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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-3028
Plant ID No.:	109-00216
Applicant:	Clean Source Coal - Pineville, LLC
Facility Name:	CSCP Clean Coal Recovery Plant
Location:	New Richmond, Wyoming County
NAICS Codes:	12210201 (Coal preparation plant, bituminous or lignite)
Application Type:	Construction
Received Date:	December 13, 2012
Engineer Assigned:	Dan Roberts
Fee Amount:	$1,000
Date Received:	December 19, 2012
Complete Date:	January 11, 2013
Applicant Ad Date:	December 19, 2012
Newspaper:	*Independent Herald*
UTM's:	Easting: 456.9 km Northing: 4150.7 km Zone: 17
Description:	Permit to construct an 8 TPH and 70,080 TPY clean coal recovery plant which will process the slurry waste stream from Bluestone Coal Corporation's Keystone No. 2 Preparation Plant (Permit R13-2773A, ID No. 109-00185).

BACKGROUND

Clean Source Coal - Pineville, LLC has applied for a construction permit for a clean coal recovery plant which will process the slurry waste stream from Bluestone Coal Corporation's Keystone No. 2 Preparation Plant (Permit R13-2773A, ID No. 109-00185). The applicant has stated that these two companies are independent of each other and there is no common ownership or control.

DESCRIPTION OF PROCESS

Bluestone Coal Corporation's Keystone No. 2 Preparation Plant (Permit R13-2773A, ID No. 109-00185) currently discards the waste stream from the dual screen bowl centrifuges to slurry

disposal cells. This waste stream also contains coal that is finer than 44 microns in diameter. The proposed Clean Source Coal - Pineville, LLC (CSCP) Clean Coal Recovery Plant will capture and further process these materials to recover otherwise lost coal.

CSPC will install a sump and pump inside the K2 Preparation Plant to deliver the lost coal and clays as dilute slurry with nominal 2.5% total solids to the CSPC froth cell designed to separate the coal from the clay. This froth cell will be located in the fully enclosed 60' x 90' building structure. The froth cell will have two piped discharges. One discharge will be for the coal representing 85% of the total solids and one discharge for the clay representing 15% of the total solids. The coal fraction will be piped in slurry form to a sump and pump that feeds directly into a membrane press, also located inside the fully enclosed building, which is engineered to remove the water from the incoming concentration of 14% solids and discharge at 84% solids.

The clay fraction from the froth cell effluent in a dilute slurry form along with the clarified water from the membrane press operation will be combined and diverted by gravity back to the K2 Preparation Plant static thickener, with the overall effect being a significant reduction of solids to that device and the corresponding slurry disposal cells.

The coal from the membrane press will be diverted by an auger that will break up the 1.5 meter by 1.5 meter by 40 mm thick cakes to feed a hopper that is integral to a Scott Air Swept Tubular Dryer. The dryer will reduce the moisture of the feed from 16% to less than 1% moisture. The solids are then transferred in the air stream created by a suction fan (Emission Unit E1) as a negative pressure system at 17,000 cubic feet per minute (cfm) of air through the dryer and into an air cyclone. The larger solids will drop out of the air cyclone, representing approximately 90% of the total solids, with the 10% balance of the solids pulled via air through ductwork to a MAC dust collector (Baghouse NH-1/Control Device C-1). The 17,000 cfm of air that is pulled through the dryer, the air cyclone and the dust collector is discharged as one of the two emission points at Emission Unit E1.

The solids from both the bottom of the air cyclone and the discharge of the dust collector (both through rotary valves in a fully enlosed system) will be piped through an air receiver (Baghouse BH-2/Control Device C-2) and into one of four silos via a separate negative pressure pneumatic conveying system. The small fan, a 5 Hp high pressure blower that is incorporated into the pneumatic conveying system, is the system's second emission unit (Emission Unit E2).

The coal product, in the form of a dried powder, will be loaded into one of four silos, each with a nominal capacity of 25 tons of material for a combined total of 100 tons of storage capacity. These silos will be configured in two sets of two such that they will be loaded via a 16 " rotary air locks configured on each of the conical discharges at the bottom of the silos to fully enclosed pipes that extend into sealed ports on the pneumatic trailers that will receive the material in nominal 25 ton increments. The pipes from each of the silos to each of the two pneumatic trailer hatches that will be used to fill a truck will have an engineered relief pipe with a slight negative pressure on each of them to manage the displaced air created from the loading operation and allow this air to be diverted to the air receiver to mitigate potential dust issues.

In summary, a nominal 85% of the solids currently being discarded as a waste stream in the

form of a slurry from K2 Preparation Plant will be processed and configured for beneficial use as a green endeavor. The entire operation will be done in an environmentally sound engineered system with 15% of the solids representing a significant reduction in waste material to be managed by the adjacent K2 Preparation Plant.

The facility shall be constructed and operated in accordance with the following equipment and control device information taken from permit application R13-3028 and any amendments thereto:

Equip-ment ID #	Date of Construction, Reconstruction or Modification	Emission Unit Description	Design Capacity		Control Device [1]
			TPH	TPY	
Main Plant Raw Coal Circuit					
Froth Cell	C 2013	Froth Cell - receives fine coal and clays as a diluted slurry with nominal 2.5% total solids from the K2 Preparation Plant, separates 1.4 TPH of clay slurry and pipes it back to the K2 Preparation Plant, the remaining 8 TPH of fine coal slurry is piped to the Membrane Press	9.4	82,344	FE
Membrane Press	C 2013	Membrane Press - receives the fine coal slurry from the froth cell, presses the water from it while forming 1.5m x 1.5m x 40 mm thickness cakes, then an auger brakes up the cakes which have approximately 16% moisture content and transfers them to the feed hopper for the Scott Air Swept Tubular Dryer (see below)	8	70,080	FE
Natural Gas Burner	C 2013	Natural Gas Burner - Eclipse Innovative Thermal Solutions Burner Model RM1500 - 9 MM Btu/hr Nominal - 750ºF process temperature - heats fresh ambient air at 17,000 acfm in the Scott Air Chamber	-----	-----	N
Scott Air Chamber	C 2013	Scott Air Chamber - draws in fresh ambient air at 17,000 acfm which is heated by the Natural Gas Burner and then drawn into the Scott Swept Tubular Dryer	-----	-----	FE
Scott Air Swept Tubular Dryer	C 2013	Scott Air Swept Tubular Dryer - combines the hot air from the Scott Air Chamber and the fine coal from the membrane press auger and flash dries it to 1% moisture content and then it is sucked on to the Air Cyclone	8	70,080	FE
Air Cyclone	C 2013	Air Cyclone - receives the dried fine coal from the Scott Air Swept Tubular Dryer and the larger coal solids (approximately 90% of the total solids) drop out to the Filter Receiver C2 while smaller coal solids (the remaining 10% of the total solids) pass through to the Dust Collector C1	8	70,080	C1
Dust Collector C1	C 2013	Dust Collector - 99.995% control efficiency - receives the smaller coal solids that pass through the Air Cyclone, filters them out and then passes them to the Filter Receiver C2 while the remaining amount is pulled through the Fan 1E and released to the atmosphere	0.8	7,008	N
Fan 1E	C 2013	Fan - pulls 17,000 acfm of fresh air into the Scott Air Chamber and the fresh air, hot combustion gases from the natural gas burner and coal solids through the Scott Air Swept Tubular Dryer, Air Cyclone and Dust Collector C1 and then vents to the atmosphere	-----	-----	N

Equip-ment ID #	Date of Construction, Reconstruction or Modification	Emission Unit Description	Design Capacity		Control Device [1]
			TPH	TPY	
Filter Receiver C2	C 2013	Filter Receiver - 99.995% control efficiency - receives the larger coal solids that drop out of the Air Cyclone and solids from Dust Collector C1, filters them out and then transfers them to the Quad Silos while the remaining amount is pulled to the Inlet Filter C3 by the Blower	8	70,080	C3
Inlet Filter C3	C 2013	Inlet Filter - 99% control efficiency - receives the coal solids that passed through the Filter Receiver C2, filters them out and the remaining amount is pulled through the Blower and released to the atmosphere	-----	-----	N
Blower 2E	C 2013	Blower - pulls air through the Filter Receiver C2 and the Inlet Filter C3 and vents to the atmosphere	-----	-----	N
Quad Silos	C 2013	Quad Silos - each silo has a 25 ton maximum capacity - receives coal fines from the Filter Receiver C2, stores them and then pneumatically loads them to trucks. There is a slight negative pressure which vents coal fines back to the Filter Receiver C2 during truck loading.	8 Combined	70,080 Combined	C2

[1] Control Device Abbreviations: FE - Full Enclosure; PE - Partial Enclosure; PW - Partial Enclosure with Water Sprays; WS - Water Sprays; and N - None.

SITE INSPECTION

A site inspection was not performed at this time due to time constraints, remote location and the fact that this is a proposed new source and none of the equipment will be on site to be inspected. The proposed facility will be located adjacent to the existing Bluestone Coal Corporation's K2 Preparation Plant (Permit R13-2777, ID No. 109-00185).

The following information was obtained from a site inspection of the Bluestone Coal Corporation's K2 Preparation Plant for application R13-2777 that the writer performed on October 21, 2008: " The nearest house is approximately 4.2 miles away from the proposed site by measured road distance. The proposed site is on top of the mountain located in a remote area. The approximate 3 mile road to the top of the mountain was being paved (or re-paved) at the time of the inspection. The unpaved haulroad between the blue warehouse/office building and the proposed site was actively being watered by a water truck."

Directions from Charleston, WV, are to take I-77 South and travel approximately 94 miles, take Exit #1 for US Route 52 North onto Cumberland Road (US Route 52 North) and travel 2.8 miles, turn left to follow US Route 52 North, follow US Route 52 North to Keystone, WV, turn left onto Burk Creek Road and cross the railroad tracks, take an immediate right onto County Route 6 (Railroad Ave.) and follow the paved road approximately 3 miles to the top of the mountain, stay right at the Y when the dirt road starts and travel approximately 0.1 miles and bear left through the gate and proceed to the blue warehouse/office building. The proposed site is approximately 4.7 miles away along the unpaved road on top of the mountain.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Fugitive emission calculations for continuous and batch drop operations, transfer points, crushing and screening, storage piles, and paved and unpaved haulroads are based on AP-42 Fifth Edition "Compilation of Air Pollution Emission Factors", Volume 1. Control efficiencies were applied based on "Calculation of Particulate Matter Emission - Coal Preparation Plants and Material Handling Operations." The emission factors for natural gas combustion were obtained from AP-42 Fifth Edition "Compilation of Air Pollution Emission Factors", Volume 1, Section 1.4. The emissions calculations were performed by the applicant's consultant and were checked for accuracy and completeness by the writer.

The proposed construction will result in the potential to discharge controlled emissions from point sources of 8.69 pounds per hour and 38.03 TPY of particulate matter (PM), of which 2.68 pounds per hour and 11.71 TPY will be particulate matter less than 10 microns in diameter (PM_{10}). Refer to the following table for a summary of the proposed changes in the potential to discharge controlled emissions of PM and PM_{10}:

- New Emissions - **Clean Source Coal - Pineville, LLC R13-3028**	**Controlled PM Emissions**		**Controlled PM_{10} Emissions**	
	lb/hour	TPY	lb/hour	TPY
Fugitive Emissions				
Open Storage Pile Emissions	0.00	0.00	0.00	0.00
Unpaved Haulroad Emissions	8.53	37.34	2.52	11.02
Paved Haulroad Emissions	0.00	0.00	0.00	0.00
Fugitive Emissions Total	8.53	37.34	2.52	11.02
Point Source Emissions				
Equipment Emissions	0.00	0.00	0.00	0.00
Transfer Point Emissions	0.00	0.00	0.00	0.00
Emission Point 1E - Fan (Coal Fines)	0.07	0.30	0.07	0.30
Emission Point 1E - Fan (Combustion Gases)	0.08	0.35	0.08	0.35
Emission Point 2E - Blower	0.008	0.035	0.008	0.035
Point Source Emissions Total (PTE)	0.16	0.69	0.16	0.69
FACILITY EMISSIONS TOTAL	***8.69***	***38.03***	***2.68***	***11.71***

Emissions from the operation of the natural gas burner rated at 9 Mcf/hr and 9 MMBtu/hr were determined using emission rates from AP-42 Fifth Edition, Section 1.4 Natural Gas Combustion and the one-hour average emissions provided by the burner manufacturer. Refer to the following tables for the proposed maximum permitted emission rates, which are based on 8,760 hours of operation per year:

	Emission Factors	**Maximum Emissions**
Pollutant		

	lb/10^6 scf [1]	lb/MMBtu [2]	Rating	Hourly (lb/hr)	Annual (TPY)
NO_X	-----	-----	-----	0.765 [3]	3.35
CO	-----	-----	-----	0.333 [3]	1.46
SO_2	0.6 [1]	0.0006 [2]	A	0.01	0.02
PM/PM_{10}	7.6 [1]	0.0075 [2]	D	0.07	0.30
VOC	5.5 [1]	0.0055 [2]	C	0.05	0.22
Total HAPs	various (see the table below)			1.88	8.24

[1] Emission factors were taken from AP-42 Fifth Edition, Section 1.4, Table 1.4-2
[2] Based on information supplied in the application, to convert from lb/106 scf to lb/MMBtu, divide by 1000. The applicant states that the natural gas to be burned will have a heating value of 1,000 Btu/scf.
[3] One-hour average (lb/hr) emissions provided by the burner manufacturer

CAS No.	Pollutant - HAPS	Emission Factor (lb/10^6 scf)[1]	Emission Factor (lb/MMBtu)[1,2]	Rating	Hourly Emissions (lb/hour)	Annual Emissions (TPY)
91-57-6	Methylnaphthalene	2.4E-05	2.4E-08	D	2.4E-05	0.00011
56-49-5	Methylchloranthrene	<1.8E-06	<1.8E-09	E	1.8E-06	7.9E-06
	7,12-Dimethylbenz(a)anthracene	<1.6E-05	<1.6E-08	E	1.6E-05	7E-05
83-32-9	Acenaphthene	<1.8E-06	<1.8E-09	E	1.8E-06	7.9E-06
203-96-8	Acenaphthylene	<1.8E-06	<1.8E-09	E	1.8E-06	7.9E-06
120-12-7	Anthracene	<2.4E-06	<2.4E-09	E	2.4E-06	1.1E-05
56-55-3	Benz(a)anthracene	<1.8E-06	<1.8E-09	E	1.8E-06	7.9E-06
71-43-2	Benzene	2.1E-03	2.1E-06	B	0.0021	0.0092
50-32-8	Benzo(a)pyrene	<1.2E-06	<1.2E-09	E	1.2E-06	5.3E-06
205-99-2	Benzo(b)fluoranthene	<1.8E-06	<1.8E-09	E	1.8E-06	7.9E-06
191-24-2	Benzo(g,h,i)perylene	<1.2E-06	<1.2E-09	E	1.2E-06	5.3E-06
205-82-3	Benzo(k)fluoranthene	<1.8E-06	<1.8E-09	E	1.8E-06	7.9E-06
218-01-9	Chrysene	<1.8E-06	<1.8E-09	E	1.8E-06	7.9E-06
53-70-3	Dibenzo(a,h)anthracene	<1.2E-06	<1.2E-09	E	1.2E-06	5.3E-06
25321-22-6	Dichlorobenzene	1.2E-03	1.2E-06	E	0.0012	0.00526
206-44-0	Fluoranthene	3.0E-06	3.0E-09	E	3E-06	1.3E-05
86-73-7	Fluorene	2.8E-06	2.8E-09	E	2.8E-06	1.2E-05
50-00-0	Formaldehyde	7.5E-02	7.5E-05	B	0.075	0.3285
110-54-3	Hexane	1.2E+00	1.2E-03	E	1.8	7.884
193-39-5	Indeno(1,2,3-cd)pyrene	<1.8E-06	<1.8E-09	E	1.8E-06	7.9E-06
91-20-3	Naphthalene	6.1E-04	6.1E-07	E	0.00061	0.00267
85-01-8	Phenanathrene	1.7E-05	1.7E-08	D	1.7E-05	7.4E-05
129-00-0	Pyrene	5.0E-06	5.0E-09	E	5E-06	2.2E-05
108-88-3	Toluene	3.4E-03	3.4E-06	C	0.0034	0.01489
				Total HAPS	**1.88**	**8.24**

[1] Emission factors were taken from AP-42 Fifth Edition, Section 1.4, Table 1.4-3

[2] Based on information supplied in the application, to convert from lb/10^6 scf to lb/MMBtu, divide by 1000. The applicant states that the natural gas to be burned will have a heating value of 1,000 Btu/scf.

REGULATORY APPLICABILITY

NSPS, NESHAPS and PSD have no applicability to the proposed clean coal recovery plant. The proposed construction will be subject to the following state and federal rules:

45CSR2 To Prevent and Control Particulate Air Pollution From Combustion of Fuel in Indirect Heat Exchangers

The 9 MMBtu/hr natural gas burner has been determined to meet the definition of a "fuel burning unit" and is, therefore, subject to the applicable requirements therein. In accordance with Section 11.1, any fuel burning unit having a heat input less than ten (10) million BTU's per hour will be exempt from Sections 4, 5, 6, 8 and 9, unless required to attain acceptable air quality in parts of some urban areas. The facility should be in compliance with Section 3.1 (less than 10% opacity) because it will be fired with natural gas. The facility should be in compliance with Section 7.1 because they have applied for a permit for a fuel burning unit prior to construction.

45CSR7 To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associated Operations

45CSR7 applies to "source operations" located at "manufacturing processes" that, excluding those manufacturing processes specified under §45-7-10.5 and §45-7-10.6, have the potential to emit particulate matter and acid gases. The proposed facility will be subject to the requirements of 45CSR7 because it meets the definition of a "manufacturing process" as defined in Section 2.20.

Section 3.1 of 45CSR7 sets an opacity limit of 20% on all applicable source operations. The air emitted to the atmosphere through the fan at emission point 1E first passes through the Air Cyclone and then Dust Collector C1 (99.995% control efficiency) and through the blower at emission point 2E first passes through the Filter Receiver C2 (99.995% control efficiency) and then the Inlet Filter C3 (99% control efficiency). Therefore, the facility should be in compliance with this requirement.

Section 4.1 of 45CSR7 requires that each manufacturing process meet a particulate matter stack emission limit based on the weight of material processed through the source operation. The emission limits are given under Table 45-7A and are based on the type source operation as defined in this Rule.

Under Section 2.39 of 45CSR7, this operation would be defined as a "type 'a'" source operation. Based on the maximum throughput of 16,000 pounds/hour (8 TPH), the maximum allowable emission of 13.6 pounds per hour is derived from Table 45-7A. The

maximum potential emissions through the fan at emission point 1E will be 0.15 lb/hour and through the blower at emission point 2E will be 0.008 lb/hour. The combined emissions from emission points 1E and 2E will be 0.158 lb/hour, or approximately 1.2% of the maximum allowable emission rate. Therefore, the facility should be in compliance with this requirement.

Section 5.1 of 45CSR7 states that each manufacturing process must include a system to minimize the emissions of fugitive particulate matter. The proposed process will be enclosed in a 60' x 90' building and the air emitted to the atmosphere through the fan at emission point 1E first passes through the Air Cyclone and then Dust Collector C1 (99.995% control efficiency) and through the blower at emission point 2E first passes through the Filter Receiver C2 (99.995% control efficiency) and then the Inlet Filter C3 (99% control efficiency). Therefore, the facility should be in compliance with this requirement.

Section 5.2 of 45CSR7 states that the owner or operator of a plant shall maintain particulate matter control of the plant premises, and plant owned, leased or controlled access roads, and use good operating practices in relation to stockpiling and general material handling to minimize particulate matter generation and atmospheric entrainment. The only fugitive source of emissions from the proposed facility are the unpaved haulroads used to transport the finished product from the facility. A water truck will be required to apply water to minimize emissions from the unpaved haulroads and work areas. Therefore, the facility should be in compliance with this requirement.

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

For the natural gas burner, it was determined through the agency that the operation of dryers are defined as manufacturing process source operations (Section 4) and not as fuel burning units (Section 3) within the definition and intent of Rule 10 (45CSR10). Section 4.1 - Standards for Manufacturing Process Source Operations states that the maximum allowable in-stack sulfur dioxide concentration is 2,000 parts per million by volume, unless, as stated in Section 4.1.e., the facility's potential to emit is less than 500 pounds per year of sulfur oxides. The estimated maximum potential to emit sulfur oxides from the 9 MMBtu/hr natural gas burner fired dryers will be 47.3 pounds per year. Section 5 - Combustion of Refinery or Process Gas Streams does not apply. The facility should be in compliance with Section 7.1 because they have applied for a permit for a source of sulfur dioxide prior to construction.

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

The proposed construction is subject to the requirements of 45CSR13 because it will result in potential controlled emissions greater than six (6) pounds per hour and ten (10) tons per year of a regulated air pollutant (PM). The applicant has submitted an application for a construction permit. The applicant published a Class I legal advertisement in the *Independent Herald* on December 19, 2012 and submitted $1,000 for the application fee.

The proposed construction of a clean coal recovery plant will *not* be subject to the following state and federal rules:

45CSR5 To Prevent and Control Air Pollution from the Operation of Coal Preparation Plants and Coal Handling Operations

The proposed clean coal recovery plant will *not* be subject to the requirements of 45CSR5 because it does not meet the definition of "Coal Preparation Plant" found in subsection 45CSR5.2.4. In accordance with subsection 45CSR5.2.4.a, the proposed facility is exempt because it is designed to process less than 200 tons of coal per day. The proposed facility's maximum throughput is eight (8) tons per hour, which equates to 192 tons per day based on operating 24 hours per day.

45CSR16 Standards of Performance for New Stationary Sources
40 CFR 60 Subpart Y: Standards of Performance for Coal Preparation and Processing Plants

The proposed clean coal recovery plant will *not* be subject to the requirements of 40 CFR 60 Subpart Y because they are only subject to affected facilities in coal preparation and processing plants that process more than 181 megagrams (Mg) (200 tons) of coal per day. The proposed facility's maximum throughput is eight (8) tons per hour, which equates to 192 tons per day based on operating 24 hours per day.

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 proposed clean coal recovery plant is not one of the 100 TPY stationary sources listed under the definition of "Major Stationary Source" in subsection 2.43.a. Therefore, it must have the potential to emit 250 TPY or more of any regulated pollutant to meet the definition of a major source in subsection 2.43.b. At the end of subsection 2.4.3, this facility is not listed in Table 1 - Source Categories Which Must Include Fugitive Emissions. So, fugitive emissions are not included when determining major stationary source applicability. The proposed facility's potential to emit will be 0.69 TPY for PM, which is less than the 45CSR14 threshold of 250 TPY for a regulated air pollutant used to define a major stationary source. Therefore, the proposed construction is not subject to the requirements set forth within 45CSR14.

45CSR30 Requirements for Operating Permits

In accordance with 45CSR30 Major Source Determination, this proposed clean coal recovery plant is not listed in 45CSR30 subsection 2.26.b as one of the categories of stationary sources which must include fugitive emissions when determining whether it is a major stationary source for the purposes of § 302(j) of the Clean Air Act. The proposed facility's potential to emit will be 0.69 TPY for PM_{10}, which is less than the 45CSR30 threshold of 100 TPY of a regulated air pollutant used to define a major stationary source. Therefore, the proposed clean coal recovery plant is not be subject to 45CSR30.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Other than particulate matter, the only non criteria regulated pollutants that are addressed by this permit application are the combined 8.24 TPY of Hazardous Air Pollutants (HAP) that are the normal byproducts of natural gas combustion. Of these combined HAP emissions, 95% is attributed to hexane emissions.

Benzene:
Benzene is found in the air from emissions from burning coal and oil, gasoline service stations, and motor vehicle exhaust. Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidence of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. EPA has classified benzene as a Group A, human carcinogen.

Dichlorobenzene:
The primary exposure to 1,4-dichlorobenzene is from breathing contaminated indoor air. Acute (short-term) exposure to 1,4-dichlorobenzene, via inhalation in humans, results in irritation of the skin, throat, and eyes. Chronic (long-term) 1,4-dichlorobenzene inhalation exposure in humans results in effects on the liver, skin, and central nervous system (CNS). No information is available on the reproductive, developmental, or carcinogenic effects of 1,4-dichlorobenzene in humans. A National Toxicology Program (NTP) study reported that 1,4-dichlorobenzene causedkidney tumors in male rats and liver tumors in both sexes of mice by gavage (experimentally placing the chemical in their stomachs). EPA has classified 1,4-dichlorobenzene as a Group C, possible human carcinogen.

Formaldehyde:
Formaldehyde is used mainly to produce resins used in particle board products and as an intermediate in the synthesis of other chemicals. Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute (short-term) and chronic (long-term) inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. EPA considers formaldehyde a probable human carcinogen (Group B1).

Hexane:
The most probable route of human exposure to hexane is by inhalation. Individuals are most likely to be exposed to hexane in the workplace. Monitoring data indicate that hexane is a widely occurring atmospheric pollutant. Hexane is used to extract edible oils from seeds and vegetables, as a special-use solvent, and as a cleaning agent. Acute (short-term) inhalation exposure of humans to high levels of hexane causes mild central nervous system (CNS) effects, including dizziness, giddiness,

slight nausea, and headache. Chronic (long-term) exposure to hexane in air is associated with polyneuropathy in humans, with numbness in the extremities, muscular weakness, blurred vision, headache, and fatigue observed. Neurotoxic effects have also been exhibited in rats. No information is available on the carcinogenic effects of hexane in humans or animals. EPA has classified hexane as a Group D, not classifiable as to human carcinogenicity.

Naphthalene:
Naphthalene is used in the production of phthalic anhydride; it is also used in mothballs. Acute (short-term) exposure of humans to naphthalene by inhalation, ingestion, and dermal contact is associated with hemolytic anemia, damage to the liver, and neurological damage. Cataracts have also been reported in workers acutely exposed to naphthalene by inhalation and ingestion. Chronic (long-term) exposure of workers and rodents to naphthalene has been reported to cause cataracts and damage to the retina. Hemolytic anemia has been reported in infants born to mothers who "sniffed" and ingested naphthalene (as mothballs) during pregnancy. Available data are inadequate to establish a causal relationship between exposure to naphthalene and cancer in humans. EPA has classified naphthalene as a Group C, possible human carcinogen.

Toluene:
The acute toxicity of toluene is low. Toluene may cause eye, skin, and respiratory tract irritation. Short-term exposure to high concentrations of toluene (e.g., 600 ppm) may produce fatigue, dizziness, headaches, loss of coordination, nausea, and stupor; 10,000 ppm may cause death from respiratory failure. Ingestion of toluene may cause nausea and vomiting and central nervous system depression. `Contact of liquid toluene with the eyes causes temporary irritation. Toluene is a skin irritant and may cause redness and pain when trapped beneath clothing or shoes; prolonged or repeated contact with toluene may result in dry and cracked skin. Because of its odor and irritant effects, toluene is regarded as having good warning properties. The chronic effects of exposure to toluene are much less severe than those of benzene. No carcinogenic effects were reported in animal studies. Equivocal results were obtained in studies to determine developmental effects in animals. Toluene was not observed to be mutagenic in standard studies.

AIR QUALITY IMPACT ANALYSIS

Air dispersion modeling was not performed due to the nature and extent of the proposed clean coal recovery plant. This facility will be located in Wyoming County, WV, which is currently in attainment for PM (particulate matter) and PM_{10} (particulate matter less than 10 microns in diameter). This facility will not be a major source as defined by 45CSR14 and, therefore, an air quality impact analysis is not required.

MONITORING OF OPERATIONS

For the purposes of determining compliance with maximum throughput limits and maximum natural gas usage, the applicant shall maintain certified daily and monthly records with example forms included as Appendix A to Permit R13-3028. An example form for tracking the amount of water applied through the water truck is included as Appendix B to Permit R13-3028. An example

form for the Monthly Opacity Testing is included as Appendix C to Permit R13-3028. The Certification Of Data Accuracy statement shall be completed within fifteen (15) days of the end of the reporting period. These records shall be maintained on site by the permittee for at least five (5) years and shall be made available to the Director of the Division of Air Quality or his or her duly authorized representative upon request.

RECOMMENDATION TO DIRECTOR

The information contained in this construction permit application indicates that compliance with all applicable regulations should be achieved when all of the proposed particulate matter control methods are in operation. Due to the location, nature of the process, and control methods proposed, adverse impacts on the surrounding area should be minimized. Therefore, the granting of a permit to Clean Source Coal - Pineville, LLC for the construction of the CSCP Clean Coal Recovery Plant to be located near New Richmond, Wyoming County, WV is hereby recommended.

Daniel P. Roberts, Engineer Trainee
NSR Permitting Section

February 7, 2013
Date