



GENERAL PLAN APPROVAL AND/OR GENERAL OPERATING PERMIT BAQ-GPA/GP-5A

Unconventional Natural Gas Well Site Operations and Remote Pigging Stations

SECTION A. GENERAL REQUIREMENTS

1. Statutory/Regulatory Authority and General Description

In accordance with Section 6.1(f) of the Pennsylvania Air Pollution Control Act (APCA), 35 P.S. § 4006.1(f) and 25 Pa. Code Chapter 127, Subchapter H, the Department of Environmental Protection (Department or DEP) hereby issues this General Plan Approval and/or General Operating Permit (General Permit or GP-5A) for new or modified unconventional natural gas well site operations and remote pigging stations (facility or facilities) constructed, modified, or operated in this Commonwealth.

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3. Definitions

Words and terms that are not otherwise defined in this General Permit shall have the meanings set forth in Section 3 of the APCA (35 P.S. § 4003) and Title 25, Article III including 25 Pa. Code § 121.1 unless the context indicates otherwise. The meanings set forth in applicable definitions codified in the Code of Federal Regulations (CFR) including 40 CFR Part 60, Subparts JJJJ, OOOO, and OOOOa or 40 CFR Part 63, Subparts HH and ZZZZ shall also apply to this General Permit.

Fugitive Emissions Component – Any component that has the potential to emit fugitive emissions of methane, Volatile Organic Compounds (VOC), or Hazardous Air Pollutants (HAP) at an unconventional natural gas well site or remote pigging station including, but not limited to, valves, connectors, pressure relief devices, open-ended lines, flanges, compressors, instruments, meters, covers, and closed vent systems. Devices that vent as part of normal operations are not considered fugitive sources unless the emission originates from a place other than the vent.

Leak – A leak is defined as any release of gaseous hydrocarbons that is detected by Auditory, Visual, or Olfactory (AVO) inspection; an optical gas imaging (OGI) camera calibrated according to 40 CFR § 60.18 and a detection sensitivity level of 60 grams/hour; a gas leak detector that meets the requirements of 40 CFR Part 60, Appendix A-7, Method 21 that detects a concentration of 500 ppm calibrated as methane or greater; or other leak detection methods approved by the Department's Division of Source Testing and Monitoring. However, a release from any equipment or component designed by the manufacturer to protect the equipment, controller, or personnel or to prevent groundwater contamination, gas migration, or an emergency situation is not considered a leak.

Pigging Operations – The process of removing and collecting condensed liquids including condensate, intermediate hydrocarbons, or produced water, from a pipeline using a spherical or bullet-shaped device, known as a pig, forced through the pipeline by natural gas pressure. The liquids are then collected at their eventual destination in a storage tank, often referred to as a slug tank. This process also includes operation conducted for pipeline integrity evaluation.

Remote Pigging Station – A facility where pigging operations are conducted that is not located at an unconventional natural gas well site, natural gas compressor station, natural gas processing plant, or natural gas transmission station and which meets or exceeds the exemption criteria in Category 38(c) of the [Air Quality Permit Exemptions List](#).

Sour Gas – Natural gas where the Hydrogen Sulfide (H₂S) content is in excess of 4 ppmv at standard temperature and pressure.

Start of Production – The beginning of initial flow following the end of flowback when there is continuous recovery of salable quality gas and separation and recovery of any crude oil, condensate, or produced water. A well whose owner or operator is selling gas through temporary equipment designed for flowback shall not be considered in production until either the sales continue through the temporary equipment for more than 30 days or the gas is routed to a permanent production separator.

Unconventional Natural Gas Well – A well drilled to produce natural gas from shale formations below the Elk Sandstone or its geologic equivalent stratigraphic interval, where recovery of the natural gas is generally not economic without the bores being stimulated by hydraulic fracturing, multilateral well bores, or other techniques to expose more of the formation to the well bore.

Unconventional Natural Gas Well Site – A location with one or more unconventional natural gas wells at which unconventional natural gas well site operations are conducted.

Unconventional Natural Gas Well Site Operations – Equipment and processes at unconventional natural gas well sites including, but not limited to, gas dehydration, tanker truck load-out, wellbore liquid unloading, gas compression, pigging, and storage.

Wellbore Liquids Unloading – The process of removing accumulated liquids from a natural gas well in order to restore well pressure and natural gas production.

4. Applicability/Scope

- (a) This General Permit authorizes the construction, modification, and/or operation of sources listed below at an unconventional natural gas well site or remote pigging station. The applicability of this General Permit may include one or more of the following operations or emissions sources:
- (i) Glycol Dehydration Units
 - (ii) Stationary Natural Gas-Fired Spark Ignition Internal Combustion Engines
 - (iii) Reciprocating Compressors
 - (iv) Storage Vessels
 - (v) Tanker Truck Load-Out Operations
 - (vi) Fugitive Emissions Components
 - (vii) Natural Gas-Driven Pneumatic Controllers
 - (viii) Natural Gas-Driven Pneumatic Pumps
 - (ix) Enclosed Flares and Other Emission Control Devices
 - (x) Pigging Operations
 - (xi) Wellbore Liquids Unloading Operations
- (b) An Application for Authorization to Use GP-5A may be submitted for the operation of an eligible source if the source is exempted from plan approval requirements under 25 Pa. Code § 127.14.
- (c) If any source located at the facility cannot be regulated under this General Permit, a plan approval and/or an operating permit issued in accordance with 25 Pa. Code, Chapter 127, Subchapter B and/or Subchapter F will be required.

5. Prohibited Use of GP-5A

GP-5A may not be used for the construction, modification, or operation of any of the following air contamination sources:

- (a) A proposed source located at a Title V facility including sources determined to be a single source Title V facility.

- (b) A proposed source that is subject to Title V permitting requirements specified in 25 Pa. Code Chapter 127, Subchapters F and G; prevention of significant deterioration requirements specified in 25 Pa. Code Chapter 127 Subchapter D; or nonattainment new source review requirements specified in 25 Pa. Code Chapter 127 Subchapter E.
- (c) A facility that produces or processes sour gas.
- (d) *Circumvention.*
 - (i) The owner or operator of a facility may not circumvent the new source review requirements of 25 Pa. Code Chapter 127, Subchapter E by causing or allowing a pattern of ownership or development, including the phasing, staging, delaying, or engaging in incremental construction over a geographic area of a facility which, except for the pattern of ownership or development, would otherwise require a permit or submission of a plan approval application.
 - (ii) No person may permit the use of a device, stack height that exceeds good engineering practice, dispersion technique, or other technique that without resulting in reduction of the total amount of air contaminants emitted, conceals or dilutes an emission of air contaminants that would otherwise be in violation of this General Permit, the APCA, or the regulations promulgated thereunder, except for those that are used for the control of malodors with the prior written approval of the Department.

6. Authorization to Use GP-5A

- (a) *Application for Authorization to Use GP-5A.* Pursuant to 25 Pa. Code § 127.621, any person proposing to construct, operate, or modify a source listed in Section A, Condition 4 of this General Permit at an unconventional natural gas well site or remote pigging station shall submit an Application for Authorization to Use GP-5A to the Air Program Manager of the appropriate DEP Regional Office responsible for authorizing the use of general permits in the county in which the facility will be located. This application shall be submitted to DEP either through the ePermitting system, by hand delivery, courier, or sent to DEP by certified mail, return receipt requested, in accordance with 25 Pa. Code § 127.621(b).
- (b) *Terms of Authorization to Use GP-5A.* This General Permit authorizes the construction and/or operation of the specific sources at the specific facility as described in the application for a term of five years from the date of authorization. The authorization to construct a source or facility will expire 18 months from the date of the authorization if the owner or operator fails to commence construction or if there is a lapse in construction of 18 months. The Department may extend the 18-month period upon an owner or operator providing satisfactory justification for an extension up to the original date of the five-year term. All requests for extension shall be submitted to the Department at least 30 days prior to the end of the 18-month period and are only valid upon receipt of written approval by the Department. The expiration of the authorization to construct will require a new Application for Authorization to Use GP-5A if an extension is not requested and granted.
- (c) *Expiration of and Re-Authorization to Use GP-5A.*
 - (i) The authorization granted by the Department to construct and/or operate under this General Permit shall terminate on the date of expiration unless a complete Application for Authorization to Use GP-5A is submitted to the Department at least 30 calendar days prior to the expiration date.
 - (ii) Upon receipt by the Department of a timely, administratively and technically complete application for re-authorization to operate under this General Permit, the owner or operator may continue to operate the facility subject to final action by the Department provided that the sources and the facility are operated in compliance with the terms and conditions of this General Permit. The Authorization to Use GP-5A shall cease if the owner or operator fails to submit any additional information requested by the Department to process the application by the specified deadline.
- (d) *Transfer of Ownership.* The Authorization to Use GP-5A may not be transferred from the owner or operator of a facility except when the change of ownership is demonstrated to the satisfaction of the Department and the Department approves the transfer in writing. Within 30 calendar days after a transfer of ownership of the facility, the new owner or operator shall submit an appropriate form or application to the Air Program Manager of the appropriate Regional Office. If the owner or operator is modifying any existing source or adding a new source at the facility currently authorized by the General Permit, the owner or operator shall submit an Application for Authorization to Use GP-5A in accordance with Condition 6(a) above. If there are equipment or activities located on the same site or on sites that share equipment and are within ¼ mile of each other, the owner or operator shall submit an Application for Authorization to Use GP-5A as a General Plan Approval with a \$1,000 application

fee. If the owner or operator is not modifying any existing source, not adding a new source, or not subject to a new Single Source Determination based on the transfer of ownership, the owner or operator shall submit a Transfer of Ownership form with a \$300 fee. The employer I.D. number (Federal IRS No.) shall be used as a test to determine if a transfer of ownership has occurred.

- (e) *Administrative Amendment.* In the event of a change in the name, address, or telephone number of a person identified in the General Permit Application or a similar minor administrative change at the facility, the Department may authorize an administrative amendment. The owner or operator shall submit a brief description of the change and the date on which the change is to occur in a letter signed by the Responsible Official with the fee specified in Condition 7(e) to the Air Program Manager of the appropriate Regional Office.
- (f) *Modification, Suspension, or Revocation of GP-5A or Authorizations to Use GP-5A.*
 - (i) The Department may modify, suspend, or revoke and reissue this General Permit if it is determined that GP-5A does not comply with the Clean Air Act, the APCA, or regulations adopted under the acts.
 - (ii) This General Permit may be modified, suspended, or revoked if the Department determines that the unconventional natural gas well site operation or remote pigging station cannot be adequately regulated under this General Permit.
 - (iii) An Authorization to Use GP-5A may be suspended or revoked if the Department determines that, at any time, the owner or operator has failed to construct and/or operate the facility in compliance with the terms and conditions of this General Permit, the specifications in the Application for Authorization to Use GP-5A, or the information provided in the supplemental material included with the application used to determine if the proposed sources will comply with the GP-5A.
 - (iv) Upon suspension or revocation of an Authorization to Use GP-5A, the owner or operator shall immediately cease construction and/or operation of the facility. The owner or operator of the facility shall not restart construction and/or operation prior to the receipt of written approval from the Department.

7. General Permit Fees

Each applicant seeking Authorization to Use GP-5A shall submit the applicable fees required under this Condition to the appropriate DEP Regional Office. The following fee schedules apply to this General Permit:

- (a) General Plan Approval Application Fee for Sources Subject to and Review of NSPS, payable upon submission of the application: \$1,700
- (b) General Plan Approval Application Fee with new Single Source Determination, payable upon submission of the application: \$1,000
- (c) General Operating Permit Application Fee, payable upon submission of the application: \$ 375
- (d) Annual Operating Permit Administration Fee, payable by March 1st for the previous calendar year: \$ 375
- (e) Administrative Amendment Fee, payable upon submission of the letter in Condition 6(e): \$ 300
- (f) The Department may increase the applicable fees for this General Plan Approval/General Operating Permit in accordance with the applicable fee schedules in 25 Pa. Code Chapter 127, Subchapter I following notice in the *Pennsylvania Bulletin*.

8. Applicable Laws

- (a) It is the duty of the Responsible Official, as defined in 25 Pa. Code § 121.1, to ensure that the facility is in compliance with all applicable federal, state, and local laws and regulations, including 25 Pa. Code, Subpart C, Article III. Nothing in this General Permit relieves the Responsible Official from this obligation to comply.
- (b) Applicable federal regulations may include, but are not limited to, the following New Source Performance Standards (NSPS), codified at 40 CFR Part 60 and incorporated by reference in 25 Pa. Code § 122.3, and National Emission Standards for Hazardous Air Pollutants (NESHAP), codified at 40 CFR Part 63 and incorporated by reference in 25 Pa. Code § 127.35:
 - (i) **40 CFR Part 60, Subpart JJJJ** – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.

- (ii) **40 CFR Part 60, Subpart OOOO** – Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which Construction, Modification, or Reconstruction Commenced after August 23, 2011, and on or before September 18, 2015.
- (iii) **40 CFR Part 60, Subpart OOOOa** – Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification, or Reconstruction Commenced after September 18, 2015.
- (iv) **40 CFR Part 63, Subpart HH** – National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities.
- (v) **40 CFR Part 63, Subpart ZZZZ** – National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines.

9. Best Available Technology Requirements

New sources are required to control the emission of air pollutants to the maximum extent, consistent with best available technology (BAT) as determined by the Department as of the date of issuance of the plan approval for the new source as required under 25 Pa. Code § 127.1. Condition 1 (BAT Compliance Requirements) of Sections B through L of this General Permit are determined to meet the BAT requirements.

10. Compliance Requirements and Compliance Certification

- (a) The emissions from all sources and associated air pollution control equipment located at an unconventional natural gas well site or remote pigging station and other sources determined by the Department to be a single source shall not equal or exceed either of the following on a 12-month rolling sum basis:
 - (i) Nitrogen Oxides (NO_x) – 100 tons
 - (ii) Carbon Monoxide (CO) – 100 tons
 - (iii) Sulfur Oxides (SO_x) – 100 tons
 - (iv) Particulate Matter with an aerodynamic diameter less than 10 microns (PM₁₀) – 100 tons
 - (v) Particulate Matter with an aerodynamic diameter less than 2.5 microns (PM_{2.5}) – 100 tons
 - (vi) Volatile Organic Compounds (VOC) – 50 tons
 - (vii) Any individual Hazardous Air Pollutant (HAP) – 10 tons
 - (viii) Total Hazardous Air Pollutants (HAP) – 25 tons
 - (ix) In addition, the emissions from all sources and associated air pollution control equipment located at a facility in Bucks, Chester, Delaware, Montgomery, or Philadelphia Counties shall not equal or exceed any of the following on a 12-month rolling sum basis:
 - (A) NO_x – 25 tons
 - (B) VOC – 25 tons
- (b) The facility throughput, hours of operation, and/or emissions from sources at the facility shall be constrained as necessary to not exceed any facility-wide emissions cap required in (a) above.
- (c) All sources and associated air pollution control equipment located at a facility shall be:
 - (i) Operated in such a manner as not to cause air pollution, as that term is defined in 25 Pa. Code § 121.1;
 - (ii) Operated and maintained in accordance with the manufacturer's specifications, procedures, and recommended maintenance schedule, as provided in the Application for Authorization to Use GP-5A, or an alternate procedure approved by the Department that achieves equal or greater emissions reductions in accordance with 25 Pa. Code § 127.12b;
 - (iii) Operated and maintained in accordance with the fugitive emission requirements of 25 Pa. Code § 123.1 and § 123.2; **and**
 - (iv) Operated and maintained in such a manner that malodors are not detectable outside the property of the owner or operator on whose land the facility is being operated in accordance with 25 Pa. Code § 123.31.

- (d) The owner or operator of an existing facility where a new well is drilled, hydraulically fractured, hydraulically refractured or where a new equipment is installed or an existing source is modified shall comply with applicable BAT requirements established in this General Permit.
- (e) This General Permit cannot be used to relax BAT or other emission limitations or requirements previously established through the air quality permitting process.
- (f) An owner or operator of a facility may apply to the Department for a plan approval for any air contamination source in lieu of seeking authorization to use the General Permit for unconventional natural gas well sites or remote pigging stations.
- (g) The owner or operator authorized to use this General Permit shall comply with the specifications in the application and the terms and conditions of this General Permit.
- (h) The owner or operator of the facility shall submit to the Air Program Manager of the appropriate DEP Regional Office an annual certification of compliance with the terms and conditions in the GP-5A for the previous year, including the emission limitations, standards, or work practices. This Compliance Certification Form must be included in the annual report as outlined in Condition 13(c)(vii).

11. Notification Requirements

- (a) *Municipal Notification.* The facility owner or operator proposing to use this General Permit shall notify the local municipality and county where the air pollution source is to be located that they have applied for an Authorization to Use GP-5A. The notification shall clearly describe the proposed sources and/or modifications.
- (b) The owner or operator shall notify the Air Program Manager of the appropriate DEP Regional Office, in writing, at least five business days prior to the commencement of operation of a source of their intent to do so. The owner or operator shall also include the date of completion of construction of the source in the notice. When multiple sources at the facility are subject to different commencement of operation schedules, written notice shall be submitted to DEP prior to the commencement of operation of each source. The owner or operator may submit a single written notice for multiple sources.
- (c) *Malfunctions.*
 - (i) Any malfunction that poses an imminent danger to the public health, safety, or welfare or to the environment shall be reported by telephone to the County Emergency Management Agency and to the 24 hour Emergency Hotline at 1-800-541-2050 no later than one hour after the discovery of an incident. Following the telephone or email notification, a written notice as specified in (iv) below shall be submitted to DEP within three business days.
 - (ii) Any malfunction that does not pose an imminent danger to the public health, safety, or welfare or to the environment shall follow the guidance provided in the [GP-5 and GP-5A Malfunction Reporting Instructions](#) and, if required to report, shall notify the Air Program Manager of the appropriate DEP Regional Office by telephone or email within 24 hours of discovery. Following the telephone or email notification, a written notice as specified in (iv) below shall be submitted to DEP within five business days.
 - (iii) If the owner or operator is unable to provide notification by telephone to the Air Program Manager of the appropriate DEP Regional Office within 24 hours of the discovery of a malfunction due to a weekend or holiday, the notification shall be made to the Department no later than 4:00 pm on the first business day following the weekend or holiday.
 - (iv) Written notification shall include:
 - (A) The name, GP-5A authorization number, and location of the facility;
 - (B) The nature and cause of the malfunction or incident;
 - (C) The date and time when the malfunction, incident, or breakdown was first discovered;
 - (D) The expected duration of increased emissions;
 - (E) The estimated rate of emissions for all criteria, hazardous, and greenhouse gas pollutants; **and**
 - (F) Any changes to the equipment or modification of the procedures that will prevent future reoccurrences of the malfunction.

- (v) The owner or operator shall notify the Air Program Manager of the appropriate DEP Regional Office by telephone or email within 24 hours of when corrective measures have been implemented.
- (vi) Any emissions due to a malfunction are to be reported in the annual emissions inventory report required in Condition 13(d).

12. Recordkeeping Requirements

- (a) All records required must be maintained onsite or at the nearest local field office for a minimum of 5 years and may be maintained in electronic format.
- (b) The owner or operator of the facility shall generate and maintain records that clearly demonstrate to the Department that the facility is not a Title V facility and that the facility is in compliance with facility-wide emission limitations. At a minimum, the records shall be maintained on a monthly basis, and the actual emissions shall be calculated on a 12-month rolling sum. The Department reserves the right to request additional information necessary to determine compliance with the General Permit.
- (c) The owner or operator of the facility shall keep records of all written notifications required under permit conditions.

13. Reporting Requirements

- (a) The owner or operator of an unconventional natural gas well site or remote pigging station shall submit to the Air Program Manager of the appropriate DEP Regional Office all requests, reports, applications, submittals, and other communications concerning applicable federal NSPS and NESHAP.
- (b) In accordance with 40 CFR §§ 60.4 and 63.10, copies of all requests, reports, applications, submittals, and other communications shall also be submitted to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI) accessible at <https://cdx.epa.gov> unless electronic reporting is not available, in which case a copy shall be sent to the following address:

United States Environmental Protection Agency, Region III
Office of Air Enforcement and Compliance Assistance (3AP20)
1650 Arch St.
Philadelphia, PA 19103-2029

- (c) The annual report is required to be submitted either in electronic format, by hand-delivery, courier, or sent by certified mail, return receipt requested, to the Air Program Manager of the appropriate DEP Regional Office. The reporting period specified by the owner/operator shall be no later than one year from the start of operations of the facility, unless otherwise approved by the Department. The initial and subsequent annual reports shall be submitted within 60 days of the end of the reporting periods. General information required on all reports includes:
 - (i) Company Name;
 - (ii) Facility Site Name;
 - (iii) The GP-5A authorization number;
 - (iv) US Well ID(s);
 - (v) Either:
 - (A) The address of the site; or
 - (B) A description of the site and the location using latitude and longitude coordinates of the site in decimal degrees to an accuracy and precision of 5 decimal degrees using the North American Datum of 1983;
 - (vi) The beginning and ending dates of the reporting period;
 - (vii) The Certification Form described in Condition 10(h), which must include:
 - (A) The statement: "Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."; and
 - (B) The signature of the certifying Responsible Official;
 - (viii) Identification of each source included in the report;

- (ix) The identification of each term or condition of the GP-5A that is the basis of the certification, the compliance status, and the methods used for determining the compliance status of the source, currently and over the reporting period as identified in Sections B through L of this General Permit; **and**
- (x) The records of the facility's emissions to demonstrate compliance with Condition 12(b).
- (d) In accordance with 25 Pa. Code § 135.3, the owner or operator of a facility shall submit to the Department via AES*Online or AES*XML at www.depgreenport.state.pa.us/ by March 1st of each year, a facility inventory report for the preceding calendar year for all sources regulated under this General Permit. The inventory report shall include all emissions information for all sources operated during the preceding calendar year from the annual report required in (c) above. Emissions data including, but not limited to, the following shall be reported:
 - (i) NO_x;
 - (ii) CO;
 - (iii) SO_x;
 - (iv) PM₁₀;
 - (v) PM_{2.5};
 - (vi) VOC;
 - (vii) Speciated HAP including, but not limited to, benzene, ethyl benzene, formaldehyde, n-hexane, toluene, isomers and mixtures of xylenes, and 2,2,4-trimethylpentane;
 - (viii) Total HAP;
 - (ix) CO₂;
 - (x) CH₄; **and**
 - (xi) N₂O.

14. Source Testing Requirements

- (a) In addition to the specific performance testing requirements included in this General Permit, the Department may require the owner or operator to conduct a source test if it is determined that the air contaminant emissions from a source operating under this General Permit are, or may be, in excess of an applicable air contaminant emission limitation.
- (b) The Department may alter the frequency of performance test requirements for reauthorization based on available performance data from the source, unless required by federal regulation.
- (c) All testing, with the exception of periodic monitoring, shall be performed in accordance with any applicable federal regulations, 25 Pa. Code, Chapter 139 and the current version of the Department's Source Testing Manual, or an alternative test method as approved by the Department.
- (d) All submittals, with the exception of periodic monitoring data, shall meet the applicable requirements specified in the most current version of the Department's Source Testing Manual.
- (e) One electronic copy **and** one printed copy of all reports, protocols, and test completion notifications, with the exception of periodic monitoring data, shall be submitted either by hand-delivery, courier, or sent by certified mail, return receipt requested, to the Air Program Manager of the appropriate DEP Regional Office **and** to the PSIMS Administrator for the Source Testing Section in DEP's Central Office.
- (f) At least 60 calendar days prior to commencing an emission testing program to demonstrate compliance required by this General Permit, a test protocol shall be submitted in accordance with (e) above for review and approval. An operator may request an approval from the Department for a test protocol that covers testing of all currently operated and future sources in service at that operator's various facilities. In such a request, the Operator will submit the test protocol in accordance with (e) above for review and approval and include a list of currently permitted engines (to be updated as necessary when engines are installed or removed). If the owner or operator has a test protocol, previously approved by the Department, a new test protocol does not need to be submitted for review/approval, provided that there are no changes, including the testing contractor, and the owner/operator agrees to comply with all conditions of acceptance in the letter approving the protocol.

- (g) At least 30 calendar days prior to commencing an emission testing program to demonstrate compliance required by this General Permit, written notification of the date and time of testing shall be provided to the Department's Division of Source Testing and Monitoring and the appropriate DEP Regional Office so that an observer may be present. The Department is under no obligation to accept the results of any testing performed without adequate advance written notice to the Department of such testing.
- (h) Within 15 calendar days after completion of the on-site testing portion of an emission test program to demonstrate compliance required by this General Permit, if a complete test report has not yet been submitted, an electronic notification shall be submitted in accordance with (e) above indicating the completion date of the on-site testing.
- (i) A complete test report shall be submitted in accordance with (e) above no later than 60 calendar days after completion of the on-site testing portion of an emission test program required by this General Permit. The complete test report shall include a summary at the beginning of the report which includes:
 - (i) A statement that the owner or operator has reviewed the report from the emissions testing company and agrees with the findings;
 - (ii) The GP-5A authorization number and conditions that are the basis for the evaluation;
 - (iii) A summary of results with respect to each applicable permit condition; **and**
 - (iv) A statement of compliance or non-compliance with each applicable permit condition.

15. De Minimis Emission Increases

- (a) Additional equipment may be installed, or currently authorized equipment may be modified at the facility without additional authorization provided that the following conditions (i) through (ii) are met. Replacement unit as defined in 25 Pa. Code § 121.1 may be installed without additional authorization provided that the following conditions (ii) through (iii) are met.
 - (i) The owner or operator complies with the requirements of 25 Pa. Code § 127.449(a), (b), and (d) through (i);
 - (ii) The equipment being installed, modified, or replaced meets the current applicable BAT Compliance Requirements;
 - (iii) The owner or operator submits written notification in accordance with Condition 11(b), including the following additional information:
 - (A) The manufacturer, model, rated capacity, and serial number of the equipment;
 - (B) A certification from the owner or operator that the equipment will meet all applicable terms and conditions of this General Permit, including Condition 10(a);
 - (C) The notification shall be signed by a Responsible Official and shall acknowledge that the certifying party is aware of the penalties for unsworn falsification to governmental authorities as established under 18 Pa. C.S. § 4904. The certification shall also state that based on information and belief formed after reasonable inquiry, that the information in the notice is true, accurate, and complete; **and**
 - (D) The notice shall identify and describe the pollutants that will be emitted as a result of the de minimis emissions increase and provide emission rates in tons per year and in terms necessary to establish compliance with any applicable requirement.
- (b) A new Authorization to Use GP-5A shall be required if an owner or operator chooses to employ Selective Catalytic Reduction (SCR) to comply with NO_x emission standards in Section C Condition 1(c).

SECTION B. GLYCOL DEHYDRATION UNITS

1. BAT Compliance Requirements

- (a) For each glycol dehydration unit constructed and authorized to operate under GP-5 approved by the Department prior to February 2, 2013, with a total uncontrolled potential VOC emission rate greater than 10 tpy, the owner or operator shall control VOC emissions from the glycol dehydrator still vent stream by at least 85% with a

condenser, flare, thermal oxidizer, vapor recovery unit, or other air cleaning device approved by the Department that meets the applicable requirements in Section J.

- (b) For each glycol dehydration unit constructed and authorized to operate on or after August 10, 2013, but prior to August 8, 2018, with a VOC emission rate of 2.7 tpy or greater, a single HAP emission rate of 0.5 tpy or greater, or a total HAP emission rate of 1.0 tpy or greater, the owner or operator shall control VOC emissions from the glycol dehydrator still vent stream by at least 95% with a condenser, enclosed flare, thermal oxidizer, vapor recovery unit, or other air cleaning device approved by the Department that meets the applicable requirements in Section J.
- (c) For each glycol dehydrator constructed and authorized to operate on or after August 8, 2018, with a methane emission rate of 200 tpy or greater, a VOC emission rate of 2.7 tpy or greater, an single HAP emission rate of 0.5 tpy or greater, or a total HAP emission rate of 1.0 tpy or greater, the owner or operator shall control methane, VOC, and HAP emissions from the glycol dehydrator still vent stream by at least 95% using an enclosed flare or other combustion device or other air cleaning device approved by the Department that meets the applicable requirements in Section J.
- (d) Associated equipment, such as natural gas-driven pneumatic controllers (Section H), natural gas-driven pneumatic pumps (Section I), and fugitive emissions components (Section G) are subject to the requirements of their respective Sections.
- (e) If any glycol dehydration unit uses triethylene glycol for the dehydration process, has a natural gas throughput greater than 3 MMscf/d, and emits more than 1.0 tpy of benzene, the owner or operator must:
 - (i) Determine the natural gas throughput in accordance with 40 CFR § 63.772(b)(1).
 - (ii) Determine the actual average benzene or benzene, toluene, ethylbenzene and xylene (BTEX) emissions in accordance with 40 CFR § 63.772(b)(2).
 - (iii) If the glycol dehydration unit is located at a facility located within an urbanized area plus offset or urban cluster boundary, the owner or operator shall meet the requirements of 40 CFR § 63.764(d)(1).
 - (iv) If the glycol dehydration unit is located at a facility that is not within an urbanized area plus offset or urban cluster boundary, the owner or operator shall meet the requirements of 40 CFR § 63.764(d)(2).
 - (v) If an alternate circulation rate is required, the determination must be submitted in accordance with 40 CFR § 63.764(d)(2)(ii).

2. Recordkeeping Requirements

For each glycol dehydration unit, the owner or operator shall maintain the following records in accordance with Section A Condition 12, including information on:

- (a) The location of the glycol dehydration unit;
- (b) The calculation for the optimum glycol circulation rate or the alternative glycol circulation rate in accordance with 40 CFR § 63.775(c)(7), if applicable;
- (c) The determination of the actual average benzene or BTEX emissions in accordance with 40 CFR § 63.774(d)(1), if applicable;
- (d) The emissions calculations for each glycol dehydrator in accordance with 25 Pa. Code § 135.5; and
- (e) Records of deviations and malfunctions in accordance with 40 CFR § 63.774(g), if applicable.

3. Reporting Requirements

In the required annual report of Section A Condition 13(c), the information about each glycol dehydration unit operated during the reporting period shall include:

- (a) The records of the optimum or alternative glycol circulation rate in accordance with 40 CFR § 63.775(c)(7), if applicable; and
- (b) The records of any deviations and malfunctions in accordance with 40 CFR § 63.775(c)(6), if applicable.

The emissions from each glycol dehydration unit in operation during the reporting period must be included in the emissions inventory report of Section A Condition 13(d).

SECTION C. STATIONARY NATURAL GAS-FIRED SPARK IGNITION INTERNAL COMBUSTION ENGINES

1. BAT Compliance Requirements

(a) For each natural gas-fired spark ignition internal combustion engine constructed and authorized to operate under GP-5 approved by the Department on or after March 10, 1997 but prior to February 2, 2013, the owner or operator shall:

- (i) Operate or equip the engine with air cleaning devices to meet the following emission levels:
 - (A) NO_x (as NO_2) of 2.0 g/bhp-h while operating at rated bhp and speed;
 - (B) Non-Methane Non-Ethane Hydrocarbon (NMNEHC) as propane, excluding formaldehyde, of 2.0 g/bhp-h while operating at rated bhp and speed; **and**
 - (C) CO of 2.0 g/bhp-h while operating at rated bhp and speed.
- (ii) Ensure that at operating conditions less than rated capacity, the engine shall on a lb/h basis emit no more than it would emit at rated bhp and speed.
- (iii) Ensure the engine meets the applicable requirements of (d) below.

(b) For each natural gas-fired spark ignition internal combustion engine constructed and authorized to operate under GP-5 approved by the Department on or after February 2, 2013, but prior to August 8, 2018, the owner or operator shall:

- (i) Ensure the engine does not exceed the emissions standards specified in the following table:

Engine Type	Rated bhp	NO_x	CO	NMNEHC (as propane) excluding HCHO	HCHO
Lean-Burn	≤ 100	2.0 g/bhp-h	2.0 g/bhp-h	-	-
Lean-Burn	$>100 - \leq 500$	1.0 g/bhp-h	2.0 g/bhp-h	0.70 g/bhp-h	-
Lean-Burn	>500	0.50 g/bhp-h	47 ppmvd @ 15% O_2 or 93% reduction	0.25 g/bhp-h	0.05 g/bhp-h
Rich-Burn	≤ 100	2.0 g/bhp-h	2.0 g/bhp-h	-	-
Rich-Burn	$>100 - \leq 500$	0.25 g/bhp-h	0.30 g/bhp-h	0.20 g/bhp-h	-
Rich-Burn	>500	0.20 g/bhp-h	0.30 g/bhp-h	0.20 g/bhp-h	2.7 ppmvd @ 15% O_2 or 76% reduction

- (ii) Ensure the engine meets the applicable requirements of (d) below.

(c) For each natural gas-fired spark ignition internal combustion engine constructed and authorized to operate on or after August 8, 2018, the owner or operator shall:

(i) Ensure the engine does not exceed the emission standards specified in the following table:

Engine Type	Rated bhp	NO _x	CO	NMNEHC (as propane) excluding HCHO	HCHO
Lean-Burn	<100	1.0 g/bhp-h	2.0 g/bhp-h	0.70 g/bhp-h	-
Lean-Burn	≥100 - ≤500	1.0 g/bhp-h	0.70 g/bhp-h	0.30 g/bhp-h	-
Lean-Burn	>500 - <2,370	0.50 g/bhp-h	0.25 g/bhp-h	0.25 g/bhp-h	0.05 g/bhp-h
Lean-Burn	≥2,370	0.30 g/bhp-h Uncontrolled <u>or</u> 0.05 g/bhp-h with Control	0.25 g/bhp-h	0.25 g/bhp-h	0.05 g/bhp-h
Rich-Burn	<100	1.0 g/bhp-h	2.0 g/bhp-h	0.70 g/bhp-h	
Rich-Burn	≥100 - ≤500	0.25 g/bhp-h	0.30 g/bhp-h	0.20 g/bhp-h	-
Rich-Burn	>500	0.20 g/bhp-h	0.30 g/bhp-h	0.20 g/bhp-h	2.7 ppmvd @ 15% O ₂ <u>or</u> 76% reduction

(ii) Ensure that for engines that control NO_x emissions with a control technology that uses ammonia or urea as a reagent, the exhaust ammonia slip is limited to 10 ppmvd or less corrected to 15% O₂.

(iii) Ensure the engine meets the applicable requirements of (d) below.

(d) The owner or operator of the engine shall also:

(i) Comply with the applicable requirements of 40 CFR Part 63, Subpart ZZZZ for engines constructed (as defined in Subpart ZZZZ) prior to June 12, 2006;

(ii) Ensure the engine meets the visible emissions standards, as determined by the methods described in 25 Pa. Code § 123.43, by not exceeding the following limitations:

(A) Equal to or greater than 10% for a period or periods aggregating more than three minutes in any one hour; **and**

(B) Equal to or greater than 30% at any time

(iii) Install, operate, and maintain a non-resettable hour meter;

(iv) Limit the engine's time spent at idle during startup or shutdown to a period appropriate for the operation of the engine and air pollution control equipment consistent with good air pollution control practices, not to exceed 30 minutes, during which time the emissions standards in (b) through (d) do not apply.

- (v) Conduct performance tests and periodic monitoring for the engine as detailed in Conditions 4 and 5 of this section on the following schedule:

Engine Size hp	Initial Compliance Performance Test	Continuous Compliance Performance Test	Periodic Monitoring
<100	None Required	None Required	Every 2,500 hours of operation
≥100 - ≤500	Within 180 days of startup of the engine	Within 180 days of each reauthorization	Every 2,500 hours of operation
>500 and not subject to (d)(i)	Within 180 days of startup of the engine	Every 8,760 hours of operation <u>or</u> every three years <u>and</u> within 180 days of each reauthorization	Every 2,500 hours of operation
>500 and subject to (d)(i)	Not Applicable	Every year	Every 2,500 hours of operation

- (A) For an engine greater than or equal to 100 hp and less than or equal to 500 hp, if the engine is certified by the manufacturer in accordance with 40 CFR Part 60, Subpart JJJJ and the owner or operator operates and maintains the engine in accordance with the manufacturer's instructions, the performance testing requirements are waived.
- (B) For an engine greater than 500 hp, if the engine is certified by the manufacturer in accordance with 40 CFR Part 60, Subpart JJJJ and the owner or operator operates and maintains the engine in accordance with the manufacturer's instructions, the continuous compliance performance testing requirements every 8,760 hours of operation or every three years are waived.
- (C) The Department may alter the frequency of periodic monitoring based on the test results. The frequency of periodic monitoring may be altered upon request of the owner or operator with written Departmental approval.

2. Recordkeeping Requirements

For each engine, the owner or operator shall maintain the following records in accordance with Section A Condition 12, including information on:

- (a) The GP-5A authorization number and the date each engine was authorized for use;
- (b) The make, model, and serial number of each engine;
- (c) Either a copy of the manufacturer's maintenance instructions or an alternative maintenance plan;
- (d) Records of maintenance conducted on each engine and any installed air pollution control devices;
- (e) A copy of the manufacturer's engine certification or vendor guarantees;
- (f) The results of each periodic monitoring;
- (g) The summary for each complete test report described in Section A Condition 14(i); and
- (h) The emissions calculations for each engine in accordance with 25 Pa. Code § 135.5.

3. Reporting Requirements

The emissions from each natural gas-fired spark ignition internal combustion engine in operation during the reporting period must be included in the emissions inventory report of Section A Condition 13(d).

4. Engine Performance Testing Requirements

- (a) When conducting a performance test for an engine, the owner or operator must submit the test protocol described in Section A Condition 14(f) for review and approval.
- (b) The owner or operator should conduct the following test procedures:
 - (i) Conduct three test runs of at least one-hour duration within 10% of 100% peak (or the highest achievable) load.

- (ii) Select the sampling port location and the number and location of traverse points at the exhaust using 40 CFR Part 60, Appendix A-1, Method 1 or 1A depending on stack diameter, or the sampling points selected according to 40 CFR Part 60, Appendix A-4, Method 7E Section 8.1.2.
- (iii) Determine the effluent characteristics by either:
 - (A) Calculating the exhaust flow in accordance with 40 CFR Part 60, Appendix A-7, Method 19 and measuring the O₂ concentration using 40 CFR Part 60, Appendix A-2, Method 3A; **or**
 - (B) By measuring:
 - (1) The flow velocity, stack temperature, static pressure, and barometric pressure using 40 CFR Part 60, Appendix A-1, Method 2 or 2C depending on stack diameter;
 - (2) The gas density using 40 CFR Part 60, Appendix A-2, Method 3A; **and**
 - (3) The moisture content using 40 CFR Part 60, Appendix A-3, Method 4.
- (iv) Simultaneous to the determination of the O₂ concentration in (iii)(A) or (B) above, determine:
 - (A) The NO_x concentration of the exhaust gas using 40 CFR Part 60, Appendix A-4, Method 7E;
 - (B) The CO concentration of the exhaust gas using 40 CFR Part 60, Appendix A-4, Method 10;
 - (C) The NMNEHC concentration, as propane, excluding formaldehyde of the exhaust gas using ALT-106 **and**
 - (D) The formaldehyde concentration of the exhaust gas, **if applicable**, using 40 CFR Part 63, Appendix A, Method 320.
- (c) If at any time the owner or operator operates the engine in excess of the highest achievable load plus 10%, the owner or operator must perform a stack test within 180 days from the anomalous operation.

5. Engine Periodic Monitoring Requirements

- (a) When conducting periodic monitoring on an engine, the owner or operator may follow the procedures in (b) below. If the owner or operator decides to deviate from those procedures, they must submit a request to use an alternate procedure, in writing, at least 60 days prior to performing the periodic monitoring. In the alternate procedure request, the owner or operator must demonstrate the alternate procedure's equivalence to the standard procedure to the satisfaction of the Division of Source Testing and Monitoring.
- (b) *Standardized Periodic Monitoring Procedure.*
 - (i) Conduct three test runs of at least 20 minutes duration within 10% of 100% peak (or the highest achievable) load.
 - (ii) Determine NO_x and CO emissions and O₂ concentrations in the exhaust with either an electro-chemical cell portable gas analyzer used and maintained in accordance with the manufacturer's specifications and following the procedures specified in the current version of ASTM D6522 or by following the procedures in 4(b) (ii) – (iv) B) of this section.
 - (iii) If the measured NO_x or CO emissions concentrations are in exceedance of the emissions limit, the owner or operator must perform a stack test in accordance with the Performance Testing Requirements of Condition 4 above, within 180 days of the periodic monitoring.
- (c) The 2,500 hours of operation count resets after any performance test performed in accordance with Condition 4 above.
- (d) For engines constructed (as defined in that subpart) and authorized to operate prior to June 12, 2006, that installed a continuous parametric monitoring system (CPMS) to monitor the catalyst inlet temperature, the owner or operator must install, operate, and maintain the CPMS according to 40 CFR § 63.6625(b)(1) through (6).

SECTION D. RECIPROCATING COMPRESSORS

1. BAT Compliance Requirements

The owner or operator of a reciprocating compressor constructed and authorized to operate on or after August 8, 2018, shall either:

- (a) Replace the reciprocating compressor rod packing either:
 - (i) On or before 26,000 hours of operation from the initial startup date or most recent rod packing replacement; or
 - (ii) Prior to 36 months from the initial startup date of the reciprocating compressor or the date of the most recent rod packing replacement; or
- (b) Collect the methane, VOC, and HAP emissions from the rod packing using a collection system that operates under negative pressure and routes the emissions to a process through a closed vent system that meets the applicable requirements of Section J.

2. Recordkeeping Requirements

For each reciprocating compressor, the owner or operator shall maintain records in accordance with Section A Condition 12, including information on:

- (a) The location of the reciprocating compressor;
- (b) The US Well Number the reciprocating compressor is associated with;
- (c) The date and time of the initial startup of the reciprocating compressor;
- (d) The date and time of the most recent rod packing replacement;
- (e) The cumulative number of hours of operation or number of months since the initial startup of the reciprocating compressor or most recent rod packing replacement; and
- (f) The date and time of installation of a rod packing emissions collection system and closed vent system.

In addition, records of the emissions calculation for each reciprocating compressor must be kept in accordance with 25 Pa. Code § 135.5.

3. Reporting Requirements

In the required annual report of Section A Condition 13(c), the information about each reciprocating compressor operated during the reporting period shall include either:

- (a) The records of the cumulative number of hours of operation or number of months since the startup of the reciprocation compressor or most recent rod packing replacement; or
- (b) A statement that emissions from the rod packing are being routed to a process through a closed vent system under negative pressure.

The emissions from each reciprocating compressor in operation during the reporting period must be included in the emissions inventory report of Section A Condition 13(d), including the emissions from scheduled and unscheduled blowdowns.

SECTION E. STORAGE VESSELS

1. BAT Compliance Requirements

- (a) For each storage vessel constructed and authorized to operate on or after August 23, 2011, but prior to August 10, 2013, the owner or operator shall meet the applicable requirements of 40 CFR §§ 60.5365(e) and 60.5395(d) and (e).
- (b) For each storage vessel constructed and authorized to operate on or after August 10, 2013, but prior to August 8, 2018, with a VOC emission rate of 2.7 tpy or greater, a single HAP emission rate of 0.5 tpy or greater, or a total HAP emission rate of 1.0 tpy or greater, the owner or operator shall equip the storage vessel with a cover and route all vapor through a closed vent system to a control device that reduces VOC emissions by 95% or more

by meeting the applicable control, cover, and closed vent system requirements of Section J Condition 1(a) through (f) or any alternative method approved by the Department.

- (c) For each storage vessel constructed and authorized to operate on or after August 8, 2018, with a methane emission rate of 200 tpy or greater, a VOC emission rate of 2.7 tpy or greater, a single HAP emission rate of 0.5 tpy or greater, or a total HAP emission rate of 1.0 tpy or greater, the owner or operator shall equip the storage vessel with a cover and route all vapor through a closed vent system to a control device that reduces methane, VOC, and HAP emissions by 95% or more by meeting the applicable control, cover, and closed vent system requirements of Section J Condition 1(a) through (f) or any alternative method approved by the Department.
- (d) Any storage vessel returned to service must meet the requirements of 40 CFR § 60.5395(f) or § 60.5395a(c).
- (e) Any storage vessel with a capacity greater than or equal to 2,000 gallons and less than or equal to 40,000 gallons must meet the requirements of 25 Pa. Code § 129.57.
- (f) Any storage vessel with a capacity greater than or equal to 40,000 gallons must meet the requirements of 25 Pa. Code § 129.56, **if applicable**.

2. Recordkeeping Requirements

For each storage vessel, the owner or operator shall maintain records in accordance with Section A Condition 12 and 40 CFR § 60.5420(c)(5) or § 60.5420a(c)(5) as applicable.

In addition, the emissions calculation for each storage vessel, which may be calculated using Department-approved methods such as direct measurement; modeling programs such as the most recent version of EPA TANKS, ProMax, and API E&P Tanks; process simulation software such as HYSIM, HYSIS, WINSIM, and PROSIM; or calculation methodologies such as the Vazquez-Beggs equation, must be kept in accordance with 25 Pa. Code § 135.5.

3. Reporting Requirements

In the required annual report of Section A Condition 13(c), the information about each storage vessel in operation during the reporting period shall be submitted in accordance with 40 CFR § 60.5420(b)(6) or § 60.5420a(b)(6) as applicable.

The emissions from each storage vessel operating during the reporting period must be included in the emissions inventory report of Section A Condition 13(d).

SECTION F. TANKER TRUCK LOAD-OUT OPERATIONS

1. BAT Compliance Requirements

- (a) For all truck load-out operations that service a storage vessel with a VOC emission rate of 2.7 tpy or greater, a single HAP emission rate of 0.5 tpy or greater, or a total HAP emission rate of 1.0 tpy or greater, where the loading rack was constructed and authorized to operate on or after August 10, 2013, but prior to August 8, 2018, the owner or operator shall:
 - (i) Use a vapor balancing system when removing liquids from the storage vessel; **and**
 - (ii) Ensure that each tanker truck that is used to remove liquids from the storage vessel has passed one of the following annual leak tests:
 - (A) A tanker truck that does not indicate more than 1" H₂O pressure change within 5 minutes after being pressurized to 18" H₂O and after being depressurized to 6" H₂O vacuum has passed a MACT-level test and is assumed to have a collection efficiency of 99.2%.
 - (B) A tanker truck that does not indicate more than 3" H₂O pressure change within 5 minutes after being pressurized to 18" H₂O and after being depressurized to 6" H₂O vacuum has passed an NSPS-level test and is assumed to have a collection efficiency of 98.7%.
 - (C) A tanker truck that has passed a leak test performed in accordance with 49 CFR § 180.407 is accepted as equivalent to an NSPS-level collection efficiency of 98.7%.
 - (D) A tanker truck that has passed a leak test performed in accordance with 40 CFR Part 60, Appendix A-8, Method 27 is accepted as equivalent to an NSPS-level collection efficiency of 98.7%.
 - (iii) As an alternative, VOC emissions must be controlled with 95% or greater efficiency.

- (b) For all truck load-out operations that service a storage vessel with a total methane emission rate of 200 tpy or greater, a VOC emission rate of 2.7 tpy or greater, a single HAP emission rate of 0.5 tpy or greater, or a total HAP emission rate of 1.0 tpy or greater, where the loading rack was constructed and authorized to operate on or after August 8, 2018, the owner or operator shall:
- (i) Use a vapor balancing system when removing liquids from the storage vessel; **and**
 - (ii) Ensure that each tanker truck that is used to remove liquids from the storage vessel has passed one of the following annual leak tests:
 - (A) A tanker truck that does not indicate more than 1" H₂O pressure change within 5 minutes after being pressurized to 18" H₂O and after being depressurized to 6" H₂O vacuum has passed a MACT-level test and is assumed to have a collection efficiency of 99.2%.
 - (B) A tanker truck that does not indicate more than 3" H₂O pressure change within 5 minutes after being pressurized to 18" H₂O and after being depressurized to 6" H₂O vacuum has passed an NSPS-level test and is assumed to have a collection efficiency of 98.7%.
 - (C) A tanker truck that has passed a leak test performed in accordance with 49 CFR § 180.407 is accepted as equivalent to an NSPS-level collection efficiency of 98.7%.
 - (D) A tanker truck that has passed a leak test performed in accordance with 40 CFR Part 60, Appendix A-8, Method 27 is accepted as equivalent to an NSPS-level collection efficiency of 98.7%.
 - (iii) As an alternative to (i) and (ii), VOC emissions must be controlled with 95% or greater efficiency.

2. Recordkeeping Requirements

For each tanker truck load-out operation, the owner or operator shall maintain the following records in accordance with Section A Condition 12, including information on:

- (a) The identification, location, and date of construction of each vapor recovery load-out system;
- (b) Records of each tanker truck load-out operation including the date and time of the liquids load-out, the type and volume of liquids loaded, and the truck collection efficiency based on the annual leak test; and
- (c) The emissions calculation for each tanker truck load-out operation in accordance with 25 Pa. Code § 135.5.

3. Reporting Requirements

The emissions from tanker truck load-out operations during the reporting period must be included in the emissions inventory report of Section A Condition 13(d).

SECTION G. FUGITIVE EMISSIONS COMPONENTS

1. BAT Compliance Requirements

- (a) No later than 30 days after an emission source commences operation, and at least monthly thereafter, the owner or operator of a facility shall conduct an Auditory, Visual, or Olfactory (AVO) inspection.
- (b) No later than 60 days after the start of production, and quarterly thereafter, the owner or operator shall conduct an LDAR program using either an OGI camera, a gas leak detector that meets the requirements of 40 CFR Part 60, Appendix A-7, Method 21, or other leak detection methods approved by the Division of Source Testing and Monitoring.
 - (i) The owner or operator of a well that is temporarily shut-in is not required to perform LDAR until 60 days after the well is put into production or the next quarterly inspection.
 - (ii) The owner or operator may request, in writing, an extension of the LDAR inspection interval from the Air Program Manager of the appropriate DEP Regional Office.
 - (iii) Any fugitive emissions components that are difficult-to-monitor or unsafe-to-monitor must be identified in the monitoring plan described in Condition 2(a).
 - (iv) The owner or operator may track the number of leaking components in the LDAR records and decrease the LDAR inspection interval from quarterly to semi-annually if the percentage of leaking components is

less than 2.0% for two consecutive quarterly LDAR inspections. If the percentage of leaking components is higher than 2.0% in any inspection, a quarterly LDAR inspection interval must be resumed or maintained.

- (c) The detection devices must be operated and maintained in accordance with manufacturer-recommended procedures, as required by the test method, or a Department-approved method.
- (d) A leak is defined as:
 - (i) Any positive indication, whether audible, visual, or odorous, determined during an AVO inspection;
 - (ii) Any visible emissions detected by an OGI camera calibrated according to 40 CFR § 60.18 and a detection sensitivity level of 60 grams/hour; or
 - (iii) A concentration of 500 ppm calibrated as methane or greater detected by an instrument reading.
- (e) For quarterly inspections using a gas leak detector in accordance with 40 CFR Part 60, Appendix A-7, Method 21, the owner or operator may choose to adjust the detection instrument readings to account for the background organic concentration level as determined according to the procedures in Section 8.3.2.
- (f) Any leak detected from a fugitive emission component shall be repaired by the owner or operator of the facility as expeditiously as practicable. A first attempt at repair must be attempted within 5 calendar days of detection, and repair must be completed no later than 15 calendar days after the leak is detected unless:
 - (i) The owner or operator must purchase parts, in which case the repair must be completed no later than 10 calendar days after the receipt of the purchased parts; or
 - (ii) The repair or replacement is technically infeasible, would require a vent blowdown, a well shutdown or well shut-in, or would be unsafe to repair during operation of the unit, the repair or replacement must be completed during the next scheduled well shutdown, well shut-in, after a planned vent blowdown or within 2 years, whichever is earlier.
- (g) Once a fugitive emission component has been repaired or replaced, the owner or operator must resurvey the component as soon as practicable, but no later than 30 calendar days after the leak is repaired.
 - (i) For repairs that cannot be made during the monitoring survey when the leak is initially found, either a digital photograph must be taken of the component or the component must be tagged for identification purposes.
 - (ii) A leak is considered repaired if:
 - (A) There are no detectable emissions consistent with Section 8.3.2 of 40 CFR Part 60, Appendix A-7, Method 21;
 - (B) A leak concentration of less than 500 ppm as methane is detected when the gas leak detector probe inlet is placed at the surface of the component;
 - (C) There is no visible leak image when using an OGI camera calibrated at a detection sensitivity level of 60 grams/hour; or
 - (D) There is no bubbling at the leak interface using a soap solution bubble test specified in Section 8.3.3 of 40 CFR Part 60, Appendix A-7, Method 21.
- (h) The Department determined that the VOC and methane emissions remaining after the implementation of BAT requirements, including LDAR, are of minor significance with regard to causing air pollution, and will not, on their own, be preventing or interfering with the attainment or maintenance of an ambient air quality standard.

2. Recordkeeping Requirements

For fugitive emissions components, the owner or operator shall maintain the following records in accordance with Section A Condition 12, including information on:

- (a) The fugitive emissions monitoring plan in accordance with 40 CFR § 60.5397a(b) through (d).
- (b) Records of each monitoring survey which must include:
 - (i) The facility name and location;
 - (ii) The GP-5A authorization number;

- (iii) The date, start time, and end time of the survey;
- (iv) The name of the operator(s) performing the survey;
- (v) The monitoring instrument used;
- (vi) The ambient temperature, sky conditions, and maximum wind speed at the time of the survey;
- (vii) Any deviations from the monitoring plan or a statement that there were none; **and**
- (viii) Documentation of each fugitive emission including:
 - (A) The identification of each component from which fugitive emissions were detected;
 - (B) The instrument reading of each fugitive emissions component that meets the leak definition in Condition 1(d)(iii) of this section;
 - (C) The status of repair of each component including:
 - (1) The repair methods applied in each attempt to repair the component;
 - (2) The tagging or digital photographing of each component not repaired during the monitoring survey in which the fugitive emissions were discovered;
 - (3) The reasons a component was placed on delay of repair;
 - (4) The date of successful repair of the component; **and**
 - (5) The information on the instrumentation or method used to resurvey the component after repair, if it was not completed during the monitoring survey in which the fugitive emissions were discovered.

3. Reporting Requirements

In the required annual report of Section A Condition 13(c), the records of each monitoring survey conducted during the reporting period shall be included.

The emissions from fugitive emissions components during the reporting period must be included in the emissions inventory report of Section A Condition 13(d).

SECTION H. NATURAL GAS-DRIVEN PNEUMATIC CONTROLLERS

1. BAT Compliance Requirements

- (a) For pneumatic controllers constructed and authorized to operate on or after August 23, 2011, the owner or operator must meet the applicable requirements of 40 CFR § 60.5390(a) and (c)(1) or 40 CFR § 60.5390a(a) and (c)(1).
- (b) Each controller must be tagged in accordance with 40 CFR § 60.5390(b)(2) and (c)(2) or 40 CFR § 60.5390a(b)(2) and (c)(2) as applicable.

2. Recordkeeping Requirements

For each controller, the owner or operator shall maintain records in accordance with Section A Condition 12 and 40 CFR § 60.5420(c)(4) or § 60.5420a(c)(4) as applicable.

In addition, the emissions calculation for pneumatic controllers must be kept in accordance with 25 Pa. Code § 135.5.

3. Reporting Requirements

In the required annual report of Section A Condition 13(c), the information about each controller during the reporting period shall be done in accordance with 40 CFR § 60.5420(b)(5) or § 60.5420a(b)(5) as applicable.

The emissions from each pneumatic controller in operation during the reporting period must be included in the emissions inventory report of Section A Condition 13(d).

SECTION I. NATURAL GAS-DRIVEN PNEUMATIC PUMPS

1. BAT Compliance Requirements

- (a) For each natural gas-driven pneumatic diaphragm pump constructed and authorized to operate on or after September 18, 2015, but prior to August 8, 2018, the owner and operator shall meet the applicable requirements of 40 CFR § 60.5365a(h)(2) and § 60.5393a(b) and (e).
- (b) For each natural gas-driven pneumatic pump constructed and authorized to operate on or after August 8, 2018, the owner or operator of a pump with:
 - (i) A methane emission rate of less than 200 tpy, a VOC emission rate of less than 2.7 tpy, a single HAP emission rate less than 0.5 tpy, and a total HAP emission rate less than 1.0 tpy, shall meet the applicable requirements of 40 CFR § 60.5365a(h)(1) and § 60.5393a(a) and (e).
 - (ii) A methane emission rate of 200 tpy or greater, a VOC emission rate of 2.7 tpy or greater, a single HAP emission rate of 0.5 tpy or greater, or a total HAP emission rate of 1.0 tpy or greater, shall route all vapor through a closed vent system to a control device that reduces methane, VOC, and HAP emissions by 95% or more by meeting the applicable requirements of Section J.

2. Recordkeeping Requirements

For each natural gas-driven pneumatic diaphragm pump, the owner or operator shall maintain the following records in accordance with Section A Condition 12 and 40 CFR § 5420a(c)(16) as applicable.

- (a) The location, date of installation, and manufacturer's specifications for each natural gas-driven pneumatic diaphragm pump.
- (b) The emissions calculation for each natural gas-driven pneumatic diaphragm pump must be kept in accordance with 25 Pa. Code § 135.5.

3. Reporting Requirements

The emissions from each natural gas-driven pneumatic diaphragm pump in operation during the reporting period must be included in the emissions inventory report of Section A Condition 13(d).

SECTION J. ENCLOSED FLARES AND OTHER EMISSION CONTROL DEVICES

1. BAT Compliance Requirements

- (a) *Enclosed Flares and Other Enclosed Combustion Control Devices.*
 - (i) The owner or operator of an enclosed flare or other enclosed combustion control device shall meet the requirements of 40 CFR § 60.5412(d)(1) and § 60.5415(e) or 40 CFR § 60.5412a(d)(1) and § 60.5415a(e) as applicable. The Department may allow open flares at remote locations and for infrequent operations, provided the flare is installed and operated consistent with 40 CFR § 60.18.
 - (ii) The owner or operator must conduct a performance test in accordance with Condition 4 within 180 days of initial startup of the affected facility unless:
 - (A) The combustion control device is a manufacturer-tested model tested in accordance with 40 CFR § 60.5413(d) or § 60.5413a(d);
 - (B) A performance test conducted on a device of the same make and model in similar service at another facility within the Commonwealth approved by the Department may be used to satisfy this requirement;
 - (iii) The owner or operator must conduct performance tests in accordance with Condition 4 within 180 days of each reauthorization unless:
 - (A) The combustion control device is a manufacturer-tested model tested in accordance with 40 CFR § 60.5413(d) or § 60.5413a(d);
 - (B) A performance test conducted on a device of the same make and model in similar service at another facility within the Commonwealth approved by the Department may be used to satisfy this requirement;

- (C) The Department uses EPA's National Stack Testing Guidance for stack test waivers; or
- (D) The combustion control device established a correlation between the outlet TOC performance level and the firebox or combustion chamber temperature during the initial performance test.
- (iv) The owner or operator of any combustion control device that is a manufacturer-tested model shall meet the requirements of 40 CFR § 60.5413(e) or § 60.5413a(e) as applicable.
- (b) *Vapor Recovery Devices.*
 - (i) The owner or operator of a vapor recovery device shall meet the requirements of 40 CFR § 60.5412(d)(2) and § 60.5415(e) or 40 CFR § 60.5412a(d)(2) and § 60.5415a(e) as applicable.
 - (ii) The owner or operator shall conduct a performance test in accordance with Condition 4 and 40 CFR § 60.5413(b)(5) or § 60.5413a(b)(5) as applicable.
 - (iii) The owner or operator of any vapor recovery device shall conduct a monthly AVO inspection in accordance with 40 CFR § 60.5417(h)(2) or § 60.5417a(h)(2) as applicable.
 - (iv) If the vapor recovery device is a carbon adsorption unit, the owner or operator shall meet the requirements of 40 CFR § 60.5412(c) or § 60.5412a(c) as applicable.
- (c) *External Floating Roof.*
 - (i) An external floating roof shall meet the requirements of 40 CFR § 60.112b(a)(2) and 25 Pa. Code § 129.56(b) as applicable.
 - (ii) Perform a gap measurement test in accordance with 40 CFR § 60.113b for mechanical shoe or liquid-mounted primary seals.
 - (iii) Perform a gap measurement test in accordance with 25 Pa. Code § 129.56(b)(iii) for a vapor-mounted primary seal.
- (d) *Internal Floating Roof.*
 - (i) An internal floating roof shall meet the requirements of 40 CFR § 60.112b(a)(1) and 25 Pa. Code § 129.56(c) as applicable.
 - (ii) Visually inspect the internal floating roof, primary seal, and secondary seal (if equipped) in accordance with 40 CFR § 60.113b(a).
- (e) *Covers.*
 - (i) The cover and all openings on the cover shall meet the requirements of 40 CFR § 60.5411(b) and § 60.5416(a)(3) or 40 CFR § 60.5411a(b) and § 60.5416a(a)(3) as applicable.
 - (ii) The owner or operator shall conduct AVO inspections for defects that could result in air emissions in accordance with Section G Condition 1(a). Defects include, but are not limited to, visible cracks, holes, or gaps in the cover or between the cover and the separator wall; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.
 - (iii) Any defect or leak detected shall be repaired in accordance with Section G Condition 1(f) and (g).
- (f) *Closed Vent Systems.*
 - (i) The owner or operator shall conduct an assessment in accordance with 40 CFR § 60.5411a(d), if applicable.
 - (ii) The owner or operator shall design and operate the closed vent system with no detectable emissions, as determined in accordance with 40 CFR § 60.5411(a) and (c) and § 60.5416(a) through (c) or 40 CFR § 60.5411a(a) and (c) and § 60.5416a(a) through (c) as applicable.
 - (iii) The owner or operator shall conduct AVO inspections for defects that could result in air emissions in accordance with Section G Condition 1(a). Defects include, but are not limited to, visible cracks, holes, or gaps in ductwork; loose connections; liquid leaks; and broken or missing caps or other closure devices.
 - (iv) Any defect or leak detected shall be repaired in accordance with Section G Condition 1(f) and (g).

2. Recordkeeping Requirements

For each control device, the owner or operator shall maintain the following records in accordance with Section A Condition 12, including information on:

- (a) *Enclosed Flares and Other Enclosed Combustion Control Devices.*
 - (i) For non-manufacturer tested models, the owner or operator must maintain records in accordance with 40 CFR § 60.5420(c)(13) and (14) or § 60.5420a(c)(13) and (14) as applicable.
 - (ii) For manufacturer tested models the owner or operator must maintain records in accordance with 40 CFR § 60.5413(d)(12) and (e) or § 60.5413a(d)(12) and (e) as applicable.
 - (iii) The summary for each complete test report described in Section A Condition 14(i) conducted, **if applicable.**
- (b) *Vapor Recovery Devices.*
 - (i) The owner or operator must maintain records in accordance with 40 CFR § 60.5420(c)(12) through (14) or § 60.5420a(c)(12) through (14) as applicable.
 - (ii) The design analysis in accordance with 40 CFR § 60.5413(c) or § 60.5413a(c), as applicable.
 - (iii) The summary for each complete test report described in Section A Condition 14(i) conducted, **if applicable.**
- (c) *External Floating Roof.*
 - (i) The owner or operator must maintain records in accordance with 40 CFR §§ 60.115b and 60.116b as applicable; and
 - (ii) The owner or operator must maintain records in accordance with 25 Pa. Code § 129.56(f)(3) and (g), **if applicable.**
- (d) *Internal Floating Roof.*
 - (i) The owner or operator must maintain records in accordance with 40 CFR §§ 60.115b and 60.116b as applicable; and
 - (ii) The owner or operator must maintain records in accordance with 25 Pa. Code § 129.56(f)(3) and (g), **if applicable.**
- (e) *Covers.*
 - (i) The owner or operator must maintain records in accordance with Section G Condition 2(b).
- (f) *Closed Vent Systems.*
 - (i) The owner or operator must maintain records in accordance with Section G Condition 2(b).
 - (ii) The owner or operator must maintain records in accordance with 40 CFR § 60.5420(c)(8) and (9).
 - (iii) The owner or operator must maintain records of the assessment, including the engineer's certification, in accordance with 40 CFR § 60.5420a(c)(17), **if applicable.**

3. Reporting Requirements

In the required annual report of Section A Condition 13(c), the information about each control device in operation during the reporting period shall be done in accordance with 40 CFR § 60.5420(b) or § 60.5420a(b) as applicable.

4. Control Device Performance Testing Requirements

- (a) When conducting a performance test, the owner or operator must submit the test protocol described in Section A. Condition 14(f) for review and approval. The owner or operator should conduct the following test procedures. Conduct three test runs of at least one-hour duration while operating the control device within 5% of required operating temperature.

- (b) Select the sampling port location and the number and location of traverse points at the exhaust using 40 CFR Part 60, Appendix A-1, Method 1 or 1A depending on stack diameter.
 - (i) If demonstrating compliance with a percent reduction requirement, sampling sites must be located at the inlet of the first control device and the outlet of the final control device; or
 - (ii) If demonstrating compliance with an outlet concentration requirement, the sampling site must be located at the outlet of the control device.
- (c) Determine the effluent characteristics including:
 - (i) The flow velocity, stack temperature, static pressure, and barometric pressure using 40 CFR Part 60, Appendix A-1, Method 2 or 2C depending on stack diameter;
 - (ii) The gas density using 40 CFR Part 60, Appendix A-2, Method 3A; and
 - (iii) The moisture content using 40 CFR Part 60, Appendix A-3, Method 4.
- (d) To demonstrate compliance with (b)(i), use 40 CFR Part 60, Appendix A-7, Method 25A to determine the Total Organic Compounds (TOC) and then convert to dry basis using the moisture content from (c)(iii) above and calculate the inlet and outlet mass rates as propane and the percent reduction.
- (e) To demonstrate compliance with (b)(ii), use 40 CFR Part 60, Appendix A-7, Method 25A to determine the TOC and 40 CFR Part 60, Appendix A-6, Method 18 to determine the methane and ethane concentration, and then correct the TOC concentration, minus methane and ethane, for percent oxygen from (c)(ii) above.

5. Control Device Periodic Monitoring Requirements

The owner or operator that installs a CPMS must install, operate, and maintain the CPMS according to 40 CFR § 60.5415 and § 60.5417 or 40 CFR § 60.5415a and § 60.5417a as applicable.

SECTION K. PIGGING OPERATIONS

1. BAT Compliance Requirements

- (a) The owner or operator that conducts pigging operations shall employ best management practices to minimize the liquids present in the pig receiver chamber and to minimize emissions from the pig receiver chamber including, but not limited to, installing liquids ramps, installing liquids drain, routing high-pressure chambers to a low-pressure line or vessel, using ball valve type chambers, or using multiple pig chambers. The selection of the appropriate best management practices must be documented in the application.
- (b) For pigging operations with a methane emission rate of 200 tpy or greater, or a VOC emission rate of 2.7 tpy or greater, or a single HAP emission rate of 0.5 tpy or greater, or a total HAP emission rate of 1.0 tpy or greater, after employing best management practices, the owner or operator shall control methane, VOC, and HAP emissions from all pigging operations by at least 95% with a condenser, flare, thermal oxidizer, vapor recovery unit, or other air cleaning device, or any alternative method approved by the Department that meets the applicable requirements in Section J.

2. Recordkeeping Requirements

For each pigging operation, the owner or operator shall maintain the following records in accordance with Section A Condition 12, including information on:

- (a) The identification, location, and date of construction of each pig launcher or receiver;
- (b) Records of each pigging operation including the identification of the pig chamber used, the date and time of the pigging operation, and the type and volume of liquids cleared; and
- (c) The emissions calculation for each pig chamber, using the Department's spreadsheet found at <http://files.dep.state.pa.us/> or other equivalent method.

3. Reporting Requirements

The emissions from each pigging operation conducted during the reporting period must be included in the emissions inventory report of Section A Condition 13(d).

SECTION L. WELLBORE LIQUIDS UNLOADING OPERATIONS

1. BAT Compliance Requirements

The owner or operator that conducts wellbore liquids unloading operations shall use best management practices including, but not limited to, plunger lift systems, soaping, swabbing, unless venting is necessary for safety to mitigate emissions during liquids unloading activities. In all cases, where technically feasible and safe, the owner or operator shall direct the gas generated during liquids unloading to a control device, a gas production line or existing separator or storage vessel which is controlled. The selection of the appropriate best management practices must be documented in the application.

2. Recordkeeping Requirements

For each well, the owner or operator shall maintain records of each unloading operation that results in emissions to the atmosphere in accordance with Section A Condition 12 containing the following information:

- (a) The US Well number and location of the well;
- (b) The date and time of each wellbore liquids unloading operation;
- (c) The wellbore liquids unloading technique used during each unloading operation;
- (d) The disposition of the associated gas from each wellbore liquids unloading operation;
- (e) The duration of the wellbore liquids unloading operation; and
- (f) The emissions calculation for each wellbore liquids unloading operation in accordance with 25 Pa. Code § 135.5.

3. Reporting Requirements

The emissions from each wellbore liquids unloading operation conducted during the reporting period must be included in the emissions inventory report of Section A Condition 13(d).

Issued by: _____
Krishnan Ramamurthy
Director
Bureau of Air Quality

Date Issued: _____

Date Effective: _____