u>	<u>Description</u>	<u>Generally Applicable Regulation</u>
WESTLAKE MONOMERS PLANT		
479	#3 Vinyl Sphere – TK-8B (128,345 gallons)	401 KAR 63:020
480	Vinyl Chloride (VCl) Recovery Tank – TK-4B (128,345 gallons)	401 KAR 63:020
481	VCl Recovery Tank – TK-5B (128,345 gallons)	401 KAR 63:020
533A	Muriatic Acid 1 (50,000 gallons)	401 KAR 63:020
533B	Muriatic Acid 2 (50,000 gallons)	401 KAR 63:020
533C	Muriatic Acid 3 (50,000 gallons)	401 KAR 63:020
533D	Muriatic Acid 4 (16,700 gallons)	401 KAR 63:020
533E	Muriatic Acid 5 (16,700 gallons)	401 KAR 63:020
533F	Muriatic Acid Truck Loading Station	401 KAR 63:020
607	Turbinol Tank (400 gallons)	None
608	Miscellaneous Treatment Chemical Tanks and Vendor-Supplied Totes < 500 gallons	None

SECTION D - SOURCE EMISSION LIMITATIONS AND TESTING REQUIREMENTS

1. As required by Section 1b of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26; compliance with annual emissions and processing limitations contained in this permit, shall be based on emissions and processing rates for any twelve (12) consecutive months.
2. Carbon Monoxide, Nitrogen Dioxide, Particulate Matter, PM₁₀, PM_{2.5}, Sulfur Dioxide, VOCs, HAPs, Benzene, 1,2 Dichloroethane (EDC), Chlorine, and Vinyl Chloride emissions, measured by applicable reference methods, or an equivalent or alternative method specified in 40 C.F.R. Chapter I, or by a test method specified in the state implementation plan shall not exceed the respective limitations specified herein.
3. **Source Operating Limitations:**
 - a. Pursuant to 401 KAR 52:020, Section 10, the Maximum Hourly Firing Rate on a 24-hour average basis and Annual Average Firing Rate on a 12-month rolling basis shall not exceed the limits listed in **1. Operating Limitations** in **Section B** for each emission unit listed below:

Emission Units

005 (EPN 009) Boiler #2
 013B (EPN 013) Boiler #6
 010 (EPN 514) South Cracking Furnace #13
 011 (EPN 526) North Cracking Furnace 1A
 011 (EPN 527) North Cracking Furnace 2A
 012D (EPN 534A) EDC Cracking Furnace #3A
 012B (EPN 535) EDC Cracking Furnace #4
 012C (EPN 536) EDC Cracking Furnace #5
 012A (EPN 534) EDC Cracking Furnace #3

Compliance Demonstration Method:

- (1) For compliance with the Maximum Hourly Firing Rate for each emission unit listed above the permittee shall maintain records of the hourly consumption of natural gas, hydrogen gas, and fuel gas above on a pounds per hour basis, as well as the hourly heat content of the fuel gas used and its density; and calculate actual hourly firing rate using the following equations:

$$NG_{\text{Firing Rate}} \left(\frac{\text{mmBtu}}{\text{hr}} \right) = NG_{\text{Use}} \left(\frac{\text{lb}}{\text{hr}} \right) \times 23,900 \left(\frac{\text{Btu}}{\text{lb}} \right) \times \frac{1 \text{ mmBtu}}{10^6 \text{ Btu}}$$

$$H_2_{\text{Firing Rate}} \left(\frac{\text{mmBtu}}{\text{hr}} \right) = H_{2\text{Use}} \left(\frac{\text{lb}}{\text{hr}} \right) \times 56,400 \left(\frac{\text{Btu}}{\text{lb}} \right) \times \frac{1 \text{ mmBtu}}{10^6 \text{ Btu}}$$

$$FG_{\text{Firing Rate}} \left(\frac{\text{mmBtu}}{\text{hr}} \right) = FG_{\text{Use}} \left(\frac{\text{lb}}{\text{hr}} \right) \times \text{Heat Content}_{\text{Hourly}} \left(\frac{\text{Btu}}{\text{scf}} \right) \times \frac{1}{\rho_{\text{Fuel}} \left(\frac{\text{scf}}{\text{lb}} \right)} \times \frac{1 \text{ mmBtu}}{10^6 \text{ Btu}}$$

SECTION D - SOURCE EMISSION LIMITATIONS AND TESTING REQUIREMENTS (CONTINUED)

$$\text{Actual 24-Hourly Firing Rate} \left(\frac{\text{mmBtu}}{24\text{-hr}} \right) = \frac{\sum_{n=1}^{24} \left(\text{NG}_{\text{Firing Rate}} + \text{H}_2_{\text{Firing Rate}} + \text{FG}_{\text{Firing Rate}} \right)}{24 \text{ hours}}$$

- (2) For compliance with the Annual Average Firing Rate for each emission unit listed above the permittee shall calculate and maintain records of the monthly and 12-month rolling average firing rate. The actual monthly firing rate shall be based on the monthly consumption of natural gas, hydrogen gas, and fuel gas, as well as the monthly average heat content of the fuel gas and its density; using the following equations:

$$\text{NG}_{\text{Firing Rate}} \left(\frac{\text{mmBtu}}{\text{month}} \right) = \text{NG}_{\text{Use}} \left(\frac{\text{lb}}{\text{month}} \right) \times 23,900 \left(\frac{\text{Btu}}{\text{lb}} \right) \times \frac{1 \text{ mmBtu}}{10^6 \text{ Btu}}$$

$$\text{H}_2_{\text{Firing Rate}} \left(\frac{\text{mmBtu}}{\text{month}} \right) = \text{H}_2_{\text{Use}} \left(\frac{\text{lb}}{\text{month}} \right) \times 56,400 \left(\frac{\text{Btu}}{\text{lb}} \right) \times \frac{1 \text{ mmBtu}}{10^6 \text{ Btu}}$$

$$\text{FG}_{\text{Firing Rate}} \left(\frac{\text{mmBtu}}{\text{month}} \right) = \text{FG}_{\text{Use}} \left(\frac{\text{lb}}{\text{month}} \right) \times \text{HC}_{\text{Monthly}} \left(\frac{\text{Btu}}{\text{scf}} \right) \times \frac{1}{\rho_{\text{Fuel}}} \left(\frac{\text{scf}}{\text{lb}} \right) \times \frac{1 \text{ mmBtu}}{10^6 \text{ Btu}}$$

$$\text{Actual Monthly Firing Rate} \left(\frac{\text{mmBtu}}{\text{month}} \right) = \sum \left(\text{NG}_{\text{Firing Rate}} + \text{H}_2_{\text{Firing Rate}} + \text{FG}_{\text{Firing Rate}} \right)$$

- b. Pursuant to 401 KAR 52:020, Section 10, the permittee shall maintain and operate a Fenceline Monitoring Mitigation Project in accordance with the Consent Decree 2:22-cv-01577-JDC-KK between United States of America and Westlake Vinyls, Inc., entered on October 26, 2022, as follows:

The permittee must post to a publicly available website each individual sample result for each monitor, each biweekly annual average concentration difference value (once annual averages are available), and any corrective action plan submitted to EPA pursuant to **3. Source Operating Limitations** b.(1)(vii) (corrective action plans posted to the website may be redacted to protect confidential business information). The permittee must post each individual sample result for each monitor within 30 Days of the end of the biweekly sampling period or within 30 Days of sampling collected pursuant to the “alternative sampling frequency for burden reduction” requirements set forth in **3. Source Operating Limitations** b.(1)(v)(C). The permittee must post each annual average difference value within 45 Days of the sampling period that allows the creation of a new annual average difference value. The data must be presented in a tabular format.

(1) Monitoring Requirements.

- (i) The permittee must commence sampling along the property boundary of Vinyls Plant. The permittee must collect and analyze the samples in accordance with Methods 325A and 325B of Appendix A to 40 C.F.R. Part 63 (Test Methods – Pollutant Measurement Methods From Various Waste Media) (hereafter “Rule Appendix A”), and **3. Source Operating Limitations** b.(1)(ii) through (vii).

SECTION D - SOURCE EMISSION LIMITATIONS AND TESTING REQUIREMENTS (CONTINUED)

- (ii) The target analyte for the Fenceline Monitoring System is benzene.
- (iii) Siting of monitors. The permittee must determine the passive monitor locations comprising each Fenceline Monitoring System in accordance with Section 8.2 of Method 325A of Rule Appendix A, with the exception of the number of duplicates and blanks, which will be determined pursuant to 40 C.F.R. 63.658(c)(3).
 - (A) As it pertains to this Fenceline Monitoring Mitigation Project, “known sources of VOCs,” as used in Section 8.2.1.3 in Method 325A of Rule Appendix A for siting passive monitors, means a wastewater treatment unit, process unit, or any emission source requiring HAP control according to the requirements of any state or federal air permit applicable to the Vinyls Plant, including marine vessel loading operations. For marine loading operations that are located offshore, one passive monitor should be sited on the shoreline adjacent to the dock. For purposes of **3. Source Operating Limitations** b.(1)(iii), an additional monitor is not required if the only emission sources within 50 meters of the monitoring boundary are equipment leak sources satisfying all of the requirements in 40 C.F.R. 63.658(c)(1)(i) through (iv).
 - (B) If there are 19 or fewer monitoring locations, the permittee shall collect at least one co-located duplicate sample per sampling period and at least one field blank per sampling period. If there are 20 or more monitoring locations, the permittee shall collect at least two co-located duplicate samples per sampling period and at least one field blank per sampling period, as described in 40 C.F.R. 63.658(c)(3). The co-located duplicates may be collected at any one of the perimeter sampling locations.
 - (C) The permittee must follow the procedure in Section 9.6 of Method 325B of Rule Appendix A to determine the detection limit of benzene for each sampler used to collect samples and co-located samples and blanks. Each monitor used to conduct sampling in accordance with **3. Source Operating Limitations** b.(1)(iii)(C) must have a detection limit that is at least an order of magnitude lower than the benzene action level.
- (iv) Collection of meteorological data. The permittee must collect and record meteorological data according to the applicable requirements in **3. Source Operating Limitations** b.(1)(iv)(A) and (B).
 - (A) The permittee must collect and record the average temperature during each sampling period using either an on-site meteorological station in accordance with Section 8.3 of Method 325A of Rule Appendix A or, alternatively, using data from a United States Weather Service (USWS) meteorological station provided the USWS meteorological station is within 40 kilometers (25 miles) of Westlake Vinyls Inc.
 - (B) If an on-site meteorological station is used, the permittee must follow the calibration and standardization procedures for meteorological measurements in EPA-454/B-08-002.
<http://www3.epa.gov/ttnamti1/files/ambient/met/Volume IV Meteorological Measurements.pdf>.
- (v) Sampling Frequency. The permittee must use a sampling period and sampling frequency as follows:

SECTION D - SOURCE EMISSION LIMITATIONS AND TESTING REQUIREMENTS (CONTINUED)

- (A) *Sampling period.* A 14-Day sampling period must be used, unless a shorter sampling period is determined to be necessary under **3. Source Operating Limitations b.(1)(vii)**. A sampling period is defined as the period during which a sampling tube is deployed at a specific sampling location with the diffusive sampling end cap in-place. The sampling period does not include the time required to analyze the sample. For the purpose of **3. Source Operating Limitations b.(1)(v)**, a 14-Day sampling period may be no shorter than 13 calendar days and no longer than 15 calendar days, but the routine sampling period must be 14 calendar days.
- (B) *Base sampling frequency.* Except as provided in **3. Source Operating Limitations b.(1)(v)(C)**, the frequency of sample collection must be once each contiguous 14-Day sampling period, such that the next 14-Day sampling period begins immediately upon the completion of the previous 14-Day sampling period.
- (C) *Alternative sampling frequency for burden reduction.* When an individual monitor consistently, as defined in **3. Source Operating Limitations b.(1)(v)(C)(1) through (5)**, yields results at or below $0.9 \mu\text{g}/\text{m}^3$, the permittee may elect to use the applicable minimum sampling frequency specified in **3. Source Operating Limitations b.(1)(v)(C)(1) through (5)** for that individual monitoring site. When calculating Δc (as defined in **3. Source Operating Limitations b.(1)(vi)**) for the monitoring period when using this alternative for burden reduction, zero must be substituted for the sample result for the monitoring site for any period where a sample is not taken.
- (1) If every sample at an individual monitoring site is at or below $0.9 \mu\text{g}/\text{m}^3$ for 2 years (52 consecutive samples), every other sampling period can be skipped for that individual monitoring site, i.e., sampling can occur approximately once per month.
 - (2) If every sample at an individual monitoring site that is monitored at the frequency specified in **3. Source Operating Limitations b.(1)(v)(C)(1)** is at or below $0.9 \mu\text{g}/\text{m}^3$ for 2 years (i.e., 26 consecutive “monthly” samples), five 14-Day sampling periods can be skipped for that individual monitoring site following each period of sampling, i.e., sampling will occur approximately once per quarter.
 - (3) If every sample at an individual monitoring site that is monitored at the frequency specified in **3. Source Operating Limitations b.(1)(v)(C)(2)** is at or below $0.9 \mu\text{g}/\text{m}^3$ for 2 years (i.e., 8 consecutive quarterly samples), twelve 14-Day sampling periods can be skipped for that individual monitoring site following each period of sampling, i.e., sampling will occur twice a year.
 - (4) If every sample at an individual monitoring site that is monitored at the frequency specified in **3. Source Operating Limitations b.(1)(v)(C)(3)** is at or below $0.9 \mu\text{g}/\text{m}^3$ for an 2 years (i.e., 4 consecutive semi-annual samples), only one sample per year is required for that individual monitoring site. For yearly sampling, samples must occur at least 10 months but no more than 14 months apart.

SECTION D - SOURCE EMISSION LIMITATIONS AND TESTING REQUIREMENTS (CONTINUED)

- (5) If at any time a sample for an individual monitoring site that is monitored at the frequency specified in **3. Source Operating Limitations b.(1)(v)(C)(I)** through (5) returns a result that is above $0.9 \mu\text{g}/\text{m}^3$, that sampling site must return to the original sampling requirements of contiguous 14-Day sampling periods with no skip periods for one quarter (six 14-Day sampling periods). If every sample collected during this quarter is at or below $0.9 \mu\text{g}/\text{m}^3$, the permittee may revert back to the reduced monitoring frequency applicable for that individual monitoring site immediately prior to the sample reading exceeding $0.9 \mu\text{g}/\text{m}^3$. If any sample collected this quarter is above $0.9 \mu\text{g}/\text{m}^3$, that individual monitoring site must return to the original sampling requirements of contiguous 14-Day sampling periods with no skip periods for a minimum of two years. The burden reduction requirements can be used again for that monitoring site once the requirements of **3. Source Operating Limitations b.(1)(v)(C)(I)** are met again, i.e., after 52 contiguous 14-Day samples with no results above $0.9 \mu\text{g}/\text{m}^3$.
- (vi) Action Level. Within 45 Days of completion of each sampling period, the permittee must determine whether the results are above or below the action level as follows:
- (A) Calculation of the Δc . The permittee must determine the benzene difference concentration (Δc) for each 14-Day sampling period by determining the highest and lowest sample results for benzene concentrations from the sample pool and calculating the Δc as the difference in these concentrations. The permittee must adhere to the following procedures when one or more samples for the sampling period are below the method detection limit for benzene:
- (1) If the lowest detected value of benzene is below detection, the permittee must use zero as the lowest sample result when calculating Δc .
- (2) If all sample results are below the method detection limit, the permittee must use the method detection limit as the highest sample result.
- (B) The permittee must calculate the annual average Δc based on the average of the 26 most recent 14-Day sampling periods. The permittee must update this annual average value after receiving the results of each subsequent 14-Day sampling period (i.e., on a “rolling” basis).
- (C) The action level for benzene is 9 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) on an annual average basis. If the annual average Δc value for benzene is less than or equal to $9 \mu\text{g}/\text{m}^3$, the concentration is below the action level. If the annual average Δc value for benzene is greater than $9 \mu\text{g}/\text{m}^3$, the concentration is above the action level, and the permittee must conduct a root cause analysis and corrective action in accordance with **3. Source Operating Limitations b.(1)(vii)**.
- (vii) Root Cause Analysis and Corrective Action. Within 5 Days of determining that the action level has been exceeded for any annual average Δc and no longer than 50 Days after completion of the sampling period, the permittee must initiate a root cause analysis to determine the cause of such exceedance and to determine appropriate corrective action, such as those described in **3. Source Operating Limitations b.(1)(vii)(A)** through (D). The root cause analysis and initial

SECTION D - SOURCE EMISSION LIMITATIONS AND TESTING REQUIREMENTS (CONTINUED)

corrective action analysis must be completed and initial corrective actions taken no later than 45 Days after determining there is an exceedance. Root cause analysis and corrective action may include, but are not limited to:

- (A) Leak inspection using Method 21 of 40 C.F.R. Part 60, Appendix A-7 and repairing any leaks found.
- (B) Leak inspection using optical gas imaging and repairing any leaks found.
- (C) Visual inspection to determine the cause of the high benzene emissions and implementing repairs to reduce the level of emissions.
- (D) Employing progressively more frequent sampling, analysis and meteorology (e.g., using shorter sampling periods for Methods 325A and 325B of Appendix A of 40 C.F.R. Part 63, or using active sampling techniques).

If, after completing the corrective action analysis and corrective actions such as those described in **3. Source Operating Limitations b.(1)(vii)**, the Δc value for the next 14-Day sampling period for which the sampling start time begins after the completion of the corrective actions is greater than $9 \mu\text{g}/\text{m}^3$ or if all corrective action measures identified require more than 45 Days to implement, the permittee must develop a corrective action plan that describes the corrective action(s) completed to date, additional measures that the permittee proposes to employ to reduce benzene concentrations in question below the action level, and a schedule for completion of these measures. The permittee must submit the corrective action plan to EPA within 60 Days after receiving the analytical results indicating that the Δc value for the 14-Day sampling period following the completion of the initial corrective action is greater than $9 \mu\text{g}/\text{m}^3$ or, if no initial corrective actions were identified, no later than 60 Days following the completion of the corrective action analysis required in **3. Source Operating Limitations b.(1)(vii)**.

- (viii) Alternative Test Method. The permittee may submit for review and approval pursuant to the EPA a request to use an alternative test method as provided in 40 C.F.R. 63.658(k).

4. Source Recordkeeping Requirements:

- a. Pursuant to 401 KAR 52:020, Section 10, the permittee shall keep records of the actual Maximum Hourly Firing Rate on a 24-hour average basis and actual Annual Average Firing Rate on a 12-month rolling basis in accordance with **3. Source Emission Limitations a**.
- b. Pursuant to 401 KAR 52:020, Section 10, the permittee shall keep records of the tons of monomers produced at the facility on a monthly and 12-month rolling basis.

5. Source Reporting Requirements:

- a. See **Section F**.

SECTION D - SOURCE EMISSION LIMITATIONS AND TESTING REQUIREMENTS (CONTINUED)

- b. Until the termination of CD 2:22-cv-01577-JDC-KK between United States of America and Westlake Vinyls, Inc. the permittee shall comply **5. Source Reporting Requirements** b. as follows:

The permittee must submit Fenceline Monitoring Project Reports for the Calvert City Plant as part of each Semi-Annual Report. The Fenceline Monitoring Project Reports must contain the following information [CD, Paragraph 56]:

- (1) In spreadsheet format, the individual sample results for each monitor comprising the Fenceline Monitoring System, each bi-weekly annual average benzene concentration difference value (i.e., the annual average Δc based on the average of the 26 most recent 14-Day sampling periods) once the data from 26 sampling periods are available (determined in accordance with **3. Source Operating Limitations** b.(1)(vii)), and the corresponding meteorological data for the relevant monitoring periods. The first two columns of each spreadsheet will list respectively the date and time for each sample taken; and
- (2) A detailed description of the findings of any root cause analysis and corrective action(s) undertaken pursuant to **3. Source Operating Limitations** b.(1)(vii), including the known results of the corrective action(s) and the anticipated emissions reductions (in TPY per pollutant).

For the purpose of determining the cause of an Action Level exceedance, the permittee may submit and discuss additional data collected by it or by third parties in the reports required pursuant to **3. Source Operating Limitations** b.(1)(viii) and/or **5. Source Reporting Requirements** b. If the permittee concludes that an exceedance of the Action Level described in **3. Source Operating Limitations** b.(1)(vi) was caused by an offsite source(s), that conclusion does not relieve the permittee of its obligation to perform the Root Cause investigation described in **3. Source Operating Limitations** b.(1)(vii).

SECTION E - SOURCE CONTROL EQUIPMENT REQUIREMENTS

Pursuant to 401 KAR 50:055, Section 2(5), at all times, including periods of startup, shutdown and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Division which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

SECTION F - MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

1. Pursuant to Section 1b-IV-1 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26, when continuing compliance is demonstrated by periodic testing or instrumental monitoring, the permittee shall compile records of required monitoring information that include:
 - a. Date, place as defined in this permit, and time of sampling or measurements;
 - b. Analyses performance dates;
 - c. Company or entity that performed analyses;
 - d. Analytical techniques or methods used;
 - e. Analyses results; and
 - f. Operating conditions during time of sampling or measurement.
2. Records of all required monitoring data and support information, including calibrations, maintenance records, and original strip chart recordings, and copies of all reports required by the Division for Air Quality, shall be retained by the permittee for a period of five (5) years and shall be made available for inspection upon request by any duly authorized representative of the Division for Air Quality [Sections 1b-IV-2 and 1a-8 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
3. In accordance with the requirements of 401 KAR 52:020, Section 3(1)h, the permittee shall allow authorized representatives of the Cabinet to perform the following during reasonable times:
 - a. Enter upon the premises to inspect any facility, equipment (including air pollution control equipment), practice, or operation;
 - b. To access and copy any records required by the permit;
 - c. Sample or monitor, at reasonable times, substances or parameters to assure compliance with the permit or any applicable requirements.Reasonable times are defined as during all hours of operation, during normal office hours; or during an emergency.
4. No person shall obstruct, hamper, or interfere with any Cabinet employee or authorized representative while in the process of carrying out official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.
5. Summary reports of any monitoring required by this permit shall be submitted to the Regional Office listed on the front of this permit at least every six (6) months during the life of this permit, unless otherwise stated in this permit. For emission units that were still under construction or which had not commenced operation at the end of the 6-month period covered by the report and are subject to monitoring requirements in this permit, the report shall indicate that no monitoring was performed during the previous six months because the emission unit was not in operation [Sections 1b-V-1 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].

SECTION F - MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS (CONTINUED)

6. The semi-annual reports are due by January 30th and July 30th of each year. All reports shall be certified by a responsible official pursuant to 401 KAR 52:020, Section 23. If continuous emission and opacity monitors are required by regulation or this permit, data shall be reported in accordance with the requirements of 401 KAR 59:005, General Provisions, Section 3(3). All deviations from permit requirements shall be clearly identified in the reports.
7. In accordance with the provisions of 401 KAR 50:055, Section 1, the owner or operator shall notify the Regional Office listed on the front of this permit concerning startups, shutdowns, or malfunctions as follows:
 - a. When emissions during any planned shutdowns and ensuing startups will exceed the standards, notification shall be made no later than three (3) days before the planned shutdown, or immediately following the decision to shut down, if the shutdown is due to events which could not have been foreseen three (3) days before the shutdown.
 - b. When emissions due to malfunctions, unplanned shutdowns and ensuing startups are or may be in excess of the standards, notification shall be made as promptly as possible by telephone (or other electronic media) and shall be submitted in writing upon request.
8. The permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken shall be submitted to the Regional Office listed on the front of this permit. Where the underlying applicable requirement contains a definition of prompt or otherwise specifies a time frame for reporting deviations, that definition or time frame shall govern. Where the underlying applicable requirement does not identify a specific time frame for reporting deviations, prompt reporting, as required by Sections 1b-V, 3 and 4 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26, shall be defined as follows:
 - a. For emissions of a hazardous air pollutant or a toxic air pollutant (as identified in an applicable regulation) that continue for more than an hour in excess of permit requirements, the report must be made within 24 hours of the occurrence.
 - b. For emissions of any regulated air pollutant, excluding those listed in F.8.a., that continue for more than two hours in excess of permit requirements, the report must be made within 48 hours.
 - c. All deviations from permit requirements, including those previously reported, shall be included in the semiannual report required by F.6.
9. Pursuant to 401 KAR 52:020, Title V permits, Section 21, the permittee shall annually certify compliance with the terms and conditions contained in this permit, by completing and returning a Compliance Certification Form (DEP 7007CC) (or an alternative approved by the regional office) to the Regional Office listed on the front of this permit and the U.S. EPA in accordance with the following requirements:
 - a. Identification of the term or condition;
 - b. Compliance status of each term or condition of the permit;
 - c. Whether compliance was continuous or intermittent;
 - d. The method used for determining the compliance status for the source, currently and over the reporting period.

SECTION F - MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS (CONTINUED)

- e. For an emissions unit that was still under construction or which has not commenced operation at the end of the 12-month period covered by the annual compliance certification, the permittee shall indicate that the unit is under construction and that compliance with any applicable requirements will be demonstrated within the timeframes specified in the permit.
- f. The certification shall be submitted by January 30th of each year. Annual compliance certifications shall be sent to the following addresses:

Division for Air Quality
Paducah Regional Office
130 Eagle Nest Drive
Paducah, KY 42003

U.S. EPA Region 4
Air Enforcement Branch
Atlanta Federal Center
61 Forsyth St. SW
Atlanta, GA 30303-8960

- 10. In accordance with 401 KAR 52:020, Section 22, the permittee shall provide the Division with all information necessary to determine its subject emissions within 30 days of the date the Kentucky Emissions Inventory System (KYEIS) emissions survey is mailed to the permittee.

SECTION G - GENERAL PROVISIONS

1. General Compliance Requirements

- a. The permittee shall comply with all conditions of this permit. Noncompliance shall be a violation of 401 KAR 52:020, Section 3(1)(b), and a violation of Federal Statute 42 USC 7401 through 7671q (the Clean Air Act). Noncompliance with this permit is grounds for enforcement action including but not limited to termination, revocation and reissuance, revision or denial of a permit [Section 1a-3 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- b. The filing of a request by the permittee for any permit revision, revocation, reissuance, or termination, or of a notification of a planned change or anticipated noncompliance, shall not stay any permit condition [Section 1a-6 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- c. This permit may be revised, revoked, reopened and reissued, or terminated for cause in accordance with 401 KAR 52:020, Section 19. The permit will be reopened for cause and revised accordingly under the following circumstances:
 - (1) If additional applicable requirements become applicable to the source and the remaining permit term is three (3) years or longer. In this case, the reopening shall be completed no later than eighteen (18) months after promulgation of the applicable requirement. A reopening shall not be required if compliance with the applicable requirement is not required until after the date on which the permit is due to expire, unless this permit or any of its terms and conditions have been extended pursuant to 401 KAR 52:020, Section 12;
 - (2) The Cabinet or the United States Environmental Protection Agency (U. S. EPA) determines that the permit must be revised or revoked to assure compliance with the applicable requirements;
 - (3) The Cabinet or the U. S. EPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit;
 - (4) New requirements become applicable to a source subject to the Acid Rain Program.

Proceedings to reopen and reissue a permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists. Reopenings shall be made as expeditiously as practicable. Reopenings shall not be initiated before a notice of intent to reopen is provided to the source by the Division, at least thirty (30) days in advance of the date the permit is to be reopened, except that the Division may provide a shorter time period in the case of an emergency.

- d. The permittee shall furnish information upon request of the Cabinet to determine if cause exists for modifying, revoking and reissuing, or terminating the permit; or to determine compliance with the conditions of this permit [Sections 1a- 7 and 8 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- e. Emission units described in this permit shall demonstrate compliance with applicable requirements if requested by the Division [401 KAR 52:020, Section 3(1)(c)].

SECTION G - GENERAL PROVISIONS (CONTINUED)

- f. The permittee, upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application, shall promptly submit such supplementary facts or corrected information to the permitting authority [401 KAR 52:020, Section 7(1)].
- g. Any condition or portion of this permit which becomes suspended or is ruled invalid as a result of any legal or other action shall not invalidate any other portion or condition of this permit [Section 1a-14 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- h. The permittee shall not use as a defense in an enforcement action the contention that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance [Section 1a-4 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- i. All emission limitations and standards contained in this permit shall be enforceable as a practical matter. All emission limitations and standards contained in this permit are enforceable by the U.S. EPA and citizens except for those specifically identified in this permit as state-origin requirements. [Section 1a-15 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- j. This permit shall be subject to suspension if the permittee fails to pay all emissions fees within 90 days after the date of notice as specified in 401 KAR 50:038, Section 3(6) [Section 1a-10 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- k. Nothing in this permit shall alter or affect the liability of the permittee for any violation of applicable requirements prior to or at the time of permit issuance [401 KAR 52:020, Section 11(3) b.].
- l. This permit does not convey property rights or exclusive privileges [Section 1a-9 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].
- m. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses, or approvals required by the Cabinet or any other federal, state, or local agency.
- n. Nothing in this permit shall alter or affect the authority of U.S. EPA to obtain information pursuant to Federal Statute 42 USC 7414, Inspections, monitoring, and entry [401 KAR 52:020, Section 11(3) d.].
- o. Nothing in this permit shall alter or affect the authority of U.S. EPA to impose emergency orders pursuant to Federal Statute 42 USC 7603, Emergency orders [401 KAR 52:020, Section 11(3) a.].

SECTION G - GENERAL PROVISIONS (CONTINUED)

- p. This permit consolidates the authority of any previously issued PSD, NSR, or Synthetic Minor source preconstruction permit terms and conditions for various emission units and incorporates all requirements of those existing permits into one single permit for this source.
- q. Pursuant to 401 KAR 52:020, Section 11, a permit shield shall not protect the owner or operator from enforcement actions for violating an applicable requirement prior to or at the time of permit issuance. Compliance with the conditions of this permit shall be considered compliance with:
 - (1) Applicable requirements that are included and specifically identified in this permit; and
 - (2) Non-applicable requirements expressly identified in this permit.

2. Permit Expiration and Reapplication Requirements

- a. This permit shall remain in effect for a fixed term of five (5) years following the original date of issue. Permit expiration shall terminate the source's right to operate unless a timely and complete renewal application has been submitted to the Division at least six (6) months prior to the expiration date of the permit. Upon a timely and complete submittal, the authorization to operate within the terms and conditions of this permit, including any permit shield, shall remain in effect beyond the expiration date, until the renewal permit is issued or denied by the Division [401 KAR 52:020, Section 12].
- b. The authority to operate granted shall cease to apply if the source fails to submit additional information requested by the Division after the completeness determination has been made on any application, by whatever deadline the Division sets [401 KAR 52:020, Section 8(2)].

3. Permit Revisions

- a. A minor permit revision procedure may be used for permit revisions involving the use of economic incentive, marketable permit, emission trading, and other similar approaches, to the extent that these minor permit revision procedures are explicitly provided for in the State Implementation Plan (SIP) or in applicable requirements and meet the relevant requirements of 401 KAR 52:020, Section 14(2).
- b. This permit is not transferable by the permittee. Future owners and operators shall obtain a new permit from the Division for Air Quality. The new permit may be processed as an administrative amendment if no other change in this permit is necessary, and provided that a written agreement containing a specific date for transfer of permit responsibility coverage and liability between the current and new permittee has been submitted to the permitting authority within ten (10) days following the transfer.

SECTION G - GENERAL PROVISIONS (CONTINUED)**4. Construction, Start-Up, and Initial Compliance Demonstration Requirements**

Pursuant to a duly submitted application the Kentucky Division for Air Quality hereby authorizes the construction of the equipment described herein, emission units 894 (EPN 894) Cooling Water Tower CT-7, 018 (EPN FUG-CA-1), 020 (EPN FUG-CA-2), 036 (EPN FUG) fugitive components in the Monomers Area, and 012D (EPN 534A) EDC Cracking Furnace #3A in accordance with the terms and conditions of permit V-19-016.

- a. Construction of any process and/or air pollution control equipment authorized by permit V-19-016 shall be conducted and completed only in compliance with the conditions of the corresponding permit.
- b. Within thirty (30) days following commencement of construction and within fifteen (15) days following start-up and attainment of the maximum production rate specified in the permit application, or within fifteen (15) days following the issuance date of permit V-19-016, as applicable, whichever is later, the permittee shall furnish to the Regional Office listed on the front of this permit in writing, notification of the following:
 - (1) The date when construction commenced.
 - (2) The date of start-up of the affected facilities listed in permit V-19-016, as applicable.
 - (3) The date when the maximum production rate specified in the permit application was achieved.
- c. Pursuant to 401 KAR 52:020, Section 3(2), unless construction is commenced within eighteen (18) months after permit V-19-016 is issued, or begins but is discontinued for a period of eighteen (18) months or is not completed within a reasonable timeframe then the construction and operating authority granted by permit V-19-016, as applicable, for those affected facilities for which construction was not completed shall immediately become invalid. Upon written request, the Cabinet may extend these time periods if the source shows good cause.
- d. Pursuant to 401 KAR 50:055, Section 2(1)(a), an owner or operator of any affected facility subject to any standard within the administrative regulations of the Division for Air Quality shall demonstrate compliance with the applicable standard(s) within sixty (60) days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial start-up of such facility. Pursuant to 401 KAR 52:020, Section 3(3)(c), sources that have not demonstrated compliance within the timeframes prescribed in 401 KAR 50:055, Section 2(1)(a), shall operate the affected facility only for purposes of demonstrating compliance unless authorized under an approved compliance plan or an order of the cabinet.
- e. Permit V-19-016 and V-19-016 R2 shall allow time for the initial start-up, operation, and compliance demonstration of the affected facilities listed herein. However, within sixty (60) days after achieving the maximum production rate at which the affected facilities will be operated but not later than 180 days after initial start-up of such facilities, the permittee shall conduct a performance demonstration on the affected facilities in accordance with 401 KAR 50:055, General compliance requirements. Testing must also be conducted in accordance with General Provisions G.5 of permit V-19-016.

SECTION G - GENERAL PROVISIONS (CONTINUED)

- f. Terms and conditions in permit V-19-016 established pursuant to the construction authority of 401 KAR 51:017 or 401 KAR 51:052 shall not expire.

5. Testing Requirements

- a. Pursuant to 401 KAR 50:045, Section 2, a source required to conduct a performance test shall submit a completed Compliance Test Protocol form, DEP form 6028, or a test protocol a source has developed for submission to other regulatory agencies, in a format approved by the cabinet, to the Division's Frankfort Central Office a minimum of sixty (60) days prior to the scheduled test date. Pursuant to 401 KAR 50:045, Section 7, the Division shall be notified of the actual test date at least thirty (30) days prior to the test.
- b. Pursuant to 401 KAR 50:045, Section 5, in order to demonstrate that a source is capable of complying with a standard at all times, any required performance test shall be conducted under normal conditions that are representative of the source's operations and create the highest rate of emissions. If [When] the maximum production rate represents a source's highest emissions rate and a performance test is conducted at less than the maximum production rate, a source shall be limited to a production rate of no greater than 110 percent of the average production rate during the performance tests. If and when the facility is capable of operation at the rate specified in the application, the source may retest to demonstrate compliance at the new production rate. The Division for Air Quality may waive these requirements on a case-by-case basis if the source demonstrates to the Division's satisfaction that the source is in compliance with all applicable requirements.
- c. Results of performance test(s) required by the permit shall be submitted to the Division by the source or its representative within forty-five days or sooner if required by an applicable standard, after the completion of the fieldwork.

6. Acid Rain Program Requirements

- a. If an applicable requirement of Federal Statute 42 USC 7401 through 7671q (the Clean Air Act) is more stringent than an applicable requirement promulgated pursuant to Federal Statute 42 USC 7651 through 7651o (Title IV of the Act), both provisions shall apply, and both shall be state and federally enforceable.
- b. The permittee shall comply with all applicable requirements and conditions of the Acid Rain Permit and the Phase II permit application (including the Phase II NO_x compliance plan and averaging plan, if applicable) incorporated into the Title V permit issued for this source. The source shall also comply with all requirements of any revised or future acid rain permit(s) issued to this source.

SECTION G - GENERAL PROVISIONS (CONTINUED)**7. Emergency Provisions**

- a. Pursuant to 401 KAR 52:020, Section 24(1), an emergency shall constitute an affirmative defense to an action brought for the noncompliance with the technology-based emission limitations if the permittee demonstrates through properly signed contemporaneous operating logs or relevant evidence that:
 - (1) An emergency occurred and the permittee can identify the cause of the emergency;
 - (2) The permitted facility was at the time being properly operated;
 - (3) During an emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and
 - (4) Pursuant to 401 KAR 52:020, 401 KAR 50:055, and KRS 224.1-400, the permittee notified the Division as promptly as possible and submitted written notice of the emergency to the Division when emission limitations were exceeded due to an emergency. The notice shall include a description of the emergency, steps taken to mitigate emissions, and corrective actions taken.
 - (5) This requirement does not relieve the source of other local, state or federal notification requirements.
- b. Emergency conditions listed in General Condition G.7.a above are in addition to any emergency or upset provision(s) contained in an applicable requirement [401 KAR 52:020, Section 24(3)].
- c. In an enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof [401 KAR 52:020, Section 24(2)].

8. Ozone Depleting Substances

- a. The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B:
 - (1) Persons opening appliances for maintenance, service, repair, or disposal shall comply with the required practices contained in 40 CFR 82.156.
 - (2) Equipment used during the maintenance, service, repair, or disposal of appliances shall comply with the standards for recycling and recovery equipment contained in 40 CFR 82.158.
 - (3) Persons performing maintenance, service, repair, or disposal of appliances shall be certified by an approved technician certification program pursuant to 40 CFR 82.161.
 - (4) Persons disposing of small appliances, MVACs, and MVAC-like appliances (as defined at 40 CFR 82.152) shall comply with the recordkeeping requirements pursuant to 40 CFR 82.155.
 - (5) Persons owning commercial or industrial process refrigeration equipment shall comply with the leak repair requirements pursuant to 40 CFR 82.156 and 40 CFR 82.157.
 - (6) Owners/operators of appliances normally containing 50 or more pounds of refrigerant shall keep records of refrigerant purchased and added to such appliances pursuant to 40 CFR 82.166.

SECTION G - GENERAL PROVISIONS (CONTINUED)

- b. If the permittee performs service on motor (fleet) vehicle air conditioners containing ozone-depleting substances, the source shall comply with all applicable requirements as specified in 40 CFR 82, Subpart B, *Servicing of Motor Vehicle Air Conditioners*.

9. Risk Management Provisions

- a. The permittee shall comply with all applicable requirements of 401 KAR Chapter 68, Chemical Accident Prevention, which incorporates by reference 40 CFR Part 68, Risk Management Plan provisions. If required, the permittee shall comply with the Risk Management Program and submit a Risk Management Plan to U.S. EPA using the RMP* eSubmit software.
- b. If requested, submit additional relevant information to the Division or the U.S. EPA.

SECTION H - ALTERNATE OPERATING SCENARIOS

012A (EPN 534) EDC Cracking Furnace #3
Rating: 106.68 mmBtu/hr
Fuel: Process fuel gas*
Date of construction: 1993
Controls: None

* Process fuel gas includes natural gas, ethylene plant fuel gas, hydrogen, propane, ethane, recovered flare gas, and mixtures thereof.

APPLICABLE REGULATIONS:

401 KAR 59:015, New indirect heat exchangers

401 KAR 60:005, Section 2(2)(ppp), 40 C.F.R. 60.660 through 60.668 (Subpart NNN), Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations

401 KAR 60:005, Section 2(2)(ttt), 40 C.F.R. 60.700 through 60.708 (Subpart RRR), Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes

401 KAR 63:002, Section 2(4)(iii), 40 C.F.R. 63.7480 through 63.7575, Tables 1 through 13 (Subpart DDDDD), National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

NON-APPLICABLE REGULATIONS:

401 KAR 60:005, Section 2(2)(a), 40 C.F.R. 60.40 through 60.46 (Subpart D), Standards of Performance for Fossil-Fuel-Fired Steam Generators

401 KAR 60:005, Section 2(2)(b), 40 C.F.R. 60.40Da through 60.52Da (Subpart Da), Standards of Performance for Electric Utility Steam Generating Units

401 KAR 60:005, Section 2(2)(c), 40 C.F.R. 60.40b through 60.49b (Subpart Db), Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

401 KAR 60:005, Section 2(2)(d), 40 C.F.R. 60.40c through 60.48c (Subpart Dc), Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

1. Operating Limitations:

- a. Pursuant to 401 KAR 52:020, Section 10, the Maximum Hourly Firing Rate of EPN 534 (EDC Cracking Furnace #3) shall not exceed 120.0 mmBtu/hr on a 24-hour average basis.
- b. Pursuant to 401 KAR 52:020, Section 10, the Annual Average Firing Rate of EPN 534 shall not exceed 106.68 mmBtu/hr on a 12-month rolling basis.

Compliance Demonstration Method:

See **3. Source Operating Limitations** under **Section D**.

SECTION H - ALTERNATE OPERATING SCENARIOS (CONTINUED)

- c. Pursuant to 401 KAR 52:020, Section 10, EPN 534 shall be permanently shut down prior to startup of EPN 534A (EDC Cracking Furnace #3A).
- d. Pursuant to 40 CFR 63.7500(a)(1), the permittee must meet each emission limit and work practice standard in Tables 1 through 3, and 11 through 13 to 40 CFR 63, Subpart DDDDD that applies, for each boiler or process heater at the source, except as provided under 40 CFR 63.7522. The permittee must meet these requirements at all times the affected unit is operating, except as provided in 40 CFR 63.7500(f).
 - (1) Pursuant to Item 3 of Table 3 to 40 CFR 63, Subpart DDDDD, the permittee shall conduct an annual tune-up on all new or existing boilers or process heaters without a continuous oxygen trim system and with heat input capacities of 10 million Btu per hour or greater as specified in 40 CFR 63.7540.
- e. Pursuant to 40 CFR 63.7500(a)(3), at all times, the permittee must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.
- f. Pursuant to 40 CFR 63.7500(f), the requirements of 40 CFR 63, Subpart DDDDD apply at all times the affected unit is operating, except during periods of startup and shutdown during which time the permittee must comply only with items 5 and 6 of Table 3 to 40 CFR 63, Subpart DDDDD.

Compliance Demonstration Method:

- (1) Pursuant to 40 CFR 63.7495(b) for EPNs 534 and 534A, the permittee must comply with 40 CFR 63, Subpart DDDDD no later than January 31, 2016, except as provided in 40 CFR 63.6(i).
- (2) Pursuant to 40 CFR 63.7540(a), the permittee must demonstrate continuous compliance with each emission limit in Tables 1 and 2 or 11 through 13 to 40 CFR 63, Subpart DDDDD, the work practice standards in Table 3 to 40 CFR 63, Subpart DDDDD, and the operating limits in Table 4 to 40 CFR 63, Subpart DDDDD that applies according to the methods specified in Table 8 to 40 CFR 63, Subpart DDDDD and 40 CFR 63.7540(a)(1) through (19).
- (3) Refer to **4. Specific Monitoring Requirements**, **5. Specific Recordkeeping Requirements**, and **6. Specific Reporting Requirements**.
- g. Pursuant to 40 CFR 60.660(d)(1), the permittee of process vents that are subject to 40 CFR 60, Subpart NNN may choose to comply with the provisions of 40 CFR 65, Subpart D, to satisfy the requirements of 40 CFR 60.662 through 40 CFR 60.665 and 40 CFR 60.668. The provisions of 40 CFR Part 65 also satisfy the criteria of 40 CFR 60.660(c)(4) and (6). Other provisions applying to a permittee who chooses to comply with 40 CFR Part 65 are provided in 40 CFR 65.1.

SECTION H - ALTERNATE OPERATING SCENARIOS (CONTINUED)

- h. Pursuant to 40 CFR 60.700(d)(1), the permittee of process vents that are subject to 40 CFR 60, RRR may choose to comply with the provisions of 40 CFR 65, Subpart D, to satisfy the requirements of 40 CFR 60.702 through 40 CFR 60.705 and 40 CFR 60.708. The provisions of 40 CFR Part 65 also satisfy the criteria of 40 CFR 700(c)(2), (4), and (8). Other provisions applying to a permittee who chooses to comply with 40 CFR Part 65 are provided in 40 CFR 65.1.
- i. Pursuant to 40 CFR 65.63(a)(2) as referenced by 40 CFR 60.660(d)(1) and 40 CFR 60.700(d)(1), the permittee must reduce emissions of regulated material or TOC by at least 98 weight-percent or to a concentration of less than 20 parts per million by volume, whichever is less stringent. For combustion devices, the emission reduction or concentration shall be calculated on a dry basis, and corrected to 3 percent oxygen. The permittee shall meet the requirements in 40 CFR 65.142(b) and 40 CFR 65.63(a)(2)(i) and/or 40 CFR 65.63(a)(2)(ii).
 - (1) Pursuant to 40 CFR 65.142(b)(2), a permittee subject to 40 CFR 65.63(a)(2) who route process vent emissions to a nonflare control device shall meet the applicable requirements in 40 CFR 65.143 for closed vent systems; the requirements applicable to the control devices being used in 40 CFR 65.149 as follows; the applicable general monitoring requirements of 40 CFR 65.156; the applicable performance test requirements and procedures of 40 CFR 65.157 and 40 CFR 65.158; and the monitoring, recordkeeping, and reporting requirements referenced therein. The requirements of 40 CFR 65.144 through 40 CFR 65.146 do not apply to process vents. No other provisions of 40 CFR 65, Subpart G apply to process vent emissions routed through a closed vent system to a nonflare control device.
 - (i) (A) A permittee using boilers and process heaters to meet the 98 weight-percent emission reduction or 20 parts per million by volume outlet concentration requirement as specified in 40 CFR 65.63(a)(2), shall meet the requirements of 40 CFR 65.149.
 - (B) The vent stream shall be introduced into the flame zone of the boiler or process heater.
 - (C) Boilers and process heaters used to comply with the provisions of 40 CFR 65, Subpart G shall be operated at all times when emissions are vented to them.
 - (2) Pursuant to 40 CFR 65.63(a)(2)(i), compliance with 40 CFR 65.63(a)(2) may be achieved by using any combination of recovery and/or control device to meet the 20 parts per million by volume concentration standard; or by using any combination of recovery and/or control device to meet the 98 weight percent reduction standard, if the recovery device meets the conditions of 40 CFR 65.63(a)(2)(ii).
 - (3) Pursuant to 40 CFR 65.63(a)(2)(ii), a permittee may use a recovery device alone or in combination with one or more control devices to reduce emissions of total regulated material by 98 weight-percent if all of the following conditions are met:
 - (i) The recovery device that will be used to reduce emissions of total regulated material by 98 weight-percent is the last recovery device before emission to the atmosphere.
 - (ii) The recovery device alone or in combination with one or more control devices is capable of reducing emissions of total regulated material by 98 weight-percent but is not capable of reliably reducing emissions of total regulated material to a concentration of 20 parts per million by volume.

SECTION H - ALTERNATE OPERATING SCENARIOS (CONTINUED)

- (iii) If the permittee disposed of the recovered material, the recovery device would be considered a control device and comply with the requirements of 40 CFR 65, Subpart D and 40 CFR 65.142(b) for control devices.
- j. Pursuant to 401 KAR 59:015, Section 7(2)(a), during a startup period or shutdown period, the permittee shall meet the work practice standards established in 40 C.F.R. Part 63, Table 3 to Subpart DDDDD, as established in 401 KAR 63:002, Section 2(4)(iii).

2. Emission Limitations:

- a. Pursuant to 401 KAR 59:015, Section 4(1)(b), the permittee shall not cause emissions of particulate matter in excess of 0.10 lb/mmBtu actual heat input for the cracking furnaces.
- b. Pursuant to 401 KAR 59:015, Section 5(1)(b), the permittee shall not cause emissions of gases that contain sulfur dioxide in excess of 0.8 lb/mmBtu actual heat input for EPN 534.

Compliance Demonstration Method:

Compliance with the applicable mass emission standards (lb/mmBtu) for particulate matter and sulfur dioxide is assumed while only burning gaseous fuel as defined in 40 CFR 63.7575 at EPN 534.

Visible Emission Limits:

- c. Pursuant to 401 KAR 59:015, Section 4(2), the opacity of visible emissions shall not exceed 20 percent except as provided below:
 - (1) A maximum of twenty-seven (27) percent opacity shall be allowed for one (1) six (6) minute period in any sixty (60) consecutive minutes; and
 - (2) For emissions from an affected facility caused by building a new fire, emissions during the period required to bring the boiler up to operating conditions shall be allowed, if the method used is recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

Compliance Demonstration Method:

Compliance with the applicable visible emission standard is assumed while only burning gaseous fuel as defined in 40 CFR 63.7575.

3. Testing Requirements:

- a. Pursuant to 401 KAR 50:045, Section 1, testing shall be conducted at such times as may be requested by the Cabinet.
- b. Pursuant to 40 CFR 65.149(b)(2)(ii), a permittee is not required to conduct a performance test when a boiler or process heater into which the vent stream is introduced with the primary fuel or is used as the primary fuel is used. The permittee shall report as specified in 40 CFR 65.165(f).

4. Specific Monitoring Requirements:

- a. Pursuant to 40 CFR 65.149(c)(1) any boiler or process heater in which all vent streams are introduced with primary fuel or are used as the primary fuel is exempt from monitoring.

SECTION H - ALTERNATE OPERATING SCENARIOS (CONTINUED)

- b. Pursuant to 40 CFR 63.7540(a)(10), the permittee must conduct an annual tune-up of the boiler or process heater to demonstrate continuous compliance as specified in 40 CFR 63.7540(a)(10)(i) through (vi) as follows. The permittee must conduct the tune-up while burning the type of fuel (or fuels in case of units that routinely burn a mixture) that provided the majority of the heat input to the boiler or process heater over the 12 months prior to the tune-up.
 - (1) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the permittee may perform the burner inspection any time prior to the tune-up or delay the burner inspection until the next scheduled unit shutdown).
 - (2) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;
 - (3) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the permittee may delay the inspection until the next scheduled unit shutdown);
 - (4) Optimize total emissions of carbon monoxide (CO). This optimization should be consistent with the manufacturer's specifications, if available, and with any nitrogen oxides (NO_x) requirement to which the unit is subject; and
 - (5) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer.

5. Specific Recordkeeping Requirements:

- a. The permittee must maintain records of the calendar date, time, occurrence and duration of each startup and shutdown [40 CFR 63.7555(i)].
- b. The permittee must maintain records of the type(s) and amount(s) of fuels used during each startup and shutdown [40 CFR 63.7555(j)].
- c. Pursuant to 40 CFR 63.7540(a)(10)(vi)(A) – (C), the permittee must maintain on-site an annual report containing the following information:
 - (i) The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater;
 - (ii) A description of any corrective actions taken as a part of the tune-up; and
 - (iii) The type and amount of fuel used over the 12 months prior to the tune-up, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel used by each unit.
- d. The above records must be in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1) [40 CFR 63.7560(a)].
- e. As specified in 40 CFR 63.10(b)(1), the permittee must keep each record for five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record [40 CFR 63.7560(b)].

SECTION H - ALTERNATE OPERATING SCENARIOS (CONTINUED)

- f. The permittee must keep each record on-site, or it must be accessible through a computer network for at least two (2) years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). Records can be kept off-site for the remaining three (3) years [40 CFR 63.7560(c)].

6. Specific Reporting Requirements:

Pursuant to 40 CFR 63.7540(a)(10)(vi)(A) – (C), the permittee must submit, if requested by the Administrator, an annual report containing the following information:

- a. The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater;
- b. A description of any corrective actions taken as a part of the tune-up; and
- c. The type and amount of fuel used over the 12 months prior to the tune-up, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel used by each unit.
- d. The permittee shall submit notifications and reports as specified in 40 CFR 63.7545 and 40 CFR 63.7550.
- e. Pursuant to 40 CFR 65.165(f), the permittee shall identify in the Initial Compliance Status Report whether an exemption from performance testing or conducting a design evaluation, as provided in 40 CFR 65.145(b)(2), 40 CFR 65.148(b)(2), or 40 CFR 65.149(b)(2), is being invoked, and which of the provisions of 40 CFR 65.145(b)(2), 40 CFR 65.148(b)(2), or 40 CFR 65.149(b)(2) apply.
- f. See **Section F**.

SECTION I - COMPLIANCE SCHEDULE

None