**Terms Last Revised: 6/02/2016**

**File Name**: NG.dehy.maj.docx

# Last Revised: 9/28/12

**Large Glycol Dehydration Unit at a Major Source of HAP**

Template Permit

For

**Part 63 Subpart HH**

NESHAP for Oil and Natural Gas Production Facilities

A **large glycol dehydration unit** is located at a major or an area source of HAP with an actual annual average natural gas flowrate equal to or greater than 85,000 scm/day **and** actual annual average benzene emissions equal to or greater than 0.90 Mg/yr, determined according to 40 CFR 63.772(b). A glycol dehydration unit complying with the 0.9 Mg/yr benzene limit using a control device is considered a large glycol dehydration unit.

**This Template Permit contains all of the compliance options identified in Part 63, Subpart HH for a Large Glycol Dehydration Unit at a MAJOR Source of HAP**

**Note: Search for XX, to fill in the TPY limits for the dehydrator**

# C. Emissions Unit Terms and Conditions

* 1. Emissions Unit: Dehydration System, P001

**Operations, Property and/or Equipment Description:**

|  |  |
| --- | --- |
| P001 | Large glycol dehydration unit(s) located at the oil and natural gas production facility |

* + 1. This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).
       1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
          1. None.
       2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
          1. None.
    2. Applicable Emissions Limitations and/or Control Requirements
       1. The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

|  | Applicable Rules/Requirements | Applicable Emissions Limitations/Control Measures |
| --- | --- | --- |
| a. | ORC 3704.03(T) | Emissions of Volatile Organic Compounds (VOC) (excludes methane and ethane) shall not exceed **XX** tons/year.  Use of a dehydration system flash separator that captures flash vapors.  Use of control as needed to comply with the **XX** tons VOC/year emission limit.  The requirements of this rule include compliance with the applicable requirements of 40 CFR Part 63 Subpart HH.  See b)(2)a. |
| b. | Part 63, Subpart HH, National Emission Standards for hazardous air pollutants (NESHAP) from Oil and Natural Gas Production Facilities | Compliance with the applicable portions of 40 CFR Part 63, Subpart HH. Any final amendments to this rule will supersede the requirement(s) in this permit.  In accordance with 40 CFR 63.765 and 40 CFR 63.771, the glycol dehydration unit at a major source of HAP shall be vented through a closed-vent system to a control device that shall either:   1. reduce either TOC (minus methane and ethane) or total HAP by 95% or to less than 20 ppmv on a dry basis corrected to 3% oxygen; or 2. reduce benzene to a level less than 0.90 megagrams per year (MG/yr); or 3. the process vent emissions from the glycol dehydration unit(s) shall be controlled by an open flare designed and operated in accordance with 40 CFR 63.11; or 4. as an alternative, the process vent(s) from the glycol dehydration unit(s) may be connected to a process natural gas line through a closed vent system.   See b)(2)b. |
| c. | 40 CFR 63.772(e)(2) and  40 CFR 63.11(b)(4) | There shall be no visible emissions from a flare used to demonstrate compliance with Part 63, Subpart HH, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours of operation. |

* + - 1. Additional Terms and Conditions
         1. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulation for NAAQS pollutant less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio’s State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revision to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally–approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of 3745-31-05, then BAT no longer applies.
         2. Compliance with the National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities, Part 63, Subpart HH shall be demonstrated through one of the following methods:

using a closed vent system meeting the requirements of 40 CFR 63.771(c) and an enclosed combustion device meeting the requirements of 40 CFR 63.771(d), emissions of TOC (minus methane and ethane) or the emissions of total HAP from the glycol dehydration unit(s) shall be reduced by 95% or to less than 20 ppmv on a dry basis corrected to 3% oxygen, as determined in accordance with 40 CFR 63.772(e); or

using a combustion control device that can be demonstrated to have an uniform combustion zone temperature during the performance test conducted under 40 CFR 63.772(e), the combustion temperature is a good indicator of the destruction efficiency, and the combustion device is operated at or above the minimum combustion temperature established during the performance test, which can be no lower than 760°C; or

using a closed vent system meeting the requirements of 40 CFR 63.771(c) and a vapor recovery device meeting the requirements of 40 CFR 63.771(d), emissions of TOC (minus methane and ethane) or the emissions of total HAP from the glycol dehydration unit(s) shall be reduced by 95%, as determined in accordance with 40 CFR 63.772(e); or

using a closed vent system meeting the requirements of 40 CFR 63.771(c) and a control device meeting the requirements of 40 CFR 63.771(d), emissions of benzene from the glycol dehydration unit(s) shall be reduced to a level less than 0.90 MG/yr; or

emissions from the glycol dehydration unit(s) shall be vented through a closed vent system meeting the requirements of 40 CFR 63.771(c) to an open flare designed and operated in accordance with 40 CFR 63.11; or

using a boiler or process heater where the vent stream from the glycol dehydration unit(s) is introduced into the flame zone of the boiler or process heater; or

as an alternative, the process vent(s) from the glycol dehydration unit(s) may be connected to a process natural gas line through a closed vent system meeting the requirements of 40 CFR 63.771(c).

[40 CFR 63.765], [40 CFR 63.771(c) and (d)], and [40 CFR 63.11(b)]

* + - * 1. Where using a flare for compliance, there shall be no visible emissions from the flare, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

[40 CFR 63.772(e)(2)] and [40 CFR 63.11(b)(4)]

* + - * 1. Each control device used to comply with the requirements of 40 CFR Part 63 Subpart HH shall be operated at all times when gases, vapors, and fumes are being vented from the glycol dehydration unit.

[40 CFR 63.771(d)(4)(i)]

* + - * 1. The permittee shall prepare a site-specific monitoring plan for each continuous parameter monitoring system (CPMS), required for compliance, that addresses the monitoring system design, data collection, quality assurance, and quality control elements outlined in 40 CFR 63.8(d) and 40 CFR 63.773(d). Each CPMS shall be installed, calibrated, operated, and maintained in accordance with the procedures in the approved site-specific monitoring plan; and the permittee shall conduct a performance evaluation of each CPMS in accordance with the site-specific monitoring plan. Performance checks, system accuracy audits, or other audits required by the plan shall be conducted at least once every 12 months.

[40 CFR 63.773(d)(1)(ii)]

* + 1. Operational Restrictions

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| --- | --- | --- |
|  | Applicable Rule | Requirement |
| (1) | 40 CFR 63.765 and  40 CFR 63.771(c) and (d) | Design and operational requirements for a closed-vent system and the control device used to comply with 40 CFR 63.764(c)(1). |
| (2) | 40 CFR 63.771(c)(3); and  40 CFR 63.773(c)(2)(iv) | Each bypass device to a closed-vent system meeting the requirements of 40 CFR 63.771(c) must be installed with a flow indicator which takes a reading once every 15 minutes and is installed with an alarm (for any bypass); or must install a car-seal or lock-and–key mechanism on the bypass device to maintain the bypass valve in a closed position. |
| (3) | 40 CFR 63.771(d)(1)(iii); and  40 CFR 63.772(e)(2). | A flare, used to demonstrate compliance with 40 CFR 63.771(d), must be designed and operated in accordance with 40 CFR 63.11(b). |
| (4) | 40 CFR 63.771(d)(1)(ii) | A condenser used to demonstrate compliance with 40 CFR 63.764(c)(1) must be designed and operated to reduce TOC or total HAP by 95% in accordance with 40 CFR 63.772(g). |
| (5) | 40 CFR 63.771(d)(1)(ii) and (d)(5) | A carbon adsorber used to demonstrate compliance with 40 CFR 63.764(c)(1) must be designed and operated to reduce TOC or total HAP by 95%. The spent carbon must be monitored, regenerated, reactivated, or burned as required in 40 CFR 63.771(d)(5). |
| (6) | 40 CFR 63.771(d)(1)(i) | A combustion device, other than a flare, used to demonstrate compliance with 40 CFR 63.764(c)(1) must be designed and operated in accordance with this paragraph. |
| (7) | 40 CFR 63.771(d)(4) | Each control device used to comply with Part 63 Subpart HH shall be operated at all times emissions are vented from the glycol dehydration unit(s), and through a closed vent system as required by rule. |
| (8) | 40 CFR 63.764(j) | The glycol dehydration unit and its control and monitoring equipment shall be operated in a manner consistent with safety and good air pollution control practices for minimizing emissions. |

* + - 1. Where the demonstration of compliance for a combustion control device is tested by the manufacturer, under the provisions of 40 CFR 63.772(h), the permittee shall demonstrate that a control device achieves the performance requirements of 40 CFR 63.771(d)(1) or (e)(3)(ii), by installing a device tested and certified by the manufacturer and complying with the following criteria:
         1. The inlet gas flowrate shall meet the range specified by the manufacturer. Flowrate shall be calculated as specified in 40 CFR 63.773(d)(3)(i)(H)(1).
         2. A pilot flame shall be present at all times of operation. The pilot flame shall be monitored in accordance with 40 CFR 63.773(d)(3)(i)(H)(2).
         3. Devices shall be operated with no visible emissions, except for periods not to exceed a total of 2 minutes during any hour. A visible emissions test using Method 22, 40 CFR Part 60, Appendix A, shall be performed each calendar quarter. The observation period shall be 1 hour and shall be conducted according to EPA Method 22, 40 CFR Part 60, Appendix A.
         4. Compliance with the operating parameter limit is achieved when the following criteria are met:

the inlet gas flowrate is equal to or below the maximum established by the manufacturer;

the pilot flame is present at all times;

during the visible emissions test performed under 40 CFR 63.772(i)(3), the duration of visible emissions does not exceed a total of 2 minutes during the observation period.

Devices failing the visible emissions test shall follow manufacturers repair instructions, if available, or best combustion engineering practice as outlined in the unit inspection and maintenance plan, to return the unit to compliant operation.

All repairs and maintenance activities for each unit shall be recorded in a maintenance and repair log and shall be available on site for inspection.

Following return to operation from maintenance or repair activity, each device must pass a Method 22 visual observation as described in 40 CFR 63.772(i)(3).

[40 CFR 63.772(i)], [40 CFR 63.772(e)], [40 CFR 63.773(d)(3)(i)(H)], and [40 CFR 63.773(d)(5)(i)(C)]

* + - 1. Where using a combustion control device that is demonstrated to have an uniform combustion zone temperature during the performance test and the temperature is used as an indicator of the destruction efficiency, the permittee shall continuously monitor the combustion temperature and the combustion control device shall be operated at or above the minimum combustion temperature established during the performance test and the temperature shall be maintained at no lower than 760°C.

[40 CFR 63.771(d)(1)(i)(C)]

* + - 1. The permittee may document the conditions for which glycol dehydration unit baseline operations shall be modified to achieve the 95.0% overall HAP emission reduction, either through process modifications or through a combination of process modifications and one or more control devices. If a combination of process modifications and one or more control devices are used, the permittee shall also establish the emission reduction to be achieved by the control device to achieve an overall HAP emission reduction of 95.0% for the glycol dehydration unit process vent. Only modifications in glycol dehydration unit operations directly related to process changes, including but not limited to changes in glycol circulation rate or glycol-HAP absorbency, shall be allowed. Changes in the inlet gas characteristics or natural gas throughput rate shall not be considered in determining the overall emission reduction due to process modifications.

[40 CFR 63.771(e)(2)]

* + - 1. The permittee that achieves a 95.0% HAP emission reduction using process modifications alone shall maintain records to document that the facility continues to operate in accordance with the conditions under which the glycol dehydration unit(s) was/were demonstrated to attain the emissions reduction. If the permittee achieves the 95.0% HAP emission reduction using a combination of process modification(s) and one or more control devices, the control device requirements must also be met for the glycol dehydration units as identified in 40 CFR 63.771(d), except the emission reduction shall be that specified for the control device in 40 CFR 63.771(e)(2), based on the reduction attributed to the process modification.

[40 CFR 63.771(e)(3)] and [40 CFR 63.774(b)(11)]

* + - 1. Each control device used to comply with Pat 63 Subpart HH shall be operated at all times when gases, vapors, and fumes are vented from the glycol dehydration unit(s), and through the closed-vent system to the control device as required under 40 CFR 63.765. More than one unit may be vented to a control device.

[40 CFR 63.771(d)(4)(i)] and [40 CFR 63.765(b)(1)]

* + - 1. For each control device monitored to demonstrate continuous compliance in accordance with the requirements of 40 CFR 63.773(d), the permittee shall maintain the daily average of the parameter value at either equal to or greater than the minimum or equal to or less than the maximum monitoring value established during the performance test.

[40 CFR 63.772(f)(3)] and [40 CFR 63.773(d)(5)]

* + - 1. For each carbon adsorption system used to demonstrate compliance with the control standards or limits for TOC, total HAP, or benzene in 40 CFR 63.765, the carbon shall be monitored; and it shall be replaced or regenerated, reactivated, or burned in a thermal treatment unit, incinerator, boiler, or industrial furnace that meets the applicable requirements of the unit identified in 40 CFR 63.771(d)(5)(ii). Carbon shall be replaced with fresh carbon on a regular predetermined time interval that is no longer than the service life of the carbon adsorption system.

[40 CFR 63.771(d)(5)]

* + - 1. The glycol dehydration unit and any required control and monitoring equipment shall be operated in a manner consistent with safety and good air pollution control practices for minimizing emissions.

[40 CFR 63.764(j)]

* + 1. Monitoring and/or Recordkeeping Requirements
       1. The following monitoring and recordkeeping requirements are applicable to the glycol dehydration unit(s):

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|  | Applicable Rule | Requirement |
| a. | 40 CFR 63.760(a)(1)(ii) | The owner or operator of the glycol dehydration unit(s) shall maintain records of the annual facility natural gas or hydrocarbon liquid throughput for each year. |
| b. | 40 CFR 63.773(c) | Inspection requirements for a closed-vent system for a dehydration unit subject to control. |
| c. | 40 CFR 63.774(b)(5) through (8) | Records required for each inspection of the closed-vent system for a dehydration unit subject to control. |
| d. | 40 CFR 63.773(d)(3)(i)(C) and  40 CFR 63.774(e) | Where a flare is used to comply with the requirements of 40 CFR 63.764(c), it must be equipped with a continuous recorder for the thermocouple or a heat sensing monitoring device for the pilot flame. A record must be maintained of: all periods of time when the pilot flame is out when process gas is being vented to it; all required visible emission readings; the flare design; and the heat content, flowrate, and exit velocity determinations. |
| e. | 40 CFR 63.773(c)(2)(iv);  40 CFR 63.773(d)(6)(v); and  40 CFR 63.771(c)(3)(i) | A record shall be maintained for: the flow indicator readings for each bypass device to the closed-vent system and/or a record of the monthly inspection of the car-seal/lock-and–key mechanism on the bypass device, and a record of each detected bypass. |
| f. | 40 CFR 63.772(c),(e),(f), and (g); and  40 CFR 63.774(a),(b), and (e)  For 40 CFR 63.764(c) | Must maintain the records required to demonstrate compliance, i.e., leak detection results demonstrating no detectable emissions from the closed-vent system and the appropriate performance test and emission test data of the control device. |
| g. | 40 CFR 63.772(f) and (g);  40 CFR 63.773(d); and  40 CFR 63.774(b)(4) | If using an enclosed combustion or vapor recovery device to demonstrate compliance with Part 63, Subpart HH, the maximum or minimum monitoring parameter values must be recorded and maintained in accordance with these paragraphs. |
| h. | 40 CFR 63.773(d)(3)(i)(E) | A condenser used to demonstrate compliance with 40 CFR 63.764(c)(1) must be equipped with a temperature monitoring device and must meet the monitoring and recordkeeping requirements of this paragraph. |
| i. | 40 CFR 63.773(d)(3)(i)(F) or (G) | A carbon adsorption system used to demonstrate compliance with 40 CFR 63.764(c)(1) must meet the monitoring and recordkeeping requirements of this paragraph. |
| j. | 40 CFR 63.773(d)(3)(i)(A), (B) or (D) | A combustion device used to demonstrate compliance with 40 CFR 63.764(c)(1) must be equipped with a continuous temperature monitoring device and must meet the monitoring and recordkeeping requirements of this paragraph. |
| k. | 40 CFR 63.772(e)(4) | This paragraph allows for a design analysis to be conducted for a condenser to meet the requirements of 40 CFR 63.771(d)(1) or (e)(3). |
| l. | 40 CFR 63.773(d)(4) | Using the continuous data collected and recorded as required in the 40 CFR 63.773(d)(3), the daily average value for each monitored operating parameter must be calculated for each operating day. Valid data points must be available for 75% of the operating hours each day. |
| m. | 40 CFR 63.773(d)(5) | For each operating parameter monitor installed in accordance w/ 40 CFR 63.773(d), a minimum or maximum operating parameter must be established to define conditions at which the control device must be operated to continuously achieve the performance requirements of 40 CFR 63.771(d)(1) or (e)(3). This paragraph allows operating parameter values to be established based on a condenser’s design analysis and the manufacturer’s recommendations. |
| n. | 40 CFR 63.774(b) | The applicable records identified in 40 CFR 63.774 and 40 CFR 63.10 and reports required by 40 CFR 63.775 must be maintained for a period of 5 years following the date of record and they must be accessible upon request. |
| o. | Table 2 to Part 63, Subpart HH | Table 2 identifies the applicable recordkeeping requirements from the General Provisions of Part 63 (Subpart A, 40 CFR 63.8 and 40 CFR 63.10). |

* + - 1. Except for any part of the closed-vent system that is/are designated as unsafe or difficult to inspect (as identified in 40 CFR 63.773(c)(5) or (6), the permittee shall conduct the following inspections for any closed vent system used to demonstrate compliance:
         1. For joints, seams, or other connections that are not permanently or semi-permanently sealed, the permittee shall conduct an initial and annual inspections according to the test methods (Method 21) and procedures specified in 40 CFR 63.772(c), to demonstrate that the components and connections of the closed vent system operate with no detectable emissions. The permittee shall also conduct annual visual inspections of the closed vent system, for defects that could result in air emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in ductwork; loose connections; or broken or missing caps or other closure devices.
         2. For joints, seams, or other connections that are permanently or semi-permanently sealed, the permittee shall conduct an initial inspection according to the test methods (Method 21) and procedures specified in 40 CFR 63.772(c), to demonstrate that the components and connections of the closed vent system operate with no detectable emissions. The permittee shall also conduct annual visual inspections of the closed vent system, for defects that could result in air emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in piping; loose connections; or broken or missing caps or other closure devices.
         3. Following any time a component that is permanently or semi-permanently sealed (e.g., a welded joint) is repaired or replaced or such a connection is unsealed, the permittee shall monitor each such joint, seam, or other component/connection according to the test methods and procedures specified in 40 CFR 63.772(c), to demonstrate that the sealed and/or welded joint(s) or component(s) was/were repaired to meet the requirement for no detectable emissions.

A record of each inspection shall be maintained as specified in 40 CFR 63.774(b)(7) and (8) for a period of five years.

[40 CFR 63.773(c)(2)(i) and (ii)], [40 CFR 63.772(c)], and [40 CFR 63.774(b)(1), (7), and (8)]

* + - 1. The flow indicator for each bypass device shall be set to take a reading at least once every 15 minutes at the inlet to the bypass device. If the bypass device valve is secured in the non-diverting position using a car-seal or a lock-and-key type configuration, the seal or closure mechanism shall be visually inspected at least once every month to verify that the valve is maintained in the non-diverting position and the vent stream is not diverted through the bypass device. A record of each inspection shall be maintained as specified in 40 CFR 63.774(b)(7) and (8) for a period of five years.

[40 CFR 63.773(c)(2)(iv)], [40 CFR 63.772(c)], and [40 CFR 63.774(b)(1), (7), and (8)]

* + - 1. In the event that a leak or defect is detected, the permittee shall make a first attempt at repair no later than 5 calendar days after the leak is detected. Repair shall be completed no later than 15 calendar days after the leak is detected. Delay of repair of a closed-vent system for which leaks or defects have been detected is allowed if the repair is technically infeasible without a shutdown, as defined in 40 CFR 63.761, or if the permittee determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be complete by the end of the next shutdown. A record of the date each leak is detected, the maximum instrument reading measured by Method 21, and the date each leak is successfully repaired shall be maintained as specified in 40 CFR 63.774(b)(7) for a period of five years.

[40 CFR 63.773(c)(3) and (4)]

* + - 1. The site-specific monitoring plan for the CPMS shall contain the following elements, unless alternative quality assurance and quality control procedures have been approved in accordance with 40 CFR 63.8(f)(4):
         1. the performance criteria and design specifications for the monitoring system equipment, including the sample interface, detector signal analyzer, and data acquisition and calculations;
         2. sampling interface (e.g., thermocouple) location such that the monitoring system will provide representative measurements;
         3. equipment performance checks, system accuracy audits, or other audit procedures;
         4. ongoing operation and maintenance procedures in accordance with provisions in 40 CFR 63.8(c)(1) and (c)(3); and
         5. ongoing reporting and recordkeeping procedures in accordance with provisions in 40 CFR 63.10(c), (e)(1), and (e)(2)(i).

The permittee shall conduct the CPMS equipment performance checks, system accuracy audits, or other audit procedures specified in the site-specific monitoring plan at least once every 12 months.

[40 CFR 63.773(d)(1)(ii)]

* + - 1. Except where the glycol dehydration unit(s) vent stream is 1. introduced with or used as the primary fuel, or 2. controlled by a boiler or process heater with a design heat input capacity equal to or greater than 44 megawatts (exempt), the permittee shall install and operate a continuous parameter monitoring system designed and operated so that a determination can be made on whether the control device is achieving the applicable performance requirements of 40 CFR 63.771(d) or (e)(3). The continuous parameter monitoring system shall meet the following specifications and requirements:
         1. Each continuous parameter monitoring system shall measure data values at least once every hour and record either each measured data value or each block average value for each 1-hour period or shorter periods, calculated from all measured data values during the period. If values are measured more frequently than once per minute, a single value for each minute may be used to calculate the hourly (or shorter period) block average instead of all measured values.
         2. The parameter monitoring system shall be installed, calibrated, operated, and maintained in accordance with the site-specific monitoring plan that addresses the monitoring system design, data collection, and quality assurance and quality control elements in accordance with 40 CFR 63.8(d).
         3. The continuous monitoring device shall be equipped with a continuous recorder to measure the values of operating parameters appropriate for the control device and specified as follows:

A thermal vapor incinerator, demonstrating that the combustion zone temperature is an accurate indicator of performance, shall be equipped with a temperature monitoring device with a continuous recorder and with a minimum accuracy of ±2% of the temperature being monitored in °C or ±2.5 °C, whichever value is greater. The temperature sensor shall be installed at a location representative of the combustion zone temperature.

A catalytic vapor incinerator shall be equipped with a temperature monitoring device capable of monitoring temperature at two locations and have a minimum accuracy of ±2% of the temperature being monitored in °C, or ±2.5 °C, whichever value is greater. One temperature sensor shall be installed in the vent stream at the nearest feasible point to the catalyst bed inlet and a second temperature sensor shall be installed in the vent stream at the nearest feasible point to the catalyst bed outlet.

A flare shall be equipped with a heat sensing monitoring device that indicates the continuous ignition of the pilot flame.

A boiler or process heater with a design heat input capacity of less than 44 megawatts shall be equipped with a temperature monitoring device with a continuous recorded and with a minimum accuracy of ±2% of the temperature being monitored in °C, or ±2.5 °C, whichever value is greater. The temperature sensor shall be installed at a location representative of the combustion zone temperature.

A condenser shall be equipped with a temperature monitoring device with a minimum accuracy of ±2% of the temperature being monitored in °C, or ±2.5 °C, whichever value is greater. The temperature sensor shall be installed at a location in the exhaust vent stream from the condenser. A condenser performance curve shall be used to establish the relationship between the condenser outlet temperature and condenser control efficiency.

A regenerative-type carbon adsorption system shall be equipped with:

A continuous parameter monitoring system to measure and record the average total regeneration stream mass flow or volumetric flow during each carbon bed regeneration cycle. The integrating regenerating stream flow monitoring device must have an accuracy of ±10%; and

A continuous parameter monitoring system to measure and record the average carbon bed temperature for the duration of the carbon bed steaming cycle and to measure the actual carbon bed temperature after regeneration within 15 minutes of completing the cooling cycle. The temperature monitoring device shall have a minimum accuracy of ±2% of the temperature being monitored in °C, or ±2.5 °C, whichever value is greater.

For a nonregenerative-type carbon adsorption system, the design carbon replacement interval shall be monitored and established using a performance test conducted in accordance with 40 CFR 63.772(e)(3); and the carbon replacement schedule shall be based on the total carbon working capacity of the control device and source operating schedule.

Where using a continuous organic compound monitoring system to measure the concentration level of organic compounds in the exhaust vent stream from the control device, it must be installed, certified, operated, and maintained in accordance with the requirements of Performance Specification 8 or 9 of Appendix B of 40 CFR Part 60 and the manufacturer's specifications.

Where demonstrating compliance using a combustion control device tested by the manufacturer under 40 CFR 63.772(h), the permittee shall:

determine the actual average inlet waste gas flowrate using the model GRI-GLTCalcTM, Version 3.0 or higher, ProMax, or AspenTech HYSYS. Inputs to the models shall be representative of actual operating conditions; and

install a heat sensing monitoring device equipped with a continuous recorder that indicates the continuous ignition of the pilot flame.

* + - * 1. Except for the inlet gas flowrate, the permittee shall calculate the daily average value recorded for each monitored operating parameter for each operating day. If the glycol dehydration unit operations are continuous, the operating day is a 24-hour period. If the glycol dehydration unit operations are not continuous, the operating day is the total number of hours of operation per 24-hour period. Valid data points must be available for 75% of the operating hours in an operating day to compute the daily average.
        2. The minimum operating parameter value or a maximum operating parameter value shall be established based on values measured during the performance test and supplemented, as necessary, by the control device design analysis or the manufacturer’s recommendations, to define the conditions at which the control device must be operated to continuously achieve the applicable performance requirements of 40 CFR 63.771(d)(1) or 63.771(e)(3)(ii).
        3. Parameters other than the glycol circulation rate shall be based on either the highest measured values or the annual average. For the estimated maximum potential emissions from the glycol dehydration unit(s), the glycol circulation rate used in the calculation(s) shall be the/each unit’s maximum rate under its physical and operational design, consistent with the definition of potential to emit in 40 CFR 63.2.

Compliance with the operating parameter limit is achieved when the daily average of the monitoring parameter value is either equal to or greater than the minimum or equal to or less than the maximum monitoring value established under during the performance test. For inlet gas flowrate, compliance with the operating parameter limit is achieved when the value is equal to or less than the value established under 40 CFR 63.772(h) by the manufacturer or under the performance test conducted under 40 CFR 63.772(e)(3).

[40 CFR 63.773(d)(1) through (5)], [40 CFR 63.760(a)(1)(iii)], and [40 CFR 63.772(f)(3)]

* + - 1. The following records shall be maintained for the glycol dehydration unit(s), the control device(s), and closed-vent system(s):
         1. the general recordkeeping requirements specified in 40 CFR 63.10(b)(2);
         2. the records specified in 40 CFR 63.10(c) for each monitoring system operated in accordance with the requirements of 40 CFR 63.773(d);
         3. continuous records of the control device operating parameters monitored to demonstrate compliance;
         4. records of the daily average value of each continuously monitored parameter for each operating day determined according to the procedures specified in 40 CFR 63.773(d);
         5. for condensers installed to comply with 40 CFR 63.765, records of the annual 365-day rolling average condenser efficiency determined under 40 CFR 63.772(g);
         6. for a carbon adsorption system, records identifying the schedule for carbon replacement and records of the actual carbon replacement;
         7. hourly records of the flow indicator, as well as records of the times and durations of all periods when the vent stream is diverted from the control device or the flow monitor is not operating;
         8. where a car-seal or lock-and-key type bypass closure mechanism is used to comply with the requirements of a closed-vent system, records from the monthly visual inspection of the seals or closure mechanism, and the duration of all periods when the car-seal or lock mechanism has been broken, the bypass line valve position has changed, or the key has been checked out for the lock;
         9. records identifying all parts of the closed-vent system that are designated as unsafe or difficult to inspect in accordance with 40 CFR 63.773(c)(5) or (6), with an explanation of why the equipment is unsafe or difficult to inspect, and the plan for inspecting the equipment;
         10. records of the initial and annual leak detection inspection of the closed vent system, from the glycol dehydration unit’s process and reboiler vents to the control device; and for each inspection conducted in accordance with 40 CFR 63.773(c) during which a leak or defect is detected, a record of the following information:

the instrument identification numbers, operator name or initials, and identification of the equipment;

the date the leak or defect was detected and the date of the first attempt to repair the leak or defect;

the maximum instrument reading measured by the method specified in 40 CFR 63.772(c) after the leak or defect is successfully repaired or determined to be non-repairable;

identification of any “repair delayed” and the reason for the delay, if a leak or defect is not repaired within 15 calendar days after its discovery;

the name, initials, or other form of identification of the operator (or designee) whose decision it was that repair could not be completed without a shutdown;

the expected date of successful repair of the leak or defect if a leak or defect is not repaired within 15 calendar days;

the dates of shutdowns that occur while the equipment is unrepaired; and

the date of successful repair of each leak or defect;

* + - * 1. for each inspection conducted in accordance with 40 CFR 63.773(c) during which no leaks or defects are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks or defects were detected;
        2. records of glycol dehydration unit baseline operations calculated as required under 40 CFR 63.771(e)(1);
        3. where demonstrating compliance with the 95% control requirement through process modification, the records documenting that the facility continues to operate under the conditions specified in 40 CFR 63.771(e)(2);
        4. where electing to comply with the benzene emission limit specified in 40 CFR 63.765(b)(1)(ii), the method used for demonstrating compliance with 0.90 megagrams per year of benzene and the basis for using the compliance method;
        5. the following records when using a flare to comply with 40 CFR 63.771(d):

the flare design (i.e., steam-assisted, air-assisted, or non-assisted);

all visible emission readings, heat content determinations, flowrate measurements, and exit velocity determinations made during the compliance determination required by 40 CFR 63.772(e)(2); and

all hourly records and other recorded periods when the pilot flame is absent.

The permittee shall maintain files of all the required information identified in 40 CFR 63.774 (including all reports and notifications) for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, and report. The most recent 12 months of all applicable records shall be accessible from a central location by computer or other means that provides access within 2 hours following any request for them.

[40 CFR 63.774]

* + - 1. Except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, system accuracy audits and required zero and span adjustments), the continuous monitoring system(s) required in 40 CFR 63.773(d) must be operated at all times the glycol dehydration unit is in operation. Monitoring data recorded during periods identified below shall not be included in any average or percent leak rate computed under Part 63 Subpart HH; however, records shall be kept of the times and durations of all such periods and any periods during process or control device operations when any required monitors were not operating or data were not collected:
         1. monitoring system breakdowns, repairs, calibration checks, and zero (low-level) and high-level adjustments;
         2. periods of non-operation resulting in cessation of the emissions; and
         3. excursions due to invalid data as defined in 40 CFR 63.773(d)(6)(iv).

[40 CFR 63.772(f)(4)] and [40 CFR 63.774(b)(3)]

* + 1. Reporting Requirements.
       1. The following information, where applicable, shall be included in the Notification of Compliance Status and/or in the semiannual periodic report. Reports shall be submitted to the Ohio EPA District Office or Local Air Agency or may be submitted through the Ohio EPA’s “e-Business Center: Air Services” online web portal:

|  |  |  |
| --- | --- | --- |
|  | Applicable Rule | Requirement |
| a. | 40 CFR 63.775(b) and  40 CFR 63.9(b) | For each dehydration unit, an Initial Notification must be submitted to include the information required by these paragraphs. An additional copy must be sent to U.S. EPA’s Office of Air Quality Planning & Standards, per 40 CFR 63.775(c)(1). |
| b. | 40 CFR 63.775(b)(4) and (d);  40 CFR 63.772(e)(3);  Table 2 to Subpart HH; and  40 CFR 63.9(h) | For each dehydration unit, a Notification of Compliance Status Report must be submitted within 180 of startup operations, to include the information identified in 40 CFR 63.775(d). |
| c. | 40 CFR 63.775(e)(1) and (2); and  40 CFR 63.10(e)(3) | A major source of HAP must submit semiannual reports to include the information identified in 40 CFR 63.775(e)(2). |
| d. | OAC 3745-21-10(A)(3) and (4) and  40 CFR 63.9(e), per Table 2 of Subpart HH | Must submit a Notice of Intent to Test to the district office or local air agency at least 60 calendar days before the performance test is scheduled. Test results must be submitted within 30 days after the performance test is completed. |
| e. | 40 CFR 63.775(f) | Notification of a process change, from information submitted in the Notification of Compliance Status Report, must be submitted within 180 days following the change. |
| f. | Table 2 to Part 63, Subpart HH | Table 2 identifies the applicable reporting requirements from the General Provisions of Part 63 (Subpart A, 40 CFR 63.9 and 40 CFR 63.10). |

* + - 1. The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit. It is recommended that the PER be submitted electronically through the Ohio EPA’s “e-Business Center: Air Services” although PERs can be submitted via U.S. postal service or can be hand delivered.

[OAC 3745-15-03(B)(2) and (D)]

* + - 1. The permittee of the large glycol dehydration unit, located at the oil and natural gas production facility, shall submit an initial notification that the facility is subject to the provisions of the NESHAP, Part 63 Subpart HH. The initial notification, which was required to be submitted in the permit application, must contain (documented in the permit application) the following information:
         1. the name and address of the affected source;
         2. a statement that the facility is subject to the requirements of Part 63, Subpart HH;
         3. identification of the subject source as each large glycol dehydration unit;
         4. the type of liquid glycol that will be used in each unit and its maximum design circulation rate;
         5. identification of the emission points from the glycol dehydration unit(s) and the possible hazardous air pollutants, i.e., benzene, toluene, ethyl benzene, xylene; and
         6. a statement that the unit is a large glycol dehydration unit located at a major source of HAP.

In addition to submitting an initial notification to the appropriate district or local office of the Ohio EPA Division of Air Pollution Control, a copy of the initial notification must be submitted to U.S. EPA Region 5 at the following address: U.S. EPA Region 5, Ralph Metcalfe Federal Building, 77 West Jackson Blvd., Chicago, IL 60604.

The permittee shall also send a notification, to the appropriate district or local office of the Ohio EPA Division of Air Pollution Control, of the actual date of startup of the glycol dehydration unit, postmarked within 15 calendar days after the startup date.

[40 CFR 63.775(b)(1)] and [40 CFR 63.9(a) and (b)]

* + - 1. Personnel from the appropriate Ohio EPA District Office or local air agency shall be notified 60 days prior to initiation of the applicable performance tests or a performance evaluation of a CMS required to demonstrate compliance. Ohio EPA staff shall be permitted to examine equipment and witness the certification tests. The test results shall be submitted to the appropriate Ohio EPA District Office or local air agency within 30 days after the test is completed. If conducting a performance evaluation of a continuous emissions monitoring system used to demonstrate compliance, two copies of the notification of the performance evaluation and the test results shall be submitted to Ohio EPA, one copy to the appropriate Ohio EPA District Office or local air agency and one copy to Ohio EPA Central Office.

[40 CFR 63.775(b)(2) and (3)], [OAC rule 3745-15-04(A)]; [40 CFR 63.8(e)(2)]; and [40 CFR 63.7(b)]

* + - 1. The permittee shall submit to the Director (appropriate Ohio EPA Division of Air Pollution Control, District Office or local air agency) the Notification of Compliance Status Report within 180 days after the compliance date identified in 40 CFR 63.760(f), signed by the owner or operator or other responsible official who is certifying the accuracy and completeness of the report. The Notification of Compliance Status Report shall include the following information:
         1. the NESHAP (applicable subpart) and emissions and/or other limitation(s) applicable to the glycol dehydration unit(s);
         2. the method that was used to determine compliance with the applicable limitation and/or requirement and the date each compliance demonstration was conducted;
         3. the results of any required performance tests, opacity or visible emission observations, continuous monitoring system (CMS) performance evaluations, and/or other monitoring procedures or methods that were conducted to demonstrate compliance;
         4. the methods that will be used for determining continuing compliance, including a description of the monitoring, the records maintained of the process and/or equipment parameters, and test methods;
         5. the mass emission rate of TOC (minus methane and ethane) or total HAP emitted by the glycol dehydration unit(s), as measured in accordance with the test methods specified in 40 CFR 63.772;
         6. the analysis demonstrating whether the glycol dehydration unit(s) is/are a major source for HAP and the supporting potential and controlled emissions data to document the determination;
         7. a description of the air pollution control equipment (or control method) for each emission point and the control efficiency (%) for each control device/method;
         8. a statement, signed by a responsible official, as to whether the glycol dehydration unit(s) has/have met the relevant standards, limitations, and/or other requirements of the NESHAP; and if not, the proposed method and time-line for achieving compliance.
         9. if a closed-vent system and a control device other than a flare are used to demonstrate compliance, the permittee shall submit the following information:

the results of the closed-vent system initial inspections performed according to the requirements in 40 CFR 63.773(c)(2)(i) and (ii); and

if using a condenser to demonstrate compliance, documentation of the design analysis as specified in 40 CFR 63.772(e)(4), if electing to demonstrate compliance, as permitted, using the design analysis and gas analyses; or

the performance test results, including the percent reduction of total HAP or TOC (minus methane and ethane) or the outlet concentration of HAP or TOC; and the value of the monitored parameters, averaged over the full period of the performance test;

* + - * 1. if a closed-vent system and a flare are used to demonstrate compliance, the permittee shall submit performance test results to include the following information:

all visible emission readings, heat content determinations, flowrate measurements, and exit velocity determinations;

a statement of whether a flame was present at the pilot light over the full period of the compliance determination; and

the results of the initial inspection of the closed-vent system, performed in accordance with 40 CFR 63.773(c)(2)(i) and (ii);

* + - * 1. one complete test report for each test method used to document compliance, to include: a description of the sampling site, the sampling and analysis procedures, any modifications to standard procedures, the quality assurance procedures, the record of operating conditions during the test, any record of preparation of standards, record of calibrations, the raw data sheets for field sampling and laboratory analyses, documentation of calculations, and any other information required by the test method;
        2. for each operating parameter required to be monitored in accordance with the requirements of 40 CFR 63.773(d):

the minimum or maximum operating parameter value for the control device, established to define the conditions at which the control device must be operated to continuously achieve the applicable performance requirements of 40 CFR 63.771(d) or process modification requirements in 40 CFR 63.771(e);

an explanation of the rationale for why the operating parameter value(s) was/were selected and how it/they indicate(s) the control device is operating in accordance with 40 CFR 63.771(d), to demonstrate compliance with the overall 95% emission reduction of HAP; and the data and calculations used to develop the minimum or maximum parameter value(s); and

a definition of the source's operating day for purposes of determining daily average values of monitored parameters (hours of operation per day);

* + - * 1. the results of any continuous monitoring system performance evaluations;
        2. the analysis performed to determine the maximum natural gas or hydrocarbon liquid throughput;
        3. the predetermined carbon replacement schedule if demonstrating compliance using a carbon adsorption system;
        4. the method(s) used to demonstrate compliance with the chosen compliance option, i.e., for 0.90 MG/year benzene, 95% control of TOC or total HAP, 20 ppmv TOC or total HAP, or meeting the requirements of 40 CFR 63.11(b) for a flare; and
        5. a statement as to whether the source has complied with the requirements of 40 CFR Part 63, Subpart HH.

[40 CFR 63.775(d)], [40 CFR 63.9(h)], and [OAC rule 3745-15-04, 30-day submission]

* + - 1. Semiannual Reports shall be submitted for a major source, beginning 60 calendar days after the end of the applicable reporting period. The first report shall be submitted no later than 240 days after the date the Notification of Compliance Status Report is due and shall cover the 6-month period beginning on the date the Notification of Compliance Status Report is due. The following information shall be included in the semiannual report:
         1. the information required under 40 CFR 63.10(e)(3) for continuous monitoring systems;
         2. a description of all excursions that occurred during the 6-month reporting period, as identified 40 CFR 63.773(d)(6);
         3. for each excursion from the established daily average value of the operating parameter used to demonstrate continuous compliance, the report must include the daily average values of the monitored parameter, the applicable operating parameter limit, and the date and duration of the excursion;
         4. for each excursion caused when the 365-day average condenser control efficiency is less than 95%, as specified in 40 CFR 63.773(d)(6)(ii) and as calculated in 40 CFR 63.772(g)(2)(iii), the report must include the 365-day average values of the condenser control efficiency and the date and duration of the excursion;
         5. for each excursion caused when there is less than 365 days of data and the condenser control efficiency is less than 90%, as specified in 40 CFR 63.773(d)(6)(iii) and as calculated in 40 CFR 63.772(g)(2)(iii), the report must include the average values of the condenser control efficiency and the date and duration of the excursion;
         6. for each excursion caused by the lack of monitoring data, i.e., less than 75% of the operating hours in any day (per 40 CFR 63.773(d)(6)(iv)), the report must include the date and duration of time when the monitoring data were not collected and the reason;
         7. for each inspection conducted in accordance with 40 CFR 63.773(c) during which a leak or defect is detected, the records specified in 40 CFR 63.774(b)(7) identifying each leak and information related to the date of its detection and repair;
         8. for each carbon adsorber used to demonstrate compliance, records of each carbon replacement that occurred during the reporting period;
         9. for each closed-vent system with a bypass line, records of all periods when the vent stream is diverted from the control device through a bypass line and/or all periods in which the seal mechanism is broken, the bypass valve position has changed, or the key to unlock the bypass line valve was checked out;
         10. the information necessary to document the glycol dehydration unit was in compliance with the appropriate standards during the reporting period;
         11. identification of any changes made to the glycol dehydration unit(s), the closed-vent system, the control device, or the parameters monitored that would alter the method of compliance;
         12. if there were no excursions during the reporting period, a statement to that effect;
         13. if applicable, a statement that there no continuous monitoring system, used to demonstrate compliance, was inoperative, out of control, repaired, or adjusted during the reporting period;
         14. if the compliance demonstration includes a process modification to attain the 95% reduction of HAP emissions, the information supporting the contribution of the process change to the percent reduction that would be necessary to demonstrate compliance;
         15. for flares, any periods of time when the pilot flame was absent and any record of visible emissions;
         16. for a combustion control device performance tested in accordance with 40 CFR 63.772(h) by the manufacturer:

each excursion from the maximum inlet gas flowrate, the flowrate measured, and the date and duration of the exceedance;

each excursion from the visible emissions standard identified in 40 CFR 63.772(i)(3), the total time visible emissions exceeded 2 minutes in any hour of observation, the date and duration of the period of the exceedance, the repairs made to the unit, and the date the unit was returned to service and visible emissions were eliminated; and

any period of time when the pilot flame was absent; and

the date of the semi-annual maintenance inspection required to be conducted for the combustion control device under 40 CFR 63.773(b) and the modifications, maintenance (e.g. cleaning of the fuel nozzles), or repairs made;

* + - * 1. the results of any periodic test conducted during the reporting period; and
        2. certification by a responsible official of the truth, accuracy, and completeness of the report.

[40 CFR 63.775(e)]

* + - 1. Where a combustion control device model is tested by the manufacturer under 40 CFR 63.772(h), the permittee shall submit the following information in the Notification of Compliance Status Report for the test report required under 40 CFR 63.775(d)(1)(iii):
         1. a full schematic of the control device and dimensions of the device components;
         2. the design net heating value (minimum and maximum) of the device;
         3. the test fuel gas flow range (in both mass and volume), including the minimum and maximum allowable inlet gas flowrate;
         4. the air/stream injection/assist ranges, if used;
         5. the test parameter ranges applicable for the tested model, i.e.:

the fuel gas delivery pressure and temperature;

the fuel gas moisture range;

the purge gas usage range;

the condensate (liquid fuel) separation range;

the combustion zone temperature range. This is required for all devices that measure this parameter;

the excess combustion air range;

the flame arrestor(s);

the burner manifold pressure;

the pilot flame sensor;

the pilot flame design fuel and fuel usage;

the tip velocity range;

the Momentum flux ratio;

the exit temperature range;

the exit flowrate; and

the wind velocity and direction.

The test report shall include all calibration quality assurance/quality control data, calibration gas values, gas cylinder certification, strip charts, the test times, and calibration values.

[40 CFR 63.772(h)(8)]

* + - 1. If the permittee is using a combustion control device model tested under 40 CFR 63.772(h) by the manufacturer, and the test results for that model have not been posted by the manufacturer at the website identified at: epa.gov/airquality/oilandgas/, then an electronic copy of the performance test results shall be submitted by the permittee via e-mail to [Oil\_and\_Gas\_PT@EPA.GOV](mailto:Oil_and_Gas_PT@EPA.GOV).

[40 CFR 63.775(d)(1)(ii)]

* + - 1. Within 60 days following the date of completing each performance test (required to demonstrate compliance with Part 63 Subpart HH), the permittee must submit the test results to U.S. EPA’s WebFIRE database using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA’s Central Data Exchange (CDX), [www.epa.gov/cdx](http://www.epa.gov/cdx) . Performance test data must be submitted in the file format generated through use of EPA’s Electronic Reporting Tool (ERT), found at <http://www.epa.gov/ttn/chief/ert/index.html>. Only data collected using test methods identified on the ERT Website are subject to this requirement

[40 CFR 63.775(g)]

* + 1. Testing Requirements

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

* + - 1. Emissions Limitations:

Unless the process vent from the large glycol dehydration unit(s) is/are connected through a closed vent system to a process natural gas line or open flare, TOC (minus methane and ethane) or total HAP shall be reduced by 95% or to less than 20 ppmv on a dry basis corrected to 3% oxygen in accordance with 40 CFR 63.772(e); or emissions of benzene from the glycol dehydration unit(s) shall be reduced to a level less than 0.90 MG/yr in accordance with 40 CFR 63.765(b)(1)(ii).

Applicable Compliance Method:

Emissions from the glycol dehydration unit(s) shall be vented through a closed vent system meeting the requirements of 40 CFR 63.771(c) and to a control device meeting the requirements of 40 CFR 63.765 and 40 CFR 63.771(d); and the control device shall meet the following requirements:

* + - * 1. An open flare used to demonstrate compliance with 40 CFR 63.764(c)(1) shall be designed and operated in accordance with 40 CFR 63.772(e)(2) and 40 CFR 63.11(b); and it must be equipped with a heat sensing monitoring device and recorder that indicates the continuous ignition of the pilot flame (40 CFR 63.773(d));
        2. A demonstration of compliance using a combustion device or enclosed flare shall be conducted in accordance with 40 CFR 63.772(e)(3) and it must be equipped with a continuous temperature monitoring device which shall be used to establish a minimum operating temperature in accordance with 40 CFR 63.772(f) and 40 CFR 63.773(d);
        3. A demonstration of compliance using a condenser may be conducted through a performance test in accordance with 40 CFR 63.772(e)(3); or a design analysis may be used in accordance with 40 CFR 63.772(e)(4); or a condenser performance curve may be generated using the GRI-GLYCalcTM model in accordance with 40 CFR 63.772(e)(5) and (g). The condenser must be equipped with a continuous parameter monitoring device and must establish a minimum or maximum operating parameter in accordance with 40 CFR 63.773(d); and
        4. A demonstration of compliance using a carbon adsorption system shall be conducted in accordance with 40 CFR 63.772(e)(3) and it must be equipped with a continuous parameter monitoring device which shall be used to establish a minimum or maximum operating parameter in accordance with 40 CFR 63.773(d); or alternatively the carbon replacement for non-regenerative carbon may be monitored in accordance with 40 CFR 63.773(d).
        5. The permittee may determine the mass rate of TOC (minus methane and ethane) or total HAP at the inlet of the control device and actual average benzene emissions using the GRI-GLYCalcTM model, Version 3.0 or higher, and the procedures presented in the associated GRI-GLYCalcTM Technical Reference Manual. Inputs to the model shall be representative of actual operating conditions of the glycol dehydration unit(s) and shall be determined using the procedures documented in the Gas Research Institute (GRI) report entitled ‘‘Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions’’ (GRI–95/0368.1); **or** alternatively the permitee may demonstrate compliance with the emissions standards through direct measurement using, as applicable, Methods 18 or 25A of 40 CFR Part 60, Appendix A or ASTM D6420-99 (Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry).
        6. Potential VOC, TOC, HAP and/or benzene emissions estimates shall be based on the maximum glycol circulation rate(s), in gallons per minute (gpm); the worst case pollutant concentrations from representative extended gas analyses of the inlet wet gas; and the maximum natural gas flow rate, as determined by 40 CFR 63.772(b)(1)(i); or for a new unit, potential emissions shall be estimated in accordance with 40 CFR 63.760(a) and increased by a factor of 1.2.
        7. Where a control device is required to meet the total HAP, TOC, or benzene standard or control requirement, the gas stream from the glycol dehydration unit process vent shall be routed through a closed-vent system to control device that meets the requirements of 40 CFR 63.771(d), except that the performance levels specified in 40 CFR 63.771(d)(1)(i) and (ii) do not apply if the actual average benzene emissions can be demonstrated to be less than 0.90 megagrams per year.
        8. The actual flowrate of natural gas to the glycol dehydration unit(s) shall be made by installing a monitoring instrument that directly measures natural gas flowrate to the glycol dehydration unit with an accuracy of plus or minus 2% or better. The annual natural gas flowrate shall be converted to a daily average by dividing the annual flowrate by the number of days per year the glycol dehydration unit processes natural gas.
        9. A performance test conducted by the manufacturer of a combustion control device may be used to demonstrate compliance if:

the manufacturer has demonstrated compliance for the specific model in accordance with all of the requirements contained in 40 CFR 63.722(h);

the actual average inlet waste gas flowrate does not exceed the maximum established by the manufacturer and is determined using the model GRI-GLYCalc version 3.0 or higher, ProMax, or AspenTech HYSYS, where inputs to the models are representative of actual operating conditions of the controlled unit(s);

a heat sensing device, equipped with a continuous recorder, is installed that indicates continuous ignition of the pilot flame;

the combustion control device is operated with no visible emissions, except for periods not to exceed a total of 2 minutes during any hour of operation; and 1-hour visible emissions readings, using Method 22 at 40 CFR Part 60, Appendix A-7, are conducted quarterly; and

the permittee develops an inspection and maintenance plan for the combustor which shall include the manufacturer’s recommendations for ensuring proper operations; and semiannual inspections are conducted with maintenance and replacement of components in accordance with the plan.

In accordance with 40 CFR 63.772(e)(3)(iii)(B)*(4)*, the GRI-GLYCalcTM model, Version 3.0 or higher, can be used as an alternative to calculating the mass rate of TOC (minus methane and ethane) or total HAP at the inlet of the control device.

[40 CFR 63.765(b)(1) or (c)(1)], [40 CFR 63.771(c) and (d)], [40 CFR 63.772], [40 CFR 63.773(b) and (d)]; and [OAC rule 3745-31-05(E)]

* + - 1. Closed-Vent Systems

Emissions Limitation:

Where meeting the emissions standard using a control device, the gas stream from the glycol dehydration unit(s) process vents shall be routed through a closed-vent system to a control device meeting the requirements of 40 CFR 63.771(c) and (d). The closed-vent system shall be designed and operated with no detectable emissions. The closed-vent system shall be considered to have no detectable emissions if the instrument reading is less than 500 parts per million by volume (ppmv) above background (per 40 CFR 63.772(c)(8)).

Applicable Compliance Method:

Initial and annual visual inspections of the closed vent system shall meet the requirements of 40 CFR 63.773(c) and shall be conducted in accordance with the test procedure set forth in Method 21 of 40 CFR Part 60, Appendix A and as identified in 40 CFR 63.772(c). The detection of leaks of VOC into the ambient air from equipment and background level shall be determined as follows:

* + - * 1. The detection of leaks shall be determined in accordance with the test procedure set forth in U.S. EPA Method 21 and the instrument shall be calibrated each day before use.
        2. The following calibration gases shall be used:

zero air, which consists of less than 10 ppm of hydrocarbon in air; and

a mixture of air and methane or n-hexane at a concentration of approximately, but less than, 10,000 ppm of methane or n-hexane.

All potential leak interfaces shall be traversed as close to the interface as possible. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm for determining compliance. The leak detection instrument shall be calibrated before each use and shall meet the performance criteria of Method 21, from 40 CFR 60 Appendix A. The closed-vent system shall be considered to have no detectable emissions if the instrument reading is less than 500 parts per million by volume (ppmv) above background (per 40 CFR 63.772(c)(8)).

[40 CFR 63.771(c)], [40 CFR 63.772(c)], and [40 CFR 63.773(c)]

* + - 1. Control Device other than a Flare

Emissions Limitation:

Emissions from the glycol dehydration unit shall not exceed **XX** tons of VOC per year.

Where not demonstrating compliance using the model GRI-GLYCalcTM model, as allowed per 40 CFR 63.772(b)(2) for benzene, any control device used to demonstrate compliance with 40 CFR 63.771(d), other than an open flare (and the control devices/scenarios identified as exempt from the performance test requirements in 40 CFR 63.772(e)(1)), the permittee shall demonstrate that the control device either reduces the mass content of TOC (minus methane and ethane) or total HAP by 95% or reduces benzene to less than 0.90 MG per year.

Applicable Compliance Method:

The permittee demonstrating compliance through performance testing to meet the control requirements of 40 CFR 63.771(d) or (e) shall do so using the following methods and procedures:

* + - * 1. Method 1 or 1A, 40 CFR Part 60, Appendix A, as appropriate, shall be used for selection of the sampling sites. Any references to particulate mentioned in Methods 1 and 1A do not apply.

To determine compliance with the control device percent reduction requirement, sampling sites shall be located at the inlet of the first control device, and at the outlet of the final control device.

To determine compliance with the enclosed combustion device total HAP concentration limit, the sampling site shall be located at the outlet of the combustion device.

* + - * 1. Method 2, 2A, 2C, or 2D, 40 CFR Part 60, Appendix A shall be used to determine the gas volumetric flowrate.
        2. For benzene, the GRI-GLYCalcTM model may be used in accordance with 40 CFR 63.772(b)(2)(i) or may be determined, in kilograms/hour, through direct measurement using Method 18, 40 CFR Part 60, Appendix A or ASTM D6420–99 (2004).
        3. Method 18, 40 CFR Part 60, Appendix A or ASTM D6420–99 (2004) shall be used to determine compliance with the control device percent reduction performance requirement. As an alternative, the mass rate of either TOC (minus methane and ethane) or total HAP at the inlet of the control device (Ei) may be calculated using the model GRI-GLYCalc. The following procedures shall be used to calculate percent reduction efficiency:

The minimum sampling time for each run shall be 1 hour in which either an integrated sample or a minimum of four grab samples shall be taken. If grab sampling is used, the samples shall be taken at approximately equal intervals in time, i.e., every 15-minute intervals during the run.

The mass rate of either TOC (minus methane and ethane) or total HAP (Ei, Eo) shall be computed using the following equations:

n

Ei = K2 ( Cij Mij) Qi

j=1

n

Eo= K2 ( Coj Moj) Qo

j=1

Where:

Cij, Coj= Concentration of sample component j of the gas stream at the inlet and outlet of the control device, respectively, dry basis, parts per million by volume.

Ei, Eo= Mass rate of TOC (minus methane and ethane) or total HAP at the inlet and outlet of the control device, respectively, dry basis, kilogram per hour.

Mij, Moj= Molecular weight of sample component j of the gas stream at the inlet and outlet of the control device, respectively, gram/gram-mole.

Qi, Qo= Flowrate of gas stream at the inlet and outlet of the control device, respectively, dry standard cubic meter per minute.

K2= Constant, 2.494×10−6 (parts per million) (gram-mole per standard cubic meter) (kilogram/gram) (minute/hour), where standard temperature (gram-mole per standard cubic meter) is 20 °C.

n = Number of components in sample.

When the TOC mass rate is calculated, all organic compounds (minus methane and ethane) measured by Method 18, 40 CFR Part 60, Appendix A, or Method 25A, 40 CFR Part 60, Appendix A, or ASTM D6420–99 (2004) as specified in 40 CFR 63.772(a)(1)(ii), shall be summed.

When the total HAP mass rate is calculated, only HAP chemicals listed in Table 1 of this subpart shall be summed.

The percent reduction in TOC (minus methane and ethane) or total HAP shall be calculated as follows:

Rcd = (Ei – Eo)/Ei x 100%

Where:

Rcd= Control efficiency of control device, %.

Ei= Mass rate of TOC (minus methane and ethane) or total HAP at the inlet to the control device, kilograms TOC per hour or kilograms HAP per hour.

Eo= Mass rate of TOC (minus methane and ethane) or total HAP at the outlet of the control device, kilograms TOC per hour or kilograms HAP per hour.

If the vent stream entering a boiler or process heater with a design capacity less than 44 megawatts is introduced with the combustion air or as a secondary fuel, the weight-percent reduction of total HAP or TOC (minus methane and ethane) across the device shall be determined by comparing the TOC (minus methane and ethane) or total HAP in all combusted vent streams and primary and secondary fuels with the TOC (minus methane and ethane) or total HAP exiting the device, respectively.

To determine compliance with the total HAP or TOC concentration limit, the permittee shall use the following procedures to calculate parts per million by volume concentration, corrected to 3% oxygen. The TOC concentration is the sum of the concentrations of the individual components and shall be computed for each run using the following equation:

x n

CTOC = ( Cji) / x

i=1 j=1

Where:

CTOC= Concentration of total organic compounds minus methane and ethane, dry basis, parts per million by volume.

Cji= Concentration of sample component j of sample i, dry basis, parts per million by volume.

n = Number of components in the sample.

x = Number of samples in the sample run.

The TOC concentration or total HAP concentration shall be corrected to 3% oxygen as follows:

The emission rate correction factor for excess air, integrated sampling and analysis procedures of Method 3A or 3B at 40 CFR Part 60, Appendix A, or other method otherwise approved by the Administrator, shall be used to determine the oxygen concentration. The samples shall be taken during the same time that the samples are taken for determining TOC concentration or total HAP concentration.

The TOC or HAP concentration shall be corrected for percent oxygen by using the following equation:

Cc = Cm (17.9 / 20.9 - %O2d)

Where:

Cc= TOC concentration or total HAP concentration corrected to 3% oxygen, dry basis, parts per million by volume.

Cm= TOC concentration or total HAP concentration, dry basis, parts per million by volume.

%O2d= Concentration of oxygen, dry basis, % by volume.

Operating parameters shall be established in accordance with 40 CFR 63.773(d), as applicable to the chosen control device, during the performance test to demonstrate continuous compliance.

[40 CFR 63.765], [40 CFR 63.771(d)], and [40 CFR 63.772(a)(1) and (e)(3)]

* + - 1. Where using a condenser as a control device the permittee shall establish a condenser performance curve using one of the following methods and in accordance with 40 CFR 773(d)(5)(ii):
         1. If using a condenser design analysis, in accordance with the requirements of 40 CFR 63.772(e)(4), a condenser performance curve and the minimum or maximum operating parameter value(s) shall be established based on the design analysis which may be supplemented by the manufacturer’s recommendations.
         2. If conducting a performance test, in accordance with the requirements of 40 CFR 63.772(e)(3), the condenser performance curve shall be based on values measured during the performance test and supplemented as necessary by the condenser design analysis or the manufacturer’s recommendations or both.
         3. As an alternative to using the condenser design analysis, the permittee may 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-GLYCalcTM, Version 3 or higher, to generate a condenser performance curve.

[40 CFR 63.773(d)(5)(i)(B) and (ii)]

* + - 1. Where demonstrating compliance using a condenser’s design analysis, the permittee shall establish the relationship between the condenser performance curve and the condenser outlet temperature; and the control efficiency shall be determined as follows:
         1. The design analysis shall include 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.
         2. Following 365 days of operations, the permittee shall calculate the 365-day average BTEX emission reduction necessary to meet the BTEX limit using the following procedures:

monitor and calculate the daily average condenser outlet temperature in accordance with 40 CFR 63.773(d)(4);

determine the condenser efficiency for each operating day using the daily average condenser outlet temperature and the condenser performance curve; and

at the end of each operating day, calculate the 365-day BTEX emission reduction from the condenser efficiencies for the preceding 365 operating days.

* + - * 1. Following 365 days of operation, compliance is achieved if the average BTEX emission reduction is equal to or greater than the minimum percent reduction necessary to meet the BTEX limit.
        2. Prior to 365 days and following 120 days of operation, the BTEX emission reduction shall be calculated each day for the number of days of operation following the compliance dates. Compliance is achieved if the average BTEX emission reduction is at least 95.0 percent of the required 365-day value identified above (i.e., at least 76.0 percent if the 365-day design value is 80.0 percent).

If the permittee uses a combination of process modification(s) and a condenser in accordance with the requirements of 40 CFR 63.771(e), the 365-day BTEX emission reduction shall be calculated using the emission reduction achieved through process modifications and the condenser efficiency as determined above, both for the previous 365 operating days. Or if it is determined that the design analysis is not sufficient to demonstrate compliance, the permittee shall be required to conduce a performance test to demonstrate compliance with the BTEX limit and to identify the minimum percent reduction necessary to meet the BTEX limit.

[40 CFR 63.772(g)], [40 CFR 63.771(f)(1)(ii)], [40 CFR 63.772(e)(4) and (5)], and [40 CFR 63.773(d)(5)(i)(B) and (ii))]

* + - 1. Compliance using an open flare

Emissions Limitation:

There shall be no visible emissions from a flare used to demonstrate compliance with Part 63, Subpart HH, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours of operation and the flare shall be designed and operated in accordance with 40 CFR 63.11(b).

Applicable Compliance Method:

Compliance with the visible emissions limitation shall be determined in accordance with U.S. EPA Method 22 in Appendix A of 40 CFR Part 60. The heat content, flowrate, and exit velocity shall be determined in accordance with 40 CFR 63.11(b).

[40 CFR 63.771(d)(1)(iii)] and [40 CFR 63.772(e)(2)]

* + 1. Miscellaneous Requirements
       1. The permittee shall meet the applicable requirements of the most current version of 40 CFR Part 63 Subpart HH following any amendments to these rules, which may supersede any requirements identified in this permit.