U.S. Senate
Committee on the Environment and Public Works
Washington, D.C.
cc: Sen. Sherrod Brown, Sen. JD Vance

March 7, 2023

Dear Chmn. Carper, Ranking Member. Capito, and Honorable Committee Members:

These comments are in response to your hearing March 8, 2023 entitled “Protecting Public Health and the Environment in the Wake of the Norfolk Southern Train Derailment and Chemical Release in East Palestine, Ohio”. As a result of independent water analysis by Purdue University researchers, preliminary findings suggest unrecognized risks to public health that may be of interest to the committee.

In February 25-27 and March 3-4, 2023 our team visited the impacted area at the specific request of East Palestine residents to investigate ongoing public health and environmental impacts. We sampled drinking water from private drinking water wells and creeks from the area. We applied a broad approach to water analysis using gas chromatography–mass spectrometry (GC-MS) and high-resolution proton transfer reaction time-of-flight mass spectrometry (PTR-TOF-MS, operated by my Purdue faculty colleagues, Professors Nusrat Jung and Brandon E. Boor). The analytical protocols used were determined in the interest of a broad screen given the extensive nature of contaminants released and created in Ohio. This approach was applied to be protective of public health. As a result, our preliminary analysis revealed that acrolein, butyl acrylate, 1,3-butadiene, ethylene glycol, naphthalene, butyl acrylate, *n*-butyl ether, 2-butoxyethanol, and 2-ethyl hexanol were present in contaminated Sulfur Run and Lesley Run waterways. It is reasonable to expect these compounds to be present because of the Norfolk Southern manifest published by the U.S. EPA and what was reported to be released due to the fires. These compounds can present an acute public health risk when present at sufficient amounts. For example, acrolein is a breakdown product of chlorinated compounds and was detected in air separately by US EPA and Texas A&M and Carnegie Mellon University researchers. We are in the process of finalizing sample analysis and confirming concentrations[1].

The government agency testing we reviewed is not representative of what is likely to be present in potentially contaminated water. It is unclear how entities involved determined which compounds should and should not be analyzed. Separately, ORSANCO appears to be analyzing for two of these compounds in Little Beaver Creek and the Ohio River.

> ***Action.*** *Test for the chemicals we identified. Further, officials should notify the communities in and around East Palestine that their analysis to date has not been sufficiently representative of possible exposure risks. Some of these compounds could be present in deposited particulate matter observed in homes and properties. It is unclear why responders have not conducted indoor surface analysis to mitigate acute exposures and provide necessary guidance on safe cleaning.*

On March 2, I sent a letter to Director Douglas Parker asking OSHA to protect workers in and around East Palestine, Ohio. During my onsite investigation February 25-27, I observed that the creeks (Sulfur Run and Lesley Run) were heavily contaminated with chemicals, something that was not widely shared with the public prior to our visit. We observed workers being exposed to chemicals, without respirators, wading through the creeks, standing in and beside the creeks, sometimes not wearing safety gloves, standing by makeshift aeration units and apparently being exposed to the emitted chemicals, and lost footing and slid

1 Using the GC-MS, we detected four compounds thus far with NIST library matches: n-butyl ether (88% match), 2-butoxyethanol (95% match), butyl acrylate (94% match), 2-ethylhexy acrylate (97% match). Identification of acrolein, butyl acrylate, 1,3-butadiene, ethylene glycol, and naphthalene via PTR-TOF-MS was based on detection of their exact masses (mass resolution > 6000 m/Δm). Compound identification will be confirmed following analysis of calibration standards.

off the creek bank and into Sulfur Run (he remained upright). In particular, the actions taken by the workers are volatilizing chemicals into air are causing exposures that do not appear to be guarded against by existing worker safety measures. I also asked some workers about PPE, and they said they were not told what chemicals they were being exposed to. I also observed children, adults, and pets were near the creeks, not warned about the health hazard they posed.

> ***Action.*** *Institute access controls using contractor fencing to prevent unauthorized entry into the contaminated waterways. Install fencing and warning signs extending all the way down to Bull Creek, where contamination was visible on March 4 during a rain event. Conduct worker and air monitoring where creek aeration is being carried-out, including but not limited to Sulfur Run and Lesley Run, and soil cleanup operations.*

We will be releasing the findings of our analyses in the coming weeks. Please do not hesitate to contact me if you have any questions. We remain able to help agencies who want to make certain their approach is grounded to evidence so that the people impacted can be protected from harm and obtain answers. I can be reached at awhelton@purdue.edu.

I am providing information in an individual capacity, expressing my own views; and are not representing the views of Purdue University, a College or a Department.

Sincerely,

Andrew Whelton, Ph.D.