STATEMENT OF BASIS

To: Reviewers

Through: Lori Bocchino, Operating Permit Program Manager

From: Despina Nikolova, Air Quality Engineer

Subject: Draft Operating Permit 3-3-033, WGR Operating, LP
Fontenelle Compressor Station

Date: July 15, 2013

Introduction:

Attached is the draft Wyoming Air Quality Standards and Regulations (WAQSR) Ch 6, Sec 3 operating permit for WGR Operating, LP, Fontenelle Compressor Station. Natural gas is collected from area fields and brought into the station, routed to a natural gas dehydration unit, then compressed by nine compressor engines and sent to the pipeline for further processing. Power for the station is provided by two natural gas fired engine/generator sets. Emission sources at the facility include three 1,100 hp Superior compressor engines (FC-1, FC-2, and FC-3) equipped with oxidation catalysts, four 1,375 hp Waukesha 7042 (FC-4 through FC-7), and two 1,680 hp Waukesha 7044 compressor engines equipped with air-fuel ratio controls and non-selective catalytic reduction catalysts. Other emission sources include two 75 hp Ford generator engines (G-1 and G-2), two 63 hp Ford pump engines (P-500 and P-510), 120 million standard cubic feet per day (MMSCFD) triethylene glycol dehydrator controlled with a thermal oxidizer, glycol dehydrator reboiler (HTR-1), and condensate tank heater (HTR-2). Various storage tanks at the facility do not have any applicable requirements based on their size. This facility is currently identified as an area source of HAP emissions.

Permitting History:

Waiver (7/30/91): allowed for the installation of two Ajax compressor engines at the facility, which was named Launcher Compressor Station at the time. It was renamed Fontenelle Compressor Station in 1994.

CT-999 (8/28/92): authorized the construction of two 1,100 hp Superior 8GTLB engines (FC-1 and FC-2). Originally one engine was requested but while it was being considered a second application was submitted and accepted by the Division.

Waiver (6/29/93): allowed for the replacement of the two Ajax compressor engines with one 1,100 hp, Superior 8GTLA/B (FC-3) compressor engine.

CT-1056 (11/15/93): was issued for the construction of two 1,375 hp Waukesha 7042 GSI compressor engines (FC-4 and FC-5).

CT-1090 (6/15/94): allowed for the construction of four additional 1,375 hp Waukesha 7042 GSI compressor engines. The permit sets NO_X and CO emission limits for all Waukesha 7042

engines, the two Ford generators (G-1 and G-2), and the Ford pump engine (P-500). Each generator is limited to 2,000 hours of operation annually, and the pump engine is limited to 2,900 hours per year.

Waiver (12/13/94): authorized the installation of a stand-by pump engine (P-510) identical to the existing unit (P-500). The hourly NO_X and CO limits, established in CT-1090 apply to P-510 as well. The combined TPY emissions and operating hours from both pump engines shall comply with the limits established in CT-1090.

Waiver (10/23/96): extended the term of permit CT-1090 an additional 18 months. Only two (FC-6 and FC-7) of the four engines authorized for construction by CT-1090 were built, and authorization to construct the remaining two engines is no longer valid.

MD-364 (6/18/98): was issued for the construction of a 120 MMSCFD triethylene glycol dehydrator with a thermal oxidizer to control VOC and HAP emissions from the regenerator overhead still. The thermal oxidizer is required to be smokeless (with no visible emissions except for periods not to exceed a total of five minutes during any two consecutive hours), and operated at all times of active dehydrator operations to ensure it remains an effective control device.

MD-436 (2/14/00): allowed for the installation of two 1,680 hp Waukesha 7044 GSI compressor engines (FC-8 and FC-9). Applicable requirements for the new engines include NO_X and CO emission limits, annual emissions testing and following the maintenance plan. The preventative maintenance plan was revised after the first operating permit renewal and is now included as part of the required Compliance Assurance Monitoring (CAM).

Waiver (2/11/02): extended the authorization to construct the two engines permitted in MD-436 for one year.

Waiver AP-2276 (8/26/04): allowed for the construction of a natural gas fired condensate tank heater (HTR-2).

MD-1224 (9/7/05): established federally enforceable conditions to qualify the facility as a minor source for HAP emissions. Formaldehyde emission limits are established for the Superior compressor engines (FC-1, FC-2 and FC-3) in this permit.

MD-1401 (7/5/06): required the permittee to install oxidation catalyst on the three Superior compressor engines. Applicable requirements of this permit are emission limits for NO_X and CO as well as equipment maintenance and catalyst monitoring consisting of measuring the inlet catalyst temperature and pressure drop across the catalyst.

MD-1401 (corrected) (3/26/07): was issued to correct the wording of the initial performance test conducted for the Superior engines, which were tested accordingly. All other conditions remain as issued in MD-1401.

Division Letter (1/1/10): authorized the replacement of the Preventative Maintenance plan attached to MD-436 with a revised plan, which is included in the Compliance Assurance Monitoring (CAM) plan submitted on 12/22/09 and attached to this operating permit in Appendix A.

Applicable Requirements:

In addition to the permit requirements listed above, the sources at the facility are subject to the visible emission limits set forth in WAQSR Ch 3, Sec 2. The dehydrator reboiler (HTR-1) and condensate tank heater (HTR-2) are limited to NO_X emissions of 0.20 lb/MMBtu heat input under Ch 3, Sec 3.

The permittee must also comply with any applicable requirements from the following Chapter 5, Section 2 New Source Performance Standards, and 40 CFR Part 60:
Subpart JJJJ – *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.* As of May 16, 2013, the engines currently installed at the facility, including compressor engines FC-1 through FC-9, generator engines G-1 and G-2, and pump engines P-500 and P-501 are not subject to Subpart JJJJ according to information submitted to the Division by the permittee.
Subpart OOOO – *Standards for Crude Oil and Natural Gas Production, Transmission and Distribution.* For any affected facility subject to Subpart OOOO, the permittee shall assess compliance by conducting any applicable testing and monitoring required by §§60.5413 through 60.5417 and any applicable recordkeeping according to §60.5420.

The permittee must also comply with any applicable requirements from the following Chapter 5, Section 3 National Emission Standards for Hazardous Air Pollutants, and 40 CFR Part 63:
Subpart HH for *Oil and Natural Gas Production Facilities.* Currently, triethylene glycol (TEG) dehydration unit is subject to the recordkeeping requirements required by §§63.760 and 63.774.
Subpart ZZZZ for *Stationary Reciprocating Internal Combustion Engines.* All reciprocating internal combustion engines, including compressor engines FC-1 through FC-9, the generator engines G-1 and G-2, and the pump engines P-500 and P-501 are subject to the requirements of 40 CFR 63 Subpart ZZZZ at an area source.

Periodic Monitoring

Periodic monitoring for visible emissions from the facility's fuel-fired sources shall consist of monitoring the fuel fired in each unit to ensure natural gas is the sole fuel used.

For the thermal oxidizer, the permittee shall monitor and note the date, time and duration of any event when the unit exhibits visible emissions for more than 5 minutes. The permittee shall monitor the glycol dehydrator unit and thermal oxidizer to determine the date and duration of any time during active operation of the glycol dehydration unit when the thermal oxidizer is not in operation. The permittee shall report any single event when the thermal oxidizer is not operational and VOC emissions exceed five tons. Annual reporting is required for any year when emitted VOC emissions exceed fifty tons from combined events during the previous calendar year.

Monitoring for emissions from all nine compressor engines (FC-1 through FC-9) shall consist of annual NO_X and CO testing. The Superior engines (FC-1, FC-2, and FC-3) shall be tested for formaldehyde emissions once every five years; temperature at the inlet to the catalyst as well as pressure drop across the catalyst shall be monitored at least monthly. Monitoring for NO_X and CO emissions from the generator engines (G-1 and G-2) and the pump engines (P-500 and P-510) shall be once every five years.

The permittee is required to monitor the operating hours of the generator engines (G-1 and G-2) and the pump engines (P-500 and P-510).

Records shall be kept for the maintenance activities performed on the Superior engines (FC-1, FC-2, and FC-3) and on the Waukesha 7044GSI engines (FC-8 and FC-9).

WAQSR Ch 7, Sec 3, Compliance Assurance Monitoring (CAM) is applicable to all Waukesha compressor engines (FC-4 through FC-9) for NO_X and CO emissions, which includes daily monitoring of the catalyst inlet temperature for each engine. The pressure drop across the catalyst is also measured once per month. The effectiveness of the CAM monitoring parameters shall be evaluated and verified by the required annual NO_X and CO testing.

The Glycol Dehydrator Reboiler (HTR-1) and Condensate Tank Heater (HTR-2) are fuel burning equipment as defined in WAQSR Chapter 1. These uncontrolled units emit oxides of nitrogen (NO_X) in relatively small quantities (combined total of less than 1.0 ton per year of NO_X). In the absence of more stringent permit limits, the NO_X emission limit for fuel burning equipment defaults to 0.20 pounds per million BTUs (lb/MMBtu) for sources constructed after April 9, 1973. Generally, small fuel burning sources like these units operate at a steady state; emission variations are not likely. AP-42 emission factors were developed by the EPA to help estimate the quantity of a pollutant from a given source type. In developing an AP-42 emission factor, emission data is averaged from sources of similar size and type, and the emission factor is then assigned a reliability rating based on quality and quantity of the data used. The rating scale runs from A to E with an A rating providing the highest quality. The AP-42 emission factor for small gaseous fuel burning sources (less than 100 MMBtu/hr) is 0.1 lb/MMBtu with a B rating. Considering the amount of data evaluated to develop the AP-42 emission factor and that the WAQSR Ch 3, Sec 3 emission limit is twice the AP-42 value, the Division feels it is extremely unlikely these sources will operate out of compliance and considers further testing of these sources to be uneconomical.