

Blue Ridge Environmental Defense League

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August 25, 2015

Sheila Holman, Director
N.C. Division of Air Quality
1641 Mail Service Center
Raleigh, NC 27699-1641

**RE: Appalachian Materials LLC, Glendale Asphalt Plant
Air Permit Application No. 0500074.15A**

Dear Ms. Holman:

On behalf of the Blue Ridge Environmental Defense League and its members in Ashe County, and in accordance with 15A NCAC 02Q .0306, I write to request that the Division of Air Quality initiate a 30-day public comment period before issuing a permit for Appalachian Materials LLC. The basis for this request is the special conditions which are found in mountain terrain, the unpredictable nature of the applicant's plans, the altered topography of the proposed plant site, and the conditions of the law which mandate public input before an air permit is issued. Further, I hereby request that a public hearing be held in the vicinity of the draft permit before the permit is issued.

Background

In June 9, 2015 Appalachian Materials, LLC submitted an application to the North Carolina Division of Air Quality to build and operate a drum-mix asphalt plant producing 150,000 tons of asphalt per year on Glendale School Road in Glendale Springs, NC. On August 11, they amended their application to raise the production limit to 300,000 tons annually.

State Regulations Governing Hearings

North Carolina air pollution permit regulations stipulate that a hearing be held under certain conditions, such as the following:

15A NCAC 02Q .0306 PERMITS REQUIRING PUBLIC PARTICIPATION

- (a) The Director shall provide for public notice for comments with an opportunity for the public to request a public hearing on draft permits for the following:
- (1) any source that may be designated by the Director based on public interest relevant to air quality;
 - (3) a source whose emission limitation is based on a good engineering practice stack height that exceeds the height defined in 15A NCAC 02D .0533(a)(4)(A), (B), or (C);
 - (9) a source that is subject to the requirements of 15A NCAC 02D .1109 or .1112;

Contentions

The region of western North Carolina known as the High Country is subject to air inversions and other effects caused by the steep mountain terrain. The proposed site is

located on a steep bank overlooking the New River. A photo of another operating asphalt plant permitted by DAQ, operating in Macon County, illustrates the conditions which lead to excessive levels of particulate matter and high opacity which occur in mountain regions even after the Division has performed its computerized estimation of ambient impacts. See Figure A. The Rhodes Brothers Paving plant in the Bethel-Cullasaja community was permitted to produce 100,000 tons of asphalt per year. This example alone provides basis for public notice for comments with an opportunity for the public to request a public hearing on the Appalachian Materials permit.

Figure A. Photo of Rhodes Brothers Paving asphalt plant in Macon County



Fugitive emissions are pollutants not emitted from the stack but released to the atmosphere. Based on the annual consumption of asphalt cement, one can calculate the asphalt vapor fugitive emissions from any plant. Asphalt cement typically comprises 5% (0.05) of the total hot mix plant production. Fugitive air emissions equal 1.07% (0.0107) of the consumed asphalt cement.¹

So, for an asphalt plant producing 300,000 tons of hot mix asphalt per year:

$$300,000 \text{ tons hot mix} \times 0.05 = 15,000 \text{ tons/year of asphalt cement consumed.}$$

$$\text{Fugitive air emissions equal } 1.07\% \text{ (0.0107) of the consumed asphalt.}$$

$$15,000 \times 0.0107 = 161 \text{ tons per year of asphalt vapor fugitive emissions}$$

The bulk of these fugitive emissions are condensed particulates. Volatile organic compounds (VOC) emissions are about 29% of the total. Therefore, about 47 tons of VOC and 114 tons of particulates may be emitted by a 300,000 ton/year asphalt plant as fugitive emissions. To this must be added the total emitted from the smokestack itself.

The US EPA issued a report on asphalt plant fugitive emissions in 2001. The Blue Ridge Environmental Defense League participated in this review and co-authored a

¹ Basis for this data is a mass balance analysis by Ravindra M. Nadkarni, Ph. D. in Metallurgy & Ceramic Engineering, University of Utah. Dr. Nadkarni authored or coauthored 70 professional papers or presentations on a variety of engineering subjects, including the economic impact of pollution control regulations, work which directly resulted in Section 119 of the Clean Air Act.

stakeholders' dissenting opinion with a number of citizens' groups and independent experts' a Minority Report' which was published with EPA's study.² Examples of large fluctuations in emissions exist in the data gathered for this report by the EPA at a drum mix plant, where pollution increased by a factor of 2 to 3 over a 40 minute period. Episodes of high emissions caused by variations such as high temperatures are missed by the total reliance on averages of data collected under ideal test conditions. Table 1 shows the effect of different volatile contents and operating temperatures on emissions from the asphalt storage silo and load-out alone in pounds per year.

Table 1. Changes in Emissions Caused by Asphalt Content and Temperature³

Load Out Emissions (a)	EPA (c)	CITIZENS (d)
Total Particulate Matter	104	515
Organic Particulate Matter	68	478
Total Organic Compounds (Method 25A)	832	5,836
Carbon Monoxide	270	1,893
Silo filling emissions (b)		
Total Particulate Matter	117	423
Organic Particulate Matter	51	356
Total Organic Compounds (Method 25A)	2,437	17,100
Carbon Monoxide	236	1,656

(a) Load-out emissions for both batch and drum plants - See AP-42, Table 11.1-14

(b) Load-out emissions for plants with silo storage- mainly, but not exclusively, drum plants. See AP-42, Table 11.1-14

(c) EPA estimates for drum plant in lb/200,000 tons of HMA. Volatility of 0.5%, 325 degrees-F

(d) Citizen estimates for drum plant in lb/200,000 tons of HMA. Volatility of 1.0%, 375 degrees-F

The Minority Report issued by citizens groups after the issuance of EPA's fugitive emissions test results states:

It can be seen that the emissions calculated by using EPA-derived equations, particularly emissions of noxious organic compounds, increase by over 600% under conditions of higher operating temperature and volatility contents. Both the EPA and the Citizen numbers would increase by another 20 to 30% to compensate for the low bias introduced by the "background correction" and "Method 204", discussed later in this report. Finally, it should be noted that although the numbers in Table 1 are shown on an annual basis to help compare them to Table 1 in the Executive Summary of the Emission Assessment Report,

² "Minority Report on Emissions from Asphalt Plants," *Hot Mix Asphalt Plants Stakeholders Opinions Report*, US Environmental Protection Agency Office of Air Quality Planning and Standards, Document #EPA-454/R-00-030, April 2001, page 49-67, Accessed 8/22/15 at <http://www.epa.gov/ttnchie1/ap42/ch11/related/stkhld-opn.pdf>

³ *Id.*, page 49-67 (9)

the citizens are aware that actual annual emissions will be lower since a plant will not always operate with an asphalt with a high volatiles content at high temperatures. On the other hand, the table clearly shows the type of variation in emissions that is likely to occur under such conditions with its acute effects on nearby residents.⁴

Based on reports from residents in communities with operating asphalt plants, we believe that periods of high emissions are frequent. Also, the DAQ's use of computerized screening models for toxic, ground level fugitive emissions is troublesome because such models do not apply within the atmospheric boundary layer, a distance of 30 feet from the ground where frictional effects predominate. This means that the state's use of such models for fugitive emissions will predict more dispersion and lower pollutant levels than will actually occur.

The Appalachian Materials application lists recycled asphalt pavement, or RAP, as an air pollution emission source. When a plant switches from one hot mix formula to another, emissions can increase. For example, a plant using RAP has a higher operating temperature to provide extra heat to evaporate water associated with RAP, since RAP is stored in the open. Switching to a formula without RAP, the plant load-out will emit a higher level of organics because of overheating.

A short distance from the proposed asphalt plant site is Camp New Hope (734 Philmore Miller Road), ÷a privately owned, nonprofit, no-charge facility for families who have children with life-threatening medical conditions.ö I have met with the manager of the camp and a public comment period with a public hearing would enable the DAQ to gather comments from the people who depend on the camp and its pristine conditions. See Figures B.

Figure B. Children at Camp New Hope



The fugitive emissions, the proximity of a camp for disabled children, and the conditions at the proposed Appalachian Materials plant site make it a potential air pollution source that should be designated by the Director as one requiring a public hearing ÷based on public interest relevant to air quality.ö

The proposed asphalt plant site is also the site of a gravel quarry which has operated for

⁴ *Id.* page 49-67 (8)

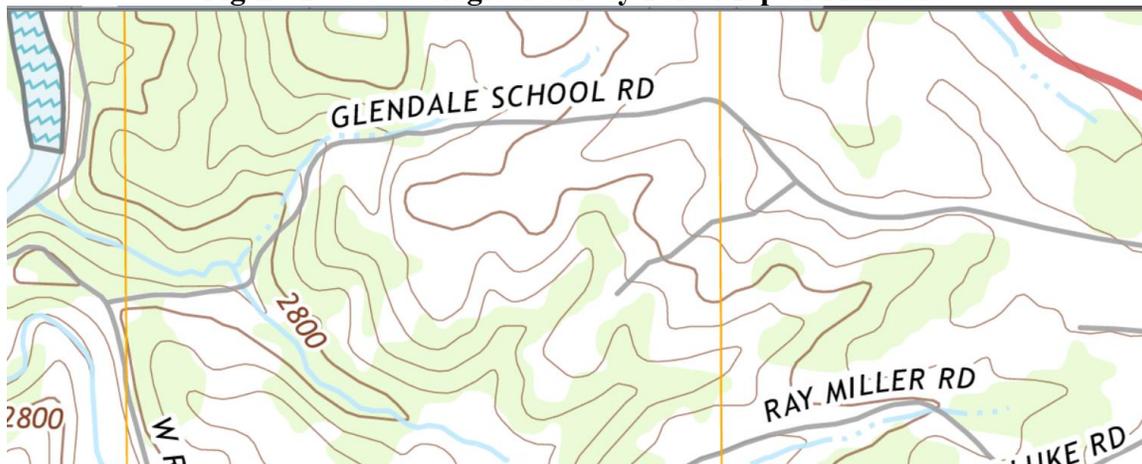
several decades. The site has been significantly altered by the quarry operation. A review of topographic maps for the area shown below in Figures C and D reveals that the site no longer conforms to the contour lines of maps updated as recently as 2013 by the US Geological Survey.⁵ Figure C, which includes an aerial view and is dated 2010, clearly shows the original contours of the slope without regard to the deep excavation caused by quarry operations. The same original and no longer correct contours may be seen in Figure D, dated 2013. In order to accurately estimate ambient levels of pollution with a Gaussian dispersion computer model, accounting for downwind dispersion and cavitation effects resulting from the quarry walls, topographic maps used in the model must represent the actual contours of a given site. The site alterations require that a new, accurate map be generated before modeling can be done. And because this is a unique situation, an opportunity for review of the DAQ's analysis by the interested public is required under 15A NCAC 02Q .0306(a)(1).

Figure C. US Geological Survey 2010 Map of Plant Site



USGS: NC_Glendale_Springs_20100825_TM_geo

Figure D. US Geological Survey 2013 Map of Plant Site



USGS: NC_Glendale_Springs_20130604_TM_geo

⁵ Map Locator, United States Geological Survey, accessed 25 August 2015 at [http://store.usgs.gov/b2c_usgs/usgs/maplocator/\(ctype=areaDetails&xcm=r3standardpitrex_prd&care=%24ROOT&layout=6_1_61_48&uiarea=2\)/.do](http://store.usgs.gov/b2c_usgs/usgs/maplocator/(ctype=areaDetails&xcm=r3standardpitrex_prd&care=%24ROOT&layout=6_1_61_48&uiarea=2)/.do)

As you know, rule 2D .0533 stipulates that "good engineering practice stack height" is the greater of 65 meters measured from the ground-level elevation at the base of the stack or 2.5 times the height of nearby structures measured from the ground-level elevation at the base of the stack. Contour intervals of 40 feet on the above maps reveal the steep drop along Glendale School Road down to the New River. Until the permit is revealed to the public in draft form, the height of the stack for the proposed Appalachian Materials plant will be unknown. Pursuant to 15A NCAC 02Q .0306(3), public notice and opportunity for hearing is required.

Presently, the permit applicant is requesting a production limit of 300,000 tons per year of asphalt. Two months ago, the requested limit was 150,000 tons of annual production. Because this permit application has grown so rapidly, the DAQ must be diligent before issuing a permit which could one day expand again.

Finally, 15A NCAC 02Q .0306(9) requires public notice for comments with an opportunity for the public to request a public hearing if the permit is for hazardous or toxic air pollutants. The owner or operator of the source of air toxics must apply for and receive a permit as required in 15A NCAC 02Q .0300 or .0500. And the air pollution class requested for Appalachian Materials is "synthetic minor"; i.e., it is not a minor but a major source of air pollution, and is only classified as such because of artificial production limits.

Conclusion

The foregoing provides basis for our request for public notice for comments with an opportunity for the public to request a public hearing on the Appalachian Materials permit. Further, I believe that on close inspection the DAQ should deny a permit for an asphalt plant on Glendale School Road. Indeed, we support denial of the permit.

Thank you for your attention to our concerns. I look forward to your reply.

Respectfully,

A handwritten signature in black ink that reads "Louis A. Zeller". The signature is written in a cursive style and is followed by a horizontal line.

Louis A. Zeller
Executive Director
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