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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-2109A
Plant ID No.:	033-00127
Applicant:	J.F. Allen Co.
Facility Name:	Bridgeport/Asphalt (McAlpin)
Location:	Bridgeport, Harrison County
NAICS Code:	324121
Application Type:	Modification
Received Date:	July 20, 2016
Engineer Assigned:	Thornton E. Martin Jr.
Fee Amount:	$2,000.00
Date Received:	July 20, 2016
Complete Date:	September 07, 2016
Applicant Ad Date:	August 01, 2016
Newspaper:	*The Exponent Telegram*
UTM's:	Easting: 565.70 km Northing: 4354.89 km Zone: 17
Description:	The Applicant proposes to add a Reclaimed Asphalt Process to this facility resulting in the addition of new equipment, haulroad updates and increased stockpile areas. Additionally, the Applicant proposes to increase the production rate from 432,000 tons per year to 600,000 tons per year by increasing the operating schedule of 2,600 hours per year to a maximum of 3,840 hours per year.

BACKGROUND INFORMATION

On January 31, 1997, J. F. Allen Company submitted a permit application to construct a counterflow drum mix asphalt plant in McAlpin. The plant is a Model 300 Skidded Ultraplant manufactured by Gencor Industries, Inc. which has a maximum hourly capacity of 300 TPH and a proposed maximum annual capacity of 432,000 TPY.

Table 1 shows the current maximum permitted emission rates from the existing facility.

Table 1: Current Maximum Emission Rates

Pollutant	TPY
CO	12.3
NO_x	7
PM	11.6
PM_{10}	5.1
SO_2	0.91
VOC	6.7

PROCESS DESCRIPTION

The facility operates a counter-flow drum Hot Mix Asphalt Plant in McAlpin/Bridgeport, WV.

This site will have the potential to process up to 600,000 tons/year, although in recent years it has produced less than 100,000 tons/year. The Applicant proposes to install a RAP (reclaim asphalt process) to include a portable crusher and portable screen as needed, a new Deister screen, four new conveyors, two new finished product silos , one new asphalt cement storage silo and two new cold aggregate bins.

The new RAP addition will have the potential to process up to 25,000 tons/year. Currently, all materials (Limestone Aggregates) are brought onto the site having already been through the crushing and screening process at the mine site. The Reclaimed Asphalt Material may arrive at the site in need of crushing and screening. If so, the material will be placed in the stockpile areas OSP-16 and OSP-17. Once the RAP is crushed and screened, it will be placed into stockpile OSP-18. From OSP-18, the material will be brought to the cold aggregate bins before being loaded via a conveyor to a collar that will dump the material into the drum. The material will be processed in the Hot Mix Asphalt Plant before being loaded out onto trucks that are transporting the material from the site.

The portable screen is a Lokotrack ST272, powered by a 2010 Caterpillar C4.4 ACERT TA, 106 kW diesel engine (SN:44407744), EPA Tier 3 Certified (Certificate No. PKX-NRCI-10-18). The portable crusher is an Impact Crusher 4043T, powered by a 2014 Caterpillar C9, 224 kW diesel engine (SN:REH04490), EPA Tier 3 ACERT (Certificate No. CPX-NRCI-10-22).

See the following table for description, maximum throughput, control equipment, and maximum storage for all permitted equipment at the McAlpin/Bridgeport facility:

Table 2: Proposed Equipment Listing

Equipment ID No.	Description	Installation / Modification Date	Type of Change	Maximum Capacity		Control Equip-ment[1]
				TPH	TPY	
Equipment						
RDD1	Rotary Drum/ Dryer (Natural Gas – #2 fuel oil backup)	1997	No Change	300	600,000	CD1
C1	Portable Crusher	2016	New	166	90,000	PE
S1	Double Deck Screen	1997	No Change	300	75,000	PE
S2	Deister Screen	2016	New	90	25,000	PE
S3	Portable RAP Screen	2016	New	240	25,000	PE
H1	Asphalt Heater – (Natural Gas – #2 fuel oil backup)	1997	No Change	N/A		N
Conveyors						
BC1	Belt Conveyor	1997	No Change	300	600,000	N
BC2	Belt Conveyor	1997	No Change	300	600,000	N
BC3	Covered Conveyor	1997	No Change	300	600,000	FE
BC4	Belt Conveyor	2016	New	90	25,000	FE
BC5	Belt Conveyor	2016	New	90	25,000	FE
BC6	Belt Conveyor	2016	New	90	25,000	FE
BC7	Cleanout Conveyor	2016	New	N/A		N
Storage						
OSP-1	L4 Stockpile	1997	No Change	----	12,600	N
OSP-2	L4 Stockpile	1997	No Change	----	12,600	N
OSP-3	L57 Stockpile	1997	No Change	----	6,300	N
OSP-4	L57 Stockpile	1997	No Change	----	6,300	N
OSP-5	L67 Stockpile	1997	No Change	----	6,300	N
OSP-6	L67 Stockpile	1997	No Change	----	6,300	N
OSP-7	L8 Stockpile	1997	No Change	----	12,600	N
OSP-8	L8 Stockpile	2016	New	----	12,600	N
OSP-9	L9 Stockpile	2016	New	----	12,600	N
OSP-10	L9 Stockpile	2016	New	----	12,600	N
OSP-11	CR1.5 Stockpile	2016	New	----	11,200	N
OSP-12	Sand Stockpile	2016	New	----	21,000	N
OSP-13	Sand Stockpile	2016	New	----	21,000	N
OSP-14	L1 Stockpile	2016	New	----	10,000	N
OSP-15	3's Stockpile	2016	New	----	10,000	N
OSP-16	RAP Stockpile	2016	New	----	30,000	N
OSP-17	RAP Stockpile	2016	New	----	30,000	N
OSP-18	RAP (Crushed) Stockpile	2016	New	----	30,000	N
TK1	Storage Tank – Asphalt Cement	1997	No Change	N/A		N/A
TK2	Storage Tank – Asphalt Cement	1997	No Change	N/A		N/A
TK3	Storage Tank – Asphalt Cement	2016	New	N/A		N/A
B1	Aggregate Bin	1997	No Change	N/A		N
B2	Aggregate Bin	1997	No Change	N/A		N
B3	Aggregate Bin	1997	No Change	N/A		N
B4	Aggregate Bin	1997	No Change	N/A		N
B5	Aggregate Bin	1997	No Change	N/A		N
B6	Aggregate Bin	1997	No Change	N/A		N
B7	RAP Bin	2016	New	N/A		N

Equipment ID No.	Description	Installation / Modification Date	Type of Change	Maximum Capacity		Control Equip-ment[1]
				TPH	TPY	
B8	RAP Bin	2016	New	N/A		N
SILO 1	HMA Silo	1997	No Change	N/A		FE
SILO 2	HMA Silo	1997	No Change	N/A		FE
SILO 3	HMA Silo	2016	New	N/A		FE
SILO 4	HMA Silo	2016	New	N/A		FE
SILO M 1	Mineral Silo	2005	No Change	N/A		FE

FE - Full Enclosure; PE - Partial Enclosure; N - None; N/A - Not Available; CD1 - Gencor Model No. 146 baghouse

SITE INSPECTION

Karl Dettinger of the North Central Regional Office, Compliance and Enforcement section performed a targeted, un-announced full on-site inspection on November 10, 2014. The facility received a status code of 30 - In Compliance. Notes from the inspection are as follows: F.C.E. inspection of J.F. Allen Company's McAlpin asphalt plant was done on 11-10-14. V.E. readings indicated compliance with the 20% opacity standard in 45CSR36 and 40CFR60, Subpart I. One photo was taken, and production records were reviewed. Facility was firing only natural gas.

As this facility is on the inspections list, the writer deemed that a site visit was not necessary at this time.

Directions given in application: From Interstate 79N, take exit 125 (Shinnston/Saltwell Road), turn left onto Saltwell Road (WV Route 131), travel approximately 1.2 miles to the site on the left.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emission calculations for this facility were performed by Surveyor & Associates, Inc. (Consultant) and reviewed by the writer for completeness and accuracy. The WVDAQ G10-D Emissions Spreadsheet was utilized to calculate the emissions for crushing and screening, transfer points, stockpiles and haulroads.

Estimated emissions include the new equipment and are based on the increased throughput for the facility, utilizing natural gas for the dryer and heater. Diesel fuel can be used as a backup for a maximum of 24 hours. Emissions from the dryer will consist of CO, NO_x, PM, PM_{10}, SO_2, and VOC. Emissions of CO, NO_x, SO_2, and VOC were based on emission factors from AP-42, Section 11.1 - "Hot Mix Asphalt Plants."

The proposed change to plant emissions are summarized in the following tables:

Table 3: Engine Emissions from RAP Processing (Crusher and Screen)

Source	S3		C1		Total	
Pollutant	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
CO	0.420635	0.021908	1.62963	0.441767	2.050265	0.463675
NOx	0.864638	0.045033	1.82716	0.495315	2.691799	0.540348
PM	0.049074	0.002556	0.088889	0.024096	0.137963	0.026652

Table 4: Facility (PM and PM_{10}) Emissions (Existing and Proposed Modifications)

Emissions Summary - *J.F. Allen Company Bridgeport/McAlpin Site*	**Controlled PM Emissions**		**Controlled PM_{10} Emissions**	
	lb/hour	TPY	lb/hour	TPY
Fugitive Emissions				
Stockpile Emissions	0.21	0.93	0.10	0.43
Unpaved Haulroad Emissions	0.00	0.00	0.00	0.00
Paved Haulroad Emissions	168.52	38.99	32.88	7.61
Fugitive Emissions Total	*168.73*	*39.92*	*32.98*	*8.04*
Point Source Emissions				
Equipment Emissions	3.22	0.33	1.13	0.12
Transfer Point Emissions	11.68	5.80	5.52	2.74
Point Source Emissions Total	*14.89*	*6.13*	*6.65*	*2.86*
FACILITY EMISSIONS TOTAL	**183.63**	**46.05**	**39.63**	**10.90**

Table 5: Rotary Drum Dryer Emissions (Natural Gas Combustion)

Pollutant	**Natural Gas Usage(1)**		**Diesel Usage(2)**	
	lb/hr	**TPY**	**lb/hr**	**TPY**
PM	9.82	18.85	10.89	0.13
PM_{10}	6.4	12.29	5.15	0.06
SO_2	1.02	1.96	16.8	0.2
CO	39	74.88	10.8	0.13
NOx	7.8	14.98	22.5	0.27
VOC	9.6	18.43	14.7	0.18

(1) Based on a maximum production schedule of 300 TPH and 600,000 TPY of asphalt.
(2) Based on a maximum production schedule of 300 TPH and 24 hours per year of diesel fuel usage.

Table 6: Asphalt Heater Emissions (Natural Gas Combustion)

Pollutant	**Natural Gas Usage(1)**		**Diesel Usage(2)**	
	lb/hr	**TPY**	**lb/hr**	**TPY**
PM	0.014	0.027	0.03	0.0004
SO_2	0.001	0.002	0.83	0.01
CO	0.16	0.31	0.073	0.001
NOx	0.19	0.36	0.29	0.003
VOC	0.01	0.02	0.005	0.0001

(1) Based on a maximum of 1,905 SCF per hour and 3,840 hours per year of natural gas usage.
(2) Based on a maximum production schedule of 300 TPH and 24 hours per year of diesel fuel usage.

Table 6: Proposed Total Emissions

Pollutant	Existing TPY[1]	Portable Engines (C1, S3)		Facility Point Source & Fugitives		Rotary Drum Dryer (1E, 2E)		Asphalt Heater (3E)		Proposed TPY[2]
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	
PM	**11.6**	0.14	0.03			9.82	18.85	0.014	0.027	**64.96**
crushing/screening				3.22	0.33					
transfer points				11.68	5.80					
stockpiles				0.21	0.93					
haulroads				168.52	38.99					
			Total	183.63	46.05					
PM_{10}	**5.1**					6.40	12.29			**23.19**
crushing/screening				1.13	0.12					
transfer points				5.52	2.74					
stockpiles				0.10	0.43					
haulroads				32.88	7.61					
			Total	39.63	10.90					
CO	**12.3**	2.05	0.47			39.00	74.88	0.16	0.31	**75.66**
NO_x	7	2.69	0.54			7.80	14.98	0.19	0.36	**15.88**
SO_2	**0.91**					1.02	1.96	0.001	0.002	**1.96**
VOC	**6.7**					9.6	18.43	0.01	0.02	**18.45**

1 Current limits permitted June 10, 1997
2 Proposed limits based on annual tonnage of 600,000

The Applicant placed their Class I Legal Advertisement in *The Exponent Telegram* stating the increased potential to discharge the following Regulated Air Pollutants will be: Total particulate matter emissions of 25 tons, particulate matter under 10 microns of 9 tons, sulfur dioxide of 1 ton, carbon monoxide of 34 tons, nitrogen oxides of 15 tons, volatile organic compounds of 7 tons per year.

The Division of Air Quality must publish a Class I Legal Advertisement for the Notice of Intent to Approve which will correct the estimated increased potential to discharge the following Regulated Air Pollutants to be: Particulate Matter (PM), 53.36 tons per year (TPY); PM10 (Particulate matter less than 10 microns), 18.09 TPY; Sulfur Dioxide, 1.05 TPY; Carbon Monoxide, 63.36 TPY; Nitrogen Oxides, 8.88 TPY; Volatile Organic Compounds, 11.75 TPY.

REGULATORY APPLICABILITY

NESHAPS and PSD have no applicability to the proposed facility. The proposed modification of a hot mix asphalt plant is subject to the following state and federal rules:

45CSR3 *To Prevent and Control Air Pollution from the Operation of Hot Mix Asphalt Plants*

The purpose of this rule is to establish emission limitations for hot mix asphalt plants and the plant property. The facility is subject to this rule because it meets the definition of Hot Mix Asphalt Plant as found in Section 2.14. The facility must meet visible emission limits of 40% opacity during start-up or shutdown and 20% opacity during operations of any fuel burning equipment. The facility shall be operated and maintained in a manner as to prevent emission of particulate matter from any point other than a stack outlet. The facility will utilize water sprays, partial enclosures, full enclosures, and baghouses to minimize particulate emissions.

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

The purpose of this rule is to prevent and control particulate matter air pollution from manufacturing processes and associated operations. The facility is subject to the requirements of this rule because it meets the definition of "Manufacturing Process" found in Section 2.20 of this rule.; Subsection 3.7 – no visible emissions from any storage structure pursuant to subsection 5.1 which is required to have an enclosure; Subsection 4.1 – PM emissions shall not exceed those under Table 45-7A (see paragraph below); Subsection 5.1 – manufacturing process and storage structures must be equipped with a system to minimize emissions (CD1 controls emissions from the rotary drum dryer RDD1); Subsection 5.2 – minimize PM emissions from haulroads and plant premises (water sprays will be utilized to control these emissions).

According to Table 45-7A, for a type 'a' source with a maximum process weight rate of 600,000 lb/hr, the maximum allowable emission rate is approximately 50 lb/hr of particulate matter. The maximum emission rate at the facility is roughly 24.71 lb/hr of particulate matter based on the information provided in previous and current applications.

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 is subject to the requirements of 45CSR13 because it will result in an increased potential to discharge more than six (6) pounds per hour and ten (10) tons per year of a regulated air pollutant (PM, PM10, NOx, CO and VOC) and will involve the construction of equipment subject to NSPS, Subparts I, OOO and IIII. The facility is subject to the following sections of this rule: reporting requirements, requirements for modifications of stationary sources, demonstrating compliance with stationary sources, public review procedures, and permit application fees. The facility will demonstrate compliance by following all the applicable rules and regulations that apply to the facility. They will also follow the terms and conditions set forth in permit R13-2109A. The applicant published a Class I legal advertisement in *The Exponent Telegram* on August 01, 2016 and submitted an application fee of $1,000.00 as well as the $1,000.00 NSPS fee.

45CSR16 *Standards of Performance for New Stationary Sources*

This rule establishes and adopts standards of performance for new stationary sources promulgated by the United States Environmental Protection Agency pursuant to section 111(b) of the federal Clean Air Act, as amended (CAA). The facility is subject to 40CFR60 Subparts I and OOO.

45CSR30 *Requirements for Operating Permits*

The facility's potential to emit will be 15.15 tpy of a regulated air pollutant (PM_{10}), not including fugitive emissions, which is less than the 45CSR30 threshold of 100 tpy for a major source. However, the facility is subject to 40 CFR 60 Subpart Y. Therefore, the facility is still subject to 45CSR30 and classified as a Title V deferred non-major source.

40CFR60 *Subpart I: Standards of Performance for Hot Mix Asphalt Facilities*

The facility is subject to this Subpart because it meets the definition of "hot mix asphalt facility" as defined in 60.91(a) – hot mix asphalt facility means any facility used to manufacture hot mix asphalt by heating and drying aggregate and mixing with asphalt cements and consisting of any combination of the following: dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler, systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems.

40CFR60 *Subpart OOO: Standards of Performance for Nonmetallic Minerals Processing Plant*

In addition to nonmetallic minerals processing plants, provisions of this subpart also apply to crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of this subpart. The facility shall 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 (all control methods shown in equipment table) proposed within application R13-2109A are in operation.

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

J.F.Allen Company is subject to this subpart because the engines were manufactured after April 1, 2006. The portable screen is a Lokotrack ST272, powered by a 2010 Caterpillar C4.4 ACERT TA, 106 kW diesel engine (SN:44407744), EPA Tier 3 Certified (Certificate No. PKX-NRCI-10-18). The portable crusher is an Impact Crusher 4043T, powered by a 2014 Caterpillar C9, 224 kW diesel engine (SN:REH04490), EPA Tier 3 ACERT (Certificate No. CPX-NRCI-10-22).

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

J.F.Allen Company is subject to 40CFR63 Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, because the engines are considered a new area source of HAPs since the facility was constructed on or after June 12, 2006, however, the only requirements that apply are those required under 45CFR60 Subpart IIII.

The proposed modification of J.F. Allen Co.' existing hot mix asphalt plant 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*

The facility will have the potential to emit 24.98 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 Modification is not subject to the requirements set forth within 45CSR14.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The facility has emissions of hazardous air pollutants (HAP) from the dryer. Total annual emissions of HAP's are less than 5 tons per year and are not significant. The majority of HAP emissions consist of formaldehyde. Formaldehyde emissions will be controlled by the proper adjustment and maintenance of the burner.

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).

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 Harrison County, WV, which is currently designated as in attainment for $PM_{2.5}$ (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 and Appendix B to Permit R13-2109A. Example forms for the Daily Hours of Operation is included as Appendix C to Permit R13-2109A. An example form for the Daily and Yearly Hours of Operation are included as Appendix C and Appendix D to Permit R13-2109A. An example form for the Water Truck Usage is included as Appendix E to Permit R13-2109A. An example form for the Fuel Used In Dryer is included as Appendix F to Permit R13-2109A and an example form for the Sulfur Content of Fuel Oil is included as Appendix G to Permit R13-2109A. 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 the permit application R13-2109A indicates that compliance with all applicable state rules and federal regulations should be achieved when all proposed control methods are in operation. Therefore, the granting of a permit to J.F. Allen Co. for the Modification of a hot mix asphalt plant designated as McAlpin, in Bridgeport, Harrison County, West Virginia, is hereby recommended.

Thornton E. Martin Jr.
Permit Engineer

September 07, 2016
Date