Statement re: Benzene Concentrations at/near Clairton Coke Works for OMB Meeting (20 May 2024)

My name is Tyler Weiglein, and I'm an engineer with the Environmental Integrity Project. I'd like to use my allotted time to talk about the dangerously high benzene concentrations measured in and around U.S. Steel's Clairton Coke Works facility in Clairton, Pennsylvania.

As you already know, benzene is a hazardous air pollutant. In addition to causing blood and immune system disorders, it's a carcinogen that can cause leukemia.[1] Because of this, both government agencies and scientific professional societies have set exposure limits for benzene. The most up-to-date occupational standard that reflects current scientific understanding[2] is from the American Conference of Governmental Industrial Hygienists or ACGIH. The eight-hour ACGIH limit is 0.02 parts per million, which is about 65 micrograms per cubic meter.[3] Concentrations above this limit may pose a non-cancer health risk to workers.

Benzene concentrations measured within the fenceline of Clairton Coke Works far exceed this limit. The average concentration measured from October 2022 through January 2023 was 339 micrograms per cubic meter or five times higher than the ACGIH limit, and the maximum concentration during this same time period was 620 micrograms per cubic meter or over nine times higher than the ACGIH limit.[4] Without protective equipment, these concentrations pose a serious health risk to workers.

Even at the fenceline, benzene concentrations at Clairton Coke Works are concerningly high. During a six-month period from October 2022 to April 2023, the average measured fenceline "delta c" value, which is the benzene concentration attributable to the facility, was 33 micrograms per cubic meter. This is 11 times higher than the chronic exposure limit of 3 micrograms per cubic meter set by the California Environmental Protection Agency or CalEPA.[5]

However, benzene emitted from coke oven facilities doesn't just stop at the fenceline--it makes its way into the surrounding community. Community monitoring conducted near Clairton Coke Works over 18 months from December 2021 to June 2023 measured average benzene concentrations higher than 3 micrograms per cubic meter at multiple

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[1] See the Agency for Toxic Substances and Disease Registry's (ATSDR) ToxFAQs document for benzene here: https://www.atsdr.cdc.gov/toxfaqs/tfacts3.pdf. Additional health impact information is available in ATSDR's Toxicological Profile for Benzene available here: https://www.atsdr.cdc.gov/ToxProfiles/tp3.pdf.
[2] The Occupational Safety and Health Administration (OSHA) acknowledges that many legally enforceable occupational standards (known as Permissible Exposure Limits or PELs) are outdated: https://www.osha.gov/annotated-pels.
[3] See ACGIH's Threshold Limit Value (TLV) page for benzene here: https://www.acgih.org/benzene-2/.
[4] Data for benzene concentrations measured within and along the fenceline at Clairton Coke Works (and several other coke oven facilities) is available here: https://www.regulations.gov/document/EPA-HQ-OAR-2002-0085-0880.
[5] See CalEPA's Office of Environmental Health Hazard Assessment's webpage for benzene: https://oehha.ca.gov/chemicals/benzene.

locations in the community.[6] Again, this is higher than the chronic exposure limit set by CalEPA, meaning these concentrations pose a long-term health risk.

Finally, a key point to remember is that benzene is a carcinogen. This means any amount of benzene will increase the risk of people developing cancer, with the risk proportional to the concentration of benzene. Based on the average concentration measured within the fenceline of Clairton Coke Works and assuming a lifetime of exposure, the increased cancer risk to workers without protective equipment is between 7.5 and 26.5 in 10,000.[7] For comparison, EPA considers a cancer risk greater than 1 in 10,000 to be "unacceptable".[8]

The proposed rule contains two provisions that are key to reducing benzene emissions from coke oven plants—monitoring benzene concentrations at the fenceline and requiring facilities to take corrective action if the 3 micrograms per cubic meter action level is exceeded. I hope you will help protect workers and nearby residents by keeping these provisions in place.

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[6] See document titled "Benzene Monitoring Data Making a Difference" also submitted to the Office of Management and Budget (OMB).

[7] This cancer risk estimate uses the inhalation unit risk values for benzene (2.2×10^{-6} per $\mu g/m^3$ and 7.8×10^{-6} per $\mu g/m^3$) given in the U.S. Environmental Protection Agency's (USEPA) Integrated Risk Information System (IRIS): https://iris.epa.gov/ChemicalLanding/&substance_nmbr=276.

[8] USEPA's 1-in-10,000 cancer risk threshold for hazardous air pollutants comes from the 1989 National Emission Standards for Hazardous Air Pollutants (NESHAP) for benzene: https://archives.federalregister.gov/issue_slice/1989/9/14/38039-38082.pdf#page=6.