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Mr. Kevin Thompson
Thompson Barney
31 East Second Avenue
Williamson, West Virginia 25661

RE: Marsh Fork Elementary Air Sampling

Dear Mr. Thompson:

I continue to review the data gathered by Ashby-Tucker personnel as well as that gathered by defense experts during July and August of this year. This data largely consists of air quality monitoring for particulate matter, as well as some analytical data of dust samples gathered at the site.

Data gathered to date is very limited, but does support my belief that dust from coal-related activities adjacent to the school are impacting the air quality – and therefore increasing human health risk – at the school. This dust not only impacts the exterior areas of the school, but interior areas as well.

National ambient air quality standards for particulate matter 10 microns and smaller (PM₁₀) is currently 150 ug/m³ over a 24-hour period. These standards have been adopted by most states, however, for several years there have been well-supported efforts to lower that standard. In fact, the State of California, as well as the European Union, Australia, several Canadian provinces, etc., have established lower standards of 50 ug/m³, or lower, over a 24-hr. period, with annual averages considerably lower. A body of recent work suggests standards should be at least this low, if not lower. In fact, some studies suggest a reference level (a level above which adverse effects on human health can be demonstrated) of 12 to 30 ug/m³, depending on the study. Generally, and as expected, reference levels were lower for children.

The data indicates that there are often 24-hr average PM₁₀ concentrations above 50 ug/m³, although none have been observed above 150 ug/m³. There have been periods during the sampling events that have exceeded 150 ug/m³, but not as a 24-hr average.

My concern about the school is that dust levels not only appear to exceed human health reference levels, but that the dust is largely made up of coal. Coal dust contains silica, trace metals, and polynuclear aromatic hydrocarbons (PAH), many of which are known human carcinogens. PAH's have been found in dust samples taken at the school. Inhalation of coal dust is known to cause adverse health effects in humans, however, studies of coal dust toxicity are understandably mostly of adult populations. Children are particularly at risk from dust exposure in general, so it is reasonable to assume that coal dust creates an even greater risk for children than it does adults.

The sampling to date certainly indicates that dust levels and composition at the school reach a level of concern. Particulate matter at levels found at the school has been shown to cause adverse effects in children. I suggest that sampling of dust continue at the school – I would advise a longer duration study of at least one month, preferably longer. The study should include monitoring of the interior of the school during the school day. Longer term monitoring would insure that a more representative picture of coal dust levels would be obtained, that these levels could be more closely correlated with school activities and would therefore more closely monitor exposure to children, and would more closely correlate activities at the adjacent coal facility. In addition, I would suggest permanent dust monitoring at the perimeter of the Goals Coal facility.

Please feel free to contact me should you have any questions.

D. Scott Simonton, PE. PhD

