STATEMENT OF BASIS

To: Reviewers

Through: Lori Bocchino, Operating Permit Program Manager

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

Subject: Draft Chapter 6, Section 3 Operating Permit 3-3-096
Bentonite Performance Minerals, Colony Plant

Date: April 30, 2015

Introduction

Attached for your review is the draft renewal Wyoming Air Quality Standards and Regulations (WAQSR) Ch 6, Sec 3 operating permit for the Colony Plant. The plant processes raw bentonite clay to produce crushed and dried bentonite products. Raw bentonite clay is stored in outside storage piles, then crushed and dried using roll crushers and three rotary dryers fired primarily on coal. The crushed and dried (C&D) product is stockpiled prior to bulk rail loadout or used as feedstock material for other processes. Products include C&D, granular, powder and Bore-Gel bentonite as well as a specialty product called Baramix. Each product is sold in bulk and/or packages and is shipped offsite by truck or railcar. Emission sources include three rotary dryers, four grinding mills, elevators and packaging equipment controlled by an electrostatic precipitator (ESP), numerous cartridge filter and baghouse controlled sources, two Mountain Mover Storage Units with diesel engines, various small natural gas heaters (less than 0.2 MMBtu/hr each) and fugitive emissions. There are gasoline, diesel and used oil storage tanks at the facility that have no applicable requirements based on size and content.

Permitting History

Previous owners of this facility include NL Petroleum and NL Baroid. All permits are listed to document the permitting history. The permits listed in this first section have no remaining applicable requirements.

MD-10 (9/20/76)/OP-58 (2/4/80): allowed conversion of three rotary dryers to fire coal.

MD-62 (1/12/87): increased the allowable annual bentonite production rate.

Waiver (9/16/92): authorized construction of facilities for production and handling of foundry premix products known as Baramix (sources BV7, BV9, BV10, BV11, BV12, DC3, DC4 and Sly4).

Division letter 8/17/98: waived stack testing for baghouse DPJ and reduced the length of time of the Method 9 performance testing to one hour.

AP-J79 (12/8/98): was issued to replace the bulk rail loadout baghouse with a more efficient pulse jet baghouse (BRLSP).

AP-W70 (11/19/99): was issued to enhance dust collection from the bulk packer by replacing the existing baghouse with a more efficient pulse jet baghouse (PPPSP). This waiver was superseded by AP-8299.

MD-603 (3/13/01): allowed construction of a 500 ton storage silo, bucket elevator, and granular truck loadout system, and reduced allowable annual coal usage to limit NO_X emissions to less than 250 TPY.

AP-1145 (10/27/03): acknowledged the as-built configuration and replacement of four sources. This waiver was superseded by AP-1145 Corrected.

Division letter 11/14/03: authorized the permittee to conduct Method 9 observations for initial performance testing on baghouses BV6 and BV15.

Waiver (12/10/03): During the evaluation of waiver AP-1145, the Division determined that 40 CFR 60 Subpart OOO does apply to the Baramix process (originally authorized under Waiver 9/16/92).

AP-1967 (5/25/04): allowed the addition of duct work to the ESP to control fugitive emissions from the granular rail loadout spout.

AP-2001 (6/1/04): allowed replacement of the bin vent filter controlling the C&D stockpiling spout (DD) with a baghouse (DDBH), and the installation of a three sided bunker around the C&D stacker pile to control particulate emissions. This waiver was superseded by waiver AP-2001A.

MD-1478 (11/7/06)/Corrected (11/21/06): increased the annual bentonite production limit from the Colony plant to 609,000 TPY. The permit was corrected to indicate this was bentonite production from the dryers, rather than the plant. These permits have been superseded by permit MD-13462.

AP-7596 (4/18/08): allowed the addition of a grout system with a baghouse (GSBH). This waiver was superseded waiver AP-8512.

wv-12246 (9/13/11): allowed the addition of a SWECO dust collector (BV16) to the upper mill building area and replacement of Bin Vent 3 (BV3) with a CamCorp Pulse Jet Dust Collector, however this waiver was superseded by permit MD-13654.

MD-13462 (11/9/12): superseded permit MD-1478 Corrected and removed the bentonite dryer production limit.

The following permits and waivers have remaining applicable requirements for the Colony Plant.

MD-260 (1/10/96): reduced allowable dryer particulate emissions and established particulate emission limits for several other sources at the facility. Sources with remaining particulate emission limits from this permit are: ESP, Sly4, BV1, BV2, BV7, BV9, BV10, BV11, BV12, DC3, and DC4. The permit also limits sulfur content of the coal for the dryers to 1.2 percent.

AP-J67 (4/22/97): allowed construction of a 200-mesh truck loadout station. The waiver sets particulate emission limits for the truck loadout baghouse (DPJ) and sets an opacity limit on emission sources DPJ, BV13, and BV14 in accordance with 40 CFR 60 Subpart OOO.

MD-603A (6/25/03): amended permit MD-603A to acknowledge the as-built configuration of the 500 ton storage silo and bucket elevator (BV15), the granular loadout system (BV6), and the reconfiguration of the Bore-Gel silo (MK1) and bulk rail loadout (BRLSP). Applicable requirements include particulate emission and opacity limits on sources BV6, BV15 and BRLSP, NO_X and SO_2 limits on the ESP, and an annual coal usage limit for the dryers to ensure NO_X emission limits are not exceeded. The permit also limits opacity from fugitive emissions, requires that all unpaved portions of haul roads be treated to control fugitive dust, and requires compliance with 40 CFR 60 Subpart OOO.

AP-1145 Corrected (2/24/04): acknowledged the as-built configuration and replacement of four sources: BV5, DD, DC5 and BV8 (source DD has since been replaced with DDBH). The granular packer

baghouse was removed and emissions from this source were routed to the ESP. Sources DC2 and BV8 were replaced by a new baghouse identified as BV8. AP-1145 was corrected to distinguish that the new coal-only baghouse BV8 was not subject to the requirements of 40 CFR 60 Subpart OOO. Applicable requirements include particulate emission limits on the new BV8 baghouse.

AP-1657, AP-1656, AP-1652 (5/24/04): allowed the addition of a baghouse on each of the three granular silos previously identified as CH1 through CH3. The three baghouses are identified as GBH1, GBH2 and GBH3. The waivers set particulate emission and opacity limits on each baghouse.

Waiver AP-2174 (8/5/04): allowed the addition of a megatex screening system, controlled by baghouse MEGBH. The waiver set particulate emission limits for source MEGBH and requires compliance with 40 CFR 60 Subpart OOO.

AP-2001A (12/1/04): amended waiver AP-2001 to indicate that the modification was not subject to 40 CFR 60 Subpart OOO requirements. The waiver set an opacity limit on the baghouse controlling the C&D storage bunker (DDBH) as well as an opacity limit on fugitive emissions emanating from the storage bunker.

MD-1310 (1/31/06): modified operations with the relocation of the crushed and dried rail loadout system and installation of a baghouse (CDRLB) to help minimize fugitive emissions. Applicable requirements include particulate emission and opacity limits for baghouse CDRLB as well as an opacity limit on fugitive emissions from the crushed and dried rail loadout system.

AP-8299 (10/21/08): allowed replacement of the main packer/palletizer (controlled by PPPSP). Applicable requirements include particulate emission and opacity limits, compliance with the requirements of 40 CFR 60 Subpart OOO, and monitoring for visible emissions which are similar to, and incorporated into, the compliance assurance monitoring.

AP-8512 (10/22/08): removed the annual operation limit and monitoring that had been established under waiver AP-7596 for the grout system (GSBH). This waiver set particulate emission limits and required compliance with 40 CFR 60 Subpart OOO, which includes opacity limits.

AP-9502 (7/10/09): allowed installation of two Mountain Mover Storage Units with filtering socks (MM1 & MM2) to store soda ash. These sources are subject to 40 CFR 60 Subpart OOO. Transfer conveyers are powered by two Caterpillar 3116 diesel engines (MME1 & MME2). Performance tests required under this waiver were completed. Remaining requirements include an opacity limit on the trailers and conveyor transfer points, and daily observations for the presence of visible emissions. The engines are limited to 730 hours of annual operation, to be monitored with non-resettable hour meters.

wv-9598 (7/10/09): allowed construction of an additional source to be controlled by the existing Bore-Gel packer baghouse (MK1), which is also subject to Subpart OOO. Performance tests required under this waiver were completed. The waiver set particulate and opacity limits on MK1, and requires daily visual observations.

wv-10710 (7/7/10): allowed installation of a second baghouse (DDBH2) to control emissions from an existing bunker. Performance tests required under this waiver were completed. The waiver sets particulate and opacity limits on DDBH2, and requires daily visual observations. A modeling package for NO_X and particulate emissions was required, and has been submitted.

wv-11193 (10/13/10): allowed a process change with no change in emissions for baghouse BV8. The waiver set an opacity limit on BV8 and requires daily visual observations.

wv-12269 (8/19/11): allowed the installation of a blow line back to the Gold Seal Silo to transfer bentonite from overloaded vessels (railcar or truck). This addition caused the Gold Seal Silo and associated bin vent (BV4) to become subject to 40 CFR 60 Subpart OOO, because a new source was routed to the storage silo. Initial performance testing was completed as required. The waiver also established emission and opacity limits for the bin vent.

wv-12930 (2/7/12): allows the addition of a truck loading operation in the event that railcars are unavailable. These operations are not subject to 40 CFR 60 Subpart OOO as they do not meet the definition of an affected facility. This waiver also establishes an opacity limit, a limit on the number of trucks per year that may be loaded, a limit on the tonnage of bentonite transported by truck per year, and requires that unpaved portions of haul roads, access roads, and work areas be treated with water and/or chemical dust suppressants to control fugitive dust.

MD-13654 (11/27/12): superseded waiver wv-12246 and allowed replacement of a CamCorp Model 12SFTR84S156 Poly-el Cartridge Dust Collector (BV16 – never installed) with a CamCorp Cam-airo model CA 20 dry bin baghouse (DBBH), replacement of the CamCorp Model 3SFTR84X12 Pulse Jet cartridge bin vent style filter (existing BV3) with a CamCorp Model CA 9 cartridge bin vent style filter (new BV3), and addition of dust pickup points. The particulate emission and opacity limits for BV3 in permit MD-260 were superseded by the requirements of this permit. For BV3 and DBBH, the permit required performance testing within 90 days of startup (completed as required), establishes particulate and visible emission limits, and requires periodic testing every five years. It also requires compliance with 40 CFR 60 Subpart OOO as applicable.

MD-15587 (4/1/14) and Division letter 3/9/15: authorized construction of a C&D Reclaim System controlled by a baghouse (CDRBH). The permit required initial performance testing, which was completed in October 2014 for PM_{10} and Opacity, and in April 2015 for $PM_{2.5}$. The permit also set PM_{10} emission and opacity limits, requires daily visual emission observations and emissions testing once every five years, as well as compliance with 40 CFR 60 Subpart OOO.

Applicable Requirements

Applicable requirements include the WAQSR Ch 6, Sec 2 permit and waiver conditions listed above, visible emission limits set forth in WAQSR Ch 3, Sec 2, and the sulfur dioxide emissions inventory requirements from WAQSR Ch 14, Sec 3. Several small natural gas fired heaters (HTRS) are limited to 0.20 lb/MMBtu of NO_X under WAQSR Ch 3, Sec 3.

The diesel engines (MME1 & MME2) at the facility are subject to any applicable requirements from 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ.

Numerous sources at the facility are subject to the requirements from 40 CFR 60 Subpart OOO for nonmetallic mineral processing plants, including: BRLSP, BV3, BV4, BV5, BV6, BV10, BV11, BV13, BV14, BV15, CDRBH, DC5, DPJ, MK1, GBH3, GSBH, MEGBH, PPPSP, MM1 and MM2.

40 CFR 60 Subpart OOO currently **does not** apply to:

- TLO-5 because it is an open truck loading station and therefore it is not an affected facility under this subpart

- RLO-2 (previously named CDRLO) or CDRLB because the Crushed & Dried Rail Loadout (RLO-2) was originally installed in 1972 (predating Subpart OOO), and the addition of a baghouse (CDRLB) and relocation of the system in 2006 does not qualify as a modification under this part (40 CFR 60 §60.14(e)(5))
- The ESP, or the current emission sources routed to the ESP, because these emission sources predate Subpart OOO or are exempt from any applicable requirements under the subpart
- BV1, BV7, or BV8 because they solely process coal (which is not a nonmetallic mineral as defined in the subpart)
- DDBH and DDBH-2 because the additions of pollution control devices on existing sources does not qualify as a modification under this part
- BV2, BV9, DC3, DC4, GBH1, GBH2, or Sly 4 because they predate Subpart OOO
- BV12 because it is a blender and therefore it is not an affected facility under this subpart

40 CFR 60 Subpart OOO determinations for sources constructed, modified, or reconstructed after April 22, 2008:

- The affected facilities controlled by CDRBH and GSBH were constructed after April 22, 2008 and will comply with all applicable requirements of Subpart OOO.
- The affected facilities controlled by BV3, BV4, MEGBH, and DBBH were modified after April 22, 2008 and will comply with all applicable requirements of Subpart OOO.
- One of the minerals handling processes that baghouse MK1 controls was modified after April 22, 2008, but that modified process is not an affected facility under 40 CFR 60 Subpart OOO §60.670. Therefore, the conditions of Subpart OOO that apply only to facilities constructed, modified, or reconstructed on or after April 22, 2008 do not apply to MK1. The conditions of Subpart OOO that apply to affected facilities constructed, modified, or reconstructed between August 31, 2008 and April 22, 2008 apply to MK1 because of the other processes controlled by the baghouse.
- The original packer/palletizer controlled by PPPSP was replaced with a like-kind packer/palletizer, identical in size and dimensions with no increase in emissions, after April 22, 2008. This replacement meets the description in §60.671(d)(1) and is exempt from the requirements of Subpart OOO §§60.672, 60.674, and 60.675. The permittee shall comply with all other applicable requirements of Subpart OOO for source PPPSP. This determination is also supported by the June 3, 1999 EPA Applicability Determination on Equipment Replacement at Mineral Processing Plants, Control Number: 0000051.

40 CFR 60 Subpart Y (for coal preparation plants), does not apply to this facility because there is no coal preparation of greater than 200 tons per day. 40 CFR 60 Subpart UUU (for calciners and dryers in mineral industries) does not apply to the three rotary dryers because they were installed prior to 1986.

Periodic Monitoring and CAM

The baghouses, cartridge filters and ESP are subject to WAQSR Ch 7, Sec 3 Compliance Assurance Monitoring (CAM), with the exception of the granular silo baghouses (GBH1, GBH2, and GBH3) which have particulate emissions of less than 100 TPY pre-controlled. The CAM plans include daily Method 22-like visual emissions observations and preventative maintenance. Should visible emissions

be observed, corrective action shall be taken.

Monitoring of visible and particulate emissions from the sources not subject to CAM includes periodic Method 22-like visual emission observations. Monitoring of fugitive dust emissions includes quarterly Method 9 observations. Should visible emissions in excess of permitted limits be observed, corrective actions shall be taken.

Monitoring for NO_X, SO_2 and particulate emissions from the ESP includes annual NO_X testing, and SO_2 and particulate testing at least every five years. The permittee shall determine the pounds of NO_X emitted per ton of coal burned during the annual NO_X testing to be used in calculating the annual NO_X emissions. The permittee shall also monitor coal consumed by the dryers, hours of dryer operation, and sulfur content of the coal to ensure the annual NO_X and SO_2 limits are not exceeded. The permittee shall calculate the monthly average SO_2 emission rate in lb/hr from the ESP. Based on the maximum 1.2 percent coal sulfur content limit, annual coal limit, and assuming 72 percent sulfur retention, the annual SO_2 emissions should not exceed 193.4 tons. Compliance with these conditions is presumed to show compliance with the annual SO_2 limit. The permittee shall also monitor the total coal consumed by the dryers to ensure the annual limits are not exceeded.

The permittee is also required to test sources BV3, DBBH and CDRBH for PM_{10} emissions at least once every five years, monitor the operating hours of the diesel engines (MME1 & MME2), and monitor the amount of crushed and dried bentonite loaded through source TLO-5.

The small natural gas fired heaters at the facility (HTRS) are fuel burning equipment as defined in WAQSR Ch 1. These uncontrolled units emit oxides of nitrogen (NO_X) in relatively small quantities (less than 1.2 total tons 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.