

# Blue Ridge Environmental Defense League

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Andrew Baker, Director  
DeKalb County Department of Planning & Sustainability  
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## **RE: Special Land Use Permit for Asphalt Plant at 1913 Rock Chapel Road**

Dear Mr. Baker:

I write on behalf of the Blue Ridge Environmental Defense League, its chapter Citizens for a Healthy and Safe Environment (CHASE) and the residents of Lithonia. Members of our chapter contacted me about the application for an asphalt plant proposed by HEH Paving Corporation at 1913 Rock Chapel Road. The following is a brief analysis.

This week I contacted the Georgia Environmental Protection Division and as of today there has been no application received for a generic air permit for the HEH Paving Corp. facility. However, the generic air permit process allows of two general categories of asphalt plants: batch mix and drum mix. In the 13-county Atlanta area including DeKalb, a batch mix plant generic permit issued by Georgia EPD allows the production of 375,000 tons of asphalt per year. The EPD's statewide generic drum mix plant permit allows the production of 600,000 tons of asphalt per year. As there is not yet a determination of which type of plant is contemplated, my analysis accounts for either possibility.

Asphalt plants have two major categories of emissions: ducted sources and fugitive sources. Ducted source emissions include air toxins vented to the atmosphere through some type of stack, vent, or pipe. Ducted emissions pass through an industrial ventilation system, typically a baghouse filter, and emitted to the atmosphere through a stack. In addition, fugitive emissions resulting from the asphalt process are emitted directly from the source to the ambient air. Both types of emissions include a combination of gaseous pollutants and particulates. Road asphalt contains gravel and sand mixed with asphalt cement obtained from crude oil. Hydrocarbons released into the air by the hot mix asphalt as it is loaded into trucks and hauled from the plant site include volatile organic compounds (VOC), polycyclic aromatic hydrocarbons (PAH), and condensed particulates.

Asphalt cement is a mixture of hydrocarbons including naphtha which contribute to the vaporization of organic compounds at operating temperatures of 300-350 degrees F. Condensation of particulates occurs at ambient temperatures of 70 degrees F. These very fine particles carry polynuclear aromatic hydrocarbons which are a danger to public health. This pollution comes directly from heating the asphalt cement, not burning the fuel. Oil-fired, gas-fired and even electric-powered asphalt plants have these fugitive

emissions, sometimes referred to as "blue smoke".

The following table lists the annual pollution emission levels of the two types of asphalt plants as regulated by Georgia EPD – batch mix and drum mix – burning either Natural Gas (NG) or No. 2 Fuel Oil (FO). The data source is the US Environmental Protection Agency's AP-42 database based on real world experience.<sup>1</sup>

**Air Pollution Emissions from an Asphalt Plant in Pounds/Year**

Pollutant	Batch Mix-NG	Batch Mix-FO	Drum Mix-NG	Drum Mix-FO
PM-10	10,125	10,125	13,800	13,800
CO	150,000	150,000	78,000	78,000
NOx	9,375	45,000	15,600	33,000
SO2	1,725	33,000	2,040	6,600
VOC	3,075	3,075	19,200	19,200
Benzene	105	105	234	234
Formaldehyde	277	277	1,860	1,860
Total HAP	2,812	2,812	3,060	4,680

The emission levels listed above are those emitted to the atmosphere; that is, after the exhaust has passed through the pollution control device. In this calculation, I have selected the industry standard fabric filter as the method of pollution control. Note that the pollution levels are sometimes the same regardless of the fuel type used to heat the mixture. This is because the asphalt manufacturing process itself, not just the plant's fuel, emits toxic air pollution.

The pollution totals listed above include only the emissions from the main smokestack. In addition to these pollutants, fugitive emissions – pollution not emitted from the stack – are also 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 (data from Dr. R.M. Nadkarni).

So, for an asphalt plant producing 600,000 tons of hot mix asphalt per year:

$$600,000 \text{ tons hot mix} \times 0.05 = 30,000 \text{ tons/year of asphalt cement consumed.}$$

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

$$30,000 \times 0.0107 = 321 \text{ tons per year of asphalt vapor fugitive emissions}$$

The bulk of these fugitive emissions are condensed particulates. Volatile organic compounds (VOC) emissions are about 29% of the total. Therefore, about 93 tons of VOC and 228 tons of particulates may be emitted by a 600,000 ton/year asphalt plant as fugitive emissions, regardless of the plant's fuel source. To this must be added the total

<sup>1</sup> US EPA AP 42, Fifth Edition, *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Chapter 11, Mineral Products Industry, 2004*, available at: <http://www.epa.gov/ttn/chief/ap42/ch11/final/c11s01.pdf>

emitted from the smokestack itself.

Asphalt industry representatives often misconstrue the decision by the US Environmental Protection Agency which deleted asphalt concrete manufacturing as a major source of hazardous air pollutants. Asphalt industry spokesmen often say that asphalt was removed from the health hazard list in 2002. Such statements are incorrect or incomplete. The full statement in the Federal Register regarding asphalt plants reads:<sup>2</sup>

**National Emission Standards for Hazardous Air Pollutants: Revision of Source Category List Under Section 112 of the Clean Air Act**

**III.C.1. Asphalt Concrete Manufacturing**

In today's notice, we are deleting the source category Asphalt Concrete Manufacturing because available data indicate that there are no major sources. This source category was initially listed in July 1992 because at the time, we believed there were major sources in the category. Emissions data, along with emission factors, were used to estimate HAP emissions from eleven asphalt concrete manufacturing plants employing various production processes and different fuels. Emissions of total HAP at individual plants range from 1.5 tons per year (tpy) to 6.4 tpy. In addition, emission factors were used to estimate HAP emissions from a plant with a high annual production of 1.2 million tons of asphalt concrete. We estimate total HAP emissions from that plant to be 6.2 tpy. Based on the above information, we have concluded that no asphalt concrete manufacturing facility has the potential to emit HAP approaching major source levels.

It is important to note that under Section 112 of the federal Clean Air Act controls 188 *hazardous air pollutants* (HAP). Major source thresholds under Section 112 are 10 tons per year for any HAP and 25 tons per year of HAPs in the aggregate. The EPA deleted asphalt plants only because they found that the highest HAP emission from existing plants was 6.4 tons per year. However, asphalt plants are still considered potential major sources of *criteria pollutants*; that is, as air pollution sources with the potential to emit more than 100 tons per year of sulfur dioxide, nitrogen oxides, carbon monoxide, and/or particulate matter (PM-10). Ozone is also a criteria pollutant but it is not emitted from smokestacks; ozone is created in the atmosphere by the interaction of nitrogen oxides and volatile organic compounds. Volatile organic compounds are also emitted in large quantities by asphalt plants. Criteria pollutants are hazardous to human health, but are managed under other sections of the Clean Air Act. In fact, asphalt plants are typically required to limit their production rates in order to remain below 100 ton-per-year major source thresholds for sulfur dioxide, nitrogen oxides, or carbon monoxide. **No de-listing of asphalt plants as major sources for criteria pollutants has been promulgated by EPA.**

When a plant switches from one hot mix formula to another, emissions may increase. For example, a plant using recycled asphalt pavement (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. Examples of this exist in the data collected by the EPA in which emissions increased by a factor of 2 to 3 over a 40 minute period.

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<sup>2</sup> Federal Register: February 12, 2002 (Volume 67, Number 29)] [Notices] [Page 6522]

Developments of Regional Impact (DRIs) studies assess projects likely to have regional effects beyond the local government jurisdiction. Pollution from any asphalt plant in this area would have a regional impact in an area designated as non-attainment for national ambient air quality standards (NAAQS). As you know, Dekalb County is designated non-attainment for PM-2.5 and 8-hour ozone. I recommend that a DRI should be submitted for the proposed use.

Asphalt plants are large sources of pollution. With almost 2,000 dangerous chemicals in asphalt fume, it is important that the decision to build an asphalt plant in a populated area take into account all pollution sources and their impact on human health. Simply stated, asphalt plants simply should not be located where they may have a negative impact on air quality and public health.

Thank you for your attention to our concerns. Please keep us informed as to the status of the special use permit.

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, Blue Ridge Environmental Defense League