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ENGINEERING EVALUATION/FACT SHEET

B ACKGROUND INFORMATION

Application No.:	R13-1475D
Plant ID No.:	083-00029
Applicant:	Southern West Virginia Asphalt, Inc.
Facility Name:	Elkins Plant #50
Location:	Kelly Mountain Road
SIC Code:	2951
Application Type:	Modification
Received Date:	February 11, 2010
Engineer Assigned:	Edward S. Andrews, P.E.
Fee Amount:	$2000.00
Date Received:	February 11, 2010
Complete Date:	March 11, 2010
Due Date:	June 9, 2010
Applicant Ad Date:	February 12, 2010
Newspaper:	*The Inter-Mountain*
UTM's:	Easting: 607.34 km Northing: 4,305.5 km Zone: 17
Description:	Modified the existing asphalt plant to process and utilize reclaimed asphalt payment (RAP) and replace the existing reverser air baghouse with a plus jet baghouse.

DESCRIPTION OF PROCESS

Hot mix asphalt (HMA) paving materials are a mixture of size-graded, high quality aggregate (which can include reclaimed asphalt pavement), and liquid asphalt cement which is heated and mixed in measured quantities to produce HMA. Aside from the amount of asphalt cement used, mix characteristics are determined by the relative amounts and types of aggregates and RAP used.

Raw aggregate is trucked into the facility and sorted in the appropriate stockpiles, OS-1 through OS-2. RAP is trucked into the facility and stored in stockpile, OS-3. Stockpile OS-4 contains the RAP that has been crushed and sized. Asphalt cement is trucked into the facility

and stored in heater tank, T-1 and T-2. Number 2 fuel oil and waste oil are trucked into the facility and stored in tanks, T-4, and T-5.

The raw material is transferred through the plant with a front-end loader in the appropriate aggregate bin, BS-1 through BS-3. The percentage of individual aggregates varies depending on the mix design requirements. The aggregate from the bins, BS-1 through BS-3 collects on a common conveyor belt, BC-1, which transfers the composite aggregate to the drum mixer, CFDM-1, where the burner dries the aggregate for asphalt absorption, which takes place later in the mixing chamber of CFDM-1. Liquid asphalt cement is sent to the mixing chamber of CFDM-1 where it is combined with the dried aggregate to form the final product. The final product is transferred by bucket elevator, BE-1, to "hot" silo, BS-4. The stored material is transferred to trucks for shipment.

When RAP is part of the mix, a front-end loader will load into the RAP hopper, BS-6 from stockpile, OS-3. The RAP is collected by conveyor, BC-2, and transferred to the crusher, CR-1. RAP exiting the crusher, is transferred to Stockpile OS-4 via belt conveyor BC-3.

The most significant ducted source of emissions is from the rotary drum dryer. The airflow generated by the baghouse exhaust fan pulls air through CFDM-1 for particulate matter removal. The baghouse, APCD-1 captures the particulate matter before venting to the atmosphere. The captured material from APCD-1 is routed back to the mixing portion of CFDM-1 where it is coated by liquid asphalt cement and becomes part of the final product.

Southern West Virginia Asphalt proposed to the make the following changes at the Elkins HMA Plant:

- Addition of a 100 TPH portable crushing unit to process recycled asphalt
- Addition of two recycled asphalt stockpiles.
- Replacement of the existing baghouse with a 1987 Astec pulse jet baghouse.

SITE INSPECTION

On December 2, 2009, this writer conducted a site visit of the Kelly Mountain Quarry, which is located at the same site. The HMA plant was not in operation during this visit. The Kelly Mountain Quarry and the Elkins Plant #50 are located east of Elkins off U.S. Route 33 on Kelly Mountain Road. This location is a rural part of Randolph County. During this particular visit, the HMA was not in operation. No additional site inspection of this facility was deemed necessary for this permitting action.

ESTIMATE OF EMISSION BY REVIEWING ENGINEER

The potential emissions from RAP handling and stockpiling were predicted using the drop point equation from AP-42 Chapter 13.2.4 and wind erosion equation from AP-42 Chapter 11.2.3. Crushing emissions provided in the application were based on a crushing emission factor

published in AP-42 Chapter 11.19.2. The emissions due to this proposed modification were based on processing 100 ton per hour and 75,000 tons per year of RAP. Presented in the following table are the potential particulate matter increases as result of the processing of RAP at the Elkins Plant.

Table #1 – PM and PM_{10} Emissions from RAP Processing

Source	PM		PM_{10}	
	Hourly Rate (lb/hr)	Annual Rate (TPY)	Hourly Rate (lb/hr)	Annual Rate (TPY)
Transfer Points	0.62	0.23	0.29	0.11
Crushing	0.11	0.04	0.05	0.02
Stockpiles	0.008	0.03	0.004	0.017
Total Increase	0.74	0.30	0.34	0.15

REGULATORY APPLICABLILITY

Currently, the facility is only subject to 45CSR2, 45CSR3, 45CSR10, and Subpart I of 40CFR60. The RAP processing and handling operation will be subject to 45CSR7 and 40 CFR 60 Subpart OOO. This modification does not affect the facility's status with regards to Title V, which is a non-major deferred source.

45CSR7 and Subpart OOO regulate particulate matter emission from RAP processing operation. Subpart OOO limits the crusher from exhibiting visible emissions greater than 12 percent opacity and 7 percent opacity from transfer points. These visible emission standards are more stringent than the ones established in 45CSR7, which are 20 percent opacity. Given the material being processed, crusher will be controlled with a full enclosure, and that all of the but one of the transfer points will be partially enclosed, the proposed RAP processing operation should be capacity of meeting these visible emission standards of Subpart OOO.

Subpart OOO clearly defines what constitutes an applicable stack emission point. Since the proposed RAP crusher does not meet this definition, the particulate matter emission standard in Subpart OOO does not apply to this source. However, the process weight standard of 45CSR7 does apply. Per Table 45-7A, this "type a" source would be allowed to emit 37 pounds per hour, which is significantly more that its potential of 0.11 pounds per hour. Therefore, the proposed enclosure to control particulate matter from the RAP crusher should be more than adequate.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

This particular modification does not constitute any physical changes of the existing asphalt plant. The proposed modification shall have no effect on the facility's potential to emit of hazardous air pollutants. Thus, the facility status as a minor source of hazardous air pollutants will not be affected by this permitting action. Therefore, no information concerning the toxicity of non-criteria regulated pollutants was presented in this section.

AIR QUALITY IMPACT ANALYSIS

This writer deemed that an air dispersion modeling study or analysis was not necessary, because the proposed modification does not meet the definition as a major source as defined in 45CSR14.

MONITORING OF OPERATIONS

Monitoring of the RAP crushing unit shall relay on visual emission observation conducted to show compliance with Subpart OOO limits and recording the amount of RAP processed on a yearly basis. The processing rate corresponds to the predicted emissions. In addition, Subpart OOO requires initial performance testing for the affected emission units.

CHANGES TO PERMIT R13-1475C

R13-1475C was issued on May 23, 2002. This permit will need to be converted into the agency's standardized permit format. Most of the specific conditions from R13-1475C were incorporated as written in this new draft. Exceptions to this were the sulfur and ash content limits on the fuel. These limits were just added to the condition that limited the type of fuel to be used at the facility.

Section B. Other Requirements of Permit R13-1475C include several direct rule citations. These listed citations were already addressed within the specific conditions. 45CSR§3-6.3. as listed in existing permit will be omitted. This specific rule has been revised into §3-5.4., which pertains to operating permits under 45CSR3. This specific rule will be paraphrased in include on the 2 page of the permit.

Included with this application, the applicant proposed to replace the existing Standard Heaven's Alpha Mark I baghouse, which was the baghouse that was proposed in the application in 1992 for Permit R13-1475, with a 1987 Astec Pulse Jet baghouse. The Alpha Mark I has an Air to Cloth Ratio of 4.5:1 at a flow rate of 35,000 ACFM. This proposed Astec as an operating Air to Cloth Ratio range of 4 to 6:1 with a maximum volumetric flow rate at 65,000 ACFM.

The maximum design flow rate of the Astce baghouse is nearly double of the existing one. The only justification that the applicant gave for this significant change in control devices is that additional air flow will be required to handle the RAP being introduced into the plug mill. Assuming that this Astec baghouse is designed to with the PM standard of Subpart I of 0.04 grain per dscf. Based on volumetric capacity of the baghouse, the PM emission rate could be as high as 16.6 pounds per hour, which is 7.6 pounds over the existing permitted limit.

This writer does not believe that facility will exceed the 9 lb per hour or 0.04 grains per dscf limits, which based on the pervious test results. However, this change would clearly invalidate the pervious compliance testing conducted in 1999 for the permit and Subpart I. Therefore, this writer recommends that another performance test be conducted as result the proposed changes.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates the proposed modification will meet all the requirements of the application rules and regulations when operated in accordance to the permit application. Therefore, this writer recommends granting Southern West Virginia Asphalt a Rule 13 modification permit for their Elkins Plant.

Edward S. Andrews, P.E.
Engineer

March 23, 2010
Date