



west virginia department of environmental protection

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**GENERAL PERMIT G70-D
ENGINEERING EVALUATION / FACT SHEET**

BACKGROUND INFORMATION

General Permit No.: Class II General Permit G70-D (Prevention and Control of Air Pollution in regard to the Construction, Modification, Relocation, Administrative Update and Operation of Natural Gas Production Facilities Located at the Well Site)

The Secretary may develop and issue Class I and Class II general permits under 45CSR13 authorizing the construction, modification or relocation of a category of sources by the same owner or operator or involving the same or similar processes or pollutants upon the terms and conditions specified in the general permit.

Eligible SIC and NAICS Codes:

NAICS Code	SIC Code	Description
211111	1311	Crude Petroleum and Natural Gas Extraction
213112	1382, 1389	Support Activities for Oil and Gas Operations

Engineer Assigned: Jerry Williams, P.E.
 G70-D Registration Fee Amount: \$500 (Construction, Modification, and Relocation)
 \$300 (Class II Administrative Update)
 \$1,000 NSPS fee for 40 CFR60, Subpart IIII ¹
 \$1,000 NSPS fee for 40 CFR60, Subpart JJJJ ¹
 \$1,000 NSPS fee for 40 CFR60, Subpart OOOO ¹
 \$1,000 NSPS fee for 40 CFR60, Subpart OOOOa ¹
 \$2,500 NESHAP fee for 40 CFR63, Subpart ZZZZ ²
 \$2,500 NESHAP fee for 40 CFR63, Subpart HH ²

¹ Only one NSPS fee will apply.

² Only one NESHAP fee will apply. The Subpart ZZZZ NESHAP fee will be waived for new engines that satisfy requirements by complying with NSPS, Subparts IIII and/or JJJJ. NSPS and NESHAP fees apply to new construction and if the source is being modified.

BACKGROUND INFORMATION

General Permit G70-D is for natural gas production facilities.

Currently, General Permits G70-A, G70-B and G70-C pertain to oil and natural gas production facilities designed and operated for the purpose of oil and natural gas production located at the well site. These general permits will continue to exist, however, there will be no future registrations, modifications, or administrative updates allowed to registrations issued under this permit. If a registrant wishes to modify an existing registration under one of these general permits, it must be done so under General Permit G70-D.

General Permit G70-C was issued on June 1, 2016. The changes to the existing G70-C general permit that are the subject of this permitting action consist of the incorporation by reference of New Source Performance Standards 40CFR60 Subparts OOOO and OOOOa. These rules were published in the Federal Register on June 3, 2016 and became effective on August 2, 2016. No emission increases to the already existing emission limits established in General Permit G70-C are being permitted.

PROCESS DESCRIPTION

General Permit G70-D activities may include:

Natural gas production facility activities are natural gas well completion operations; separation of the condensate, natural gas and water in gas production units; additional separation of the natural gas, condensate, oil and water emulsion in heater treaters; compression of the natural gas; dehydration of the natural gas; storage of the condensate, oil and produced water; and, loading of tanker trucks/rail cars to transport condensate, oil and produced water from the facility.

The permission/approval for Gas and Oil Well Drilling is not part of this general permit and is handled by the WV DEP, Office of Oil and Gas.

General Permit G70-D terms and conditions are the same for all facilities that receive a registration to General Permit G70-D. General Permit G70-D allows registrants to install and operate specified equipment, air pollution control devices and/or emission reduction devices to control emissions of regulated pollutants into the air.

General Permit G70-D establishes an emission cap on the following regulated and hazardous air pollutants:

Pollutant	Maximum Annual Emission Limit (tons/year)
Nitrogen Oxides	50
Carbon Monoxide	80
Volatile Organic Compounds	80
Particulate Matter – 10/2.5	20
Sulfur Dioxide	20
Any Single Hazardous Air Pollutant	8
Total Hazardous Air Pollutants	20

The fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of 45CSR30-2.26.b or for eligibility of this General Permit.

Any changes to the facility after the initial registration approval may be done so in accordance with the following:

The registrant shall notify the Secretary, in writing, no later than fifteen (15) calendar days after the actual startup of any alternative operating scenario or combination of alternative operating scenarios. Alternative operating scenarios are listed below:

- a. Increases in condensate/produced water tank throughputs that result in total facility emissions less than or equal to the pollutant limitations established in sections 1.1.1 and 1.1.2 of this general permit.
- b. Increases in truck loading/rail car loading throughputs or change in truck/rail car certification established in section 14.1.2 that result in total facility emissions less than or equal to the pollutant limitations established in sections 1.1.1 and 1.1.2 of this general permit. Only one (1) truck/rail car loading certification change allowed per calendar year.
- c. Air pollution control device and emission reduction device additions, removals and replacements that result in total facility emissions less than or equal to the pollutant limitations established in sections 1.1.1 and 1.1.2 of this general permit.
- d. Replacement of like kind air emission units.
- e. Addition of air emission units (excluding engines identified in sections 1.1.3.f and 1.1.3.g) that results in total facility emissions less than or equal to the pollutant limitations established in sections 1.1.1 and 1.1.2 of this general permit.
- f. Replacement of engines that result in an emissions increase or decrease less than 45CSR13 permitting thresholds and possess an EPA Certificate of Conformity to show compliance with 40CFR60 Subparts IIII and/or JJJJ.
- g. Replacement of engines that result in an emissions increase or decrease less than 45CSR13 permitting thresholds and are not subject to performance testing requirements under 40CFR60 Subparts IIII and/or JJJJ and/or 40CFR63 Subpart ZZZZ.

- h. Replacement of engines that previously conducted a performance test under 40CFR60 Subparts IIII and/or JJJJ with a smaller engine (less HP) subject to performance testing requirements under 40CFR60 Subparts IIII and/or JJJJ and/or 40CFR63 Subpart ZZZZ.
- i. Removal of low pressure towers/stabilization equipment subject to Section 6.1.4 that result in total facility emissions less than or equal to the pollutant limitations established in sections 1.1.1 and 1.1.2 of this general permit.

Alternative operating scenarios are done at the registrant's own risk.

Furthermore, annually from the date of G70-D registration issuance, the registrant shall prepare and submit a G70-D Annual Notification for the previous year, addressing potential emissions from the facility and an updated Emission Units/ERD/APCD table (if necessary). The registrant shall pay an annual \$1,000 fee to the Director. The fee shall be paid by negotiable instrument made payable to the "DEP-Division of Air Quality".

General Permit G70-D will undergo public notice prior to being issued. The public notice will appear in the *Charleston Gazette*, *Dominion Post* (Morgantown), *Herald Dispatch* (Huntington), *Intelligencer* (Wheeling), *Parkersburg News*, *Exponent/Telegram* (Clarksburg), *Journal* (Martinsburg), *Herald Record* (Doddridge County), *Wetzel Chronicle* (Wetzel County), *Moundsville Daily Echo* (Marshall County), and The State Register consistent with other General Permit public notices.

EMISSION SOURCES AND G70-D GENERAL PERMIT ELIGIBILITY

Emission units at eligible oil and natural gas production facilities located at the well site may include any of the following pieces of equipment:

- Gas and oil well affected facility(ies)
- Storage vessel affected facility(ies)
- Natural gas driven pneumatic controller affected facility(ies)
- Natural gas in-line heater(s)
- Natural gas production unit(s) (GPU)
- Natural gas heater treater(s)
- Low pressure tower(s)
- Tanker truck/rail car loading facility(ies)
- Reciprocating internal combustion engine(s) (RICE) (including emergency)
- Glycol dehydration unit(s) and associated reboiler(s)
- Generator engine(s)
- Flash gas compressor(s)
- Pneumatic pump(s)
- Pneumatic devices
- Fugitive emissions

There may be other small storage tanks located at the site for the storage of freeze protection materials and lubricants. These units shall be listed in the registration application.

Air pollution control and emission reduction devices may include:

- Completion combustion devices
- Enclosed combustion devices including thermal vapor incinerators, catalytic vapor incinerators, boilers, and process heaters
- Flares
- Vapor recovery devices including carbon adsorption systems, condensers, BTEX Eliminators
- Post-combustion catalytic control technologies for reciprocating internal combustion engines: Rich-burn engine with Nonselective Catalytic Reduction (NSCR); Lean-burn engine with Selective Catalytic Reduction (SCR); Lean-burn engine with Catalytic Oxidation
- Vapor Recovery Units (VRU)

For the purposes of General Permit G70-D, an *oil and natural gas production facility* means any permanent combination of equipment (including but not limited to oil and natural gas wells, storage vessels, natural gas-driven pneumatic controllers, in-line heaters, natural gas production units, natural gas heater treaters, low pressure towers, tank truck/rail car loading facilities, glycol dehydration units, natural gas-fired engines, etc.) that is used to transfer crude natural gas from the well head and produce natural gas that will be transported off-site via natural gas pipelines and produce condensate and produced water during the process that is transferred to storage and then transported off-site. *Engine* means any natural gas-fired engine, emergency standby engine or air compressor engine located at a well site.

This does not include permitting for or approval of the natural gas well drilling that is handled by the Office of Oil and Gas.

All natural gas production facilities included in the following NAICS and/or SIC Codes are eligible for General Permit Registration **except** for those instances listed in items a-h below:

NAICS Code	SIC Code	Description
211111	1311	Crude Petroleum and Natural Gas Extraction
213112	1382, 1389	Support Activities for Oil and Gas Operations

- a. Any natural gas production facility which is a major source of pollutants as defined in 45CSR14, 45CSR19 or 45CSR30.
- b. Any natural gas production facility that is located in Putnam County, Kanawha County, Cabell County, Wayne County, or Wood County and is required by 45CSR21 to conduct a Reasonably Available Control Technology (RACT) Analysis and/or subject to 45CSR21 Section 29 (Leaks from Natural Gas/Gasoline Processing Equipment).
- c. Any natural gas processing plant (e.g. production of ethane, propane, butane, and pentane) as defined in 40 CFR §60.5430.
- d. Any natural gas sweetening plant.
- e. Any natural gas production facility with a storage tank subject to NSPS, Subpart Kb.
- f. Any steam generating unit (as defined in §60.41c) subject to NSPS, Subpart Dc (> 10 MMBTU/hr).
- g. Any turbine subject to NSPS, Subpart KKKK.

- h. Any natural gas production facility which will require an individual air quality permit review process (45CSR13 construction/modification permit) to incorporate regulatory requirement(s) other than those established by General Permit G70-D. This would include “synthetic minor” permitting actions, as they are required to undergo Notice Level C under 45CSR13 Section 8.5. “Synthetic minor” permitting actions would include limitations on physical or operational capacity to remain below major stationary source thresholds (including 45CSR14, 45CSR19, 45CSR30 and 45CSR34).

SITE INSPECTION

All persons submitting a G70-D General Permit Registration Application to construct, modify or relocate a natural gas production facility at a well site shall be subject to the following siting criteria:

- No emission unit shall constructed, located or relocated within three hundred (300) feet of any occupied dwelling, business, public building, school, church, community building, institutional building or public park. An owner of an occupied dwelling or business may elect to waive the three hundred (300) foot siting criteria.
- Any person proposing to construct, modify or relocate any emission unit(s) within three (300) feet of any occupied dwelling, business, public building, school, church, community, institutional building or public park may elect to obtain an individual permit pursuant to 45CSR13.

The registrant shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

- At all reasonable times, enter upon the registrant’s premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit.
- Have access to and copy, at reasonable times, any records that must be kept under the conditions of this General Permit.
- Inspect, at reasonable times, any facilities, equipment (including monitoring, air pollution control devices and emission reduction devices), practices, or operations regulated or required under this General Permit.
- Sample or monitor, at reasonable times, substances or parameters to determine compliance with the permit or applicable requirements, or ascertain the amounts and types of air pollutants discharged.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Sources of emissions at eligible natural gas production facilities may include gas and oil well affected facilities, pneumatic controllers, pneumatic pumps, GPUs, heater treaters, RICEs, generators (including emergency), glycol dehydration units, storage tanks, truck/rail car loading facilities, vapor recovery units, vapor combustors, and other specified control or emission reduction devices. Sources of fugitive emissions may include loading operations, haul road emissions, equipment leaks, and blowdown emissions. An estimate of the maximum potential emissions of regulated air pollutants must be submitted with each General Permit G70-D registration application.

Applicants are required to submit emission estimates and supporting calculations for each emission point and for the fugitive emissions at the facility. These emissions will be reviewed by the assigned DAQ permit engineer to determine if the registrant meets the requirements of General Permit G70-D prior to recommending whether or not the general permit registration should be issued. Each General Permit G70-D registration application must include the basis of the emission calculations used to determine the potential emissions (i.e. manufacturer's data, GlyCalc, AP-42, ProMax, E&P Tanks, HYSYS, USEPA Tanks, etc.).

The maximum potential emissions after controls shall not equal or exceed the emission caps established in General Permit G70-D.

CONTROL DEVICES AND EMISSION COLLECTION EFFICIENCIES

Applicants are required to submit all technical data for control devices and emission reduction devices that are used for the supporting calculations for each emissions point and for each type of fugitive emissions at the facility. The following control device and emission collection efficiencies will be allowed under General Permit G70-D and all requirements are detailed in Section 8.0 of General Permit G70-D, including requirements for closed vent systems:

Flares

All flares that meet the control device requirements under 40CFR Subpart 60.18 may claim a destruction efficiency of 98% for VOCs and HAPs. Vapor Combustors and flares that do not meet the requirements under 40CFR Subpart 60.18 but must be non-smoking and may claim a destruction efficiency of 98% for VOCs and HAPs.

Enclosed Combustion Devices

All enclosed combustion control devices meeting the requirements outlined in Section 8.0 of General Permit G70-D may claim a capture and control efficiency of 98% for VOCs and HAPS.

Vapor Recovery Units

- The registrant may claim a capture and control efficiency of 95% (which accounts for 5% expected downtime).
- The registrant may claim a capture and control efficiency of 98% if the VRU has a backup flare that meet the requirements of section 8.1.2 of this general permit.

- The registrant may claim a capture and control efficiency of 98% if the VRU has a backup VRU.

Carbon Adsorption Systems

All carbon adsorption systems meeting the requirements outlined in Section 8.0 of General Permit G70-D may claim a control efficiency of 95% for VOCs and HAPS.

Condensers/BTEX Eliminators

Any condenser that is utilized under Section 8.0 of General Permit G70-D must have supporting data submitted with the registration application to support the claimed control device efficiency above 50%.

Truck/Rail Car Loadout Collection Efficiencies

The following applicable capture efficiencies of a truck/rail car loadout are allowed:

- For tanker truck/rail cars not passing one of the annual leak tests in G70-D – 70%
- For tanker trucks/rail cars passing the NSPS level annual leak test – 98.7%
- For tanker trucks/rail cars passing the MACT level annual leak test – 99.2%

Compliance with this requirement shall be demonstrated by keeping records of the applicable MACT or NSPS Annual Leak Test certification for every truck/rail car loaded. This requirement can be satisfied if the trucking/rail car company provided certification that its entire fleet was compliant. This certification must be submitted in writing to the Director of the DAQ.

SOURCE AGGREGATION DETERMINATION

Applicants for the General Permit G70-D registration will be required to complete the Single Source Determination form which is part of the General Permit G70-D application. This completed form will allow the DAQ to make a determination as to whether or not the facility is a single source.

“Building, structure, facility, or installation” is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

The Source Determination Rule for the oil and gas industry was published in the Federal Register on June 3, 2016 and became effective on August 2, 2016. EPA defined the term “adjacent” and stated that equipment and activities in the oil and gas sector that are under common control will be considered part of the same source if they are located on the same site or on sites that share equipment and are within ¼ mile of each other.

REGULATORY APPLICABILITY

The following state and federal regulations may apply to sources requesting registration under General Permit G70-D:

State Regulations:

45CSR2 (To Prevent and Control Particulate Air Pollution From Combustion of Fuel in Indirect Heat Exchangers)

45CSR2 establishes emission limitations for smoke and particulate matter that are discharged from fuel burning units. Sources subject to 45CSR2 include GPUs, in-line heaters, heater treaters, and glycol dehydration reboilers.

Registered fuel burning units may be subject to the weight emission standard for particulate matter set forth in 45CSR2-4.1. The particulate matter emission standard set forth in 45CSR2 is generally less stringent than the potential emissions from the fuel burning unit utilizing natural gas; therefore, only the potential emissions from the fuel burning unit will be included in the general permit registration.

Each registrant is subject to the opacity requirements set forth in 45CSR2, Section 3.1. The G70-D general permit includes the opacity limit along with the monitoring, recordkeeping, and reporting requirements in Section 9.0.

45CSR4 (To Prevent and Control the Discharge of Air Pollutants into the Open Air which Causes or Contributes to an Objectionable Odor or Odors)

45CSR4 states that an objectionable odor is an odor that is deemed objectionable when in the opinion of a duly authorized representative of the Air Pollution Control Commission (Division of Air Quality), based upon their investigations and complaints, such odor is objectionable. All facilities are inspected by the DAQ Compliance and Enforcement (C/E) Section. The facility wide requirements of the general permit include the odor standards of 45CSR §4-3.1.

45CSR6 (To Prevent and Control Air Pollution from the Combustion of Refuse)

45CSR6 prohibits open burning, establishes emission limitations for particulate matter, and establishes opacity requirements. Sources subject to 45CSR6 include completion combustion devices, enclosed combustion devices, and flares.

The facility-wide requirements of the general permit include the open burning limitations §§45-6-3.1 and 3.2.

All completion combustion devices, enclosed combustion devices, and flares are subject to the particulate matter weight emission standard set forth in §45-6-4.1; the opacity requirements in §§45-6-4-3 and 4-4; the visible emission standard in §45-6-4.5; the odor standard in §45-6-4.6; and, the testing standard in §§45-6-7.1 and 7.2.

Enclosed combustion control devices and flares that are used to comply with emission standards of NSPS, Subparts OOOO and OOOOa are subject to design, operational, performance, recordkeeping and reporting requirements of the NSPS regulation that meet or exceed the requirements of 45CSR6.

45CSR10 (To Prevent and Control Air Pollution from the Emission of Sulfur Oxides)

45CSR10 establishes emission limitations for SO₂ emissions which are discharged from stacks of fuel burning units. A “fuel burning unit” means and includes any furnace, boiler apparatus, device, mechanism, stack or structure used in the process of burning fuel or other combustible material for the primary purpose of producing heat or power by indirect heat transfer. Sources that meet the definition of “Fuel Burning Units” per 45CSR10-2.8 include GPUs, in-line heaters, heater treaters, and glycol dehydration unit reboilers.

Fuel burning units less than 10 MMBtu/hr are exempt. The sulfur dioxide emission standard set forth in 45CSR10 is generally less stringent than the potential emissions from a fuel burning unit for natural gas. The SO₂ emissions from fuel burning units will be listed in the G70-D permit registration at the discretion of the permit engineer on a case-by-case basis. Issues such as non-attainment designation, fuel use, and amount of sulfur dioxide emissions will be factors used in this determination.

Fuel burning units burning natural gas are exempt from Section 8 (Monitoring, Recording and Reporting) as well as interpretive rule 10A. The G70-D eligibility requirements exclude from eligibility any fuel burning unit that does not use natural gas as the fuel; therefore, there are no permit conditions for 45CSR10.

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

As provided in 45CSR13 §5.12, the Secretary may develop and issue Class I and Class II general permits under this rule authorizing the construction, modification, relocation, and operation of a category of sources by the same owner or operator or involving the same or similar processes or pollutants upon the terms and conditions specified in the general permit. The designation of Class I or Class II for a general permit is made at the time the permit goes through public comment and adoption for the source category governed by the general permit. The designation for General Permit G70-D is Class II.

The scope of General Permit G70-D is for minor stationary sources that are not subject to 45CSR14, 45CSR19, or 45CSR30. The general conditions of Section 2.0 and the facility-wide requirements of Section 3.0 of General Permit G70-D include the authority and other general provisions of 45CSR13.

The G70-D Class II General Permit will undergo public notice in accordance with the Notice Level B provisions of subsection 8.4 and in accordance with 45CSR13 §8.9.

At the time that an application for a Class II general permit registration is submitted by the applicant, the applicant shall place a Class I legal advertisement in a newspaper of general

circulation in the area where the source is or will be located. No such general permit registration shall be issued to any applicant until at least thirty (30) days notice has been provided to the public in accordance with the requirements of 45CSR13 §8.3 for Notice Level A.

Class II general permit registrations are subject to a \$500 application fee and any applicable additional fees under the provisions of subdivision 3.4.b of 45CSR22 in accordance with 45CSR13 §12.1. The possible additional fees are a \$1,000 NSPS fee for applicants subject to NSPS requirements and a \$2,500 NESHAP fee for applicants subject to NESHAP requirements.

For eligible registrants, General Permit G70-D Registration satisfies the construction, modification, relocation and operating permit requirements of 45CSR13. General Permit G70-D sets forth reasonable conditions that enable eligible registrants to establish enforceable permit limits.

Section 5 of 45CSR13 provides the permit application and reporting requirements for construction of and modifications to stationary sources. No person shall cause, suffer, allow or permit the construction, modification, relocation and operation of any stationary source to be commenced without notifying the Secretary of such intent and obtaining a permit to construct, modify, relocate and operate the stationary source as required in the rule or any other applicable rule promulgated by the Secretary.

Stationary source means, for the purpose of this rule, any building, structure, facility, installation, or emission unit or combination thereof, excluding any emission unit which meets or falls below the criteria delineated in Table 45-13B which: (a) is subject to any substantive requirement of an emission control rule promulgated by the Secretary; (b) discharges or has the potential to discharge more than six (6) pounds per hour and ten (10) tons per year, or has the potential to discharge more than 144 pounds per calendar day of any regulated air pollutant; (c) discharges or has the potential to discharge more than two (2) pounds per hour or five (5) tons per year of hazardous air pollutants considered on an aggregated basis; (d) discharges or has the potential to discharge any air pollutant(s) listed in Table 45-13A in the amounts shown in Table 45-13A or greater; or, (e) an owner or operator voluntarily chooses to be subject to a construction or modification permit pursuant to this rule, even though not otherwise required to do so.

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to all registrants that are subject to any of the NSPS requirements described in more detail in the Federal Regulations section. Applicable requirements of NSPS, Subparts III, JJJJ, OOOO and OOOOa are included in General Permit G70-D. Excluded from General Permit G70-D eligibility are any sources that are subject to NSPS, Subparts Dc, Kb, KKK, LLL, or KKKK.

45CSR22 (Air Quality Management Fee Program)

45CSR22 is the program to collect fees for certificates to operate and for permits to construct or modify sources of air pollution. 45CSR22 applies to all registrants. The general permit application fee of \$500 is required in 45CSR13 Section 12.1. In addition to the application fee, all applicants subject to NSPS requirements or NESHAP requirements shall pay additional fees of \$1,000 and \$2,500, respectively.

Registrants are also required to obtain and have in effect a valid certificate to operate in accordance with 45CSR22 §4.1. The fee group for General Permit G70-D is Group 9M (all other sources) with an annual operating fee of \$200.

45CSR34 (Emission Standards for Hazardous Air Pollutants)

45CSR34 applies to any registrant that is subject to the area source requirements of 40 CFR 63, Subpart ZZZZ or Subpart HH, described in more detail in the Federal Regulations section. WVDAQ does have delegation of the area source requirements of these subparts. 45CSR34 applies to all registrants that are subject to any of the NESHAP requirements.

Applicable area source requirements of NESHAP, Subpart HH and ZZZZ are included in General Permit G70-D.

Excluded from General Permit G70-D eligibility are any sources that are subject to NESHAP Subpart HHH.

Federal Regulations:

40CFR60 Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines)

Subpart IIII sets forth non-methane hydrocarbon (NMHC), hydrocarbon (HC), nitrogen oxides (NO_x), carbon monoxide (CO), and particulate matter (PM) emission limits, fuel requirements, installation requirements, and monitoring requirements based on the year of installation of the subject internal combustion engine. The provisions for stationary compression ignition (CI) internal combustion engines for owners or operators of this Subpart have been included in General Permit G70-D, Section 13.

40CFR60 Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines)

Subpart JJJJ sets forth nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compound (VOC) emission limits, fuel requirements, installation requirements, and monitoring requirements based on the year of installation of the subject internal combustion engine. The provisions for stationary spark ignition (SI) internal combustion engines for owners or operators of this subpart have been included in General Permit G70-D, Section 13.

40CFR60, 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)

EPA published its New Source Performance Standards (NSPS) for the oil and gas sector on August 16, 2012. EPA published amendments to the Subpart on September 23, 2013 and June 3, 2016.

40CFR60 Subpart OOOO establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from affected facilities that commence construction, modification or reconstruction after August 23, 2011. The affected sources which commence construction, modification or reconstruction after August 23, 2011 are subject to the applicable provisions of this Subpart as described below:

- a. Each gas well affected facility.

Gas well affected facilities are included in General Permit G70-D in Section 5.0.

- b. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.
- c. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.
- d. For the natural gas production segment (between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not including natural gas processing plants), each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh.

Pneumatic controllers affected facilities are included in General Permit G70-D, Section 10.0.

- e. Each storage vessel affected facility, which is a single storage vessel located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment, and has the potential for VOC emissions equal to or greater than 6 tpy as determined according to this section by October 15, 2013 for Group 1 storage vessels and by April 15, 2014, or 30 days after startup (whichever is later) for Group 2 storage vessels. A storage vessel affected facility that subsequently has its potential for VOC emissions decrease to less than 6 tpy shall remain an affected facility under this subpart.

A storage vessel with a capacity greater than 100,000 gallons used to recycle water that has been passed through two stage separation is not a storage vessel affected facility.

Requirements for storage vessel affected facilities are included in General Permit G70-D, Section 7.0. Determination of storage vessel affected facility status is included in Section 6.0 of General Permit G70-D.

- f. Processing units and sweetening units are outside the scope of General Permit G70-D and are excluded from applicability for the general permit.

40CFR60, Subpart OOOOa (Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced after September 18, 2015)

EPA published its New Source Performance Standards (NSPS) for the oil and gas sector on August 16, 2012. EPA published amendments to the Subpart on September 23, 2013 and June 3, 2016.

40CFR60 Subpart OOOOa establishes emission standards and compliance schedules for the control of the pollutant greenhouse gases (GHG). The greenhouse gas standard in this subpart is in the form of a limitation on emissions of methane from affected facilities in the crude oil and natural gas source category that commence construction, modification or reconstruction after September 18, 2015. This subpart also establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from affected facilities that commence construction, modification or reconstruction after September 18, 2015. The effective date of this rule is August 2, 2016.

The affected sources which commence construction, modification or reconstruction after September 18, 2015 are subject to the applicable provisions of this Subpart as described below:

For each well site, the registrant must reduce GHG (in the form of a limitation on emissions of methane) and VOC emissions by complying with fugitive emissions monitoring as required in §60.5397a and the alternative means of emission limitations in §60.5398a.

- a. Each well affected facility.

Well affected facilities are included in General Permit G70-D in Section 5.0.

- b. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.
- c. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.
- d. Each pneumatic controller affected facility not located at a natural gas processing plant, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh.

Pneumatic controllers affected facilities are included in General Permit G70-D, Section 10.0.

- e. Each storage vessel affected facility, which is a single storage vessel with the potential for VOC emissions equal to or greater than 6 tpy as determined according to this section. The potential for VOC emissions must be calculated using a generally accepted model or

calculation methodology, based on the maximum average daily throughput for a 30-day period of production prior to the applicable emission determination deadline specified in this subsection. The determination may take into account requirements under a legally and practically enforceable limit in an operating permit or other requirement established under a federal or state authority.

A storage vessel with a capacity greater than 100,000 gallons used to recycle water that has been passed through two stage separation is not a storage vessel affected facility.

Requirements for storage vessel affected facilities are included in General Permit G70-D, Section 7.0. Determination of storage vessel affected facility status is included in Section 6.0 of General Permit G70-D.

- f. Processing units and sweetening units are outside the scope of General Permit G70-D and are excluded from applicability for the general permit.
- g. Each pneumatic pump affected facility at well sites, which is a single natural gas-driven diaphragm pump. A single natural gas-driven diaphragm pump that is in operation less than 90 days per calendar year is not an affected facility provided the owner/operator keeps records of the days of operation each calendar year and submits records appropriately.

Pneumatic pump affected facilities are included in General Permit G70-D, Section 11.0.

- h. The collection of fugitive emission components at a well site is an affected facility. The rule requires leak monitoring twice a year at gas and oil well sites. In addition to optical gas imaging (OGI), the rule allows owners/operators to use Method 21 with a repair threshold of 500 ppm as an alternative for finding and repairing leaks. Method 21 is an EPA method for determining VOC emissions from process equipment. The method utilizes a portable VOC monitoring instrument.

Fugitive emissions GHG and VOC standards are included in General Permit G70-D, Section 12.0.

40CFR63 Subpart HH (National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities)

This Subpart applies to owners and operators of each triethylene glycol (TEG) dehydration unit that is located at oil and natural gas production facilities. Only area source requirements are included in General Permit G70-D, as defined in §63.761.

For area source applicability, the affected source includes each triethylene glycol (TEG) dehydration unit located at a facility that meets the criteria specified in §63.760(a).

Glycol dehydration unit affected facilities are included in General Permit G70-D, Section 15.0.

40CFR63 Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines)

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAPs) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This Subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations. This section reflects EPA's final amendments to 40 CFR Part 63, Subpart ZZZZ that were issued on January 15, 2013 and published in the Federal Register on January 30, 2013.

WVDEP DAQ has delegation of the area source air toxics provisions of this Subpart requiring Generally Achievable Control Technology (GACT). The provisions of this Subpart have been included in General Permit G70-D, Section 13.0.

REGULATORY NON-APPLICABILITY

The following state and federal regulations were reviewed but do not apply to General Permit G70-D:

45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources for the Prevention of Significant Deterioration of Air Quality)

The G70-D applicability criterion excludes facilities that meet the definition of a major source as defined in 45CSR14 from being eligible for the general permit.

45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment)

The G70-D applicability criterion excludes facilities that meet the definition of a major source as defined in 45CSR19 from being eligible for the general permit.

45CSR21 (Regulation to Prevent and Control Air Pollution from the Emissions of Volatile Organic Compounds)

It is the intent of the Director that all persons engaged in the manufacture, mixing, storage, use, or application of volatile organic compounds control the emissions of volatile organic compounds through the application of reasonable available control technology (RACT). This regulation applies to sources located in Putnam County, Kanawha County, Cabell County, Wayne County, and Wood County.

Section 40 (Other Facilities that Emit Volatile Organic Compound (VOC) applies to any facility that has aggregate maximum theoretical emissions of 100 tons or more of VOCs per calendar year in the absence of control devices. Any source at a facility subject to Section 40 that has maximum theoretical emissions of 6 pounds per hour or more must comply with a control plan developed on a case-by-case basis that meets the definition of RACT.

Any natural gas production facility at a well site that is located in Putnam County, Kanawha County, Cabell County, Wayne County, or Wood County and is required by 45CSR21, Section 40 to conduct a RACT Analysis and/or subject to 45CSR21 Section 29 (Leaks from Natural Gas/Gasoline Processing Equipment) is excluded from General Permit G70-D applicability; therefore, this rule does not apply.

45CSR30 (Requirements for Operating Permits)

The G70-D applicability criterion excludes facilities that meet the definition of a major source from being eligible for the general permit.

Certain spark ignition internal combustion engines may be subject to NSPS Subpart IIII or JJJJ; however, NSPS Subparts IIII or JJJJ are exempt from Title V permitting for minor sources.

Affected facilities that commence construction, modification or reconstruction after August 23, 2011 are subject to NSPS, Subparts OOOO or OOOOa; however, NSPS, Subparts OOOO and OOOOa are exempt from Title V permitting for minor sources.

Certain spark ignition and compression ignition internal combustion engines may be subject to 40 CFR 63, Subpart ZZZZ as area sources; however, area sources subject to 40 CFR 63, Subpart ZZZZ are exempt from Title V permitting.

Certain area source TEG dehydration units may be subject to 40 CFR 63, Subpart HH; however, area sources subject to 40 CFR 63, Subpart HH are exempt from Title V permitting.

40CFR60.18 (General control device and work practice requirements)

The requirements apply only to flares that are required for compliance to an NSPS Standard and under Section 8.0 of General Permit G70-D. Completion combustion devices and enclosed combustion devices used for compliance to NSPS, Subparts OOOO and OOOOa do not meet the definition of a flare, as it is defined in that subpart. Therefore, this rule does not apply to General Permit G70-D unless the applicant states in their general permit application that they are meeting the requirements of §60.18 for flares.

40CFR60, Subpart Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units)

Subpart Dc applies to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr.

Any steam generating unit facility (as defined in §60.41c) is excluded from eligibility to General Permit G70-D. *Steam generating unit* means a device that combusts any fuel and produces steam or heats water or heats any heat transfer medium. This term includes any duct burner that combusts fuel and is part of a combined cycle system. This term does not include process heaters, as defined in this subpart. *Process heater* means a device that is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst.

40CFR60, Subpart Kb (Standards of Performance for VOC Liquid Storage Vessels for which construction, reconstruction, or modification commenced after July 23, 1984)

Subpart Kb establishes control requirements, testing requirements, monitoring requirements, and recordkeeping and reporting requirements.

Subpart Kb applies to any storage vessel with a capacity greater than 19,313 gallons that is used to store volatile organic liquids except that it does not apply to storage vessels with a capacity greater than 39,890 gallons storing a liquid with a maximum true vapor pressure less than 3.5 kPa or with a capacity greater than 19,813 gallons but less than 39,890 gallons storing a liquid with a maximum true vapor pressure less than 15.0 kPa.

This Subpart does not apply to vessels with a design capacity less than or equal to 419,204 gallons used for petroleum or condensate stored, processed, or treated prior to custody transfer. *Condensate* means hydrocarbon liquid separated from natural gas that condenses due to changes in the temperature or pressure, or both, and remains liquid at standard conditions.

Any natural gas production facility at a well site that is subject to NSPS, Subpart Kb is excluded from eligibility to General Permit G70-D.

40CFR60 Subpart KKK (Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants for which construction, reconstruction, or modification commenced after January 20, 1984 and on or before August 23, 2011)

Natural Gas Processing Plants are excluded from General Permit G70-D applicability. Natural gas processing plants were excluded to focus the scope of General Permit G70-D on activities typically conducted at natural gas production facilities.

40CFR60, Subpart LLL (Standards of Performance for SO₂ Emissions From Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011)

Natural Gas Sweetening Units are excluded from General Permit G70-D applicability. Natural gas processing plants and sweetening units were excluded from General Permit G70-D.

40CFR60, Subpart KKKK (Standards of Performance for Stationary Combustion Turbines)

40CFR60 Subpart KKKK does not apply because stationary combustion turbines with a heat input at peak load equal to or greater than 10 MMBTU/hr, based on the higher heating value of the fuel (§60.4305) are not covered by this General Permit. This rule, therefore, does not apply to General Permit G70-D.

40CFR63 Subpart HHH (National Emission Standards for Hazardous Air Pollutants: Natural Gas Transmission and Storage)

This subpart applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company), and that are major sources of hazardous air pollutants (HAP) emissions as defined in §63.1271. General Permit G70-D excludes major sources from registration. Therefore, this rule does not apply to General Permit G70-D.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Small amounts of non-criteria regulated hazardous air pollutants such as benzene, toluene, and formaldehyde may be emitted when natural gas is combusted in reciprocating engines, combusted in the fuel burning units, or combusted in one of the combustion type air pollution control devices.

All natural gas production facilities at a well site that are issued a General Permit G70-D registration by the Director will be limited to those that are classified as minor sources of hazardous air pollutants. Minor sources of hazardous air pollutants are defined as those that have a potential to emit of less than 10 tons per year of any hazardous air pollutant or less than 25 tons per year of any combination of hazardous air pollutants.

Listed below is information regarding each of the possible hazardous air pollutants.

BTEX

BTEX is the term used for benzene, toluene, ethylbenzene, and xylene. Each of these possible hazardous air pollutants are identified in this section.

Benzene

Benzene is found in the air from emissions from burning coal and oil, gasoline service stations, and motor vehicle exhaust. Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidence of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. EPA has classified benzene as a Group A, human carcinogen.

Toluene

The acute toxicity of toluene is low. Toluene may cause eye, skin, and respiratory tract irritation. Short-term exposure to high concentrations of toluene (e.g., 600 ppm) may produce fatigue, dizziness, headaches, loss of coordination, nausea, and stupor; 10,000 ppm may cause death from respiratory failure. Ingestion of toluene may cause nausea and vomiting and central nervous system depression. Contact of liquid toluene with the eyes causes temporary irritation. Toluene

is a skin irritant and may cause redness and pain when trapped beneath clothing or shoes; prolonged or repeated contact with toluene may result in dry and cracked skin. Because of its odor and irritant effects, toluene is regarded as having good warning properties. The chronic effects of exposure to toluene are much less severe than those of benzene. No carcinogenic effects were reported in animal studies. Equivocal results were obtained in studies to determine developmental effects in animals. Toluene was not observed to be mutagenic in standard studies.

Ethylbenzene

Ethyl benzene is mainly used in the manufacturing of styrene. Acute (short-term) exposure to ethyl benzene in humans results in respiratory effects, such as throat irritation and chest constriction, irritation of the eyes, and neurological effects, such as dizziness. Chronic (long-term) exposure to ethyl benzene by inhalation in humans has shown conflicting results regarding its effects on the blood. Animal studies have reported effects on the blood, liver, and kidneys from chronic inhalation exposure to ethyl benzene. Limited information is available on the carcinogenic effects of ethyl benzene in humans. In a study by the National Toxicology Program (NTP), exposure to ethyl benzene by inhalation resulted in an increased incidence of kidney and testicular tumors in rats, and lung and liver tumors in mice. EPA has classified ethyl benzene as a Group D, not classifiable as to human carcinogenicity.

Xylenes

Commercial or mixed xylene usually contains about 40-65% m-xylene and up to 20% each of o-xylene and p-xylene and ethyl benzene. Xylenes are released into the atmosphere as fugitive emissions from industrial sources, from auto exhaust, and through volatilization from their use as solvents. Acute (short-term) inhalation exposure to mixed xylenes in humans results in irritation of the eyes, nose, and throat, gastrointestinal effects, eye irritation, and neurological effects. Chronic (long-term) inhalation exposure of humans to mixed xylenes results primarily in central nervous system (CNS) effects, such as headache, dizziness, fatigue, tremors, and incoordination; respiratory, cardiovascular, and kidney effects have also been reported. EPA has classified mixed xylenes as a Group D, not classifiable as to human carcinogenicity. Mixed xylenes are used in the production of ethylbenzene, as solvents in products such as paints and coatings, and are blended into gasoline.

Formaldehyde

Formaldehyde is used mainly to produce resins used in particle board products and as an intermediate in the synthesis of other chemicals. Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute (short-term) and chronic (long-term) inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. EPA considers formaldehyde a probable human carcinogen (Group B1).

n-Hexane

n-Hexane is a solvent that has many uses in the chemical and food industries, either in pure form or as a component of commercial hexane. The latter is a mixture that contains approximately 52% n-hexane; the balance is made up of structural analogs and related chemicals such as methylpentane and methylcyclopentane. Highly purified n-hexane is used as a reagent for chemical or chromatographic separations. Other grades of n-hexane are used as solvents for

extracting edible fats and oils in the food industry and as a cleaning agent in the textile, furniture, and printing manufacturing industries. Hexane is the solvent base for many commercial products, such as glues, cements, paint thinners, and degreasers. n-Hexane is a minor constituent of crude oil and natural gas and occurs in different petroleum distillates. No data are available regarding the potential toxicity of n-hexane in humans orally exposed to n-hexane. However, as might be expected for a chemical with such wide application, the potential exists for persons to be environmentally and/or occupationally exposed to n-hexane via other routes of exposure.

2,2,4-Trimethylpentane

2,2,4-Trimethylpentane is released to the environment through the manufacture, use, and disposal of products associated with the petroleum and gasoline industry. During an accident, 2,2,4-trimethylpentane penetrated the skin of a human which caused necrosis of the skin and tissue in the hand and required surgery. No other information is available on the acute (short-term) effects in humans. Irritation of the lungs, edema, and hemorrhage have been reported in rodents acutely exposed by inhalation and injection. No information is available on the chronic (long-term), reproductive, developmental, or carcinogenic effects of 2,2,4-trimethylpentane in humans. Kidney and liver effects have been observed in rats chronically exposed via gavage (experimentally placing the chemical in the stomach) and inhalation. EPA has not classified 2,2,4-trimethylpentane with respect to potential carcinogenicity.

AIR QUALITY IMPACT ANALYSIS

Air dispersion modeling may be performed when the Director finds existing circumstances and/or submitted data provide cause for an assessment to be made concerning whether a specific natural gas well production facility at a well site may interfere with attainment or maintenance of an applicable ambient air quality standard or cause or contribute to a violation of an applicable air quality increment from any proposed General Permit Registration action. Factors to be considered when determining whether an ambient air assessment would be made include:

- a. Existing air quality of the area
- b. Topographic or meteorological factors
- c. Maximum emissions
- d. Siting criteria

DEVELOPMENT OF GENERAL PERMIT G70-D

General Permit G70-D is being modified to incorporate the New Source Performance Standards of 40CFR60 Subparts OOOO and OOOOa.

All facilities registered under General Permit G70-D will be subject to Sections 1.0, 2.0, 3.0, and 4.0 of the general permit. Each applicant will select the sections that they are seeking registration for under General Permit G70-D and will do so when they submit the General Permit G70-D registration application:

- Section 5.0 Gas and Oil Well Affected Facility (NSPS, Subpart OOOO/OOOOa)
- Section 6.0 Storage Vessels Containing Condensate and/or Produced Water
- Section 7.0 Storage Vessel Affected Facility (NSPS, Subpart OOOO/OOOOa)
- Section 8.0 Control Devices and Emission Reduction Devices not subject to NSPS, Subpart OOOO/OOOOa
- Section 9.0 Small Heaters and Reboilers not subject to 40CFR60 Subpart Dc
- Section 10.0 Pneumatic Controllers Affected Facility (NSPS, Subpart OOOO/OOOOa)
- Section 11.0 Pneumatic Pump Affected Facility (NSPS, Subpart OOOOa)
- Section 12.0 Fugitive Emissions GHG and VOC Standards (NSPS, Subpart OOOOa)
- Section 13.0 Reciprocating Internal Combustion Engine(s) (RICE), Generators, Microturbine Generators
- Section 14.0 Tanker Truck/Rail Car Loading Facility
- Section 15.0 Glycol Dehydration Units

CHANGES TO DRAFT PERMIT G70-D

Draft General Permit G70-D was made available for public notice the week of July 19, 2016. The 30-day public comment period ended on August 22, 2016. As a result of comments received, the following changes were made:

- Permit condition 6.3.1 was changed to remove the first part of sentence 1. The permit requirement now reads:

The registrant shall maintain a record of the aggregate throughput for the storage vessel(s) that contains condensate and/or produced water on a monthly and rolling twelve (12) month total. Alternatively, recording the monthly and rolling twelve (12) month total of condensate and/or produced water loaded into tanker trucks/rail cars from the storage vessels according to section 14.2.1 can be used to demonstrate compliance. Said records shall be maintained in accordance with section 3.5.1 of this general permit.

- The NAICS/SIC codes in the Fact Sheet have been changed to match those in General Permit G70-D.
- The word “rail car” was added to both the Fact Sheet and General Permit in all permit conditions where truck loading was referenced. Rail car loading is allowed under General Permit G70-D.

- Permit conditions 1.1.3.g and h were changed to include 40CFR63 Subpart ZZZZ as part of the Alternative Operating Scenarios for replacement engines.
- The word “oil well” was added to both the Fact Sheet and General Permit. Oil wells are allowed under General Permit G70-D.
- Permit condition 5.1.3 was changed to include vapor combustors and enclosed combustors.
- Permit conditions 13.1.3, 13.3.3, 13.4.1 and 13.5.1 were changed to allow compression ignition engines subject to 40CFR63 Subpart ZZZZ.

RECOMMENDATION TO DIRECTOR

General Permit G70-D meets all requirements of applicable state and federal regulations. Therefore, it is recommended that General Permit G70-D should be issued.

Jerry Williams, P.E.
Engineer

Date