



CENTER FOR HEALTH, ENVIRONMENT AND JUSTICE

P.O. BOX 6806 FALLS CHURCH, VA 22040-6806

November 11, 2005

Sarah Haltom
Coal River Mountain Watch
PO Box 651
Whitesville, WV 25209

Dear Ms Haltom:

I have reviewed the two West Virginia Department of Education (DOE) letters regarding air quality tests conducted at the Marsh Fork Elementary School in Raleigh County, WV. I have also reviewed the additional documents that you sent me regarding the coal mining activities at the Goals Coal Plant located next to the school.

The two letters described "indoor air quality investigations" conducted by the WV DOE on two visits to the school this past summer. The first visit was conducted on July 7, 2005; the second, on August 25, 2005. Both evaluations were extremely limited and neither provide a proper assessment of the indoor quality at the school. Both evaluations focus only on heating, ventilation, and mechanical systems. Neither address the primary concern raised by parents which is whether children attending the Marsh Fork Elementary school are at risk from the coal dust and chemical emissions coming from the Goals Coal facility located next to the school.

The two evaluations conducted by the WV DOE do not provide the "thorough investigation" that Governor Joe Manchin had ordered of the site this past summer in response to concerns raised by parents whose children attend the school. During neither visit to the school did the WV DOE collect samples that were analyzed for dust or chemicals that are released from the Goals Coal site. It seems that this testing, which is needed to evaluate whether the coal facility is impacting the health of the children attending the school is beyond the experience and capacity of the WV DOE.

The brief letters that describe the DOE "investigations" fail to include even basic information about the limited testing that was done and, thus, provide meaningless information about the indoor air quality at the school. Substantial additional work needs to be done to properly characterize the indoor air quality at the school and to identify any potential risks to students, teachers, and staff at the school. My main concerns with these "investigations" are described below.

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FOUNDED AS THE CITIZENS CLEARINGHOUSE FOR HAZARDOUS WASTE BY LOIS GIBBS, THE COMMUNITY LEADER AT LOVE CANAL

- 1) **The two Letter Reports are extremely limited in scope.** The “investigations” conducted by the WV DOE only addressed general indoor air quality concerns, such as would result from problems with heating, ventilation, and mechanical systems. Measurements were taken of air temperature, humidity, carbon monoxide (CO) and carbon dioxide (CO₂) levels. These are minimal tests that only address whether there is sufficient air flow and movement in the building. They do not address whether dust and the chemicals released from the coal facility are present inside the school building and whether the levels of these substances impact the health of the children.

The U.S. Environmental Protection Agency (EPA) provides guidance on investigating indoor air quality problems that includes the following steps: a walk-through of the building and observation of indoor activities; identification of potential contaminant sources; evaluation of the heating, ventilating, and air conditioning (HVAC) system; measurement of contamination levels that are suspected of being present; and interviews with individuals who raised concerns about the potential poor indoor air quality at the school (see *Building Air Quality – A Guide for Building Owners and Facility Managers*, USEPA/NIOSH, Report No. EPA/400/1-91-033, 1991). The only part of this standard protocol that was followed by the WV DOE was to walk through the school, though they did not identify potential sources of contamination when this was done, and to evaluate the effectiveness of the HVAC system. A much more thorough investigation still needs to be done.

- 2) **The two Letter Reports provide very little information about the methods and procedures used to evaluate the indoor air quality at the school.** Each letter is extremely brief. The July letter is three pages including a short table of data. The August letter is four pages long including a short table of data. Neither letter provides an approach or rationale for the investigation that was conducted. Neither defines the problem that the investigation is responding to. In order to diagnose a problem, one must first define the problem. Neither provides any information on the methods and procedures used to generate the limited data provided in the single summary table provided in each letter report. Furthermore, it is not clear why WV DOE chose to test the rooms and areas that they sampled, why they chose to measure the substances and parameters that they chose, and how long the samples were collected. No rationale for any of the testing is provided.

- 3) **The particulate data provided cannot be interpreted.** One of the main concerns raised by parents is whether the dust generated by the coal mining operation located next to the school is affecting the health of the children attending the school. One way to address this concern would be to measure dust levels in the school. Particulate samples were taken during both visits to the school, and the results are included in a summary table included at the end of the letter. However, the data provided in both letter reports is incomplete and cannot be interpreted as presented.

The particulate data in both letter reports is presented simply as “counts” found at different particle sizes, such as 1 micron, 2 microns, 5 microns, etc. These individual “counts” are meaningless as presented. What matters is how many particles were found at each size per unit of volume sampled. From a public health perspective, the particles that are respirable (i.e., those that can be inhaled and breathed deep into the lungs where they can cause damage) are the one of primary concern. Generally, respirable particles are less than 10 microns in diameter and non-respirable particles are greater than 10 microns in diameter. It is standard procedure, when analyzing dust samples, to express the results in weight per unit volume, which is usually expressed as micrograms per cubic meter (ug/m^3), or something similar. It is dumfounding why the WV DOE only provided information on the number of particles found at the different diameter sizes, said nothing about the volume of air collected, and failed to present their results in conventional units of ug/m^3 . The WV DOE needs to redo these tests and to use standard procedures to collect the dust samples and to express the results in standard measures of weight per unit volume of ug/m^3 .

- 4) **No effort was made to analyze the dust samples to determine what metals and other substances are present in the dust.** Typically, dust samples from coal mining activities might include heavy metals such as arsenic, cadmium, chromium, nickel, manganese, lead, copper, and mercury. Many of these substances can be toxic if exposed to high enough levels. The primary question is whether these or other substances are present in the dust. The WV DOE did not attempt to address this question as part of their “investigation.” This testing still needs to be done.

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In summary, the two evaluations conducted by the WV DOE were extremely limited and do not provide a complete nor adequate assessment of the indoor quality at the school. Both evaluations focused only on heating, ventilation, and mechanical systems. The samples collected by the WV DOE did not analyzed for specific substances in dust or for other chemicals that are released from the Goals Coal site. This testing appears to be beyond the experience and capacity of the WV DOE, but is needed to evaluate whether the coal facility is impacting the health of the children attending the school.

The two evaluations conducted by the WV DOE do not provide the "thorough investigation" requested by the Governor and fail to address the primary concern raised by parents which is whether children attending the Marsh Fork Elementary school are at risk from the coal dust and chemical emissions coming from the Goals Coal facility located next to the school. Additional testing needs to be done to determine what substances such as heavy metals are present in the dust, what the concentration of these substances are in the dust, how heavy the dust concentrations are throughout the school building and throughout the school grounds, and whether other chemicals are present in the air inside the school building and on the school property.

A new investigation should be done that follows the USEPA guidelines for investigating indoor air contaminants and for evaluating potentially contaminated property. I have attached a portion of a "Best Practices" guide from the EPA's website that includes a flow chart that illustrates a step-by-step process for conducting a thorough indoor air quality investigation and a list of reports that provide guidance and recommendations for evaluating indoor air quality problems. The guidelines described in these reports should be used to design and conduct a thorough investigation at the school.

I hope these comments are helpful. Please do not hesitate to contact me if you have any questions or need any additional information.

Sincerely,



Stephen U. Lester
Science Director

Enclosures