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**west virginia** department of environmental protection

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## **ENGINEERING EVALUATION / FACT SHEET**

### BACKGROUND INFORMATION

Application No.: R13-3100  
Plant ID No.: 067-00112  
Applicant: Spring Creek Energy Company, LLC  
Facility Name: Rockcamp Surface Mine  
Location: Gilboa, Nicholas County  
SIC Code: 1221 (Bituminous Coal & Lignite - Surface)  
NAICS Code: 212111 (Bituminous Coal and Lignite Surface Mining)  
Application Type: Construction  
Received Date: July 2, 2013  
Engineer Assigned: Dan Roberts  
Fee Amount: \$2,000  
Date Received: \$500 on April 1, 2013; \$1,000 on July 3, 2013; and \$500 on July 12, 2013  
Complete Date: August 2, 2013  
Applicant Ad Date: July 4, 2013, revised and republished 8/1/13  
Newspaper: *The Nicholas Chronicle*  
UTM's: Easting: 507.72 km      Northing: 4235.93 km      Zone: 17  
Description: Construction of coal screening facility which will consist of three open storage piles, a Powerscreen Warrior 1800 powered by a 2013 model 111.3 hp Caterpillar C4.4 diesel engine, a Steinert X-Ray Sorting System XSS screen and five associated belt conveyors.

### DESCRIPTION OF PROCESS

Spring Creek Energy Company, LLC proposes to construct a screening operation for their Rockcamp Surface Mine. This operation will include three (3) stockpiles, two (2) screens, five (5) belt conveyors and a haulroad to transport the associated coal and refuse products.

Raw coal from the highwall miner will be end dumped from trucks at stockpile OS-1. The anticipated size of the raw coal is 2" x 0. However, draw rock from the top may have a larger size.

A front end loader will then transfer the raw coal from OS-1 to the primary screen S-1. Screen S-1 is to be a Warrior 1800 Double Deck Screen with three (3) belt conveyors. Screen S-1 has not yet been purchased and, therefore, no serial numbers have been supplied with this

application.

Belt conveyor BC-1 will transfer the fines (5/16" x 0) to stockpiles OS-2, where it will be stored until a front end loader transfers it to a truck for shipment. Belt conveyor BC-2 will transfer the oversize (>2") to stockpile OS-3, where it will be stored until a front end loader transfers it to a truck for shipment. Belt conveyor BC-3 will direct feed coal (5/16" x 2") to secondary screen S-2.

Secondary screen S-2 is to be a Steinert X-Ray Sorting System XSS. The XSS will sort the coal product on an ash basis and ejects the refuse via micro air blasts. Screen S-2 has not yet been purchased and, therefore, no serial numbers have been supplied with this application. Screen S-2 will have two belt conveyors. Belt conveyor BC-4 will direct feed screened product coal into a truck. Belt conveyor BC-5 will direct feed refuse into a truck. The trucks will then the screened coal product and the refuse via the primary haulroad 0.5 miles off the property to county route CR-19/15.

Primary screen S-1 will have a maximum manufacturers rate throughput of 440 TPH. However, secondary screen S-2 is anticipated to operate at a maximum of 100 TPH. Therefore, screen S-2 will be the bottleneck of this process.

The facility shall be constructed and operated in accordance with the following equipment and control device information taken from permit application R13-3100 and any amendments thereto:

Equipment ID No.	Date of Construction, Reconstruction or Modification <sup>1</sup>	Description	Maximum Capacity		Control Equipment <sup>2</sup>	Associated Transfer Points		
			TPH	TPY		Location: B -Before A -After	ID. No.	Control Equipment <sup>2</sup>
<b>Raw Coal Screening Circuit</b>								
OS-1	C 2013	Raw Coal Open Storage Pile - 255 ton capacity - maximum base area of 1,661 ft <sup>2</sup> and 11' height - receives raw coal from trucks, stores it and then a front end loader transfers it to BS-1	----	300,000	WS	B A	TP-1 TP-2	N N
BS-1	C 2013	Front End Loader Dump Bin - 1.5 ton capacity - receives raw coal from OS-1 via a front end loader and drops it to screen S-1	----	300,000	N	B A	TP-3 TP-4	PE FE
S-1	C 2013	Warrior 1800 Double Deck Screen - receives raw coal from BS-1, classifies it and then discharges the fine coal 5/16" x 0 onto BC-1, oversize refuse >2" onto BC-2 and the feed coal 5/16" x 2" to BC-3	120	300,000	PW	B A A A	TP-4 TP-7 TP-5 TP-6	FE FE FE FE
BC-1	C 2013	Raw Coal Conveyor - receives fine raw coal 5/16" x 0 from S-1 and transfers it to OS-2	12	30,000	N	B A	TP-7 TP-8	FE N
OS-2	C 2013	Fine Coal Open Storage Pile - 255 ton capacity - maximum base area of 1,661 ft <sup>2</sup> and 11' height - receives fine coal 5/16" x 0 from BC-1, stores it and then a front end loader transfers it to a truck for shipment	----	30,000	WS	B A A	TP-8 TP-12 TP-19	N N PE
BC-2	C 2013	Refuse Coal Conveyor - receives oversize refuse >2" from S-1 and transfers it to OS-3	12	30,000	N	B A	TP-5 TP-9	FE N
OS-3	C 2013	Refuse Open Storage Pile - 255 ton capacity - maximum base area of 1,661 ft <sup>2</sup> and 11' height - receives oversize refuse >2" from BC-2, stores it and then a front end loader transfers it to a truck for shipment	----	30,000	WS	B A A	TP-9 TP-11 TP-18	N N PE
BC-3	C 2013	Feed Coal Conveyor - receives feed coal 5/16" x 2" from S-1 and transfers it to BS-2	96	240,000	N	B A	TP-6 TP-10	FE PE
BS-2	C 2013	Surge Bin - 1.5 ton capacity - receives feed coal 5/16" x 2" from BC-3 and drops it to screen S-2	----	240,000	N	B A	TP-10 TP-13	PE FE
S-2	C 2013	Steinert X-Ray Sorting System XSS- receives feed coal, x-rays it and sorts it by ash content, ejects the refuse via micro air blasts and then discharges the sorted coal onto BC-4 and the refuse onto BC-5	100	250,000	FE	B A A	TP-13 TP-15 TP-14	FE FE FE
BC-4	C 2013	Product Coal Conveyor - receives product coal from S-2 and transfers it directly into a truck for shipment	67	167,500	N	B A	TP-15 TP-16	FE N
BC-5	C 2013	Refuse Conveyor - receives refuse from S-2 and transfers it directly into a truck for shipment	29	72,500	N	B A	TP-14 TP-17	FE N

<sup>1</sup> 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.

<sup>2</sup> Control Device Abbreviations: FE - Full Enclosure; PE - Partial Enclosure; WS - Water Sprays; and N - None.

## SITE INSPECTION

None of the equipment is located on site at the present time. Therefore, due to the remote location of the proposed site, a site inspection was not deemed to be necessary at this time. The facility will be inspected by the DAQ's Compliance and Enforcement section on a regular basis after the facility has been constructed and begins operation.

Directions from Charleston are to take I-77 South/I-64 West toward Beckley and travel 9.9 miles, take Exit 85 toward US-60/ Chelyan/WV-61/Cedar Grove and travel 0.6 miles, stay straight to go onto Admiral TJ Lopez Bridge and travel 0.3 miles, turn right onto US-60 / East Dupont Ave. and travel 22.9 miles, turn slight left onto WV-16/WV-39 and travel 0.07 miles, turn right onto Main St./WV-16/WV-39 and follow WV-39 and travel 24.5 miles to Gilboa, WV and the facility will be 1.2 miles southeast on County Route 19/15.

## 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 emission calculations were performed by the applicant's consultant using the DAQ's G10-C Excel Emission Calculation Spreadsheet and were checked for accuracy and completeness by the writer.

The proposed construction will result in a potential to discharge controlled emissions of 26.11 pounds per hour (PPH) and 32.65 tons per year (TPY) of particulate matter (PM), of which 8.85 PPH and 11.06 TPY will be particulate matter less than 10 microns in diameter (PM<sub>10</sub>). Refer to the following table for a summary of the proposed potential to discharge controlled emissions of PM and PM<sub>10</sub>:

- Proposed Facility-wide Emissions - Spring Creek Energy Company, LLC R13-3100	Controlled PM Emissions		Controlled PM <sub>10</sub> Emissions	
	lb/hour	TPY	lb/hour	TPY
<b>Fugitive Emissions</b>				
Open Storage Pile Emissions	0.00	0.02	0.00	0.01
Unpaved Haulroad Emissions	19.62	24.52	5.79	7.24
Paved Haulroad Emissions	0.00	0.00	0.00	0.00
<i>Fugitive Emissions Total</i>	<i>19.62</i>	<i>24.54</i>	<i>5.79</i>	<i>7.25</i>
<b>Point Source Emissions</b>				
Equipment Emissions	4.32	5.40	2.03	2.54
Transfer Point Emissions	2.17	2.71	1.02	1.28
<i>Point Source Emissions Total (PTE)</i>	<i>6.49</i>	<i>8.11</i>	<i>3.05</i>	<i>3.82</i>
<b>FACILITY EMISSIONS TOTAL</b>				
	<b>26.11</b>	<b>32.65</b>	<b>8.85</b>	<b>11.06</b>

The Powerscreen Warrior 1800 will be powered by a 2013 model 111.3 hp Caterpillar C4.4 diesel engine labeled SE-1. Engine SE-1 is from engine family DPKXL04.4MK1 and is a lean burn 4 stroke. Engine SE-1 shall not exceed 2,500 hours of operation per year. The maximum permitted emission rates for engine SE-1 shall not exceed the following:

<b>CENG Pollutant</b>	<b>Emission Factor (g/kw-hr)<sup>1</sup></b>	<b>Hourly Emissions (lb/hour)</b>	<b>Annual Emissions (TPY)</b>
NO <sub>x</sub>	2.6	0.48	0.58
CO	0.1	0.02	0.02
PM <sub>10</sub>	0.003	0.005	0.0007

<sup>1</sup> Emission factors were taken from manufacturer's data provided on documentation from the California Protection Agency Air Resources Board to the Perkins Engines Company LTD., which also certifies this engine as Interim Tier 4.

## REGULATORY APPLICABILITY

NESHAPS and PSD have no applicability to the facility. The proposed construction of a coal preparation 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 proposed facility will be subject to the requirements of 45CSR5 because it will meet 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 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<sub>10</sub>) and involve the construction of equipment and open storage piles subject to NSPS Subpart Y. The applicant has submitted an application for a construction permit. The applicant published a Class I legal advertisement in *The Nicholas Chronicle* on July 4, 2013 and submitted \$1,000 for the application fee and \$1,000 for the NSPS fee. The applicant published a revised Class I legal advertisement in *The Nicholas Chronicle* on August 1, 2013.

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

This proposed coal preparation plant will be subject to 40 CFR 60 Subpart Y because it will be constructed after October 24, 1974 and will process more than 200 tons of coal per day. 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 III: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*

The provisions of Subpart III 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 III, the date that construction commences is the date the engine is ordered by the owner or operator.

The Powerscreen Warrior 1800 will be powered by a 2013 model 111.3 hp Caterpillar C4.4 diesel engine. In accordance with § 60.4200 (2), this engine is subject to Subpart III 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 92.207 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.

*45CSR30 Requirements for Operating Permits*

In accordance with 45CSR30 Major Source Determination, this proposed coal preparation 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 new potential to emit will be 3.83 TPY for PM<sub>10</sub> (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 subject to 45CSR30 and remain classified as a Title V deferred non-major source.

The proposed construction of a coal preparation plant will not 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, this coal preparation 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 (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 new potential to emit will be 8.13 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 engine constructed on or after June 12, 2006 and located at an area source of HAP are subject to 40 CFR part 60, subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines).

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Other than particulate matter and particulate matter less than 10 microns in diameter, which are non-toxic pollutants, the only non criteria regulated pollutants that are addressed by this permit application are the very small amount of Hazardous Air Pollutants 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 proposed size and location of this facility and the extent of the proposed construction. This facility will be located in Nicholas County, WV, which is currently in attainment for PM (particulate matter) and PM<sub>10</sub> (particulate matter less than 10 microns in diameter). This facility will be a minor 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 with example forms included as Appendix A to Permit R13-3100. An example form for tracking the amount of water applied through the water truck is included as Appendix B to Permit R13-3100. 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 Spring Creek Energy Company, LLC for the construction of their Rockcamp Surface Mine facility to be located near Gilboa, Nicholas County, WV is hereby recommended.

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Daniel P. Roberts, Engineer Trainee  
NSR Permitting Section

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August 8, 2013  
Date

Fact Sheet R13-3100  
Spring Creek Energy Company, LLC  
Rockcamp Surface Mine