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A Badly Flawed Assessment of Pittsburgh's Air Quality

Using an analytical approach devoid of rigor, the American Lung Association has unfairly and erroneously depicted the Pittsburgh region's air quality as far below EPA standards. On April 30, the Lung Association released the 2007 edition of its *State of the Air* report that ranked the 8-county Pittsburgh-Lawrence metro area second only to Los Angeles as having the highest average annual concentration of PM_{2.5}—extremely small particulate matter. The Association paid scant attention to the enormous improvement in the Pittsburgh area's ozone level since their last report. From ranking 17th, the area has fallen completely off the list of the top 25 areas with highest ozone levels.

Our principal concern is with the serious flaws in the Lung Association's particulate matter finding for the region. First, the Association assigns the concentration of PM_{2.5} in the regional county with the highest particle count to the entire 8-county area. In this case, the "worst" performer was Allegheny County with a PM_{2.5} annual concentration of 20.8 micrograms per cubic meter of air. Since the EPA has set 15 micrograms per cubic meter as the standard, Allegheny County is clearly in the "out-of-attainment" category. Thus, even though other counties in the area might well be meeting the EPA standard, they are all viewed as having the same air quality as Allegheny County and are ranked as having the second worst particulate problems in the nation.

But the second, and much greater, problem with the Lung Association's methodology is that the Allegheny County reading is based on measurements at a single monitoring station in Liberty Borough in the Mon Valley. This monitoring site is in a valley and does not benefit from air movement to the extent most areas do and as a result particles can become trapped in the air around the monitor. Therefore, the concentration levels are typically much higher than at monitoring sites not located in valleys. The Liberty monitor is also near, but not next to, major industrial sites.

Inexplicably, the Lung Association ignores the readily available particle data taken at 11 other monitoring stations scattered throughout Allegheny County and uses only the very high measurements taken at the Liberty site in the far southeastern corner of the County. Without question, if the results from South Fayette, South Park, North Park, Moon Township, Lawrenceville, McKees Rocks, and other monitors in Allegheny County had been averaged with the Liberty concentrations, the Allegheny County particulate matter level presented in the *State of the Air* report would have been much lower.

Indeed, according to data taken from the EPA's Air Trends, Particulate Matter web page, the average concentration for Allegheny County would be quite close to the 15 microgram per cubic meter standard--and certainly nowhere near the 20.8 figure reported for the County by the Lung

Association. That figure was sufficiently high to rank the County second in the country and cause the entire Pittsburgh metro area to receive the same dubious ranking.

Moreover, the other five PM_{2.5} monitoring sites in the 8-county area (three in Washington County and one each in Westmoreland and Beaver) when averaged together with all the Allegheny County sites, would show particulate levels below the readings posted in York, Lancaster, and the Harrisburg area. Bear in mind there are no PM_{2.5} monitoring stations in Butler, Fayette, Lawrence and Armstrong Counties, which makes the Lung Association's use of the Allegheny County particle reading to represent these counties even more puzzling and unscientific.

But the story is not finished. Beyond the poor methodology utilized by the Lung Association, they have deliberately obfuscated the air quality picture in the region. Their report looks at data only for the period 2003 to 2005. And it should be pointed out that 2005 was an anomalous year in which particle concentration readings jumped in much of the country for reasons not yet completely understood. Thus, the 2003 to 2005 period is out of sync with the significant long term declining trend in PM_{2.5} levels dating back to the beginning of fine particle monitoring in 1999.

Surely, the Association knew before releasing their latest report that the EPA has posted the 2006 monitoring results on its web site—we found them in a just a couple of minutes. Those results make a mockery of the Association's findings that air quality is getting worse in many areas and produce an entirely different picture for Allegheny County and the Pittsburgh region than their recent study purports to demonstrate. Every monitoring site in Allegheny County showed a significant drop in 2006 from its 2003 to 2005 average and all monitors except Liberty Borough showed levels under the EPA's 15 microgram per cubic meter standard. Indeed, some of the sites, including Moon and South Fayette, had concentrations well below 15 micrograms.

In short, the Lung Association has not told the real, more accurate story about air quality, which has shown significant improvement across the country and in this region over the past few years. To be blunt, the Association, in releasing their deeply flawed study has done a grave disservice to Pittsburgh.

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