west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

GENERAL PERMIT G35-C
ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

General Permit No.: Class II General Permit G35-C (Prevention and Control of Air Pollution in regard to the Construction, Modification, Relocation, Administrative Update and Operation of Natural Gas Compressor and/or Dehydration Facilities)

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
221210	4923	Natural Gas Distribution
486210	4922	Pipeline Transportation of Natural Gas

Engineer Assigned: Jerry Williams, P.E.

G35-C 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]
$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.

Description: General Permit G35-C replaces previously noticed General Permit G35-B with the inclusion of language to address potential noise and light issues. This language can be found in Section 3.2.8.

General Permit G35-C is for natural gas compressor and/or dehydration facilities. Currently, General Permit G30-D and G35-A cover natural gas compressor and/or dehydration facilities.

These General Permits will continue to exist, however, there will be no future registrations, modifications, or administrative updates allowed to registrations issued under these permits. If a registrant wishes to modify an existing registration under General Permits G30-D or G35-A, it must be done so under General Permit G35-C.

General Permit G35-C activities may include:

N*atural gas compressor station activities* are reciprocating internal combustion engine driven compressor(s) or combination of equipment (including but not limited to compressor engines, emergency standby generators, engine driven air compressors, boilers, line heaters, tanks, glycol dehydration units, air pollution control devices, etc.) that supplies energy to move natural gas at increased pressure from gathering systems, in transmission pipelines or into storage.

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

General Permit G35-C terms and conditions are the same for all facilities that receive a registration to General Permit G35-C. General Permit G35-C 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.

Each General Permit G35-C registration will list all emission units, air pollution control devices and/or emission reduction devices and will specify which sections of the general permit are applicable to the particular facility based on equipment that will be operated at that facility. General Permit G35-C registration will also include the emission limits and throughputs for the emission units.

General Permit G35-C 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 G35-C GENERAL PERMIT ELIGIBILTY

Emission units at eligible oil and natural gas production, compressor and/or dehydration facilities may include any of the following pieces of equipment:

- 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 loading facility(ies)
- Reciprocating internal combustion engine(s) (RICE) (including emergency)
- Glycol dehydration unit(s) and associated reboiler(s)
- Reciprocating compressor(s)
- Centrifugal compressor(s)
- Generator engine(s)

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 and will be included in the issued registration document.

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 and condensers
- 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

For the purposes of General Permit G35-C, a *natural gas compressor station* means any reciprocating internal combustion engine driven compressor(s) or combination of equipment (including but not limited to compressor engines, emergency standby generators, engine driven air compressors, boilers, line heaters, tanks, etc.) that supplies energy to move natural gas at increased pressure from gathering systems, in transmission pipelines or into storage. *Engine* means any natural gas compressor engine, emergency standby engine or air compressor engine located at a natural gas compressor station.

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 compressor and/or dehydration facilities designed and operated for the purpose of gathering, transmitting, or compressing natural gas and are included in the following NAICS and/or SIC Codes are eligible for General Permit Registration **except** for those instances listed in items 1-7 below:

NAICS Code	SIC Code	Description
211111	1311	Crude Petroleum and Natural Gas Extraction
213112	1382, 1389	Support Activities for Oil and Gas Operations
221210	4923	Natural Gas Distribution
486210	4922	Pipeline Transportation of Natural Gas

1. Any natural gas compressor and/or dehydration facility which is a major source of pollutants as defined in 45CSR14, 45CSR19, or 45CSR30.
2. Any natural gas compressor and/or dehydration 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).
3. Any natural gas processing plant (e.g. production of ethane, propane, butane, and pentane) as defined in 40 CFR §60.5430.
4. Any natural gas sweetening plant.
5. Any natural gas compressor and/or dehydration facility with a storage tank subject to NSPS, Subpart Kb.
6. Any steam generating unit (as defined in §60.41c) subject to NSPS, Subpart Dc (>10 MMBTU/hr).
7. Any turbine subject to NSPS, Subpart KKKK.
8. Any natural gas compressor and/or dehydration facility which will require an individual air quality permit review process and/or individual permit provisions to address the emission of a regulated pollutant or to incorporate regulatory requirement(s) other than those established by General Permit G35-C. This would include "synthetic minor" permitting actions, as they are required to undergo Notice Level C under 45CSR13 Section 8.5.

SITE INSPECTION

All persons submitting a G35-C General Permit Registration Application to construct, modify or relocate a natural gas compressor and/or dehydration facility 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 compressor and/or dehydration facilities may include pneumatic controllers, GPUs, heater treaters, RICEs, generators (including emergency), glycol dehydration units, storage tanks, truck 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 G35-C 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 G35-C prior to recommending whether or not the general permit registration should be issued. Each General Permit G35-C 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 100 tons per year of any regulated air pollutant, 10 tons per year of any hazardous air pollutant (HAP), or 25 tons per year of any combination of hazardous air pollutants (HAPs).

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 G35-C and all requirements are detailed in Section 7.0 of General Permit G35-C, 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 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 7.0 of General Permit G35-C 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 7.1.2 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 7.0 of General Permit G35-C may claim a control efficiency of 98% for VOCs and HAPS.

Condensers
Any condenser that is utilized under Section 7.0 of General Permit G35-C must have supporting data submitted with the registration application to support the claimed control device efficiency above 50%.

Truck Loadout Collection Efficiencies
The following applicable capture efficiencies of a truck loadout are allowed:

- For tanker trucks not passing one of the annual leak tests in G35-C – 70%
- For tanker trucks passing the NSPS level annual leak test – 98.7%
- For tanker trucks 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 loaded/unloaded. This requirement can be satisfied if the trucking 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 G35-C registration will be required to complete the Single Source Determination form which is part of the General Permit G35-C 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.

REGULATORY APPLICABILITY

The following state and federal regulations may apply to sources requesting registration under General Permit G35-C:

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 G80-A general permit includes the opacity limit along with the monitoring, recordkeeping, and reporting requirements in Section 8.0.

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 Enforcement 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, Subpart OOOO 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 SO_2 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 SO_2 emissions from fuel burning units will be listed in the G35-C 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 G35-C 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 G35-C is Class II.

The scope of General Permit G35-C 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 G35-C include the authority and other general provisions of 45CSR13.

The G35-C 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 G35-C Registration satisfies the construction, modification, relocation and operating permit requirements of 45CSR13. General Permit G35-C 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 IIII, JJJJ and OOOO are included in General Permit G35-C. Excluded from General Permit G35-C 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 G35-C is Group 8D (natural gas compressor stations greater than 1,000 HP) with an annual operating fee of $500 or 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 G35-C.

Excluded from General Permit G35-C 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 G35-C, Section 12.0.

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 G35-C, Section 12.0.

40CFR60, Subpart OOOO (Standards of Performance for Crude oil and Natural Gas Production, Transmission and Distribution)

EPA published its new source performance standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. EPA published final amendments to the subpart on September 23, 2013.

40CFR60 Subpart OOOO establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO_2) 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 not covered in General Permit G35-C and all applicable requirements are listed in General Permit G70-B.

b. Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals that is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. 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.

   Centrifugal compressor affected facilities are included in General Permit G35-C, Section 10.0.

c. Each reciprocating compressor affected facility, which is a single reciprocating compressor located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. 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.

Reciprocating compressor affected facilities are included in General Permit G35-C, Section 11.0.

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 G35-C, Section 9.0.

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.

Requirements for storage vessel affected facilities are included in General Permit G35-C, Section 6.0. Determination of storage vessel affected facility status is included in Section 5.0 of General Permit G35-C.

f. Processing units and sweetening units are outside the scope of General Permit G35-C and are excluded from applicability for the general permit.

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 G35-C, 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 G35-C, Section 14.0.

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 this general permit under Section 12.0.

REGULATORY NON-APPLICABILITY

The following state and federal regulations were reviewed but do not apply to General Permit G35-C:

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

The G35-C 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 G35-C 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, compressor and/or dehydration facility 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 G35-C applicability; therefore, this rule does not apply.

45CSR30 (Requirements for Operating Permits)

The G35-C 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, Subpart OOOO; however, NSPS, Subpart OOOO is exempt from Title V permitting for minor sources.

Certain spark 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. Completion combustion devices and enclosed combustion devices used for compliance to NSPS, Subpart OOOO do not meet the definition of a flare, as it is defined in that subpart. Therefore, this rule does not apply to General Permit G35-C 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 G35-C. *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, compressor and/or dehydration facility that is subject to NSPS, Subpart Kb is excluded from eligibility to General Permit G35-C.

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 G35-C applicability. Natural gas processing plants were excluded to focus the scope of General Permit G35-C on activities typically conducted at natural gas production, compressor and/or dehydration facilities. Based on the Rule 13 permit applications for new natural gas production, compressor and/or dehydration facilities that WV DAQ has received thus far, this exclusion should not be a concern. Furthermore, any new natural gas processing plant would be constructed, reconstructed, or modified after August 23, 2011 and would no longer be subject to NSPS, Subpart KKK. Requirements for natural gas processing plants constructed, reconstructed, or modified after August 23, 2011 are covered by NSPS, Subpart OOOO. This rule, therefore, does not apply to General Permit G35-C.

40CFR60, Subpart LLL (Standards of Performance for SO_2 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 G35-C applicability. Natural gas processing plants and sweetening units were excluded from General Permit G35-C. Based on the Rule 13 permit applications for new natural gas production, compressor and/or dehydration facilities that WV DAQ has received thus far, this exclusion should not be a concern. Furthermore, any new natural gas processing plant or sweetening unit would be constructed, reconstructed, or modified after August 23, 2011 and would no longer be subject to NSPS, Subpart LLL. Requirements for natural gas processing plants and sweetening units constructed, reconstructed, or modified after August 23, 2011 are covered by NSPS, Subpart OOOO. This rule, therefore, does not apply to General Permit G35-C.

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 G35-C.

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 G35-C excludes major sources from registration. Therefore, this rule does not apply to General Permit G35-C.

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, compressor and/or dehydration facilities that are issued a General Permit G35-C 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, compressor and/or dehydration facility 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 G35-C

General Permit G35-C was developed with the intention of being comprehensive to address the emission sources that are located at a stationary source oil and natural gas compressor and/or dehydration facility and to provide consistent requirements for facilities within this industry group. General Permit G35-C was developed to address the increasing volume of construction permits for natural gas compressor and/or dehydration facilities.

For affected facilities subject to federal air regulations, those sections of General Permit G35-C were developed based on the language from the federal regulations. For emission sources that are not subject to federal requirements, those sections of the general permit were developed based on language that is currently being used in 45CSR13 construction and modification permits to control air pollution at other natural gas production, compressor and/or dehydration facilities with the intention of providing consistent requirements across the industry group. All facilities registered under General Permit G35-C 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 G35-C and will do so when they submit the General Permit G35-C registration application:

Section 5.0	Storage Vessels Containing Condensate and/or Produced Water
Section 6.0	Storage Vessel Affected Facility (NSPS, Subpart OOOO)
Section 7.0	Control Devices and Emission Reduction Devices not subject to NSPS, Subpart OOOO
Section 8.0	Small Heaters and Reboilers not subject to 40CFR60 Subpart Dc
Section 9.0	Pneumatic Controllers Affected Facility (NSPS, Subpart OOOO)
Section 10.0	Centrifugal Compressor Affected Facility (NSPS, Subpart OOOO)
Section 11.0	Reciprocating Compressor Affected Facility (NSPS, Subpart OOOO)
Section 12.0	Reciprocating Internal Combustion Engine(s) (RICE), Generators, Microturbine Generators
Section 13.0	Tanker Truck Loading Facility
Section 14.0	Glycol Dehydration Units

RECOMMENDATION TO DIRECTOR

General Permit G35-C meets all requirements of applicable state and federal regulations. Therefore, it is recommended that General Permit G35-C should be issued.

Jerry Williams, P.E.
Engineer

12/4/2015
Date