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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-0760H
Plant ID No.: 049-00019
Applicant: The Marion County Coal Company
Facility Name: Marion County Preparation Plant
Location: Marion County
SIC Code: 1222 (Bituminous Coal & Lignite - Underground)
NAICS Code: 212112 (Bituminous Coal Underground Mining)
Application Type: Class II Administrative Update
Received Date: February 28, 2017
Engineer Assigned: Dan Roberts
Fee Amount: \$300
Date Received: March 3, 2017
Applicant Ad Date: March 8, 2017
Newspaper: *The Dominion Post*
Complete Date: March 23, 2017
UTM Coordinates: Easting: 561.6 km • Northing: 4,383.9 km • NAD83 Zone 17N
Lat/Lon Coordinates: Latitude: 39.60263 • Longitude: -80.28249 • NAD83
Description: Class II administrative update to allow the company the ability to fire propane in the thermal dryer at maximum combustion limits of 500 gal/hr and 4,380,000 gal/yr. Consistent with current usage of coal bed methane and natural gas, propane may be fired primarily during the start-up and shut down, with coal being the primary fuel source during normal operation. The company will retain the capability to co-fire either coal bed methane, natural gas or propane with coal.

BACKGROUND

On February 28, 2017, The Marion County Coal Company (MCCC) submitted an application for a Class II administrative update to modify the Marion County Preparation Plant. The facility was originally constructed in 1957 by the Consolidation Coal Company (CCC) and called the Loveridge Preparation Plant until purchased by MCCC and renamed in 2013. The facility has been the subject of many permitting actions since construction as described below:

- On December 16, 1977, Permit Number R13-0345 was issued to CCC for the installation of a thermal dryer at the Loveridge Plant;
- On August 1, 1985, Permit Number R13-0760 (this permit superceded and replaced R13-0345) was issued to CCC for the replacement of the three (3) existing thermal dryers with one (1) fluidized-bed dryer;
- On November 3, 2003, a “no-permit needed” decision was issued (PD03-108) to CCC for the installation of new equipment to allow for methane co-firing of the thermal dryer;
- On November 20, 2003, a “no-permit needed” decision was issued (PD03-112) to CCC for the installation of three (3) gas fired compressors;
- On September 15, 2006, Permit Number R13-0760A was issued to CCC as a Class II Administrative Update for the addition of raw coal Conveyor 21, a second stacking tube at raw coal Stockpile 1, raw coal reclaim Conveyor 22, and an increase in the capacity of raw coal Stockpile 1 from 300,000 tons to 450,000 tons;
- On September 20, 2006, Permit Number R13-0760B was issued to CCC as a Class II Administrative Update for the addition of clean coal Conveyor 7A, the 10,500 ton Clean Coal Silo 3, and reclaim Conveyor 13A;
- On December 8, 2006, Permit Number R13-0760C was issued to CCC to revise the thermal dryer's emission limits in accordance with consent order CO-R13, 14-96-22;
- On May 12, 2008, Permit Number R13-0760D was issued to CCC to increase in the maximum sulfur content of the coal combusted in the thermal dryer furnace from 2.5% to 3.4%;
- On March 5, 2015, Permit Number R13-0760E was issued to MCCC to add conveyor belt CB8A and batch weigh loadout bin BWL;
- On June 20, 2015, MCCC entered into a Consent Order (CO-R30-E-2015-1) that led to permitting action R13-0760F below. Substantively, the DAQ determined that, based on the currently permitted maximum heat input of 182 mmBtu/hr and the emission rates of NO_x and VOCs measured in the most recent approved stack test in 2011 (0.48 lb-NO_x /mmBtu and 0.95 lb-VOC/mmBtu), the thermal dryer would not be in compliance with the NO_x and VOCs emission limits in the permit.
- On April 5, 2016, a “no-permit needed” decision was issued (PD16-023) to MCCC for a thermal dryer burner improvement project; and
- On August 2, 2016, Permit Number R13-0760F was issued to MCCC to (1) increase allowable short-term sulfur content of coal combusted in the thermal dryer, (2) lower the hourly heat input of the dryer from 182 mmBtu/hr to 130 mmBtu/hr, and correct several miscellaneous errors in the permit. No increase in annual emissions as a result of this permitting action. Only request increase in hourly SO₂ emissions from dryer of 40 lbs/hr.

- On September 7, 2016, the DAQ received application R13-0760G for a Class I administrative update to delete permit conditions from permit R13-0760F which were not applicable to the facility. The Marion County Coal Company has proposed to delete the following permit conditions from permit R13-0760F as follows for these reasons taken directly from the application:

4.3.4 - includes requirements for Method 9 opacity tests from 40 CFR Part 60, Subpart A (i.e., the General Provisions). However, NSPS Y includes specific Method 9 procedures with minor changes from those in the General Provisions. These rule-specific procedures are found at 40 CFR 60.257(a) and are included in term 4.3.13 of R13-0760F.

4.3.8 - provides exemptions from 40 CFR 60.255(b)(1)(I) and (ii) for affected facilities (other than thermal dryers) that commenced construction, reconstruction, or modification after April 28, 2008, is subject to a PM emission standard, and uses a control device with a designed controlled potential PM emissions rate of 1.0 Mg per year or less. This term is inapplicable to MCCC since MCCC operates no such affected facilities.

4.3.9 - provides that groups of up to five of the same type of affected facilities that commenced construction, reconstruction, or modification after April 28, 2008, that are subject to PM emissions standards and use identical control devices may use a single PM performance test for one of the affected facilities to demonstrate compliance for the group. This term is inapplicable to MCCC since MCCC operates no such group of affected facilities.

4.5.5 (1), (4)-(10) - 4.5.5 requires MCCC to maintain a logbook recording certain information for affected facilities that commenced construction, reconstruction, or modification after April 28, 2008 are Conveyor belts 8A and 9 and the Batch Weigh Loadout Bin (BWL). Accordingly, 4.5.5 (1) and (4)-(1) are not applicable given that they contain information specific to other types of affected facilities regulated by NSPS Y commenced construction, reconstruction, or modification after April 28, 2008 and which MCCC does not operate.

4.5.6 (1)-(2) - 4.5.6 requires semiannual excess emissions reports. Specifically, 4.5.6(1) requires affected facilities with a wet scrubber to submit semiannual reports of occurrences when the measurements of the scrubber pressure loss, water supply flow rate, or pH of the wet scrubber liquid vary more than 10 percent from the average determined during the most recent performance test. Although MCCC operates a thermal dryer with a wet scrubber, 40 CFR 60.258 applies only to thermal dryers that commenced construction, reconstruction, or modification after April 28, 2008. The thermal dryer at MCCC's Marion County Preparation Plant was not constructed, reconstructed, or modified after April 28, 2008, and 4.5.6(1) therefore does not apply. 4.5.6(2) requires semiannual reports for affected facilities with control equipment other than a wet scrubber. MCCC does not operate any affected facility with control equipment other than a wet scrubber, and 4.5.6(2) therefore does not apply.

On February 28, 2017, the DAQ received application R13-0760H for a Class II administrative update to allow the company the ability to fire propane in the thermal dryer at maximum combustion limits of 500 gal/hr and 4,380,000 gal/yr. Consistent with current usage of

coal bed methane and natural gas, propane may be fired primarily during the start-up and shut down, with coal being the primary fuel source during normal operation. The company will retain the capability to co-fire either coal bed methane, natural gas or propane with coal.

DESCRIPTION OF PROCESS

Facility Description

MCCC's Marion County Preparation Plant is a typical large coal preparation plant utilizing a primarily coal-fired thermal dryer. The facility is permitted to process up to 3,000 tons per hour (TPH) and 26,280,00 tons per year (TPY) of raw coal. Raw coal is delivered from an existing mine portal and then sized, cleaned, dried, and processed for delivery to customers. The existing thermal dryer is a fluidized bed thermal dryer, manufactured by ENI Engineering Company, that utilizes a Bigelow-Liptak forced draft burner and has a currently maximum permitted heat input of 130 mmBtu/hr (using a combination of coal and coal bed methane, natural gas or propane).

Thermal Dryer Description

The fluidized bed thermal dryer, manufactured by ENI Engineering Company, utilizes a Bigelow-Liptak forced draft burner and has a currently allowable maximum heat input of 130 mmBtu/hr based on the combustion of 4.35 TPH of coal (limited to providing up to 120 mmBtu/hr), coal bed methane (providing up to 130 mmBtu/hr), natural gas (providing up to 130 mmBtu/hr) and propane (providing up to 47.5 mmBtu/hr).

Directly heated air from the furnace is used to dry the wet coal in the following way: combustion gas from the pulverized coal fired furnace is mixed with ambient air. The resulting hot gas is at a temperature of 900-1050°F and contains roughly 85% air and 15% combustion products (~90,000 dscfm). The hot gas fluidizes the coal in a chamber containing a restriction deck. The fluidized coal travels on and across the bed which promotes evaporation of moisture from the coal. Most of the coal then falls over a weir and into air-lock hoppers, which discharge onto a transfer belt that conveys the dried coal to the dryer product belt. Some of the smaller sized coal is carried by the gas to a bank of four cyclones, which remove all but the finest material. Most of the fines collected by the cyclones discharge (via screw feeders) to the dried coal transfer belt. Some of the fines (~3.6 TPH) are used to fire the dryer furnace. Dryer feed rates range from a normal of 450 dry TPH to a maximum of 600 dry TPH, depending on the slack content of the raw coal feed to the plant. Coal processing rates are dependent on a number of parameters including coal quality, coal size, and contract specifications.

Compliance with the particulate matter emissions from the dryer stack is achieved with a venturi scrubber operating at a pressure drop of 30 to 40" wc. The pressure drop occurs across an annular passage created by a restrictive cone centered in the venturi duct. Clarified overflow water from the preparation plant thickener is injected into the venturi at a rate of about 1,300 gpm. The water is atomized across the annular passage and the droplets come into contact with the particulate matter in the gas. The resulting fines-laden water is then removed from the gas by cyclonic separator located at the base of the stack. The relatively particulate matter free gas leaves the stack saturated,

at about 120°F, and containing some mist.

The high-energy gas-liquid contact in the venturi scrubber is designed to remove particulate matter, but it also absorbs SO₂. The amount of SO₂ removed by the venturi scrubber depends partly on the inlet water alkalinity. The natural alkalinity of the plant water does not provide enough removal to comply with the SO₂ limits at furnace fuel feed rates greater than 110 pounds per hour. Therefore, an SO₂ control system was installed to decrease the SO₂ emission from the unit. This is accomplished by spraying a small amount (up to 3 gpm) of caustic solution (20% NaOH) onto the dryer feed coal just before it enters the drying chamber. The caustic solution reacts with the SO₂ in the coal drying chamber, forming the salt Na₂SO₄, which leaves the drying chamber as a solid with the product coal. A metering pump delivers caustic solution to a spray header at the end of the conveyor belt that delivers feed coal to the dryer.

The thermal dryer is not equipped with equipment to control NO_x, VOC, or CO emissions from the stack. NO_x and CO emissions are minimized by controlling the pulverized coal combustion conditions. VOC emission are minimized by controlling the furnace and dryer chamber temperatures.

Source ID	Emission Point ID	Equipment Description	Date of Construction, Reconstruction or Modification ¹	Maximum Design Capacity		Fugitive Control System/ Device ²
				TPH	TPY	
RAW COAL CIRCUIT						
001	Z01	Conveyor 1 - Mine slope belt to Raw Coal Transfer Building	pre 1974	3,000	26,280,000	FE
005	Z01	Conveyor 3 - Belt from Raw Coal Transfer Building to Raw Coal Storage Bin 1	pre 1974	3,000	26,280,000	FE
006	Z01	Storage Bin 1 - Raw Coal storage silo from Conveyor 3 and transfers to Conveyor 4; Storage capacity is 15,000 tons	pre 1974	2,000	17,520,000	FE
008	Z01	Conveyor 4 - Belt from Raw Coal Storage Bin 1 to Prep Plant	pre 1974	2,000	12,000,000	FE
002	Z01	Conveyor 2 - Belt from Raw Coal Transfer Building to Raw Coal Stockpile 1 Stacking Tube 1	1989	3,000	900,000	FE
003A	Z01	Raw Coal Stockpile 1 - Stockpile equipped with Stacking Tube 1 and Stacking Tube 2; Stockpile footprint is 9.55 acres with a storage capacity of 450,000 tons	2005	3,000	26,280,000	ST
052	Z01	Conveyor 21 - Belt from Raw Coal Transfer Building to Raw Coal Stockpile 1 Stacking Tube 2	2005	3,000	12,000,000	FE
053	Z01	Conveyor 22 - Belt from Raw Coal Stockpile 1 to Conveyor 4	2005	3,000	12,000,000	FE
007	Z01	Raw Coal Stockpile 2 - Stockpile footprint is 3.8 acres with a storage capacity of 70,000 tons	1993	1,800	210,000	MC
STOKER COAL CIRCUIT						
037	Z01	Conveyor 19 - Belt from Prep Plant to Stoker Coal Truck Loadout	pre 1974	300	1,800,000	FE
051A	Z01	Conveyor 20 - Belt from Prep Plant to Stoker Coal Railcar Loadout	pre 1974	300	1,800,000	FE
046	P003	Lime Storage Silo 1	pre 1974	NA	NA	NA
048	P004	Rock Dust Silo 1	pre 1974	NA	NA	NA
CLEAN COAL THERMAL DRYER CIRCUIT						
034	Z01	Conveyor 15 - Belt from Prep Plant to Thermal Dryer 1	1985	600	3,600,000	FE
045A	P002	Thermal Dryer - ENI Eng. Co. Fluidized Bed Dryer rated at 130 MMBTU/hr Heat Input	1985	max 600 normal 450	3,600,000	4 Parallel Cyclones
045C	Z01	Thermal Dryer Furnace - Bigelow Liptak forced draft burner rated at 130 MM BTU/hr Heat Input	1985	4.35 (TPH)	26,100	Horizontal Venturi Scrubber
035	Z01	Conveyor 16 - Belt from Thermal Dryer to Conveyor 17	1985	600	3,600,000	FE

Source ID	Emission Point ID	Equipment Description	Date of Construction, Reconstruction or Modification ¹	Maximum Design Capacity		Fugitive Control System/ Device ²
				TPH	TPY	
036	Z01	Conveyor 17 - Belt from Conveyor 16 to Conveyor 18	1985	600	3,600,000	FE
036B	Z01	Conveyor 18 - Belt from Conveyor 17 to Conveyor 6	1985	600	3,600,000	FE
CLEAN COAL CIRCUIT						
013	Z01	Conveyor 5 - Belt from Prep Plant to Conveyor 6	pre 1974	1,800	10,800,000	FE
015	Z01	Conveyor 6 - Belt from Conveyor 5 and Conveyor 18 to Clean Coal Silo 1 or Conveyor 7	pre 1974	1,800	10,800,000	FE
CLEAN COAL STORAGE						
017	Z01	Clean Coal Silo 1 - Clean Coal storage silo from Conveyor 6 and transfers to Conveyor 8; Storage capacity is 10,500 tons	pre 1974	3,000	18,000,000	FE
030	Z01	Conveyor 7 - Belt from Conveyor 6 to Clean Coal Silo 2 or Conveyor 7A	1981	1,800	10,800,000	FE
044	Z01	Clean Coal Silo 2 - Clean Coal storage silo from Conveyor 6 and transfers to Conveyor 8; Storage capacity is 10,500 tons	1981	3,000	18,000,000	FE
031	Z01	Conveyor 13 - Belt from Clean Coal Silo 2 to Conveyor 8	1981	3,000	18,000,000	FE
030A	Z01	Conveyor 7A - Belt from Conveyor 7 to Clean Coal Silo 3	2006	1,800	10,800,000	FE
044A	Z01	Clean Coal Silo 3 - Clean Coal storage silo from Conveyor 6 and transfers to Conveyor 8; Storage capacity is 10,500 tons	2006	1,800 in / 3,000 out	10,800,000	FE
031A	Z01	Conveyor 13A - Belt from Clean Coal Silo 3 to Conveyor 8	2006	3,000	18,000,000	FE
CLEAN COAL SHIPPING BY TRUCK AND RAILCAR						
018	Z01	Conveyor 8 - Belt from Clean Coal Silo 1, Conveyor 13 and Conveyor 13A to Conveyor 8A or Conveyor 9	pre 1974/2006	3,000	18,000,000	FE
018A	Z01	Conveyor 8A - Belt from Conveyor 8 to Batch Weigh Loadout	C 2014	3,500	9,198,000	PE
038B	Z01	Batch Weigh Loadout Bin (BWL) - 220 tons capacity	C 2014	3,500	9,198,000	FE
032	Z01	Conveyor 9 - Belt from Conveyor 8 to Unit Train Loadout 1	M 2014 pre 1974/2006	3,500	18,000,000	FE
REFUSE CIRCUIT						
021	Z01	Conveyor 10 - Coarse refuse belt from Prep Plant to Conveyor 11	pre-1974	400	2,400,000	FE
023	Z01	Conveyor 11 - Coarse refuse belt from Conveyor 10 to Refuse Bin 2	pre-1974	400	2,400,000	FE
027A	Z01	Refuse Bin 2 - Coarse refuse bin from Conveyor 11 to Pan Truck Loading	pre-1974	400	2,400,000	FE
025	Z01	Conveyor 12 - Coarse refuse belt from Conveyor 11 to Conveyor 14	pre-1974	400	2,400,000	FE
033	Z01	Conveyor 14 - Coarse refuse belt from Conveyor 12 to Refuse Bin 1	1983	400	2,400,000	FE
027	Z01	Refuse Bin 1 - Coarse refuse belt from Conveyor 14 to Pan Truck Loading	1983	400	2,400,000	FE
HAULROADS						
049A	Z01	Unpaved Haulroad	pre-1974	NA	NA	WT
049B	Z01	Unpaved Haulroad	pre-1974	NA	NA	WT
049C	Z01	Unpaved Haulroad	pre-1974	NA	NA	WT
049D	Z01	Unpaved Haulroad	pre-1974	NA	NA	WT
049E	Z01	Unpaved Haulroad	pre-1974	NA	NA	WT
049F	Z01	Unpaved Haulroad	pre-1974	NA	NA	WT
049G	Z01	Unpaved Haulroad	1993	NA	NA	WT
049H	Z01	Unpaved Haulroad	1993	NA	NA	WT
VOC EMISSION SOURCES						
009B	Z01	Froth Floatation Cell	1985	NA	None	None
009	P001	Vacuum Filter	1985	NA	None	None
047	Z01	Thickener	1985	NA	None	None
038A	Z01	Railcar Anti-Freeze Spray	Pre 1974	NA	None	None
051C	Z01	Stoker Coal Anti-Freeze Spray	Pre 1974	NA	None	None
S050A	Z01	No. 2 Diesel Fuel Storage Tank 1	1985	5,000 Gallons	None	None
S050B	Z01	No. 2 Diesel Fuel Storage Tank 2	1985	3,000 Gallons	None	None
S050C	Z01	No. 2 Diesel Fuel Storage Tank 3	1985	3,000 Gallons	None	None

Source ID	Emission Point ID	Equipment Description	Date of Construction, Reconstruction or Modification ¹	Maximum Design Capacity		Fugitive Control System/ Device ²
				TPH	TPY	
S050D	Z01	No. 2 Diesel Fuel Storage Tank 4	1985		Gallons	None
S050E	Z01	Froth Floatation Agent Storage Tank 1	1985		Gallons	None
S050F	Z01	Anionic Flocculant Storage Tank 1	1985		Gallons	None
S050G	Z01	Antifreeze Storage Tank 1	1985		Gallons	None
S050H	Z01	Antifreeze Storage Tank 2	1985		Gallons	None
S050I	Z01	Dustrol Storage Tank 1	1985		Gallons	None
S050J	Z01	Dustrol Storage Tank 2	1985		Gallons	None
S050K	Z01	30 wt. Motor Oil Storage Tank 1	1985		Gallons	None
S050L	Z01	30 wt. Motor Oil Storage Tank 2	1985		Gallons	None
NA	None	Underground Mine	pre-1974		NA	None

¹ In accordance with 40 CFR 60 Subpart Y: all emissions from thermal dryers constructed, re-constructed or modified on or before April 28, 2008 shall be less than 20% opacity; coal processing and conveying equipment, coal storage systems, and coal transfer and loading systems constructed, reconstructed, or modified on or before April 28, 2008 shall not discharge gases which exhibit 20 percent opacity or greater; and coal processing and conveying equipment, coal storage systems, and coal transfer and loading systems constructed, reconstructed, or modified after April 28, 2008 shall not discharge gases which exhibit 10 percent opacity or greater.

² Control Device abbreviations: FE - Full Enclosure; PE - Partial Enclosure; ST - Stacking Tube; WS - Water Sprays; WT - Water Truck; MC - Moisture Control; MD - Minimize Drop Height; N - None; NA - Not Applicable.

SITE INSPECTION

Due to the nature of the proposed Class II administrative update, the author did not perform a site inspection of the facility for this permitting action. The facility was last inspected by DAQ Compliance/ Enforcement (C/E) Inspector Karl Dettinger on August 10, 2016. Mr. Dettinger's notes from the inspection were as follows: "F.C.E. inspection of Marion County Coal Company's Fairview facility was done on 8-10-16. V.E. readings were taken from the exhaust stack of the thermal dryer, photos were taken of the equipment operating, and process data was reviewed relating to the operation of the thermal dryer. Records were requested (some have not been submitted as of the date of this report). Records that were submitted revealed excursions/deviations from specified operating parameters. However, my opinion is that the process operating parameters should be revisited when the report for the most recent stack test (done in September 2016) is received." This inspection found the facility be "Status 10 - Out of Compliance."

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The change in calculations were performed by the applicant using the AP 42, Fifth Edition, Volume I, Chapter 1: External Combustion Sources, Section 1.4 Natural Gas Combustion and Section 1.5 Liquified Petroleum Gas Combustion and were checked for accuracy and completeness by the writer. Refer to the attached calculations spreadsheet and the following tables for a summary of the verification calculations performed by the writer.

<i>Natural Gas Combustion Emission Factors</i> ¹			
Pollutant	Emission Factor lb/MMscf	Emission Factor Rating	Emission Factor lb/MMBtu ³
NO _x ²	190	A	0.1862745
CO ²	84	B	0.0823529
SO ₂	0.6	A	0.0005882
PM, Condensable ³	5.7	D	0.0055882
PM, Filterable ³	1.9	B	0.0018627
PM, Total ³	7.6	D	0.0074510
TOC	11	B	0.0107843

¹ Taken from AP 42 Section 1.4 Natural Gas Combustion (7/98) Tables 1.4-1 and 1.4-2

² From Table 1.4-1 for Large Wall-Fired Boilers - Uncontrolled (Post-NSPS)

³ In accordance with Table 1.4-1 footnote c, all PM (total, condensable, and filterable) are assumed to be less than 1.0 micrometer in diameter

⁴ In accordance with Table 1.4-1 footnote a, an average natural gas higher heating value of 1,020 Btu/scf was used

<i>Propane Combustion Emission Factors</i>			
Pollutant	Emission Factor lb/1,000 gallons ¹	Emission Factor Rating	Emission Factor lb/MMBtu ³
NO _x	13	E	0.1420765
CO	7.5	E	0.0819672
SO ₂	0.05 ²	E	0.0005902
PM, Condensable ³	0.5	E	0.0054645
PM, Filterable ³	0.2	E	0.0021858
PM, Total ³	0.7	E	0.0076503
TOC	1.0	E	0.0109290

¹ From Table 1.5-1 for Propane Emission Factors for Industrial Boilers

² The SO₂ emission factor is listed as 0.10 * S, where S = the sulfur content of propane (0.54 gr/100 ft³)

³ In accordance with Table 1.5-1 footnote d, for natural gas, a fuel with similar combustion characteristics, all PM is less than 10um in aerodynamic equivalent diameter (PM-10)

⁴ In accordance with Table 1.5-1 footnote a, a heat content of 91.5 x 10⁶ Btu/1,000 gallons of propane was used

Pollutant	Natural Gas	Propane	Difference	Potential Change in Emissions	
	Emission Factor lb/MMBtu	Emission Factor lb/MMBtu		lb/hr	TPY
NO _x ¹	0.1862745	0.1420765	-0.0442	-2.10	-9.20
CO	0.0823529	0.0819672	-0.00039	-0.02	-0.08
SO ₂	0.0005882	0.0005902	-0.00000193	< 0.01	< 0.01
PM, Condensable	0.0055882	0.0054645	-0.00012	-0.01	-0.03
PM, Filterable	0.0018627	0.0021858	0.000323	0.02	0.07
PM, Total	0.0074510	0.0076503	0.000199	0.01	0.04
TOC	0.0107843	0.0109290	0.000145	0.01	0.03

The firing of propane instead of the currently permitted options of coal bed methane or natural gas could result in a very minimal increase in the emissions of PM and TOC. However, MCCC has not proposed any changes to the currently permitted emission limits of the thermal dryer, which will remain as follows:

Pollutant	lb/hour	TPY
Particulate Matter (PM) ¹	40.0	120.0
Sulfur Dioxide (SO ₂)	235.0	586.0
Nitrogen Oxides (NO _x)	63.6	190.8
Volatile Organic Compounds (VOC)	135.6	406.8
Carbon Monoxide (CO)	57.6	172.8

¹ All PM emissions are assumed to be PM_{2.5} or smaller.

REGULATORY APPLICABILITY

The following will discuss each rule applicable or potentially applicable to only the modifications evaluated herein.

45CSR5: To Prevent and Control Air Pollution from Coal Preparation Plants, Coal Handling Operations, and Coal Refuse Disposal Operations

The purpose of 45CSR5 is to prevent and control air pollution from the operation of coal preparation plants, coal handling operations and coal refuse disposal areas. Pursuant to the definition given in §45-5-2.4, thermal drying is defined as a part of a “Coal Preparation Plant.” Section 4.1(a) of 45CSR5 requires that a thermal dryer built after 1974 meet the requirements of 45CSR16 - which in turn adopts the New Source Performance Standards (NSPS). The applicability and compliance with 40 CFR 60, Subpart Y are discussed below.

45CSR10: To Prevent and Control Air Pollution from the Emission of Sulfur Oxides

45CSR10 has requirements limiting in-stack SO₂ concentrations of “manufacturing processes.” Previously, the DAQ has regulated thermal dryers as “manufacturing processes” subject to section 4.1 of 45CSR10.

Section 4.1 of Rule 10 requires that no in-stack SO₂ concentration exceed 2,000 parts per million by volume (ppm_v) from any manufacturing process source operation. As noted, the thermal dryer furnace is defined as a “manufacturing process.” Based on the estimated maximum revised SO₂ emission rate of the furnace (235 lb-SO₂/hr) and the stack parameters given in the application, the estimated worst-case in-stack SO₂ concentration was calculated to be 137.08 ppm_v or 6.85% of the limit.

45CSR13: Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation

The proposed changes to the permit for the Marion County Preparation Plant will result in no change in the permitted emissions of the facility. The applicant submitted an application for a Class II administrative update and the \$300 application fee. The applicant had a Class I legal advertisement published in *The Dominion Post* on March 8, 2017.

45CSR14: Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration

In accordance with 45CSR14 Major Source Determination, this wet wash coal preparation plant with a thermal dryer is one of the 100 TPY stationary sources listed under the definition of "Major Stationary Source" in subsection 2.43.a. At the end of subsection 2.4.3, this facility is listed in Table 1 - Source Categories Which Must Include Fugitive Emissions. Therefore, fugitive emissions (from open storage piles and haulroads) are included when determining major stationary source applicability. The facility's potential to emit for PM, VOC, SO₂, NO_x and CO are greater than the 45CSR14 threshold of 100 TPY for a regulated air pollutant to be defined as a major stationary source.

In accordance with Section 2.75, the definition of "significant emission increase" is defined in Section 2.74 as equal to or greater than 25 TPY for PM, 15 TPY for PM₁₀ and 10 TPY for PM_{2.5}. The proposed changes will result in no change in the permitted emissions of the facility.

45CSR30: Requirements for Operating Permits

45CSR30 provides for the establishment of a comprehensive air quality permitting system consistent with the requirements of Title V of the Clean Air Act. The Marion County Preparation Plant, defined under Title V as a "major source," was last issued a Title V permit on January 24, 2014. Proposed changes evaluated herein must also be incorporated into the facility's Title V operating permit. Commencement of the operations authorized by this permit shall be determined by the appropriate timing limitations associated with Title V permit revisions per 45CSR30.

40 CFR 60, Subpart Y: Standards of Performance for Coal Preparation Plants

40 CFR 60, Subpart Y applies to the affected facilities identified in §60.250 which are located at coal preparation plants that process more than 200 tons per day where construction, reconstruction, or modification occurred after October 27, 1974. The thermal dryer at the Marion County Preparation Plant is subject to the requirements established in Subpart Y for dryers constructed, reconstructed, or modified on or before April 28, 2008.

TOXICITY ANALYSIS OF NON-CRITERIA REGULATED POLLUTANTS

This section provides an analysis for those regulated pollutants that may be emitted from the proposed modification and that are not classified as “criteria pollutants.” Criteria pollutants are defined as Carbon Monoxide (CO), Lead (Pb), Oxides of Nitrogen (NO_x), Ozone, Particulate Matter (PM), Particulate Matter less than 10 microns (PM₁₀), Particulate Matter less than 2.5 microns (PM_{2.5}), and Sulfur Dioxide (SO₂). These pollutants have National Ambient Air Quality Standards (NAAQS) set for each that are designed to protect the public health and welfare. Other pollutants of concern, although designated as non-criteria and without national concentration standards, are regulated through various federal and programs designed to limit their emissions and public exposure. These programs include federal source-specific Hazardous Air Pollutants (HAPs) limits promulgated under 40 CFR 61 (NESHAPS) and 40 CFR 63 (MACT). Any potential applicability to these programs were discussed above under REGULATORY APPLICABILITY.

There are no proposed increases in, or changes of, non-criteria regulated pollutants as a result of the proposed modifications.

AIR QUALITY IMPACT ANALYSIS

The proposed modification does not meet the definition of a “major modification” pursuant to 45CSR14 and, therefore, an air quality impact (computer modeling) analysis was not required. Additionally, based on the nature of the proposed modification, modeling was not required under 45CSR13, Section 7.

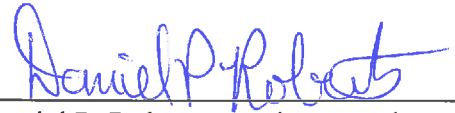
CHANGES TO PERMIT R13-0760G

The substantive changes made to R13-0760G occurred in the following permit conditions:

- Under Section 4.1.5., add a new section as “c.” as follows: “c. The furnace shall be limited to a maximum combustion rate of 500 gallons of propane per hour and 4.38 x 10⁶ gallons of propane per year (rolling twelve month basis);”.
- Under Subsection 4.1.5.f., revise the section to include propane as an alternate fuel in addition to coal bed method and natural gas.
- Under Section 4.1.5., renumber the previous subsections c, d, e, f, g and h as d, e, f, g, h and I, respectively.
- Create a new Table A to track the daily, monthly and twelve month rolling total amount of coal, coal bed methane, natural gas and propane burned in the thermal dryer.

RECOMMENDATION TO DIRECTOR

The information provided in the request for a Class II administrative update indicates that compliance with all applicable state and federal air quality regulations will be achieved. Therefore, I recommend to the Director the issuance of Permit Number R13-0760H to The Marion County Coal Company for the above discussed changes to the Marion County Preparation Plant located near Fairview, Marion County, WV.



Daniel P. Roberts, Engineer Trainee
NSR Permitting Section

March 23, 2017

Date