

STATEMENT OF BASIS

To: Reviewers
Through: Lori Bocchino, Operating Permit Program Manager
From: Donovan Benton, Operating Permit Program
Subject: Draft Chapter 6, Section 3 Operating Permit 3-1-225
WGR Asset Holding Company LLC, Fletcher-Terhune Compressor Station
Date: August 1, 2014

Introduction

Attached for your review is the draft renewal Wyoming Air Quality Standards and Regulations (WAQSR) Ch 6, Sec 3 operating permit 3-1-225 for the WGR Asset Holding Company LLC, Fletcher-Terhune Compressor Station. The facility compresses coal-bed methane for pipeline transmission. Permitted emission sources at the facility include: seven Waukesha and two Caterpillar compressor engines, two triethylene glycol (TEG) dehydration units with reboiler heaters, and two produced water storage tanks that are each 400 barrels in capacity.

Note: As of 2/8/11, ownership of the facility changed from Western Gas Resources to WGR Asset Holding Company LLC.

Permitting History

All permits are listed to document the permitting history. The permits and waivers listed in this first section have no applicable requirements:

CT-3589 (4/20/04): was issued to Western Gas Resources, Inc. to construct the Fletcher Compressor Station, allowing for a total of four engines, one dehydration unit and one 400 bbl storage tank. No engines were constructed under this permit. Dehydration unit D1 and storage tank T1 were installed under this permit.

MD-1085 (11/23/04): modified the original engine configuration by allowing the installation of five additional engines. No engines were constructed under this permit.

MD-1085A (4/26/05): modified permit MD-1085 by replacing two of the Caterpillar G3512LE or Waukesha F3524GSI engines with one Caterpillar G3606LE or Waukesha L7044GSI engine for a total of eight engines. Two engines (E1 and E2) were installed under this permit.

MD-1350 (4/11/06): was issued for the addition of two compressor engines, one dehydration unit and one storage tank. One engine (E3), one dehydration unit (D2) and one storage tank (T2) were installed under this permit.

AP-6132 (5/11/07): was issued for the installation of a Kohler 60RZG generator engine. The engine was never installed, and authorization to construct has expired.

MD-1599 (6/12/07): was issued for the addition of one dehydration unit and one produced water storage tank. The permit limited the facility to a configuration of nine engines. Five engines (E4-E8) were installed under this permit, but engines E7 and E8 have since been removed. Dehydration unit D3 and storage tank T3 were constructed under this permit, but were also later removed.

MD-8891 (4/14/09): was issued for the addition of two Caterpillar G3606LE engines, three Caterpillar G3512LE engines, and one Caterpillar G3512LE or Waukesha F3524GSI engine, as well as an additional dehydration unit and produced water storage tank. Three engines (E11, E12 and E14) were installed under this permit. The additional dehydration unit and storage tank were never constructed.

MD-8891A (4/16/12): amended permit MD-8891 to reflect the removal of two engines (E7, E8), one dehydration unit (D3), and one storage tank (T3). It also restored the annual portable analyzer testing requirement for engines E1-E6 that was inadvertently left out of MD-8891.

The following is the only permit with remaining applicable requirements:

MD-8891A2: Modified MD-8891A by establishing new BACT (best available control technology) limits for NO_x emissions. The permit limits the facility to nine engines (authorization to construct engines E9, E10, and E13 has expired). All Caterpillar engines are equipped with oxidation catalysts and the Waukesha engines are equipped with air-fuel ratio control (AFRC) and non-selective catalytic reduction (NSCR) catalysts. Emission limits for NO_x and CO are set for all engines, as well as formaldehyde and VOC (volatile organic compounds) limits for the Caterpillar engines, and VOC limits for the Waukesha F3524GSI engine. Additionally, the permit set requirements for: compressor engine stack heights (which have all been met), initial performance testing (which has been completed for all engines), periodic emissions monitoring and testing, and engine, air pollution control equipment, and monitoring equipment maintenance. Catalyst monitoring requirements include operation of a thermocouple to measure the inlet catalyst temperature, and operation of a device to measure pressure drop across the catalyst. The permittee must also comply with all applicable requirements of the subparts listed below. This permit supersedes all previous Ch 6, Sec 2 permits and waivers.

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 dehydration unit reboilers (D1b, D2b) are limited to NO_x emissions of 0.20 lb/MMBtu heat input under Ch 3, Sec 3.

The permittee must comply with any applicable requirements from the following Ch 5, Sec 2 New Source Performance Standards, and 40 CFR 60:

Subpart JJJJ – *Stationary Spark Ignition Internal Combustion Engines* – On the date of drafting this Statement of Basis, engine E11 is the only engine subject to the requirements of 40 CFR 60 Subpart JJJJ. Due to the dates of construction commencement and/or dates of engine manufacture, engines E1, E3-E6, E12, and E14 are subject to Subpart JJJJ, but they have no applicable requirements under the subpart.

Subpart OOOO – *Crude Oil and Natural Gas Production, Transmission, and Distribution* – The facility may have applicable requirements from this subpart, or may become subject to the standard during the term of the permit.

The permittee shall also comply with any applicable requirements from the following Ch 5, Sec 3 National Emission Standards for Hazardous Air Pollutants, and 40 CFR 63:

Subpart HH – *Oil and Natural Gas Production Facilities* – The dehydration units (D1a, D2a) are subject to any applicable requirements from Subpart HH.

Subpart ZZZZ – *Stationary Reciprocating Internal Combustion Engines (RICE)* – All compressor engines (E1-E6, E11, E12, and E14) are subject to any applicable requirements at an area source.

Periodic Monitoring and CAM

For periodic monitoring of visible emissions from the compressor engines (E1-E6, E11, E12, and E14) and dehydration unit reboilers (D1b, D2b), the permittee shall monitor the type of fuel used to ensure natural gas is the sole fuel source for these units. Testing of NO_x and CO emissions from all compressor engines (E1-E6, E11, E12, and E14) shall be conducted every twelve calendar months. Additionally, VOC and formaldehyde emissions from each Caterpillar G3512LE compressor engine (E11, E12), and VOC emissions from the Waukesha F3524GSI compressor engine (E14), shall be tested every twelve calendar months.

WAQSR Ch 7, Sec 3, Compliance Assurance Monitoring (CAM) applies to the Waukesha L7044GSI engines (E1-E6) for NO_x and CO emissions and the Waukesha F3524GSI engine (E14) for CO emissions. Monitoring consists of measuring and recording the inlet temperature into the catalyst at least once daily, and measuring and recording the pressure differential across the catalyst at least once per calendar month. The effectiveness of the CAM indicators shall be evaluated and verified during the required annual NO_x and CO testing. Though CAM does not apply to NO_x emissions from the Waukesha F3524GSI engine (E14), the permittee shall conduct monitoring for these engines in accordance with the monitoring specified in the CAM plan.

For the Caterpillar G3512LE engines (E11, E12), the oxidation catalyst systems shall be monitored for inlet temperature into the catalyst and pressure drop across the catalyst on a monthly basis.

The dehydration unit reboilers (D1b, D2b) are fuel burning equipment as defined in WAQSR Ch 1. These uncontrolled units emit oxides of nitrogen (NO_x) in relatively small quantities (each less than 1 ton per year). 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.

