STATEMENT OF BASIS

To: Reviewers

Through: Lori Bocchino, Operating Permit Program Manager

From: Hillary Killorn, P.E., Operating Permit Engineer

Subject: Draft Operating Permit 3-1-218 for QEPM Gathering I, LLC Pinedale Complex

Date: December 16, 2013 *Addendum February 25, 2014*

Attached is the draft Wyoming Air Quality Standards and Regulations (WAQSR) Ch 6, Sec 3 operating permit 3-1-218 for the QEPM Gathering I, LLC, Pinedale Complex. The Pinedale Complex was originally permitted as two facilities, consisting of a natural gas compressor station (Pinedale/Gobblers Knob Compressor Station) and a liquids handling facility (Pinedale Liquids Facility). The compressor station and the liquids facility are adjacent and contiguous to one another, and are now combined as the Pinedale Complex. The compressor station receives gas from field gathering lines and an electric recompressor. After slug catcher processing, the gas is directed to six Caterpillar and one Solar Titan turbine compressor engines to be delivered to pipeline sales. The condensate from the inlet scrubber is stored in two tanks to wait for truck loadout. The liquids facility receives condensate and liquids via the inlet pipelines and the slug catcher at the compressor station. The liquids are processed through a low pressure separator and condensate stabilizer system before entering a liquid sales pipeline.

Permitting History

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

Permit CT-2466 (8/27/01): allowed construction of the Pinedale Compressor Station, including two 1860 hp Caterpillar G3608 SITA compressor engines (E-1 and E-2), and two 3720 hp Caterpillar G3616 SITA compressor engines (E-3 and E-4). A Cummins G855GC generator engine and a TEG dehydration unit were also permitted but were never installed. This permit was superseded by permit MD-1267.

Waiver AP-JD2 (1/8/02): was issued for installation of a Caterpillar G3516 TALE engine on a temporary basis for seven months at the Pinedale Compressor Station. This waiver has expired.

Waiver AP-9B2 (7/23/02): was issued for construction of a 300 bbl scrubber tank (ST-1) with an associated 0.25 MMBtu/hr heater (H-1) at the compressor station. This waiver was superseded by permit MD-1267.

Permit CT-4070 (9/27/05): allowed construction of the Pinedale Liquids Facility. Sources include: a 2200 hp diesel fired Cummins KTA50-G9 backup generator (EGEN-1), 10.0 MMBtu/hr ethylene glycol heater (H-3), 2.0 MMBtu/hr condensate bypass heater (H-4), two 0.5 MMBtu/hr produced water tank heaters (H-5 and H-6), a 0.25 MMBtu/hr slop oil tank heater (H-7), two 1.2 MMcfd emergency flares (FLARE-1 and FLARE-2), and a 6,000 barrel (bbl) bypass stabilizer tank (ST-3). The slop oil tank heater (H-7) was never installed and this permit was superseded by permit MD-7332.

Permit MD-1267 (11/15/05): allowed installation of two 3720 hp Caterpillar G3616SITA compressor engines (E-5 and E-6) at the compressor station. Emission limits for formaldehyde, NO_X and CO were set for all of the new and existing Caterpillar engines at the station. This permit was superseded by permit MD-8682.

Waiver AP-4780 (6/5/06): was issued for construction of a 300 bbl scrubber tank (ST-2) with associated 0.25 MMBtu/hr heater (H-2) for the Pinedale Compressor Station. This waiver was superseded by permit MD-11378A.

Permit MD-7332 (7/31/08): allowed modification of the equipment configuration at the Pinedale Complex by adding one 15,949 hp Solar Titan-130 turbine compressor engine (TURBINE-1), one 950 hp Caterpillar C27 ACERT emergency generator (EGEN-2), one emergency flare (FLARE-3), and two 60,000 gallon condensate storage tanks (CT1 and CT2). EGEN-2 was successfully performance tested in October 2010. The permit recognized the removal of 3,720 hp Caterpillar G3616SITA engine (E-4) and a reduction in the operating hours of the remaining three 3,720 hp Caterpillar G3616SITA engines (E-3, E-5 and E-6). This permit superseded all previous issued permits for the Pinedale Liquid Facility and the Pinedale Compressor Station, but has since been superseded by permit MD-11378A.

Permit MD-8682 (7/16/10): was issued to modify the complex by replacing the two 300 bbl scrubber dump tanks (ST-1 and ST-2) with two 400 bbl water/condensate tanks (ST-1 and ST-2), revising the heater rating for heater H-3 to 8.5 MMBtu/hr, removing authorization for heater H-7, increasing the CO emission limit for the Caterpillar C27 ACERT (EGEN-2) engine, decreasing the testing frequency for generator engines EGEN-1 and EGEN-2, and reinstalling Caterpillar G3616SITA engine (E-4) without increasing the combined hour limitation on engines E-3, E-5, and E-6. This permit superseded all previous permits and waivers for the Pinedale Complex, but has since been superseded by permit MD-11378A.

Permit MD-10895 (10/22/10): allowed modification of the tank configuration by replacing the 6,000 bbl bypass stabilizer tank (ST-3) with two 1,000 bbl water tanks (ST-4 and ST-5) and one 6,000 bbl condensate tank (ST-3). This permit recognized the Company's proposal for routing all condensate through ST-3; including stable condensate from truck loading and condensate from ST-4 and ST-5 (which will be stabilized to atmospheric pressure). This permit superseded all previous permits and waivers for the Pinedale Complex, but has since been superseded by permit MD-11378A.

Permit Waiver wv-11283 (10/27/10): was issued to temporarily increase the VOC emission rate for the four 3,720 hp Caterpillar G3616SITA engines (E-3 through E-6) until the VOC emission rate was authorized with a permit modification. This waiver expired on October 27, 2011.

Division letter dated (11/8/10) recognized the like kind replacement of TURBINE-1 but still required an initial performance test for NO_X, CO, and VOC emissions to demonstrate compliance with the limits set forth in permit MD-10895. This test was completed on December 13, 2010, and demonstrated compliance; there are no remaining requirements.

Permit MD-11378 (3/2/11): was issued to revise the VOC emission rates of the four Caterpillar G3616SITA engines (E-3 through E-6). The permit restated all other conditions of MD-10895. The conditions of this permit superseded all previous permits and waivers for the Pinedale Complex. Permit MD-11378 Corrected (7/22/11): was issued to correct a typographical error in

the condition for compliance with 40 CFR 63, Subpart ZZZZ for *Stationary Reciprocating Internal Combustion Engines*. All other conditions of MD-11378 remained the same. The performance tests required for E3-E6 were completed successfully (E3: January 2011; E4: August 2013; E5: May 2011; E6: April 2012). This permit superseded all previous permits and waivers for the Pinedale Complex, but has since been superseded by permit MD-11378A.

The following permit has remaining applicable requirements.

Permit MD-11378A (11/8/12): was issued to remove several conditions related to two existing 60,000 gallon low pressure separators that were previously identified as storage tanks (CT1 and CT2) and to clarify that the electric recompressor was not considered a vapor recovery unit, but a process unit. The conditions of this permit supersede the conditions of all previously issued WAQSR Ch 6, Sec 2 permits and waivers for the Pinedale Complex. Permit requirements include:

- NO_X, CO, VOC, and formaldehyde emission limits for the six Caterpillar compressor engines (E-1 through E-6); testing is required every 12 calendar months.
- NO_X, CO, and VOC emission limits for the Solar Titan 130 turbine (TURBINE-1); testing is required every 12 calendar months.
- NO_X and CO emission limits for the two diesel emergency generator engines (EGEN-1 and EGEN-2); testing is required every three years. These engines are also limited to 500 hours of operation each per year, tracked with non-resettable hour meters.
- Operation of a thermocouple and a device to measure pressure drop across the catalyst for engines E-1 through E-6 equipped with an oxidation catalyst. Compliance with 40 CFR 63, Subpart ZZZZ §63.6605 and §63.6640 can be used in lieu of these monitoring and maintenance requirements.
- Engines E-3 through E-6 are limited to cumulative 23,312 hours of operation per year, tracked with non-resettable hour meters.
- The condensate throughput of the two 400 bbl tanks (ST-1 and ST-2) is limited to 2,190 barrels per year, as measured at the truck loadout.
- Liquids from the compressor engine fuel gas scrubbers (E-1 through E-6) shall be routed to the two 400 bbl storage tanks (ST-1 and ST-2).
- VOC and HAP emissions associated with storage and atmospheric stabilization of condensate in the two 1,000 bbl water tanks (ST-4 and ST-5) and the 6,000 bbl condensate tank (ST-3) and emissions associated with malfunction of the electric recompressor shall be routed to the flare (FLARE-1).
- Vapors from the two low pressure separator tanks (CT1 and CT2) shall be routed to the compressor station inlet. These vapors shall be routed to the flare (FLARE-3) when the electric recompressor is not operating.
- The flares are to be operated and maintained to be smokeless per WAQSR Ch 3, Sec 6(b)(i). The presence of a pilot flame on each flare shall be monitored using a

thermocouple or equivalent device; equipment controlled by the flare shall not operate if there is no pilot flame detected.

Applicable Requirements

In addition to the permit requirements listed above, the sources are subject to the visible emission limits set forth in WAQSR Ch 3, Sec 2. The heaters (H-1 through H-6) are subject to the NO_X emission limit 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 IIII - *Stationary Compression Ignition Internal Combustion Engines* (Affected engines are defined at §60.4200 of the subpart, and currently include EGEN-2),

Subpart JJJJ - *Stationary Spark Ignition Internal Combustion Engines* (Affected engines are defined at §60.4230 of the subpart),

Subpart KKKK - *Stationary Combustion Turbines* (Affected turbines are defined at §60.4305 of the subpart, and currently include TURBINE-1),

Subpart OOOO – *Crude Oil and Natural Gas Production, Transmission and Distribution* (Affected sources are defined at §60.5365 of the subpart),

and from the following Chapter 5, Section 3 National Emission Standards for Hazardous Air Pollutants, and 40 CFR Part 63:

Subpart ZZZZ - *Stationary Reciprocating Internal Combustion Engines* (All engines are subject to any applicable requirements from Subpart ZZZZ at an area source).

At the time of the writing of this Statement of Basis, engines E-1 through E-4 and EGEN-1 were not subject to 40 CFR 60 Subpart JJJJ or Subpart IIII. Engines E-5 and E-6 meet the definition of a new source under 40 CFR 63 Subpart ZZZZ and therefore must comply with Subpart ZZZZ by meeting any applicable requirements within 40 CFR 60 Subpart JJJJ. However, engines E-5 and E-6 currently do not have any applicable requirements under 40 CFR 60 Subpart JJJJ because of their dates of manufacture.

Although identified as applicable in operating permit 3-0-218, 40 CFR 60 Subpart Kb does not apply at this time. The 6,000 bbl condensate storage tank (ST-3) is located prior to custody transfer and is smaller than 1,589.874 m^3, therefore meeting the exemption from the rule provided by §60.110b(4). All other tanks at the facility do not currently meet the definition of an affected facility under Subpart Kb.

40 CFR 60 Subpart Dc does not apply to the heaters at the facility at this time because all heaters currently have a heat input capacity of less than 10 MMBtu/hr and therefore are not subject to the rule.

40 CFR 60 Subpart KKK does not apply to the facility because it does not meet the definition of a natural gas processing plant.

40 CFR 63 Subpart HH does not apply to the facility at this time because the facility is an area source of HAPs that does not currently have any triethylene glycol dehydration units.

40 CFR 63 Subpart JJJJJJ does not apply to the heaters at the facility at this time because all heaters are currently gas-fired and therefore are not subject to the rule.

40 CFR Part 68 does not apply to the facility at this time because currently all regulated substances at the Pinedale Complex are either in quantities below specified threshold levels or qualify for the exemption provided by §68.115(b)(2)(iii).

Periodic Monitoring and CAM

Periodic Monitoring consists of the following:

- For *visible emissions* from the compressor engines, turbine and heaters, monitoring and certification that natural gas is the sole source of fuel in lieu of visible emissions monitoring.
- Recording *visible emission events* from the flares (FLARE-1, FLARE-2 and FLARE-3) when they exhibit visible emissions for more than five minutes.
- Quarterly *Method 22 tests* on the non-emergency Low Pressure Flare (FLARE-1).
- Monitoring the amount of *condensate throughput* through the two 400 bbl tanks (ST-1 and ST-2), as measured at the truck loadout.
- Monitoring *hours of operation* with non-resettable hour meters on the emergency generator engines (EGEN-1 and EGEN-2) and the four Caterpillar G3616SITA compressor engines (E-3 through E-6).
- Monthly monitoring of *inlet catalyst temperature and pressure drop* across the catalyst from the six Caterpillar compressor engines equipped with oxidation catalysts (E-1 through E-6), OR, compliance with 40 CFR Part 63 Subpart ZZZZ §63.6605 and §63.6640.
- Once every calendar year, monitoring of *NO_X, CO, VOC and formaldehyde emissions* from the six Caterpillar compressor engines (E-1 through E-6) following the requirements of 40 CFR 60, Subpart JJJJ, EPA reference methods, or other Division approved testing methods as required.
- Once every calendar year, monitoring of *NO_X, CO and VOC emissions* from the turbine (TURBINE-1) following EPA reference methods or the State of Wyoming's Portable Analyzer Protocol.
- Every three years, monitoring of *NO_X and CO emissions* from the emergency generator engines (EGEN-1 and EGEN-2) following EPA reference methods or the State of Wyoming's Portable Analyzer Protocol.
- Continuous monitoring of the *flare pilot flames* using a thermocouple or equivalent device.

The heaters (H-1 through H-6) are fuel burning equipment as defined in WAQSR Chapter 1. These uncontrolled units emit oxides of nitrogen (NO_X) in relatively small quantities (having a combined potential to emit of less than 5.2 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 0.20 pounds per million BTUs (lb/MMBtu). 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.

WAQSR Ch 7, Sec 3, Compliance Assurance Monitoring (CAM) does not apply at this time because none of the current sources at the facility have pre-control emissions greater than the major source threshold of 100 tons per year.

Addendum February 25, 2014
The visible emissions requirement in condition F3(b) is updated to reflect recent changes to WAQSR Ch 3, Section 2; and condition S1 is updated to include wording used in operating permits currently issued by the Division. These changes are administrative in nature. No additional public notice period is warranted.