

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

MEMORANDUM

December 8, 2008

TO: *PF* Phillip Fielder, P.E., Permits and Engineering Section Manager
THROUGH: *KS* Kendal Stegmann, Sr. Environmental Mgr., Compliance and Enforcement
THROUGH: *SW* Lee Warden, P.E., Engineering Manager, Engineering Section
THROUGH: *MC* Peer Review
or *JBH*
FROM: *RK* Richard Kienlen, P.E., New Source Permits Section
SUBJECT: Minor Source General Permit for Oil and Gas Facilities (GP-OGF)
(Revision 1)

SECTION I. INTRODUCTION

The GP-OGF was developed to authorize construction and/or operation of facilities with potential emissions less than 100 tons/year (TPY) of a regulated pollutant in an attainment area, less than 10 TPY of any single hazardous air pollutant (HAP), and less than 25 TPY of total HAP. The permit is limited to air pollutant emitting sources located at OGF that are designed and operated for the production, gathering, processing, storage, or transportation of crude oil, refined petroleum products, natural gas, and natural gas liquids (NGL), including condensate. This revision is being made to: (1) update the GP with recently promulgated federal standards including NSPS Subpart JJJJ for spark ignition (SI) reciprocating internal combustion engines (RICE), NESHAP Subpart ZZZZ amendments for RICE at area sources, and NESHAP Subpart BBBBBB for area source gasoline distribution facilities; (2) correct a number of typographical errors; and (3) make some minor permit changes regarding organization and wording of specific conditions.

The number of OGF requiring a permit will be greatly expanded with the promulgation of NSPS Subpart JJJJ. It is expected that the GP-OGF will help serve as a "bridge" to handle the additional facilities that will require permitting until Air Quality addresses Subpart JJJJ with a permit by rule or other rule change. This memorandum only addresses the revisions being made to the GP-OGF to include new federal requirements and corrections to a default emission factor.

SECTION II. DEFINITIONS

The following definitions apply to this memorandum and general permit. All defined terms are written with initial capital letters in the memorandum and permit.

“Engine” means any reciprocating internal combustion engine or any gas-fired turbine.

“Emergency Use Engine” means any engine that drives an emergency power generator, peaking power generator, firewater pump, or other emergency use equipment, and operates less than or equal to 500 hours per year.

“Emissions Limited Engine” means any engine that has lb/hr emissions limitations specified under the conditions of an Authorization.

“Maximum Rated Horsepower” means an engine’s maximum horsepower at ISO or manufacturer’s standard conditions and maximum RPM, or an engine’s maximum horsepower at engine site conditions and maximum RPM.

“Notice of Modification” means a written notice informing AQD of: (1) any modification or change of operations at the facility that would add a piece of equipment or a process that is subject to NSPS or NESHAP, or that would modify a piece of equipment or a process such that it becomes subject to NSPS or NESHAP, or that would change its facility classification (either from or to a True Minor Facility); or (2) any modification to add a storage tank with a capacity of 400 gallons or more storing VOC, a VOC Loading Operation, any combustion equipment, or any dehydration unit, (3) any modification to change the hourly emission limitations of an Emission Limited Engine, or (4) any modification to add, modify, reconstruct, or replace an engine. Such notice shall contain calculations of the facility’s new facility-wide potential to emit; the change in the facility’s classification, if any; and the engine’s potential to emit (g/hp-hr, lb/hr, and TPY) for all engines at the facility. Any emission limits for NO_x and CO (lb/hr) cited in the latest Notice of Modification, for any Emission Limited Engine, become permit limitations for that engine and an enforceable part of the existing Authorization to Operate. The permittee shall attach a copy of the latest Notice of Modification to a copy of the Authorization to Operate kept either on-site, at a nearby manned facility, or at the nearest field office.

“Representative Extended Wet Gas Analysis” means an extended analysis (using GPA 2286 or similar approved methods) that provides speciated data for HAP components benzene, toluene, ethyl benzene, xylenes, and n-hexane. The sample must be representative of the maximum expected HAP content for normal operations of the glycol dehydrator.

“True Minor Facility” means a facility that has the potential to emit less than or equal to 80 TPY each of NO_x and CO.

“Uncontrolled Engine” means an engine, with or without an Air to Fuel Ratio Controller, that has no catalytic or oxidation catalyst control.

“VOC Loading Operation” means loading liquid VOC into a tank truck or trailer for transportation off-site or unloading of liquid VOC from a tank truck or trailer to a storage tank on-site. A VOC Loading Operation does not have the physical equipment (loading arm and pump) to conduct the type of loading regulated by OAC 252:100-37-16 and OAC 252:100-39-41 for VOC loading facilities, even though it may or may not use tank trucks or trailers that meet the requirements for delivery vessels in OAC:252-100-39-41(d).

REVISIONS TO PART I, SECTION III, FACILITIES INELIGIBLE FOR AN AUTHORIZATION TO CONSTRUCT

Gasoline fueled engines.

NSPS Subpart JJJJ contains a standard for the sulfur content of gasoline in RICE. The current GP-OGF (dated 11-16-06) does not presently address gasoline fired engines. Part I, Section III.C.1 will be revised to include gasoline as a fuel. The new paragraph will read as follows.

1. Facilities with combustion equipment fired with fuels other than liquid petroleum gas (LPG) or natural gas with a maximum total sulfur content of 20 grains/100 scf @ 68 °F (343 ppmv), or stationary reciprocating engines burning liquid fuels other than gasoline or diesel fuel with a total sulfur content less than 0.6% by weight, or No. 2 through No. 6 fuel oil with a total sulfur content less than 0.6% by weight.

Update permit eligibility.

Part I, Section III.C.10 will be revised to allow facilities to use the GP-OGF for affected sources under NSPS Subpart JJJJ and NESHAP Subpart ZZZZ (area source amendments) and Subpart BBBBBB. This also allows facilities to replace engines or add new engines that are affected sources under NSPS Subpart JJJJ. The new paragraph will read as follows.

10. Facilities with emissions units subject to the following requirements, unless such requirements are specifically incorporated into the Authorization to Construct/Operate issued under this permit as provided for under Part 4, Section V of this permit:
 - a. NSPS requirements under 40 CFR Part 60 not addressed by Subpart A, Subpart Dc, Subpart K, Subpart Ka, Subpart Kb, Subpart GG, Subpart KKK, Subpart IIII, Subpart JJJJ, or Subpart KKKK, or
 - b. NESHAP requirements under 40 CFR Part 61, or
 - c. NESHAP requirements under 40 CFR Part 63, except for any Subpart HH requirements for triethylene glycol dehydration units at area sources; any Subpart ZZZZ requirements for RICE at area sources; and any Subpart BBBBBB requirements for gasoline distribution bulk terminals, bulk plants, and pipeline facilities at area sources.

REVISIONS TO SECTION IV, FEDERAL REGULATIONS FOR COMBUSTION EQUIPMENTAddition of NSPS Subpart JJJJ Requirements

Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI-ICE). This subpart was published in the Federal Register on January 18, 2008. It promulgates emission standards for new SI engines ordered after June 12, 2006, that are manufactured after certain dates, and for SI engines modified or reconstructed after June 12, 2006. The specific emission standards (either in g/hp-hr or as a concentration limit) vary based on engine class, engine power rating, lean-burn or rich-burn, fuel type, duty (emergency or non-emergency), and manufacture date. Engine manufacturers are required to certify certain engines to meet the emission standards and may voluntarily certify other engines. An initial notification is required only for owners and operators of engines greater than 500 HP that are non-certified. Emergency engines will be required to be equipped with a non-resettable hour meter and are limited to 100 hours per year of operation excluding use in an emergency (the length of operation and the reason the engine was in operation must be recorded).

Owners and operators of certified engines may demonstrate compliance by operating and maintaining their stationary engine and after-treatment control device (if any) according to the manufacturer's emission-related written instructions and do not have to conduct any performance testing. Owners and operators of all SI engines (certified and non-certified) must keep records of maintenance conducted on the engine. If an owner or operator of a certified engine does not follow the manufacturer's emission-related operation and maintenance instructions, that engine is considered a non-certified engine and is subject to performance testing, unless the engine is less than 100 HP. Owners and operators of non-certified engines, which include certified engines operating in a non-certified manner, must keep a maintenance plan. An initial performance test must be conducted within the first year of operation for any certified engine operating in a non-certified manner that is equal to or greater than 100 HP. In addition, non-certified engines, including certified engines operating in a non-certified manner, that are greater than 500 HP must conduct the initial performance test and a performance test every 8,760 hours of operation or every 3 years thereafter, whichever comes first. Rich burn engines operating with three-way catalysts or non-selective catalytic reduction must be equipped with an air-to-fuel ratio controller operated in an appropriate manner to ensure proper operation of the engine and control device in order to minimize emissions.

A new specific condition will be added as Section IV.S to read as follows. Note that engines that are affected sources according to their manufactured date are listed in §60.4230.

- S. The permittee shall comply with all applicable requirements in 40 CFR Part 60, Subpart JJJJ, for all stationary spark ignition (SI) internal combustion engines (ICE) that commenced construction, modification, or reconstruction after June 12, 2006, including, but not limited to, the following. [40 CFR 60.4230 to 60.4246]
1. §60.4230 Am I subject to this subpart?

2. The emission standards of §60.4233 and §60.4234.
3. The fuel requirements of §60.4235.
4. The deadlines for importing or installing SI ICE produced in the previous model year in accordance with §60.4236.
5. The monitoring requirements of §60.4237.
6. The compliance requirements of §60.4243.
7. The performance test methods and other procedures of §60.4244.
8. The notification, reporting, and recordkeeping requirements of §60.4245.
9. §60.4246 What parts of the General Provisions apply to me?
10. §60.4248 What definitions apply to this subpart?

Addition of NESHAP Subpart ZZZZ Requirements for Area Sources

Subpart ZZZZ, Reciprocating Internal Combustion Engines (RICE). This subpart previously affected only RICE with a site-rating greater than 500 brake horsepower that are located at a major source of HAP emissions. On January 18, 2008, the EPA published a final rule that promulgates standards for new and reconstructed engines (after June 12, 2006) with a site rating less than or equal to 500 HP located at major sources, and for new and reconstructed engines (after June 12, 2006) located at area sources. Owners and operators of new engines and reconstructed engines at area sources and of new or reconstructed engines with a site rating equal to or less than 500 HP located at a major source (except new or reconstructed 4-stroke lean burn engines with a site rating greater than or equal to 250 HP and less than or equal to 500 HP located at a major source) meet the requirements of Subpart ZZZZ by complying with either 40 CFR Part 60 Subpart IIII (for CI engines) or 40 CFR Part 60 Subpart JJJJ (for SI engines). Owners and operators of new or reconstructed 4SLB engines with a site rating greater than or equal to 250 HP and less than or equal to 500 HP located at a major source are subject to the same MACT standards previously established for 4SLB engines above 500 HP at a major source, and must also meet the requirements of 40 CFR Part 60 Subpart JJJJ, except for the emissions standards for CO.

A new specific condition will be added as Section IV.T to read as follows.

- T. The permittee shall comply with all applicable requirements in 40 CFR Part 63, Subpart ZZZZ, for all existing, new, or reconstructed reciprocating internal combustion engines (RICE) including, but not limited to, the following. [40 CFR 63.6580 to 63.6675]
 1. §63.6585 Am I subject to this subpart?

2. §63.6590 What parts of my plant does this subpart cover? Per §63.6590(c), an affected source that is a new or reconstructed stationary RICE located at an area source must meet the requirements of this part by meeting the requirements of 40 CFR Part 60 Subpart IIII for compression ignition engines or 40 CFR Part 60 Subpart JJJJ for spark ignition engines. No further requirements apply for such engines under this part.
3. §63.6595 When do I have to comply with this subpart?
4. §63.6675 What definitions apply to this subpart?

SECTION V. FEDERAL REGULATIONS FACILITY-WIDE REQUIREMENTS (REVISIONS)

Addition of NESHAP Subpart BBBBBB Requirements

Subpart BBBBBB, Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities. This subpart was promulgated in the Federal Register on January 10, 2008. Affected sources are area sources that are: (1) bulk gasoline terminals that are not subject to the control requirements of 40 CFR Part 63 Subpart R, (2) pipeline breakout stations that are not subject to the control requirements of 40 CFR Part 63 Subpart R, (3) pipeline pumping stations, and (4) bulk gasoline plants. A bulk gasoline plant is any public or private gasoline storage and distribution facility with a throughput less than 20,000 gallons per day, while a bulk gasoline terminal is a facility with a throughput of 20,000 gallons per day or greater. Gasoline storage tanks, loading racks, and equipment components at bulk gasoline terminals, pipeline breakout stations, and pipeline pumping stations are subject to control standards or work practice standards, monitoring, and recordkeeping. Bulk gasoline plants are required to use submerged filling of storage tanks and cargo tanks, perform a monthly leak inspection of all equipment in gasoline service, and follow housekeeping measures to minimize the release of gasoline vapors to the atmosphere.

A new specific condition will be added as Section VII.I to read as follows.

- I. The permittee shall comply with all applicable requirements of 40 CFR Part 63 Subpart BBBBBB for any area source bulk gasoline terminal, pipeline breakout station, pipeline pumping station, and bulk gasoline plant including, but not limited to, the following.
[40 CFR 63.11080 – 63.11100]

1. §63.11081 Am I subject to the requirements of this subpart?
2. §63.11082 What parts of my affected source does this subpart cover?
3. §63.11083 When do I have to comply with this subpart?
4. The emission limitations and management practices of §63.11086, §63.11087, §63.11088, and §63.11089.

5. §63.11092 What testing and monitoring requirements must I meet?
6. §63.11093 What notifications must I submit and when?
7. §63.11094 What are my recordkeeping requirements?
8. §63.11095 What are my reporting requirements?
9. §63.11098 What parts of the General Provisions apply to me?
10. §63.11100 What definitions apply to this subpart?

SECTION VI. CORRECTION OF DEFAULT VOC EMISSION FACTORS FOR STORAGE TANKS

The GP-OGF allows a permittee to use default VOC emission factors when calculating emissions from tanks storing crude oil, slop oil, or oily water (condensate excluded). The factors were inadvertently expressed in the permit memorandum and in the application forms as TPY per barrel of oil, when they should have been expressed as TPY per barrel of oil per day (BOPD). The GP-OGF references the default factors as listed in the GP-OGF application forms; therefore, no revision to the permit is required. However, the application forms for the GP-OGF will be revised to change the default VOC emission factors based on the following.

The DEQ Fact Sheet, “Calculation of Flashing Losses/VOC Emissions from Hydrocarbon Storage Tanks,” provides a simple method of determining flash emissions using “default values” for the Vasquez-Beggs Equation (VBE). The VBE method can be used for crude oil and slop oil storage and may be used for condensate storage with restrictions as noted in the Fact Sheet.

A default VOC emissions rate of 1.0 TPY per barrel of oil per day (TPY/BOPD) for hydrocarbon liquids with an API gravity less than or equal to 40°, or a default VOC emission rate of 2.0 TPY/BOPD for hydrocarbon liquids with an API gravity of less than or equal to 60°, may be used for total VOC emissions from a storage tank storing crude oil, slop oil, or oily water (condensate excluded).

SECTION VII. TIER CLASSIFICATION AND PUBLIC REVIEW

Processing of a new, modified, or renewed General Permit has been classified as **Tier II** based on OAC 252:4-7-33 (c)(1). A request for an Authorization under this General Permit will typically be classified as Tier I, unless a compliance schedule required by OAC 252:100-8-5(e)(8)(B) is included, in which case it will be classified as Tier II.

A public notice of a 30-day public review period for the draft permit was published in *The Tulsa World* and in *The Oklahoman* on July 6, 2008. A copy of the draft permit was made available for review at the Main Office of the Oklahoma Department of Environment Quality, 707 N. Robinson in Oklahoma City, at the regional office in Tulsa, and in the Air Quality Section of the DEQ web page: www.deq.state.ok.us. No comments were received. The proposed permit was sent to EPA for their 45-day review on August 8, 2008. No comments were received.

SECTION VIII. SUMMARY

Applicants must demonstrate eligibility for coverage under this General Permit and that they are able to comply with applicable air quality rules and regulations. Ambient air quality standards are not threatened at any of the sites eligible for coverage under this General Permit. Issuance of the permit is recommended.