west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-3005 After-the-Fact
Plant ID No.:	067-00111
Applicant:	Taylor Rose Energy, LLC
Facility Name:	Coal Briquette Plant
Location:	Dixie, Grant County
SIC Codes:	2999 (Petroleum and Coal Products, NEC)
NAICS Codes:	324199 (All Other Petroleum and Coal Products Manufacturing)
Application Type:	Construction
Received Date:	October 18, 2012
Engineer Assigned:	Dan Roberts
Fee Amount:	$2,000
Date Received:	October 22, 2012
Complete Date:	April 2, 2014
Applicant Ad Date:	October 4, 2012
Newspaper:	*The Nicholas Chronicle*
UTM's:	Easting: 482.506194 km Northing: 4236.294249 km Zone: 17
Description:	After-the-Fact permit for the construction of a portable coal screening plant and coal briquette production plant which will combine crushed cannel coal with a dry starch and apply pressure to a mold to form a briquette which will then be packaged into bags weighing either 2 kilos (4.4 pounds) or 4 kilos (8.8 pounds).

BACKGROUND

Taylor Rose Energy, LLC has submitted and After-the-Fact application to construct a portable coal screening plant and coal briquette production plant which will use cannel coal and a binding agent to make a briquette which will be packaged into bags weighing either 2 kilos (4.4 pounds) or 4 kilos (8.8 pounds) and shipped to Europe to be used for home heating.

Cannel coal, also known as candle coal, is a type of bituminous coal, also classified as terrestrial type oil shale, with a large amount of hydrogen, which burns easily with a bright light and leaves little ash. Cannel coal usually occurs at the top or bottom of other coals.

The proposed site was formerly occupied by Elswick Lumber Company, Inc. (ID No. 067-00011) near Dixie, WV. The site is now owned by Taylor Rose Energy, LLC.

On March 8, 2012, Eric Ray of the DAQ's Compliance and Enforcement Section attempted to do a site inspection of Elswick Lumber Company, Inc. (ID No. 067-00011) near Dixie, WV. Upon arrival, Mr. Ray discovered that Elswick Lumber was no longer located there and that the site had been taken over by Taylor Rose Energy, LLC. There was a large open storage pile of coal, a bull dozer and a light blue colored portable screening plant with three (3) outlet product conveyors located on site, but there was no activity at the time of the inspection.

Jesse Adkins of the DAQ's Compliance and Enforcement Section drove by the proposed site in October of 2012. Mr. Adkins observed a large raw coal open storage pile at the facility.

The DAQ received application R13-3005 on October 18, 2012.

DESCRIPTION OF PROCESS

The site was developed for a portable coal screening plant and coal briquette production and bagging facility for shipment by truck. No mining operations are proposed or associated with this facility. The initial coal supply was provided from a nearby mine and there is no current supply agreement or source for additional coal at this time. All coal utilized at the site will be delivered by truck.

The initial production is estimated to be a maximum 150,000 TPY, but total stockpiles of up to 167,000 tons of coal are estimated to secure the current available source of cannel coal. It is expected that the stockpile will be less after the initial purchase and will remain at levels well below 50,000 tons. Once the operation is established and additional markets develop, production will be increased.

The briquette and bagging process will take place in the northern building on the site. There will be a coal stockpile (OS1) immediately adjacent to the southern end of the process building from which the production process will begin. An endloader will transfer the coal from coal stockpile OS1 into 10 ton hopper H1, which will feed it onto belt conveyor BC1. Belt conveyor BC1 will transfer the coal to the electric crusher CR1 (as to reduce emissions from a petroleum fueled engine). The crushed coal will be dropped onto belt conveyor BC2, which will transfer it to screw conveyor SC1. Screw conveyor SC1 feeds the crushed coal into the briquetter where it is mixed with dry starch. Bags of dry starch are handloaded into hopper H2, which feeds it into the briquetting machine. The crushed coal and dry starch are mixed and then fed into a roller press with opposing indented cupped shapes where the briquette is formed and then they are dropped onto belt conveyor BC3. Belt conveyor BC3 transfers the briquettes to belt conveyor BC4. Belt conveyor BC4 transfers the briquettes onto the floor in the curing area (approximately 100 square feet) where they will remain until a sufficient quantity is accumulated in order to run them through the bagging machine. The final product will be transferred to the bagger, sewn into bags weighing either 2 kilos (4.4 pounds) or 4 kilos (8.8 pounds) pound bags, placed on pallets, shrink wrapped and transported to the warehouse on the southern end of the property or directly into shipment containers.

Production of the briquettes and the bagging process will take place indoors. Sprinklers will be used as needed for dust suppression inside and outside.

A portable screening plant is located at the facility in order to size coal for special orders on a limited basis. The screen may be moved and positioned adjacent to any of the coal stockpiles and fed by a front-end loader. The coal will be dumped directly onto screen S-1. The smaller coal will pass through the screen and be transferred by belt conveyor BC S2 to screened coal stockpile OS6. The larger coal will be transferred by belt conveyor BC S1 to screened coal stockpile OS5. Due to the small quantities and infrequent nature of these special orders, shipping is expected to immediately following processing. The maximum screen throughput rates will be 150 TPH and 10,000 TPY.

The facility shall be constructed and operated in accordance with the following equipment and control device information taken from permit application R13-3005 and any amendments thereto:

Equip-ment ID #	Date of Construction, Reconstruction or Modification [1]	Emission Unit Description	Design Capacity		Control Device [2]
			TPH	TPY	
Raw Coal Open Storage Piles					
OS1	C 2012	Coal Open Storage Pile - 39,000 ton capacity - maximum 40,000 ft^2 base area and 70' pile height - receives coal from OS2, OS3 and OS5 via an endloader, stores it and then an endloader transfers it to H1	-----	150,000	WS
OS2	C 2012	Coal Open Storage Pile - 60,000 ton capacity - maximum 85,000 ft^2 base area and 50' pile height - receives coal from trucks, stores it and then an endloader transfers it to OS1	-----	60,000	WS
OS3	C 2012	Coal Open Storage Pile - 70,000 ton capacity - maximum 117,000 ft^2 base area and 50' pile height - receives coal from trucks, stores it and then an endloader transfers it to OS1	-----	70,000	WS
OS4	C 2012	Coal Open Storage Pile - 24,000 ton capacity - maximum 48,000 ft^2 base area and 25' pile height - receives raw coal from trucks, stores it and then an endloader transfers it to OS1	-----	24,000	WS
Portable Coal Screening Circuit					
S-1 [3]	C 2012	Chieftan Portable Screen with Diesel Engine CE-1 - receives coal from OS1, OS2, OS3 or OS4 via a front-end loader, sizes it from +6" to -2" and then drops the 6" x 0 oversized coal onto BC S1 and the -2" x 0 undersized coal onto BC S2	150	10,000	FE
CE-1 [3]	Manufactured in 2007	Deutz BF4M2012 - diesel powered engine for S-1 - 97 HP @ 2,200 rpm - LB2S - subject to NSPS Subpart IIII	-----	-----	-----
BC S1	C 2012	Sized Coal Belt Conveyor - receives 6" x 0 oversized coal from S1 and transfers it to OS5	75	10,000	PE

Equip-ment ID #	Date of Construction, Reconstruction or Modification [1]	Emission Unit Description	Design Capacity		Control Device [2]
			TPH	TPY	
OS5	C 2012	Undersized Screened Coal Open Storage Pile - 2,500 ton capacity - maximum 4,000 ft^2 base area and 10' pile height - receives 6" x 0 oversized coal from BC S1, stores it and then an endloader transfers it to trucks for shipment	-----	2,500	WS
BC S2	C 2012	Sized Coal Belt Conveyor - receives -2" x 0 undersized coal from S1 and transfers it to OS6	75	10,000	PE
OS6	C 2012	Oversized Screened Coal Open Storage Pile - 2,500 ton capacity - maximum 4,000 ft^2 base area and 10' pile height - receives -2" x 0 undersized coal from BC S2, stores it and then an endloader transfers it to trucks for shipment	-----	2,500	WS
Briquette Production Circuit					
H1	C 2012	Front End Loader Hopper - 10 ton capacity - receives coal from OS1 via an endloader and then feeds it into CR1	25	150,000	N
BC1	C 2012	Coal Belt Conveyor - receives coal from H1 and transfers it to CR1	25	150,000	PE
CR1	C 2012	JC Steele Electric Double Roll Crusher - receives coal from BC1, crushes it from +6" to 0" and then drops the crushed coal to BC2	25	150,000	PE
BC2	C 2012	Belt Conveyor - receives crushed coal from CR1 and dry potato starch or corn starch from H2 and transfers them to the Briquette Machine	25	150,000	PE
SC1	C 2012	Belt Conveyor - receives crushed coal from BC2 and feeds it into the Briquette Machine	25	150,000	FE
H2	C 2012	Dry Starch Hopper - 0.1 ton capacity - receives dry potato starch or corn starch hand loaded from bags and then drops it onto BC2	1	360	N
Briquette Machine	C 2012	Komarek Briquette Machine - receives crushed coal and dry potato starch or corn starch from SC2 and sawdust from BC1, forms a briquette by pressing the mixture into a roller press with opposing indented cupped shapes where the briquette is formed and then drops onto BC3	25	150,360	FE
BC3	C 2012	Belt Conveyor - receives coal briquettes from the Briquette Machine and transfers them to BC4	25	150,360	FE
BC4	C 2012	Belt Conveyor - receives coal briquettes from BC3 and transfers them to the curing area where they are temporarily stored and then put on BC5	25	150,360	FE
BC5	C 2012	Belt Conveyor - receives coal briquettes from the curing area and transfers them to the bagger	25	150,360	FE
Bagger	C 2012	Bagger - receives coal briquettes from BC5, drops eight pounds into each bag and then the bag is sewn shut	25	150,360	FE
Tanks					
T01	Existing	Diesel Fuel - 1,000 gallon capacity - 4' diameter horizontal tank - 20,000 gallon per year throughput	-----	-----	FE

[1] In accordance with 40 CFR 60 Subpart Y, 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. For open storage piles constructed, reconstructed, or modified after May 27, 2009, the permittee shall prepare and operate in accordance with a fugitive coal dust emissions control plan that is appropriate for site conditions.

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

[3] The Chieftan portable screening plant S-1 is equipped with a 97 hp Duetz BF4M2012 Tier 3 diesel engine and was manufactured in 2007, but moved to the proposed site in December 2012.

FUGITIVE EMISSIONS (taken directly from the application)

Fugitive emissions with this site will consist of coal dust and sawdust associated with the development of stockpiles, loading of raw materials into the process, the crushing of coal and thirteen (13) transfer points within and outside the building.

The initial stockpiles on site will be much larger than normal as Taylor Rose Energy was required to move a large quantity of coal from a supplier as their operation was shutting down. Once the initial coal supply is processed, normal stockpiles will be in the range of 50,000 tons or less.

Truck and endloader traffic on unpaved access roads within the site will be the primary potential source of fugitive emissions. A water truck and/or sprays will be utilized to allay road dust.

Most of the transfer points and equipment are enclosed within the process building. The portable coal screening plant is located outside the building for occasional use and will be moved to the appropriate stockpile as needed. The endloader hopper to feed the process building, as well as the initial portion of belt conveyor BC1 are located outside of the process building. The crusher, belt conveyor BC2 and the tail section of screw conveyor SC1 are located in a three sided, covered bay adjacent to the process building. Sprinklers will be used as needed for dust suppression inside and outside of the process building.

SITE INSPECTION

On May 1, 2013, the writer and Gene Coccari performed an unannounced site inspection at the proposed location. There were four large open stockpiles of coal. Near the southern most open coal open storage pile (OS3), there was a portable screening plant sitting in place. A warehouse building nearby contained large sized super sacks of screened cannel coal along with some screened but not bagged cannel coal. The western most open coal storage pile (OS2) had an endloader transferring coal to trucks for shipment.

The contacts at the facility were Audy Stewart, who was in charge of the whole facility, and Joe Tucker, who was in charge of the briquetting operation. These gentlemen had taken on their rolls within the last two weeks as Dave O'Reilly had went back to Ireland to work on sales. The facility had started operating and testing on approximately April 10. May 1, was the first time they had been able to operate the plant for more than an hour at a time. They had not run a combined one ton of coal through the process yet. Initially, they had tried to use a natural gas drying system on the finished coal briquettes, but it did not work as expected and was discontinued. The writer informed the contacts that an application had been submitted to the DAQ, but two incomplete letters had remained unanswered with no response.

On August 6, 2013, the writer and Gene Coccari performed another unannounced site inspection. The contact at the facility was Dave O'Reilly, whom had just gotten back from a sales trip to Ireland. The coal briquet production plant was not in operation at the time of the inspection and had been down for approximately two weeks. The briquetter had broken down and they were waiting on new parts to be delivered. They had also added a curing area at the end of product conveyor BC4. The curing area consisted of a plastic walled area in which a fan will blow ambient air into in order to cool the briquettes more quickly and make them harder to prevent crumbling as they were handled.

Directions from Charleston are to take I-77 South/I-64 East toward Beckley and travel 10 miles, take Exit 85 toward US-60/Chelyan/WV-61/Cedar Grove, stay straight to go onto Admiral TJ Lopez Bridge, turn right onto US-60/E Dupont Ave. and travel to Gauley Bridge, turn left onto WV-39 East/WV-16 North and travel to Belva, turn left onto WV-16 North and travel 5.2 miles to Bentree where the facility will be located on the left adjacent to WV-16.

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 crushing/breaking and screening operations were obtained from the Air Pollution Engineering Manual - Air & Waste Management Association - June 1992. The calculations were performed by the applicant's consultant using the DAQ's Coal Preparation Plant General Permit G10-D Emission Calculation Spreadsheet for PM and PM_{10} emissions and EPA WebFIRE/AP-42 Section 3.3.1 for NO_X, CO, SO_X and HAP emissions. These calculations were checked for accuracy and completeness by the writer and were verified by duplicating the calculations by using the DAQ's Coal Preparation Plant General Permit G10-D Emission Calculation Spreadsheet AP-42 Section 3.3 Gasoline and Diesel Industrial Engines.

The proposed construction will result in the potential to discharge controlled emissions from point sources of 36.13 pounds per hour and 39.92 TPY of particulate matter (PM), of which 13.62 pounds per hour and 12.17 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}:

- Proposed Facility-wide Emissions - **Taylor Rose Energy, LLC R13-3005**	**Controlled PM Emissions**		**Controlled PM_{10} Emissions**	
	lb/hour	TPY	lb/hour	TPY
Fugitive Emissions				
Open Storage Pile Emissions	0.10	0.42	0.04	0.20
Unpaved Haulroad Emissions	20.14	37.78	5.94	11.15
Paved Haulroad Emissions	0.00	0.00	0.00	0.00
Fugitive Emissions Total	*20.23*	*38.20*	*5.99*	*11.35*
Point Source Emissions				
Equipment Emissions	15.25	1.25	7.17	0.59
Transfer Point Emissions	0.54	0.46	0.25	0.22
Diesel Engine Emissions	0.21	0.01	0.21	0.01
Point Source Emissions Total (PTE)	*15.90*	*1.72*	*7.63*	*0.82*
FACILITY EMISSIONS TOTAL	**36.13**	**39.92**	**13.62**	**12.17**

Emissions from the proposed operation of the Chieftan portable coal screening plant equipped with a 97 hp (72 kW) Deutz BF4M2012 diesel engine were determined using emission rates calculated using manufacturer's data and emission factors from AP-42 Fifth Edition, Section 3.3. Refer to the following tables for the proposed maximum permitted emission rates which are based a maximum diesel fuel use of 0.72 ft^3/hr and 56 ft^3/yr and 67 hours of operation per year:

Pollutant [1]	**Source of Emission Factor [1]**	**Emission Factor [1] (lb/hp-hr)**	**Emission Factor Rating [1]**	**Hourly Emissions (lb/hour)**	**Annual Emissions (TPY)**
NO_X	AP-42	0.011	D	3.01	0.10
CO	AP-42	0.00696	D	0.65	0.02
SO_X	AP-42	0.00205	D	0.20	0.01
PM_{10}	AP-42	0.000721	D	0.21	0.01
TOC	AP-42	0.00247	D	0.24	0.01

[1] Pollutants, emission factors and ratings were obtained from AP-42 Fifth Edition, Section 3.3, Table 3.3-1 for diesel industrial engines.

HAPs [1]	Source of Emission Factor [1]	Emission Factor (lb/MMBtu) [1]	Emission Factor Rating [1]	Hourly Emissions (lb/hour)	Annual Emissions (TPY)
Benzene	AP-42	9.33E-04	E	0.0007	0.0000231
Toluene	AP-42	4.09E-04	E	0.0003	0.0000101
Xylenes	AP-42	2.85E-04	E	0.0002	0.00000707
1,3-Butadiene	AP-42	3.91E-05	E	0.00003	0.00000097
Formaldehyde	AP-42	1.18E-03	E	0.0009	0.0000293
Acetaldehyde	AP-42	7.67E-04	E	0.0006	0.000019
Acrolein	AP-42	9.25E-05	E	0.00007	0.0000023
Naphthalene	AP-42	8.48E-05	E	0.00006	0.0000021
			Total HAPS	**0.0028**	**0.000094**

[1] Pollutants, emission factors and ratings were obtained from AP-42 Fifth Edition, Section 3.3, Table 3.3-2 for uncontrolled diesel engines.

REGULATORY APPLICABILITY

NESHAPS and PSD have no applicability to the facility. The proposed construction of a portable coal screening plant and coal briquette production plant will 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 facility is subject to the requirements of 45CSR5 because it meets the definition of "Coal Preparation Plant" found in subsection 45CSR5.2.4. The facility should be in compliance with Section 3 (less than 20% opacity) and Section 6 (fugitive dust control system and dust control of the premises and access roads) when the particulate matter control methods and devices proposed within application R13-3005 and any amendments thereto are in operation.

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 a potential to discharge controlled emissions greater than six (6) pounds per hour and ten (10) tons per year of a regulated air pollutant (PM and PM_{10}) and will involve the construction of equipment subject to NSPS Subpart Y and Subpart IIII. The applicant has submitted an application for a construction permit. The applicant published a Class I legal advertisement in *The Nicholas Chronicle* on October 4, 2013 and submitted $1,000 for the application fee and $1,000 for the NSPS fee.

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

This portable coal screening plant and coal briquette production plant will be subject to 40 CFR 60 Subpart Y because it will be constructed after October 24, 1974 and may process more than 200 tons of coal per day. The proposed facility will include the construction of one (1) screen, one (1) crusher, two (2) hoppers, eight (8) belt conveyors and six (6) open storage piles, which are defined as affected facilities in 40 CFR 60 Subpart Y. Therefore, the proposed construction is subject to 45CSR16, which incorporates by reference 40 CFR 60 Subpart Y - Standards of Performance for Coal Preparation Plants.

The facility should be in compliance with Section 254(b) (less than 10% opacity for coal processing and conveying equipment, coal storage systems, or coal transfer and loading systems processing coal constructed, re-constructed or modified after April 28, 2008) when the particulate matter control methods and devices proposed are in operation.

The owner or operator of an open storage pile, which includes the equipment used in the loading, unloading, and conveying operations of the affected facility, constructed, reconstructed, or modified after May 27, 2009, must prepare and operate in accordance with a submitted fugitive coal dust emissions control plan that is appropriate for the site conditions. The fugitive coal dust emissions control plan must identify and describe the control measures the owner or operator will use to minimize fugitive coal dust emissions from each open storage pile. The plan must be submitted to the Director prior to startup of the new, reconstructed or modified open storage pile.

45CSR16 Standards of Performance for New Stationary Sources
40 CFR 60 Subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

The provisions of Subpart IIII are applicable to owners and operators of stationary compression ignition (CI) internal combustion engines (ICE) which are manufactured after April 1, 2006, are not fire pump engines and commence construction after July 11, 2005. For the purposes of Subpart IIII, the date that construction commences is the date the engine is ordered by the owner or operator.

The portable screening plant was built in 2007 by Chieftan and is equipped with a 97 hp Duetz BF4M2012 diesel engine and maximum fuel usage of 0.72 ft^3/hr of diesel fuel per hour. In accordance with § 60.4200 (2), this engine is subject to Subpart IIII because it was manufactured after April 1, 2006 and commenced construction after July 11, 2005.

In accordance with § 60.4207(b), "Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel."

40 CFR 89 Control of Emissions From New and In-use Nonroad Compression-Ignition Engines

This part applies to all compression-ignition nonroad engines except those specified in paragraph (b) of this section. This means that the engines for which this part applies include but are not limited to compression-ignition engines exempted from the requirements of 40 CFR Part 92 by 40 CFR 92.907 or 40 CFR Part 94 by 40 CFR 94.907. This part applies as specified in 40 CFR part 60 subpart IIII, to compression-ignition engines subject to the standards of 40 CFR part 60, subpart IIII.

In 40 CFR 89 Section 112, exhaust emission from nonroad engines to which this subpart is applicable shall not exceed the applicable exhaust emission standards contained in Table 1, as follows: for $75 \geq kW \leq 130$ Tier 3 (2007 model year and later), the applicable emission standards are NMHC+NO_X - 4.0 g/kW-hr; CO - 5.0 g/kW-hr; and PM - 0.30 g/kW-hr.

45CSR30 Requirements for Operating Permits

In accordance with 45CSR30 Major Source Determination, this coal briquette plant is not listed in 45CSR30 subsection 2.26.b as one of the categories of stationary sources which must include fugitive emissions (open storage piles constructed or modified on or before May 27, 2009 and haulroads) when determining whether it is a major stationary source for the purposes of § 302(j) of the Clean Air Act. The facility's potential to emit will be 1.02 TPY for PM_{10} (open storage piles constructed or modified after May 27, 2009 and point sources combined), which is less than the 45CSR30 threshold of 100 TPY of a regulated air pollutant used to define a major stationary source. Therefore, the facility will be a nonmajor source subject to 45CSR30. The facility is not subject to the permitting requirements of 45CSR30 and will be classified as a deferred source.

The proposed construction of a portable coal screening plant and coal briquette production plant will <u>not</u> be subject to the following state and federal rules:

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, the portable coal screening plant and coal briquette production plant are 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 (from open storage piles constructed or modified on or before May 27, 2009 and haulroads) are not included when determining major stationary source applicability. The facility's potential to emit will be 2.14 TPY for PM (open storage piles constructed or modified after May 27, 2009 and point sources combined), 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.

40 CFR 63 Subpart ZZZZ: National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

According to the RICE NESHAP Summary of Requirements, new and reconstructed stationary non-emergency compression ignition engines constructed on or after June 12, 2006 and located at an area source of HAPs are subject to 40 CFR part 60, subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines). See the attached printouts from the EPA's National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE Rule) website quiz found at http://www.epa.gov/ttn/atw/rice/output/quiz.html.

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 relatively small amount of Hazardous Air Pollutants (less than 0.19 pounds per year combined) that are the normal byproduct of diesel combustion.

Acetaldehyde:
Acetaldehyde is mainly used as an intermediate in the synthesis of other chemicals. It is ubiquitous in the environment and may be formed in the body from the breakdown of ethanol. Acute (short-term) exposure to acetaldehyde results in effects including irritation of the eyes, skin, and respiratory tract. Symptoms of chronic (long-term) intoxication of acetaldehyde resemble those of alcoholism. Acetaldehyde is considered a probable human carcinogen (Group B2) based on inadequate human cancer studies and animal studies that have shown nasal tumors in rats and laryngeal tumors in hamsters.

Acrolein:
Acrolein is primarily used as an intermediate in the synthesis of acrylic acid and as a biocide. It may be formed from the breakdown of certain pollutants in outdoor air or from the burning of organic matter including tobacco, or fuels such as gasoline or oil. It is toxic to humans following inhalation, oral or dermal exposures. Acute (short-term) inhalation exposure may result in upper respiratory tract irritation and congestion. No information is available on its reproductive, developmental, or carcinogenic effects in humans, and the existing animal cancer data are considered inadequate to make a determination that acrolein is carcinogenic to humans.

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.

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).

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.

Xylene:
Commercial or mixed xylene usually contains about 40-65% m-xylene and up to 20% each of o-xylene and p-xylene and ethyl benzene. Xylenes are released into the atmosphere as fugitive emissions from industrial sources, from auto exhaust, and through volatilization from their use as solvents. Acute (short-term) inhalation exposure to mixed xylenes in humans results in irritation of the eyes, nose, and throat, gastrointestinal effects, eye irritation, and neurological effects. Chronic (long-term) inhalation exposure of humans to mixed xylenes results primarily in central nervous system (CNS) effects, such as headache, dizziness, fatigue, tremors, and incoordination; respiratory, cardiovascular, and kidney effects have also been reported. EPA has classified mixed xylenes as a Group D, not classifiable as to human carcinogenicity.

AIR QUALITY IMPACT ANALYSIS

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

MONITORING OF OPERATIONS

For the purposes of determining compliance with maximum throughput limits, the applicant shall maintain certified daily and monthly records. An example form for tracking throughput rates is included as Appendix A to Permit R13-3005. An example form for tracking the amount of water applied through the water truck is included as Appendix B to Permit R13-3005. 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.

The owner or operator of an open storage pile, which includes the equipment used in the loading, unloading, and conveying operations of the affected facility, constructed, reconstructed, or modified after May 27, 2009, must prepare and operate in accordance with a submitted fugitive coal dust emissions control plan that is appropriate for the site conditions. The fugitive coal dust emissions control plan must identify and describe the control measures the owner or operator will use to minimize fugitive coal dust emissions from each open storage pile. The plan must be submitted to the Director prior to startup of the new, reconstructed or modified open storage pile.

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 Taylor Rose Energy, LLC for the construction of the Coal Briquette Facility to be located near Dixie, Nicholas County, WV is hereby recommended.

Daniel P. Roberts, Engineer Trainee
NSR Permitting Section

April 4, 2014
Date