

STATEMENT OF BASIS

To: Reviewers
Through: Lori Bocchino, Operating Permit Program Manager
From: Maggie Endres, Operating Permit Program
Subject: Draft Chapter 6, Section 3 Operating Permit 3-2-177, Colorado Interstate Gas Company, Muddy Gap Compressor Station
Date: August 5, 2011

Introduction:

Attached for your review is the draft renewal Wyoming Air Quality Standards and Regulations (WAQSR) Chapter 6, Section 3 Operating Permit 3-2-177 for the Muddy Gap Compressor Station. The main emission sources include two Allison 501KC-5 turbine compressor engines, a Waukesha H24G emergency generator engine, Parker steam boiler, process flare, and fugitive emissions.

Permitting History:

Permit CT-1245 (9/6/96): allowed construction of a temporary compression facility with three Waukesha engines for a nine month period.

Permit CT-1286 (3/6/97): was issued to construct a compressor station consisting of two natural gas fired Allison turbine compressor engines (CG-7101 and CG-7201), a Waukesha emergency generator engine (EG-6101), a 2.5 MMBtu/hr Parker steam boiler (H-6204), and a 200 barrel storage tank (T-5306). The permit required a retrofit of each turbine with NO_x emission reduction technology at the first engine overhaul after low NO_x technology for the turbines is demonstrated to be feasible and reasonable. Unit CG-7101 was retrofit December 2004. This permit was amended 3/23/07, as listed below.

Permit MD-387 (1/4/99): allowed construction of a 714 barrel atmospheric storage tank (V-5401) and a process flare (PF-1). A 400 barrel tank had been installed without a Ch 6, Sec 2 permit. Under this permit, the 400 barrel tank was replaced with a 714 barrel storage tank, and the flare system was added. The 714 barrel tank is used to flash and store natural gas liquids collected during daily pigging operations. The condensate pressure is reduced from 650 psig to atmospheric pressure in the tank. The resulting flash emissions are routed to the flare. The depressurized liquids are transferred to tank T-5306 and/or truck loadout for removal offsite. The flare must be smokeless as specified under Ch 3, Sec 6. The flare also has recordkeeping and reporting requirements related to the operation of the unit. Permit MD-387 requires that the permittee comply with 40 CFR Part 60 Subpart Kb. This subpart was revised on October 14, 2003 such that the tank is no longer an affected facility subject to this regulation.

Permit CT-1286A (3/23/07): revised the emission rates from turbine unit CG-7101 to reflect the addition of NO_x reduction technology, and to reflect changes to 40 CFR 60 Subpart GG. The permit requires a retrofit of turbine unit CG-7201 with NO_x emission reduction technology at the first engine overhaul after low NO_x technology for the turbine is demonstrated to be feasible and

reasonable. The permittee is required to notify the Division in writing of the retrofit, the completion date of the retrofit and the expected emission rates. NO_x and CO emission limits are set for each turbine. A 500 operating hours per calendar year limit is set for the emergency generator engine, as well as NO_x and CO emissions limits.

Applicable Requirement

In addition to the permit limits and conditions listed above, the sources are subject to the visible emission limits set forth in WAQSR Ch 3, Sec 2. The Parker boiler is subject to the lb/MMBtu NO_x emission limit of Ch 3, Sec 3. The turbine engines are subject to the requirements from 40 CFR 60 Subpart GG - *Standards of Performance for Stationary Gas Turbines*. The Waukesha engine is subject to 40 CFR 63 Subpart ZZZZ - *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*.

Periodic Monitoring

Periodic monitoring for visible emissions from the engines and boiler consists of ensuring natural gas is the sole fuel source for these sources. Quarterly Method 22 observations shall be performed on the flare to determine the presence of visible emissions. Periodic monitoring of NO_x emissions from the two turbine engines consists of semi-annual emissions measurements for the retrofit turbine (with the possibility of annual measurements after the first year), and quarterly emissions measurements for the other turbine, using reference methods, or a portable emissions analyzer in accordance with the Division's portable analyzer protocol. Periodic monitoring of CO emissions from the turbine engines will consist of annual measurements. The emergency engine will be measured within the first twelve months for NO_x and CO emissions, and will be monitored on a monthly basis to verify the annual operating hours limit is not exceeded.

The boiler is fuel burning equipment as defined in WAQSR Chapter 1. This unit is gas fired, uncontrolled, and emits NO_x in quantities that are relatively small, emitting 2.2 tons per year of NO_x, if operated year round, full time. 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 as stated in WAQSR, Ch 3, Sec 3. These regulatory limits have not been updated since 1973. Generally, these small fuel burning sources are uncontrolled and operate at a steady state; emission variations are not likely. The 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 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 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 considering that the Ch 3, Sec 3 emission limit is twice that value, the Division feels it is extremely unlikely the boiler will operate out of compliance and considers further monitoring of this source uneconomical.