Compliance, Monitoring, & Recordkeeping for combustors and condenser in BTEX applications. (JLW Oct 2024)

DISCLAMER!! This document is for reference purposes only.

GENERAL

NESHAPS addresses BTEX emissions and control under as hazardous air pollutants. OOOOb addresses the upstream oil and gas, midstream, and transmission and distribution industries (not refining). There are many commonalities and overlaps, but some distinctions:

- NESHAPS covers combustors and condensers in BTEX applications (as well as other control devices). There are also requirements for closed vent systems and bypass devices.
- OOOOb also covers these areas but not specifically for BTEX. On the other hand, pneumatic devices, pumps, and other tangential equipment that we employ are covered by OOOOb.
- In general, if we're looking for regulations of BTEX then NESHAPS applies and OOOOb applies in the grey areas and everything else.

This should be noted because we often use the term "OOOOb" as applying to everything but technically NESHAPS rules govern the specific areas of BTEX.

ENCLOSED COMBUSTORS (NESHAPS)

Reference	Statute	JLW Comments
63.772(e)(3)(v)(a)vi	Combustor Control Requirements: • Performance test required within 180 days of startup and every 60 months thereafter. • Combustors passing the Mfrs. Performance Test (MPT) is considered compliant without initial or further periodic testing.	
63.772(i)	Demonstrating Compliance using a MPT Combustor: • Compliance is met when the inlet gas flowrate is less than or equal to the maximum established by the manufacturer (i)(4)(i). • Pilot flame present at all times. • No visible emissions (1x/month per method 22).	There is a reference to "meeting the range" of the combustor and OOOOb requires a MPT combustor to be above the min and above the max. If we are monitoring flow or pressure we might as well capture the min and the max.
63.773	Inspection & Monitoring using a MPT combustor: • Operators are to develop an inspection and maintenance plan based on manufacturer's recommendations. Inspections are semi-annual. • The operator is to determine the "actual average inlet waste gas flowrate" using GylCalc, ProMax,	See bottom of table

	of HYSYS, based on actual operating conditions of the unit. This determination should concur with the visible emissions test. • Use a continuous recorder that indicates ignition of the pilot flame. • An excursion, or violation of the standard, occurs when the inlet gas flowrate exceeds the maximum established during testing, and failure of the visible emissions test. • Records are to be kept for 5 years.	
OOOOb inspection & monitoring requirements for MPT combustors are the latest statutes. They require: • continuous monitoring of the pilot flame, • the net heating value of the inlet gas (if consistently > 300 Btu/scf then not required), • and continuous monitoring of the gas inlet flowrate by direct measurement, engineering calcs (like orifice capacities), or it can be demonstrated that the process would not exceed the combustor maximum while installing a back pressure regulator to ensure the flowrate does not drop below the minimum.		
RECOMMENDATION: 1. Monitor and record minimum and maximum flow using directly or using a pressure instrument. Given that the combustor is unassisted, pressure and gas composition tell us the volume and the heating value of the gas. Action: We can't very well shut down high flow, and although not required we could close a valve on low flow. 2. Monitor and record the pilot flame and ESD when it fails – as we do now. 3. Flow and pilot status should be available to the operator.		

CONDENSERS (NESHAPS)

Reference	Statute	JLW Comments
63.772(e)(3)(v)(a)vi	Condenser Control Requirements: • Operators are to establish a site-specific performance curve based on performance testing, condenser design analysis, or modeling.	Should we be supplying a condenser performance curve? (See design analysis requirements below)
63.772(i)	Demonstrating Compliance: • Operators are to calculate the daily average condenser outlet temperature and the daily condenser efficiency. • The moving 365-day average BTEX emissions are to be calculated each day based on the condenser performance. • Compliance is demonstrating when the average BTEX emission reduction meets or exceeds 95%.	
63.773	Inspection & Monitoring: • Data values are to be measured at least 1x/hour and record either: the measured value, or the average of the values during the hour.	

	• The temperature monitor should be in the exhaust vent stream of the condenser, with an accuracy of +/- 2% or 4.5° F, whichever is greater. • An excursion, or violation of the standard, occurs when the 365-day condenser efficiency is <95%. • Records are to be kept 5 years.	
RECOMMENDATION: 1. Record condenser exhaust temperature and make available to the operator.		

CLOSED VENTS and BYPASS VENTS (NESHAPS)

- All gases, vapors, and fumes from an emission source is to be sent to a control device, with no detectable emissions.
- If a bypass is installed that could divert the stream away from the control device to atmosphere, either:
  - Install a flow indicator at the inlet of the bypass to take periodic readings (at least every 15 minutes) and sound an alarm when the bypass is open.
  - Lock the bypass in the closed position.
  - Safety devices are not subject to these requirements.
- A vent to atmosphere is an excursion. Repairs are to be made as soon as practicable but not later than 15 days after the leak is detected.

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(4) For a **condenser design analysis** conducted to meet the requirements of § 63.771(d)(1), (e)(3)(ii), or (f)(1), the owner or operator shall meet the requirements specified in paragraphs (e)(4)(i) and (ii) of this section. Documentation of the design analysis shall be submitted as a part of the Notification of Compliance Status Report as required in § 63.775(d)(1)(i).

(i) The condenser design analysis shall include an analysis of the vent stream composition, constituent concentrations, flowrate, relative humidity, and temperature, and shall establish the design outlet organic compound concentration level, design average temperature of the condenser exhaust vent stream, and the design average temperatures of the coolant fluid at the condenser inlet and outlet. As an alternative to the condenser design analysis, an owner or operator may elect to use the procedures specified in paragraph (e)(5) of this section.

(ii) If the owner or operator and the Administrator do not agree on a demonstration of control device performance using a design analysis then the disagreement shall be resolved using the results of a performance test performed by the owner or operator in accordance with the requirements of paragraph (e)(3) of this

section. The Administrator may choose to have an authorized representative observe the performance test.

(5) As an alternative to the procedures in paragraph (e)(4)(i) of this section, an owner or operator may elect to use the procedures documented in the GRI report entitled, "Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions" (GRI–95/0368.1) as inputs for the model GRI–GLYCalc™, Version 3.0 or higher, to generate a condenser performance curve.