

STATEMENT OF BASIS

To: Reviewers
Through: Lori Bocchino, Operating Permit Program Manager
From: Melissa Meares, Operating Permit Program
Subject: Draft Chapter 6, Section 3 Operating Permit 3-3-030
WGR Operating, LP, Hilight-Reno Junction Gas Plant
Date: March 6, 2014

Introduction

Attached for your review is the draft renewal Wyoming Air Quality Standards and Regulations (WAQSR) Ch 6, Sec 3 operating permit for the Hilight-Reno Junction Gas Plant. The facility receives gas and condensate from the Hilight field and separates the liquids from the gas. Emission sources include one Worthington SUTC 8 compressor engine (unit 2), two Cooper GMW A-8 compressor engines (units 10 and 11), six Waukesha L7042GSI compressor engines (units 16 through 19, 51, and 52), five Waukesha 7042 GU generator engines (units 25 through 29), two Waukesha L7044GSI compressor engines (units 53 and 54), one Generac GH-140 emergency generator engine (unit Genset), one heater treater (unit H100), two hot oil heaters (units H110a /b and H120), one heat medium heater (unit H130a/b), one hydrogen plant heater (H140), two ethylene glycol dehydration systems (units P1EG and P2EG), one emergency flare (unit FLARE), fugitive emissions from equipment leaks (unit FUG), and various storage tanks which are all 500 barrels or less.

Permitting History

All permits are listed to document the permitting history. The permits listed in this paragraph have no remaining applicable requirements. Waiver AP-D86 (5/6/96): allowed the temporary installation of a Waukesha 5790 compressor engine while a Cooper GMW A-8 engine (unit 12) was down for repairs. The permit also allowed installation of a 0.25 MMBtu/hr reboiler (unit H150) and a dehydrator. Unit H150 and the dehydrator were never constructed. CT-1294 (3/31/97): authorized construction of two additional Waukesha L7042GSI compressor engines with catalytic convertors (units 51 and 52). Under this permit, units 51 and 52 were not allowed to operate simultaneously. Waiver AP-X37 (9/19/97): allowed units 51 and 52 to operate simultaneously at reduced loads. MD-378 (10/14/98): authorized installation of two Waukesha 7044GSI compressor engines with catalytic convertors (units 53 and 54), which were constructed under this permit. Units 51 through 54 were tested as required. MD-664 (9/4/01): increased the CO emission limits for unit 2. MD-378A (8/10/06): amended MD-378 by revising the hourly NO_x emission limits for units 53 and 54. MD-10680 (9/10/10): authorized the replacement of two unreliable compressor engines (units 12 and 15) with three Waukesha L7042GSI compressor engines (units 16 through 18). Units 16 through 18 were installed and tested as required under this permit.

MD-124 (5/14/90): authorized the addition of a butane isomerization facility to the existing gas plant. Equipment installed under this permit include units H130a /b, H140, FLARE, and unit 30, which has since been abandoned in place. Units 25-29 were retrofitted with catalytic converters, as required under this permit. As part of the issuance process for operating permit 30-030, the Division

administratively removed the VOC emission limits that were set under permit MD-124. The permit required the submittal of an operating plan for all catalytic converters, including maintenance and replacement schedules. During the technical review for operating permit 30-030, the Division was unable to locate such a plan. The Division determined that quarterly emissions monitoring required for each engine under the operating permit would indicate any problems with the catalysts and would satisfy the requirement for a maintenance or replacement schedule. Applicable requirements from this permit include NO_x and CO emission limits for units H130a/b, H140, 2, 10, 11, and 25 through 29; smokeless operation of the flare; and compliance with applicable requirements of 40 CFR 60, Subpart KKK for the isomerization facility.

MD-378A (Corrected) (3/31/08): corrected MD-378A to set the CO emission limits for a Worthington SUTC 8 compressor engine (unit 2), as authorized by permit MD-664. Applicable requirements from this permit include NO_x and CO emission limits for units 2 and 51 through 54; as well as annual NO_x and CO emissions testing and catalyst monitoring for units 51 through 54.

Waiver wv-11304 (5/23/11): allowed unit P1EG to restart (it had previously shutdown due to lack of throughput), revised the throughput and estimated emissions from unit P2EG, revised the potential to emit from the condensate storage tanks (units 31 through 34), and required the removal of two Cooper engines (units 12 and 15). Unit P1EG was restarted under this waiver and the Cooper engines were removed. The only applicable requirement remaining from this waiver is daily monitoring of the stored condensate to demonstrate that the condensate is stabilized.

MD-10680A (6/11/12): amended permit MD-10680 to authorize the installation of one additional Waukesha L7042GSI compressor engine (unit 19), removal of one Waukesha L7042GSI generator engine (unit 30), and to reduce the operating hours for a Worthington SUTC 8 compressor engine (unit 2). Unit 19 was installed and tested as required under this permit. For units 16 through 19, applicable requirements include NO_x, CO, VOC, and formaldehyde emission limits; formaldehyde emission limitations in accordance with 40 CFR 63 Subpart ZZZZ; annual testing for NO_x, CO, VOC and formaldehyde emissions; and notification requirements. Other applicable requirements from this permit include a limitation on operating hours for unit 2; requirements to operate an ambient NO₂ monitoring network and a meteorological station; and a requirement to remove, replace, or control units 10 and 11 by December 31, 2014.

Waiver wv-13971 (11/30/12): allowed for the construction of an emergency generator engine (unit Genset), which was installed under this waiver. Applicable requirements for the generator engine include an operating hours limitation and maintaining the engine and monitoring equipment according to good air pollution control practices.

MD-15492 (1/6/14): authorized the addition of three Waukesha engines, one dehydration unit and reboiler, one hot oil heater, and one 300 bbl slop tank. This permit has not been activated, as none of the authorized equipment is installed at the facility, and it is not included in the operating permit. Per WAQSR Ch 6, Sec 3(c)(i), the permittee shall apply to modify the operating permit within 12 months after commencing operation of any piece of equipment authorized under this permit.

Applicable Requirements

In addition to the permit requirements listed above, unit FLARE is subject to the visible emission limits set forth in WAQSR Ch 3, Sec 6(b)(i), and all other sources at the facility are subject to the visible emission limits set forth in WAQSR Ch 3, Sec 2. Units H100, H110a/b, and H120 are limited to NO_x emissions of 0.23 lb/MMBtu heat input under Ch 3, Sec 3.

Affected engines under WAQSR Ch 5, Sec 2 New Source Performance Standards (NSPS) and 40 CFR 60 Subpart JJJJ for *Stationary Spark Ignition Internal Combustion Engines* are defined at §60.4230 of the subpart. On January 28, 2014, units 2, 10, 11, 16 through 19, 25 through 29, and 51 through 54, were not subject to Subpart JJJJ according to information submitted to the Division by the permittee. Unit Genset is subject to Subpart JJJJ.

Unit H130a/b is subject to any applicable requirements from WAQSR Ch 5, Sec 2 NSPS and 40 CFR 60 Subpart Dc for *Small Industrial-Commercial-Institutional Steam Generating Units*.

The facility is subject to any requirements from WAQSR Ch 5, Sec 2 NSPS and 40 CFR 60 Subparts A and KKK for *Equipment Leak of VOC from Onshore Natural Gas Processing Plants* and Subpart VV for *Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry* as they apply to affected facilities in onshore natural gas processing plants as defined under §60.630, including units FUG and FLARE.

All engines at the facility, including units 2, 10, 11, 16 through 19, 25 through 29, 51 through 54, and Genset, are subject to any applicable requirements from WAQSR Ch 5, Sec 3 National Emission Standards for Hazardous Air Pollutants (NESHAP) and 40 CFR 63 Subpart ZZZZ for *Stationary Reciprocating Internal Combustion Engines*.

Units H100, H110a/b, H120, H130a/b, and H140 are subject to any applicable requirements from WAQSR Ch 5, Sec 3 NESHAP and 40 CFR 63 Subpart DDDDD for *Industrial, Commercial, and Institutional Boilers and Process Heaters*.

Units P1EG and P2EG are subject to any applicable requirements from WAQSR Ch 5, Sec 3 NESHAP and 40 CFR 63 Subpart HH for *Oil and Natural Gas Production Facilities*.

Periodic Monitoring and CAM

Periodic monitoring of visible emissions from the engines (units 2, 10, 11, 16 through 19, 25 through 29, 51 through 54, and Genset) and the fuel-burning equipment (units H100, H110a/b, H120, H130a/b, and H140) shall consist of monitoring the type of fuel used to ensure natural gas is the sole fuel source for these units. Visible emissions from the emergency flare (unit FLARE) are not expected during normal operation of the facility, however the permittee shall monitor for the presence of the pilot flame.

WAQSR Ch 7, Sec 3, Compliance Assurance Monitoring (CAM) applies to the Waukesha L7042GSI compressor engines (units 16 through 19 and units 51 and 52), and to the Waukesha L7044GSI compressor engines (units 53 and 54) for NO_x and CO emissions. CAM for these engines includes daily monitoring of the exhaust gas temperature into the catalyst and monthly monitoring of the pressure drop across the catalyst. The effectiveness of the CAM monitoring parameters shall be evaluated and verified by the required annual NO_x and CO testing.

Additional engine monitoring requirements include the following: semiannual NO_x and CO testing for unit 2; semiannual NO_x testing for units 10 and 11; annual VOC testing and formaldehyde testing in accordance with the frequency established under 40 CFR 63 §63.6615 for units 16 through 19; and annual NO_x and CO testing for units 25 through 29. CO emissions from units 10 and 11 are uncontrolled and less than 30 tons per year, therefore CO testing for these units is not required.

NO_x emissions from unit H130a/b shall be tested annually. NO_x emissions from units H110a/b and H120 shall be tested every two years, with the ability to reduce the frequency if the test results show less than 75 percent of the limit. Additionally, for NO_x and CO emissions from units H130a/b and H140, the permittee shall conduct weekly visual inspections for proper operation and flame conditions.

Unit H100 is fuel-burning equipment as defined in WAQSR Chapter 1. This uncontrolled unit emits NO_x in relatively small quantities (roughly 0.3 tons per year of NO_x). In the absence of more stringent permit limits, the NO_x emission limit for fuel burning equipment defaults to 0.23 pounds per million BTUs (lb/MMBtu) for sources constructed before April 9, 1973. Generally, small fuel burning sources like this unit 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 this source will operate out of compliance and considers further testing of this source to be uneconomical.

Other periodic monitoring requirements include monitoring the operating hours for units 2 and Genset and daily specific gravity testing of the stored condensate in the storage tanks (TK-31 through TK-34) with a hydrometer.