

Dear Colleagues

I read with interest the report entitled “Health Consultation Final Release, REVIEW AND ANALYSIS OF PARTICULATE MATTER AND METAL EXPOSURES IN AIR, KCBX, (AKA, “CHICAGO PETROLEUM COKE” sites)” by the Agency for Toxic Substances and Disease Registry (ATSDR) dated June 29, 2016. This report is a screening level analysis of several chemicals measured at the fence line of this facility, and as a screening level assessment, appears to be well developed, with however, some important missteps:

1. ATSDR states on page 2 that “Blown dust from the KCBX facility poses a public health hazard to residents living adjacent to the piles, especially for sensitive individuals.” This conclusion is not possible based on only fence line measurements and not measured or modeled concentrations in the communities. A modeling effort would be needed for this conclusion, similar to what was done in Dourson et al. (2016).
2. ATSDR states on page 3 that “KCBX does adversely impact air quality in the community...” Again, this conclusion is not possible based on only fence line measurements and not measured or modeled concentrations in the communities. A modeling effort would be needed for this conclusion, similar to what was done in Dourson et al. (2016).
3. ATSDR establishes a well developed list of comparison values (CVs) for their work on page 9, and then go on to cite comparison values of two groups not otherwise on this list.
 - a. For example, Table 6 includes California values---not on ATSDR’s chosen list.
 - b. Moreover, ATSDR states on page 11 that since long-term health effects from exposure to PM₁₀ have been inconclusive, and thus, there is no chronic NAAQS for PM₁₀, it chooses the World Health Organization’s (WHO’s) air quality guidelines (AQGs) for PM₁₀, as an annual average AQG of 20 µg/m³ and a 24-hour AQG of 50 µg/m³. This WHO value is more conservative than the U.S. EPA’s NAAQS. ATSDR should explain the logic behind this choice, especially since it is not on their list of CVs, and especially since other communities in the US depend on the EPA-established NAAQS for risk management decisions.

ATSDR’s otherwise good screening level report overstates its conclusions as to possible health risks for several of these chemicals, primarily PM₁₀. This overstatement is due to reliance on concentrations from fence line monitors as “surrogates for worst-case community exposures” (ATSDR page 2). In fact, ATSDR cannot draw conclusions on health risk based on fence line measured concentrations, since such concentrations are not to be expected in the community.



Fortunately, a published paper on this very site shows modeled concentrations that would have lead ATSDR to a different conclusion. Specifically, Dourson et al. (2016) modeled community exposures for this site (see their Table 4), based on similar information available to the ATSDR. The abstract from Dourson et al. (2016) with its different health conclusion follows:

Petroleum coke or “petcoke” is a solid material created during petroleum refinement and is distributed via transfer facilities that may be located in densely populated areas. The health impacts from petcoke exposure to residents living in proximity to such facilities was evaluated for a petcoke transfer facilities located in Chicago, IL. Site-specific, Margin of Safety (MOS) and Margin of Exposure (MOE) analyses were conducted using estimated airborne and dermal exposures. Our exposure assessment was based on a combined measurement and modeling program that included multi-year on-site air monitoring, air dispersion modeling, and analyses of soil and surfaces in residential areas adjacent to two petcoke transfer facilities located in industrial areas. Airborne particles less than 10 microns (PM₁₀) were used as a marker for petcoke. Based on daily fence line monitoring, the average daily PM₁₀ concentration at the KCBX Terminals measured on-site was 32 µg/m³ with 89% of 24-hr average PM₁₀ concentrations below 50 µg/m³ and 99% below 100 µg/m³. A dispersion model estimated that the emissions sources at the KCBX Terminals produced peak PM₁₀ levels attributed to the petcoke facility at the most highly impacted residence of 11 µg/m³ on an annual average basis and 54 µg/m³ on 24-hr average basis. Chemical indicators of petcoke in soil and surface samples collected from residential neighborhoods adjacent to the facilities were equivalent to levels in corresponding samples collected at reference locations elsewhere in Chicago; a finding that is consistent with limited potential for off-site exposure indicated by the fence line monitoring and air dispersion modeling. The MOE based upon dispersion model estimates, ranged from 800 –900 for potential inhalation, the primary route of concern for particulate matter. This indicates a low likelihood of adverse health effects in the surrounding community. [Dourson, Michael, Chinkin, Lyle, MacIntosh, D.L., Finn, Jennifer, Brown, Kathleen, Reid, Stephen, Martinez, Jeanelle. 2016. A Case Study of Potential Human Health Impacts from Petroleum Coke Transfer Facilities. Journal of the Air & Waste Management Association May. DOI: [10.1080/10962247.2016.1180328](https://doi.org/10.1080/10962247.2016.1180328)].

As can be seen from this abstract, and in more detail in the publication, Dourson et al. (2016) provide an initial risk assessment, which suggests little cause for health concern. This publication can be seen as step further along than ATSDR’s screening assessment. As with any analysis, however, additional information would likely yield results with more confidence.

Sincerely,



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