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**west virginia department of environmental protection**

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## **ENGINEERING EVALUATION / FACT SHEET**

### BACKGROUND INFORMATION

Application No.: R13-2924A  
Plant ID No.: 083-00011  
Applicant: Southern West Virginia Asphalt, Inc.  
Facility Name: Kelly Mountain Quarry  
Location: Randolph County  
SIC Code: 1422 (Crushed and Broken Limestone)  
NAICS Code: 212312  
Application Type: Modification  
Received Date: July 18, 2013  
Engineer Assigned: Thornton E. Martin Jr.  
Fee Amount: \$2000  
Date Received: July 25, 2013  
Complete Date: August 13, 2013  
Applicant Ad Date: July 19, 2013  
Newspaper: *The Inter-Mountain*  
UTM's: Easting: 607.3 km    Northing: 4305.7 km    Zone: 17  
Description: Application is to obtain an individual permit for a portable track mounted crushing and screening unit currently permitted under R13-2924T. The facility is located within the boundary of the existing quarry operations covered under R13-1891G at the Kelly Mountain Quarry facility located near Elkins, Randolph County, West Virginia.

### BACKGROUND

Southern West Virginia Asphalt, Inc. currently operates an aggregate processing plant at their existing Kelly Mountain Quarry located near Elkins, WV. The facility is operating under permit R13-1891G which was approved on December 21, 2012. Southern West Virginia Asphalt, Inc. also operates an asphalt plant (ID No. 083-00029) under permit R13-1475D approved on May 03, 2010 located on contiguous property.

The facility proposes to convert the portable track mounted crushing and screening units permitted under R13-2924T from a temporary permit (effective March 29, 2012 with an expiration date of September

29, 2013) to an individual permit R13-2924A. The portable track mounted units are used to capitalize on the various rock strata available. The current rock strata utilized at the Kelly Mountain Quarry is the Greenbrier Limestone. There are overburden strata that may make quality construction aggregates and the portable units will be used to process those overburden layers and possibly some of the Greenbrier Limestone.

## DESCRIPTION OF PROCESS

There are three (3) portable units that are going to be utilized: KPI Jaw FT2650, a JCI Screen 16203TM and a stacking conveyor. The KPI Jaw FT2650 and the JCI Screen 1620 are track mounted and have onboard engines to operate systems for both the movement around the site and aggregate processing. The stacking conveyor is powered by either one of the other units. The system will operate at 400 tons per hour.

Rock to be processed into aggregate will be loaded to CH1/PE by endloader at transfer point CTP1/MD, a grizzly feeder will then allow pass-through to CTP2/PE to CBC2/N and into open stockpile OS1/N via CTP2A/N. Rock which does not pass through the grizzly feeder will go through CTP3/PE to jaw crusher CR1/FE, through CTP4/PE to CBC1/N and then to the feed hopper for the screensystem SH1/PE (CTP5/N). SH1/PE could also get material from an endloader via STP1/MD. From SH1/PE to SBC1/N via STP2/PE to screen S1/PE via STP3/N. S1/PE has three (3) decks and will allow material to go to four piles within OS1/N. From S1/PE, rock can go to SB2/N then onto SBC2A/N via STP4/PE and STP5/PE and then STP5A/N into OS1/N; or STP6/PE to SBC3/N to OS1/N through STP7/N, or STP6A/PE to SBC3A/N to OS1/N through STP7A/N, or STP8/PE to SBC4/N to OS1/N via STP9/N. Production aggregate is loaded by endloaders to trucks through TP10/MDH to be taken off-site.

The facility shall be constructed and operated in accordance with the following equipment and control device information taken from permit applications R13-2924A and R13-2924T:

Equip- ment ID No.	A M R <sup>1</sup>	Year	Description	Maximum Capacity		Control Equip- ment <sup>2</sup>	Associated Transfer Points		
				TPH	TPY		Location: B -Before A -After	ID. No.	Control Equip- ment <sup>2</sup>
<b>Portable Crusher and Screen Circuit</b>									
CH1	A	2012	25 Ton Crusher Hopper - receives material from endloader and transfers onto vibrating grizzly feeder F1	----	1,000,000	PE	B A	CTP1 CTP2	MDH PE
F1	A	2012	Vibrating Grizzly Feeder I receives material from hopper CH1 and transfers to crusher. Pass through material is transferred onto belt conveyor CBC2	400	1,000,000	PE	B A A	CTP2 CTP2A CTP3	PE N PE
CBC2	A	2012	Crusher Belt Conveyor - receives pass through material from grizzly feeder F1 and transfer to open stockpile OS1	400	1,000,000	N	B A	CTP2A TP10	N MDH
CR1	A	2012	Crusher - receives material that doesn't pass through grizzly feeder F1, crushing, then transfers to belt conveyor CBC1	400	1,000,000	FE	B A	CTP3 CTP4	PE PE
CBC1	A	2012	Crusher Belt Conveyor - receives crushed material from crusher CR1 and transfers to screen hopper SH1	400	1,000,000	N	B A	CTP4 CTP5	PE N
ENG-C1	A	2012	Cummins OSC 8.3-C, Tier II, 340 HP, EPA Cert.CEXL0505ABC	16.53 gal/hr	133,332 Btu/gal	N	B A	CTP1 CTP5	MDH N
SH1	A	2012	25 Ton Screen Hopper - receives crushed material from belt conveyor CBC1 and transfers to belt conveyor SBC1	----	1,000,000	PE	B A	CTP5 STP2	N PE
SBC1	A	2012	Screen Belt Conveyor - receives crushed material from screen hopper SH1 and transfers to triple deck screen S1	400	1,000,000	N	B A	STP2 STP3	PE N

Equip-ment ID No.	A M R <sup>1</sup>	Year	Description	Maximum Capacity		Control Equip-ment <sup>2</sup>	Associated Transfer Points		
				TPH	TPY		Location: B -Before A -After	ID. No.	Control Equip-ment <sup>2</sup>
S1	A	2012	Triple Deck Screen - receives crushed material from belt conveyor SBC1 and distributes based on size of material to belt conveyors SBC2, SBC3, SBC3A and SBC4	400	1,000,000	PE	B A A A A	STP3 STP4 STP6 STP6A STP8	N PE PE PE PE
SBC2	A	2012	Screen Belt Conveyor - receives screened material from screen S1 and transfers to radial stacker SBC2A	400	1,000,000	N	B A	STP4 STP5	PE PE
SBC2A	A	2012	Screen Radial Stacker - receives screened material from belt conveyor SBC2 and transfers to open stockpile OS1	400	1,000,000	N	B A	STP5 STP5A	PE N
SBC3	A	2012	Screen Belt Conveyor - receives screened material from screen S1 and transfers to open stockpile OS1	400	1,000,000	N	B A	STP6 STP7	PE N
SBC3A	A	2012	Belt Conveyor - receives screened material from screen S1 and transfers to open stockpile OS1	400	1,000,000	N	B A	STP6A STP7A	PE N
SBC4	A	2012	Belt Conveyor - receives screened material from screen S1 and transfers to open stockpile OS1	400	1,000,000	N	B A	STP8 STP9	PE N
ENG-S1	A	2012	Deutz BF6L914C Tier II, 158 HP EPA Cert.4DZXLO6.5037	7.70 gal/hour	133, 332 Btu/gallon	N	B A	STP2 STP3-STP9	PE PE/N
OS1	A	2012	40,000 Ton Open Stockpile - receives material from various points of the crushing and screening processes. Transfers are made from belt conveyors SBC2, SBC2A, SBC3, SBC3A and SBC4	----	1,000,000	N	B B B B B A	CTP2A STP5A STP7 STP7A STP9 TP10	N N N N N MDH

<sup>1</sup> A - Addition, M - Modification, R - Removal

<sup>2</sup> FE - Full Enclosure; PE - Partial Enclosure; MDH - Minimum Drop Height; N - None

### ADDITIONAL EMISSION SOURCES

This permit application (R13-2924A) includes authorization for the operation of two (2) power generators, one each for the crusher and for the screen. Applicant proposes to utilize a Cummins OSC 8.3-C, Tier II Certified generator (ENG-C1) to power their crusher and a Deutz BF6L914C, Tier II Certified generator (ENG-S1) to power their screen. ENG-C1 and ENG-S1 are both 2004 Models utilizing compression ignition and No. 2 Diesel as fuel.

### SITE INSPECTION

On July 16, 2012, Karl Dettinger of the DAQ's Eastern Panhandle Regional Office performed an unannounced inspection of the Kelly Mountain Quarry facilities. A status code of 30 - In Compliance was assigned as a result of the inspection. Notes of the Inspection were as follows:

Full compliance evaluation inspection at Southern West Virginia Asphalt, Inc.'s Kelly Mountain

Quarry was performed on 7-16-12. Emissions of fugitive dust from the operations at the facility were

minimal. Visible emission observations were performed on the crusher operating at the time of the inspection. Emissions were within the allowable opacity limits of 40 CFR 60 Subpart OOO (the limit is 15% opacity). There were some minor record keeping issues, which I discussed with the site foreman.

The Kelly Mountain Quarry is located East of Elkins off US Rout 33 on Kelly Mountain Road. This location is a rural part of Randolph County. The nearest residential dwelling is estimated to be at least 1,000 feet or greater from the actual aggregate plant.

Directions from Charleston, WV are to take I-79 North, take Exit 96 and get on U. S. Route 33 East, turn right onto Kelly Mountain Road (before entering Elkins, WV), travel approximately 2 miles and the entrance to the facility will be on the left.

**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 “Compilation of Air Pollution Emission Factors.” Control efficiencies were applied based on the Reference Document for General Permit G40-C. The estimated emission calculations were performed by the applicant’s consultant using the General Permit G40-C Excel emission calculation spreadsheet and were checked for accuracy and completeness by the writer.

The proposed modification will result in an unchanged estimated potential to discharge controlled emissions (not including fugitive sources) of 34.18 pounds per hour and 43.15 TPY of PM (particulate matter), of which 15.20 pounds per hour and 20.38 TPY are PM<sub>10</sub> (particulate matter less than 10 microns in diameter). Refer to the following tables for a complete summary of the proposed modified facility’ emissions:

Emissions Summary : R13-2924A Southern West Virginia Asphalt, Inc. Kelly Mountain Quarry	Controlled PM Emissions		Controlled PM <sub>10</sub> Emissions	
	lb/hour	TPY	lb/hour	TPY
<b>Fugitive Emissions</b>				
Stockpile Emissions	0.52	2.29	0.25	1.09
Unpaved Haulroad Emissions	39.20	59.12	11.57	17.45
Paved Haulroad Emissions	0.00	0.00	0.00	0.00
<b>Fugitive Emissions Total</b>	<b>39.72</b>	<b>61.41</b>	<b>11.82</b>	<b>18.54</b>
<b>Point Source Emissions</b>				
Equipment Emissions	2.16	2.70	0.78	0.97
Transfer Point Emissions	31.90	39.92	15.08	18.85
Engines	0.12	0.53	0.12	0.53
<b>Point Source Emissions Total</b>	<b>34.18</b>	<b>43.15</b>	<b>15.20</b>	<b>20.38</b>
<b>FACILITY EMISSIONS TOTAL</b>	<b>73.90</b>	<b>104.56</b>	<b>27.80</b>	<b>38.89</b>

Emission factors for calculating emissions for the two (2) diesel fired generators were taken from AP-42 Table 3.3-1 (Criteria Pollutants), Table 3.3-2 (HAPS) and the manufacturer’s data for NO<sub>x</sub>, CO and PM. CO<sub>2e</sub> emissions from No.2 fuel oil combustion were estimated using Global Warming Potentials (GWP) referenced from 40CFR98, Subpart A, Table A-1. Equations, high heating value (HHV) for No.2 fuel and emission factors are from 40CFR98, Subpart C, Tables C-1 and C-2. Diesel engine fuel consumption was calculated to be 16.53 gal/hr for ENG-C1 and 7.70 gal/hr for ENG-S1. Calculations are

based on 8,760 hours of operation.

Maximum controlled emissions from Southern West Virginia Asphalts' two (2) diesel fired generators are summarized below and not included in the Emissions Summary above:

Criteria Pollutants	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
NO <sub>x</sub>	4.52	19.80
CO	0.76	3.33
SO <sub>2</sub>	0.94	4.11
VOC	1.16	5.08
CO <sub>2</sub> e	----	2,173.67

Total HAP's calculated for (ENG-C1 and ENG-S1 combined) are 0.0123 lb/hr and 0.054 tons/yr. and summarized in the following table:

Hazardous Air Pollutants	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Benzene	0.0031	0.0136
Toluene	0.0013	0.0057
Xylenes	0.0009	0.0039
1,3-Butadiene	0.0001	0.0006
Formaldehyde	0.0038	0.0167
Acetaldehyde	0.0025	0.0109
Acrolein	0.0003	0.0013
Naphthalene	0.0003	0.0013
<b>Total HAP's</b>	<b>0.01234</b>	<b>0.054</b>

Southern West Virginia Asphalts' existing aggregate processing facility (Permit R13-1891G) has an estimated potential to discharge controlled emissions (not including fugitive sources) of 113.04 pounds per hour and 86.67 TPY of PM (particulate matter), of which 52.38 pounds per hour and 40.22 TPY will be PM<sub>10</sub> (particulate matter less than 10 microns in diameter). Refer to the following table for a summary of Southern West Virginia Asphalts' permitted emissions under R13-1891G:

13-1891G	Particulate Matter		Particulate Matter-10		Particulate Matter-2.5	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
<b>Point Sources</b>	113.04	86.37	52.38	40.22	8.07	6.16
<b>Fugitive Sources</b>	58.43	114.27	18.17	37.72	1.97	4.35
<b>Total</b>	171.47	200.64	70.55	77.94	10.04	10.51

Southern West Virginia Asphalts' emissions from their asphalt plant (ID No. 083-00029), operating under permit R13-1475D on contiguous property is summarized in the following table:

Criteria Pollutants	Maximum Annual Emissions (ton/year)
NO <sub>x</sub>	3.98
CO	4.28
SO <sub>2</sub>	9.84
VOC	3.14
PM <sub>10</sub>	5.23
PM	10.80

## REGULATORY APPLICABILITY

NESHAPS and PSD have no applicability to the proposed facility. The change to the existing aggregate processing facility is subject to the following state and federal rules:

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

The facility is subject to the requirements of 45CSR7 because it meets the definition of “Manufacturing Process” found in subsection 45CSR7.2.20. The facility should be in compliance with Subsection 3.1 (no greater than 20% opacity), Subsection 3.7 (no visible emissions from any storage structure pursuant to subsection 5.1 which is required to have a full enclosure and be equipped with a control device), Subsection 4.1 (PM emissions shall not exceed those allowed under Table 45-7A), Subsection 5.1 (manufacturing process and storage structures must be equipped with a system to minimize emissions), Subsection 5.2 (minimize PM emissions from haulroads and plant premises) when the particulate matter control methods and devices proposed within application R13-2924A are in operation.

According to Table 45-7B, for a type ‘a’ source with a maximum process weight rate of 800,000 lb/hour, the maximum allowable emission rate is 50 lb/hour of particulate matter. The maximum emission rate is 34.18 lb/hour of particulate matter according to estimated emissions in fact sheet R13-2924A.

*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 modification for aggregate processing is subject to the requirements of 45CSR13, Subsection 11. Therefore, the proposed conversion from a temporary aggregate processing addition to permanent requires a permit modification. The applicant submitted the proper application fee of \$2000 and published a Class I legal advertisement in *The Inter-Mountain* on July 19, 2013.

*45CSR16 Standards of Performance for New Stationary Sources*  
*40 CFR 60 Subpart 000: Standards of Performance for Nonmetallic Mineral Processing Plants*

The proposed change remains subject to 40 CFR 60 Subpart 000 because it will occur after April 22, 2008 and the plant processes more than 25 tons of rock per hour. The proposed modification will include one (1) crusher, one (1) open stockpile, one (1) screen, eight (8) belt conveyors and two (2) hoppers, which are defined as affected facilities in 40 CFR 60 Subpart 000. Therefore,

the proposed modification is subject to 45CSR16, which incorporates by reference 40 CFR 60 Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants. The facility should be in compliance with 60.672 (b) no greater than 7% opacity from any transfer point on belt conveyors or from any other affected facility (as defined in 60.670 and 60.671) and no greater than 12% opacity from any crusher when the particulate matter control methods and devices proposed within application R13-2924A are in operation.

*45CSR30 Requirements for Operating Permits*

In accordance with 45CSR30 Major Source Determination, the aggregate processing plant will continue to be a non-major source which is subject to NSPS Subpart OOO. The facilities combined potential to emit will be 65.83 TPY of a regulated air pollutant (PM<sub>10</sub>), not including fugitive emissions, which is less than the 45CSR30 threshold of 100 TPY. Therefore, the facility will continue to be subject to 45CSR30 and classified as a Title V deferred non-major source.

The proposed modification of Southern West Virginia Asphalt, Inc.'s existing aggregate processing facility is not 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 proposed additions and aggregate processing facilities are not listed in Table 1. The facilities will have a combined potential to emit 140.32 TPY of a regulated air pollutant (PM), not including fugitive emissions, which is less than the 45CSR14 threshold of 250 TPY. This facility is not listed in Table 2, and so fugitive emissions are not included when determining source applicability. Therefore, the proposed construction is not subject to the requirements set forth within 45CSR14.

*45CFR60 Subpart III—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*

Southern West Virginia Asphalt, Inc. is not subject to this subpart because although construction commenced after July 11, 2005, the (ENG-C1 and ENG-S1) engines were not manufactured after April 1, 2006. The engine emissions are EPA Tier II Certified.

*40CFR63 Subpart ZZZZ—National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*

Southern West Virginia Asphalt, Inc. is not subject to 40CFR63 Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. However, applicant must comply with the emission limitations in Table 2d and operating limitations in Table 2b that apply for non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions by January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018. You must also comply with the crankcase ventilation system requirements in § 63.6625(g) by January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018.

**TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS**

A toxicity analysis was not performed because the pollutants being emitted from this facility are

PM (particulate matter) and PM<sub>10</sub> (particulate matter less than 10 microns in diameter).

### AIR QUALITY IMPACT ANALYSIS

Air dispersion modeling was not performed due to the size and proposed location of this facility. This facility will be located in Randolph County, WV, which is currently in attainment for PM (particulate matter), PM<sub>10</sub> (particulate matter less than 10 microns in diameter) and PM<sub>2.5</sub> (particulate matter less than 2.5 microns in diameter).

### 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 is included as Appendix A to Permit R13-2924A. Example form for tracking the amount of water applied through the water truck are included as Appendix B. An example form for the Monthly Opacity Testing is included as Appendix C. 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 for at least five (5) years and 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 modification application indicates that compliance with all applicable regulations should be achieved when all 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 Modification Permit to Southern West Virginia Asphalt, Inc. for the conversion from a temporary to permanent aggregate processing plant located near Elkins, WV is hereby recommended.

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Thornton E. Martin Jr.  
Permit Engineer

August 13, 2013  
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Date