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June 8, 2008

Jeffrey Miller, Chief
Division of Air Quality Monitoring,
Bureau of Air Quality,
P. O. Box 8468,
Harrisburg, PA 17105-8468

Dear Mr. Miller,

DEP has proposed an air quality monitoring network plan for 2009. The plan, which is required by federal law, must include a statement of purpose for each air monitor, as well as evidence that location and operation of each monitor is representative of air quality. The Clean Air Board of Central Pennsylvania (CAB) reviewed the network plan and has the following comments. CAB is specifically concerned about the plan for monitoring PM_{2.5} in Cumberland County:

40 CFR Part 58.10(a)(1), Appendix D, provides, in part, for state PM_{2.5} monitor locations: "Beginning July 1, 2007, the State ... shall adopt and submit to the Regional Administrator an annual monitoring network plan which shall provide for the establishment and maintenance of an air quality surveillance system that consists of a network of SLAMS monitoring stations...." The DEP provides for a network of state operated monitoring stations. Included in the proposed plan are PM_{2.5} monitors located at Imperial Court and Walnut Streets in Cumberland County. 40 CFR 58.10(c) states: "The annual monitoring network plan must document how States and local agencies provide for the review of changes to a PM_{2.5} monitoring network that impact the location of a violating PM_{2.5} monitor or the creation/change to a community monitoring zone, including a description of the proposed use of spatial averaging for purposes of making comparisons to the annual PM_{2.5} NAAQS as set forth in appendix N to part 50 of this chapter." At present, Cumberland County is not attaining the PM_{2.5} air quality standard, both on a 24 hour basis and as an annual average. Last year, CAB requested that DEP install the Walnut Street station specifically to monitor air quality in a residential neighborhood.

40 CFR 58.10(d) also requires States to perform an assessment of its network: “The network assessment must consider the ability of existing and proposed sites to support air quality characterization for areas with relatively high populations of susceptible individuals (e.g., children with asthma), and, for any sites that are being proposed for discontinuance, the effect on data users other than the agency itself. . . . For PM_{2.5}, the assessment also must identify needed changes to population-oriented sites.” Since its inception, CAB has been concerned with the association of pulmonary illnesses with poor air quality in the Cumberland Valley. A recent news article in the Carlisle Sentinel (2/4/08) focused attention on the increased reports of children with asthma in Cumberland County associated with poor air quality. The monitoring and reporting of PM_{2.5} in the Carlisle area helps people with pulmonary illness determine the activities in which they can safely engage.

EPA requires States to establish air quality monitoring networks with a number of objectives. 40 CFR Part 58, Appendix D, Section 1.1.1 states:

In order to support the air quality management work indicated in the three basic air monitoring objectives, a network must be designed with a variety of types of monitoring sites. Monitoring sites must be capable of informing managers about many things including the peak air pollution levels, typical levels in populated areas, air pollution transported into and outside of a city or region, and air pollution levels near specific sources. To summarize some of these sites, here is a listing of six general site types:

- (a) Sites located to determine the highest concentrations expected to occur in the area covered by the network.
- (b) Sites located to measure typical concentrations in areas of high population density.
- (c) Sites located to determine the impact of significant sources or source categories on air quality.
- (d) Sites located to determine general background concentration levels.
- (e) Sites located to determine the extent of regional pollutant transport among populated areas; and in support of secondary standards.
- (f) Sites located to measure air pollution impacts on visibility, vegetation damage, or other welfare-based impacts.

At a minimum, states must locate monitors at sites which are intended to determine the highest concentrations expected, the typical concentrations in an area of high population density, and the general background concentrations. These are not identified by DEP for Cumberland County. Residents have long suspected that the area along U.S. 11 near Carlisle, called the Miracle Mile, would likely be qualified as a location of highest concentration. However, DEP does not monitor air quality in this area. CAB has submitted monitoring data (see attached spreadsheet) from an area a mile east of the Miracle Mile in the 1900 block of Harrisburg Pike, using an EBAM monitor. DEP has commented on CAB’s sampling report, contending that: 1) EBAMs have been found to read 1% high and 2) EBAMs read high during periods of fog or rain. DEP identified four days during the 37-day sampling period on which the National Weather Service recorded

fog or rain. Those days were November 21 and 26 and December 8 and 9 of 2008. DEP compared the readings taken on those days on its FRM monitors.

The attached spreadsheet includes the above data as well as DEP's data for the remainder of the 37-day period. Some days had no data recorded due to reliability issues with DEP's monitors. CAB computed period-long statistics for EBAM, Imperial Ct and Walnut St monitors. The EBAM recorded a daily average of 23.3 mcg/m³ compared to 15.9 and 16.1 for the Imperial Ct and Walnut St monitors, respectively. A quick look at a map shows that the three sites are each separated from the others by a few miles and that the geographic composition of the three areas is quite different.

Even if one assumes that DEP's concerns are accurate, the Harrisburg Pike pollution levels still average over 4.6 mcg/m³ higher than levels at the other monitors. (Transposing the EBAM readings with the lower of the two other monitors on the four days DEP identified, we have a resulting average of 20.9 mcg/m³. Reducing this by 1% yields a daily average of 20.7 mcg/m³.) This large difference argues strongly for the need for DEP to install a monitor along the Miracle Mile to demonstrate attainment of the NAAQS for PM_{2.5}.

Additionally, in August 2004 as part of the land use review of the Keystone/Prologis warehouses hearings, Middlesex Township hired an air quality expert to conduct 24-hr testing at both ends of the Miracle Mile. The samples collected were 56.4 and 63.2 mcg/m³, respectively. A meteorologist testified that weather-related phenomenon did not cause the pollution levels to be high. People familiar with the Miracle Mile suspect that pollution levels along it would be considerably higher than a mile east of it due to the concentration of stop-and-start truck traffic and constant idling along that stretch of U.S.11. A DEP monitor for PM_{2.5} needs to be placed along the Miracle Mile rather than some distance from it because over 1,000 people work in that area, several hundred people live there, and others exercise outdoors at the Carlisle Country Club.

Neighborhood scale monitoring needs to be performed. 40 CFR Part 58, Appendix D, Section 4.7.1(b) and (c) requires monitoring sites to be located to measure typical concentrations in areas of neighborhood scale:

The most important spatial scale to effectively characterize the emissions of particulate matter from both mobile and stationary sources is the neighborhood scale for PM_{2.5}. For purposes of establishing monitoring sites to represent large homogenous areas other than the above scales of representativeness and to characterize regional transport, urban or regional scale sites would also be needed. Most PM_{2.5} monitoring in urban areas should be representative of a neighborhood.

The Walnut Street monitor, located on the upwind edge of the Borough's residential district and near Interstate-81, does represent the neighborhood scale air quality that many people breathe. A monitor located at the square in Carlisle, right in the center of town, might better represent the neighborhood scale air quality.

CAB calculated the distances from the Walnut Street monitor to the closest points of mobile and stationary sources (truck traffic in the warehouse complex and to I-81 and Route 11). The distances computed are:

1. Monitor to trucks at warehouse under construction: 580 meters
2. Monitor to I-81: 670 meters
3. Monitor to Route 11: 760 meters

The Walnut St monitor is not measuring the air quality at the warehouses or major roadways because it is farther than 0.5 km from them.

DEP has stated that it does not wish to continue monitoring $PM_{2.5}$ at the Walnut Street location. CAB believes the Walnut Street location is ideally suited for neighborhood scale monitoring. DEP has an obligation to state why the Walnut Street monitor cannot be compared to the NAAQS for $PM_{2.5}$. 40 CFR 58.10(b)(7) states that the plan must include: "The identification of any sites that are suitable and sites that are not suitable for comparison against the annual $PM_{2.5}$ NAAQS as described in §58.30."

The Imperial Ct. site does not represent community-wide air quality for the residents of Carlisle Borough or the metropolitan area. The Imperial Ct. site is located near Carlisle Springs, a much sparser community. The Imperial Ct location may be better classified as a background monitor rather than an urban scale monitor. Background sites are located to determine upwind of pollution sources. Imperial Ct. is located on a hill generally upwind of the major population concentration and major air pollution sources (highways and stationary sources). Its location is not suited to measure population exposure.

Cumberland County needs real-time reporting of $PM_{2.5}$ levels. 40 CFR Part 58, Appendix D specifies network design criteria. Among other specifications, it specifies timely reporting of air pollution data to the public. "Data can be presented to the public in a number of ways, including through air quality maps, newspapers, Internet sites, and as part of weather forecasts and public advisories." (Section 1.1(a)) At present, the only $PM_{2.5}$ monitor in the Harrisburg area that continuously reports readings to the public is in Harrisburg. DEP has installed no $PM_{2.5}$ monitor in Cumberland County of the type necessary to support this requirement. Both the permanent (Imperial Ct) and temporary (Walnut St) $PM_{2.5}$ monitors DEP has in the county are of the FRM type which require months to determine the amount of pollution sampled and as such cannot satisfy this timely reporting requirement. The EBAM monitor used by CAB is moved frequently, so it cannot satisfy this requirement because frequent location changes would confuse the public. DEP needs to install a continuous-reading monitor, such as the BAM 1020, in a location where people live, work and play to satisfy this requirement. DEP should report the real-time readings in a manner easily accessible to the public, such as on DEP's website, the AirNow website, or other local website.

In summary, CAB requests that DEP:

1. Install a monitor along U.S.11 in the Miracle Mile to determine the highest concentrations of $PM_{2.5}$ in the area.

2. Retain the Walnut Street monitor or move it to a location where it will measure neighborhood scale air quality.
3. Classify the Imperial Ct. monitor as a background monitor.
4. Provide real-time reporting of PM_{2.5} levels in Cumberland County by installing a continuous recording monitor.

Thank you for your consideration of our comments.
Sincerely,

Jennifer McKenna
President
Clean Air Board

Attachment: Harrisburg Pike Data