

STATEMENT OF BASIS

To: Reviewers
Through: Lori Bocchino, Operating Permit Program Manager
From: Rita Piroutek, Air Quality Engineer
Subject: Draft Chapter 6, Section 3 Operating Permit 3-2-129
Dakota Coal Company, Frannie Lime Plant
Date: August 26, 2014 (*Addendum October 15, 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 Frannie Lime Plant. This facility was constructed in 1992-93. Lime is manufactured at the plant using a single rotary-type kiln. The basic processes are calcining (lime heating) limestone and miscellaneous crushing, sizing, transfer, storage, and handling. No slaking or hydrating of lime is conducted at this plant. All lime produced at the plant is shipped as bulk lime, mostly by railcar. From the storage silos, lime is loaded into enclosed trucks and rail cars via telescoping annular loading/dust collection nozzles. Permitted emission sources at the facility include five baghouses controlling the limestone transfer system, lime kiln, dust bin, coal silo and fuel unloading system, and material handling equipment such as such as conveyors and chutes, feeders, and screens for lime cooling, oversize product handling and lime sizing. A 3,000 ton limestone stockpile is also present at the plant site.

Permitting History

All permits are listed to document the permitting history. The permits listed in the following two paragraphs have no remaining applicable requirements or were never activated:

Waiver (10/15/1991): waived preconstruction monitoring for the proposed lime kiln. Permit CT-959 (1/21/1992): permitted the construction of a 500 ton per day lime manufacturing plant. Five baghouse-controlled sources were installed. Letter (12/14/1992): reflected a one-time authorization to manage non-hazardous baghouse dust from the Frannie lime plant. Waiver (1/10/1994): authorized the installation of a silo for the storage of petroleum coke or coal. Emissions are controlled by using the existing Coal Silo Baghouse (unit C). Waiver (8/17/1995): allowed the installation of a screen and conveyors for a test/trial period of six weeks to run oversize material. Letter (9/26/1995): authorized a test burn of Syncoal and regular coal over a five month period. Waiver (12/29/1995): allowed the installation of a briquetting system to convert fines from the fines storage silo into pebble size lime product at a rate of up to six tons per hour. Emissions are controlled by the existing Lime Sizing Baghouse (unit E). Letter (3/14/1996): authorized the firing of Syncoal at a 70 percent/30 percent split and required testing for NO_x and CO emissions. Waiver AP-VV1 (5/17/2001): allowed modifications to the lime handling and storage facilities through construction of a rejects bunker, rejects silo and associated screw conveyor and bucket elevator. The additional lime handling, storage facilities, and modifications are subject to the requirements of Subpart 000.

Waiver (11/13/2002): authorized a four-week test burn of a combustion enhancement additive (GE Betz EP9587) added to the fuel system, in an effort to improve overall combustion efficiency of the kiln. Waiver AP-3948 (10/10/2005): allowed a temporary operation to unload seven railcars containing about 700 tons of “out of spec” lime. This scenario was never used because the lime was shipped to a customer. Waiver AP-4926 (7/26/2006): allowed temporary petroleum coke loading operations. Waiver AP-5288 (11/16/2006): increased the amount of petroleum coke used in the coal/petroleum coke mixture used to fire the rotary kiln but did not set a limit. Waiver AP-6979 (11/20/2007): authorized the unloading of six railcars containing 600 tons of “out of spec” lime.

The following waivers and permits have requirements that are incorporated into the operating permit:

Permit OP-244 (3/23/1994): authorized the operation of the plant. OP-244 requires the lime plant to comply with the requirements of 40 CFR 60 Subparts HH and OOO. Subpart HH limits visible emissions from the lime kiln to 15% opacity, and requires operation of a continuous monitor (COM) to record opacity. The permit sets SO₂, NO_x and CO limits for the lime kiln, and particulate emissions limits from all baghouses in lb/hr and to 0.01 gr/dscf, which is more stringent than the particulate limit under Subpart OOO. Subpart OOO limits the the baghouse units B1, D, D1, and E to 7% opacity, and fugitive emissions from the conveyor transfer points to 10% opacity. The permit analysis for CT-959/OP-244 incorrectly considered the Coal Silo Baghouse (unit C) to be subject to Subpart OOO. (This subpart does not apply to coal). During the issuance of the initial operating permit, the Division administratively retained the 7% opacity limit based on BACT, for the Coal Silo Baghouse (unit C).

Permit OP-244 also requires that the trafficked areas of the plant be maintained as necessary to minimize fugitive dust emissions, and requires emissions from start-up and shut-down of the kiln be minimized to the extent possible as outlined in Dakota Coal Company’s February 11, 1994 description of start-up and shut-down procedures, attached as Appendix A of the permit. The Coal Silo Baghouse (unit C) operating hours limit was removed under permit MD-1358 listed below.

Permit MD-222 (4/25/1995): permitted the modification of plant operations to allow a blend of petroleum coke and coal to be burned as fuel in the lime kiln. The permit requires the permittee to record and report fuel usage in the annual emissions report, and retained the allowable emission limits as previously permitted.

Waiver AP-K97 (5/9/1997): allowed the replacement of the pneumatic coal unloading system with a mechanical system, replacement of the 40 ton syncoal silo with a 120 ton silo, replacement of the oversize lime product equipment with improved dust control including a baghouse, and enclosure of the rejects pile. The oversize lime product equipment is subject to Subpart OOO requirements. The waiver sets limits for particulate emissions and opacity from the Oversize Product Baghouse (unit D1). Fugitive emissions from the oversize lime product handling system are limited to no visible emissions.

Permit MD-929 (10/6/2003): increased allowable NO_x emissions from the lime kiln to 85 lb/hr on a 24-hour block average. The permit required installation, certification, maintenance and operation of a continuous emissions monitoring system (CEMS) to demonstrate compliance with the NO_x limits.

Permit MD-1358 (4/24/2006): allowed the replacement of the existing Raymond coal mill with a larger Raymond mill and increased the kiln SO₂ limit. Construction of the mill commenced June 15, 2006. Particulate emissions from the mill will continue to be controlled by the lime kiln baghouse (unit B). Emission limits were also set for the kiln baghouse for CO, NO_x and particulates. The operating hours limit for the coal silo (from OP-244) was removed, and particulate emission limits were established. This permit was corrected on 12/20/2013 to correct a pollutant listing in condition 9 from NO₂ to NO_x.

Waiver wv-16145 (5/13/2014): authorized a crusher replacement. The crusher is controlled by the Lime Sizing Baghouse (Unit E).

Applicable Requirements

Applicable requirements include the WAQSR Ch 6, Sec 2 construction permit and waiver limits and conditions listed above, and visible emission limits set forth in WAQSR Ch 3, Sec 2.

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:

40 CFR 60 Subpart HH – *Standards of Performance for Lime Manufacturing Plants*, (the lime kiln is subject to any applicable requirements from Subpart HH).

40 CFR 60 Subpart OOO - *Standards of Performance for Nonmetallic Mineral Processing Plants*, (units A, B1, D, D1, and E are subject to any applicable requirements from Subpart OOO for equipment that commenced construction, modification, or reconstruction after August 31, 1983 and before April 22, 2008).

The coal system is not subject to the requirements of 40 CFR 60 Subpart Y - *Standards of Performance for Coal Preparation and Processing Plants*, because it processes less than 200 tons/day.

The permittee performed hydrogen chloride (HCl) testing 5/13/2003 to determine whether the lime kiln is a major source of HCl and therefore subject to 40 CFR 63 Subpart AAAAA - *National Emission Standard for Hazardous Air Pollutants for Lime Manufacturing Plants*. The Lime Kiln Baghouse (unit B) tested at an average HCl emission rate of 1.19 lb/hr (5.21 tpy) at 86% capacity. Per the Division letter dated 12/18/2003, prorated to full capacity the potential HCl emissions from the kiln would be 6.1 tpy, and therefore is not subject to the requirements of Subpart AAAAA. Should the feed or fuel characteristics change, the Division will evaluate the need to retest.

Periodic Monitoring and CAM

Periodic monitoring of visible emissions from the Lime Kiln Baghouse (unit B) consists of the continuous opacity monitoring required by 40 CFR 60 Subpart HH. The baghouse controlled lime kiln is subject to WAQSR Ch 7, Sec 3, Compliance Assurance Monitoring (CAM) requirements for particulate emissions. CAM consists of daily Method 22-like observations for visible emissions from the baghouse, in addition to review of data from the COM using the relationship demonstrated between opacity and particulate emissions based on data available from 2/15/2007 and 6/23/2010 stack tests.

The permittee shall also perform particulate testing every 3-5 years, with the frequency depending on the results of the previous test.

Periodic monitoring of NO_x emissions from the Lime Kiln Baghouse (unit B) consists of calibrating, operating, and maintaining the CEMS for NO_x emissions. Periodic monitoring for SO₂ and CO emissions from the Lime Kiln Baghouse (unit B) consists of performance testing once every five years.

For opacity and particulate emissions from the other baghouses (units B1, C, D, D1 and E), the permittee shall perform weekly observations to determine the presence of visible emissions. The visual observations shall be conducted by a person who is educated on the general procedures for determining the presence of visible emissions, but not necessarily certified to perform Method 9 observations. The permittee shall also follow an inspection and maintenance plan. The observation of visible emissions from any unit shall prompt immediate inspection and, if necessary, corrective actions.

Fugitive emissions monitoring for the Limestone Transfer System (unit A), Fuel Unloading System, Oversize Product System, and Limestone Stockpile (unit F) shall consist of daily visual inspections and corrective actions.

Compliance Assurance Monitoring (CAM) requirements do not apply to the baghouses units B1, C, D, D1 and E at this facility because potential pre-control device emissions do not exceed the CAM threshold.

Addendum (October 15, 2014)

During the public notice period, the permittee notified the Division of a change to the company mailing address and phone number. The General Information section of the permit has been updated, as requested. These changes are administrative in nature and do not warrant an additional public notice period.