

Department of Ecology

13 April 2017

TO: Karen Wood and Chris Hanlon-Meyer

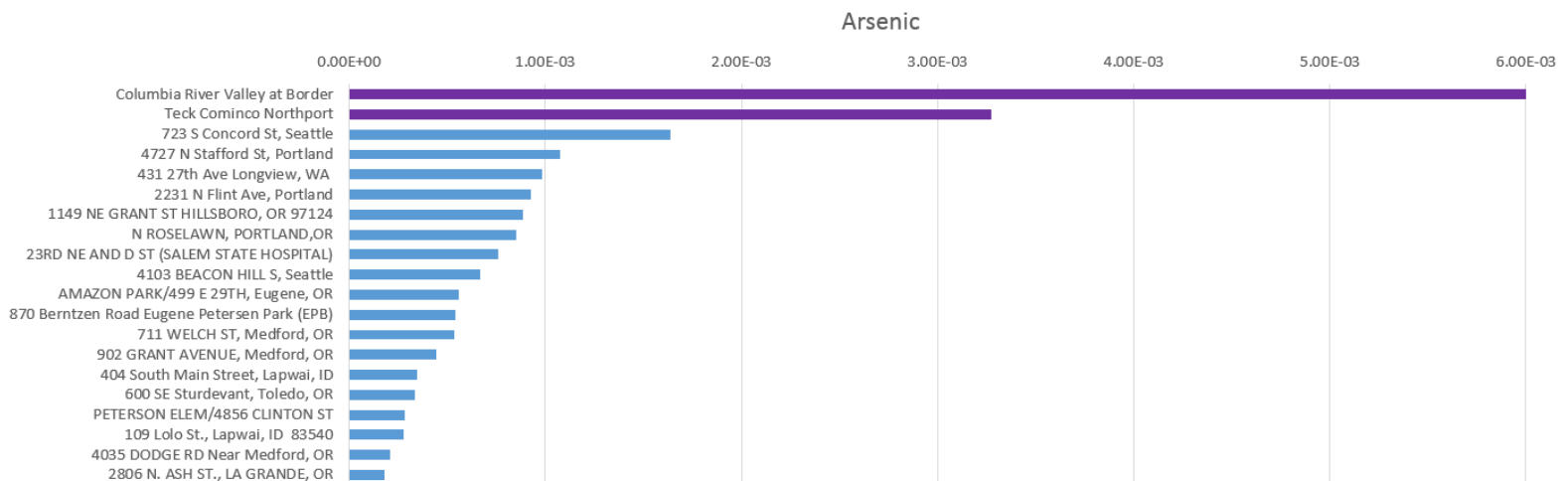
FROM: Matt Kadlec

SUBJECT: Regional PM10 Air Monitoring Speciation Network Comparison to Measured and Predicted Conditions in the Upper Columbia River Valley near the U.S.-Canadian Border

An analysis was recently completed on observed and estimated recent air quality conditions for arsenic, cadmium, and lead within the upper Columbia River valley near the international border.^[1] The report recommended a renewal of monitoring of certain aerosol elements in that area in order to conclusively determine current air quality conditions there.

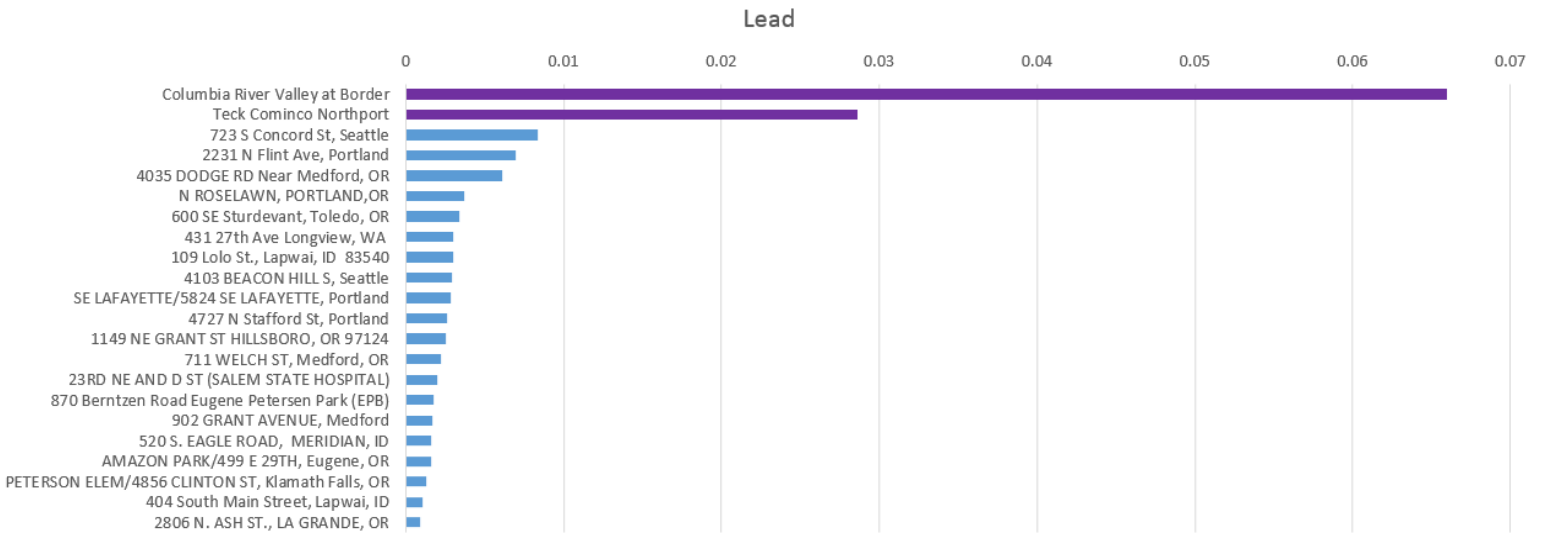
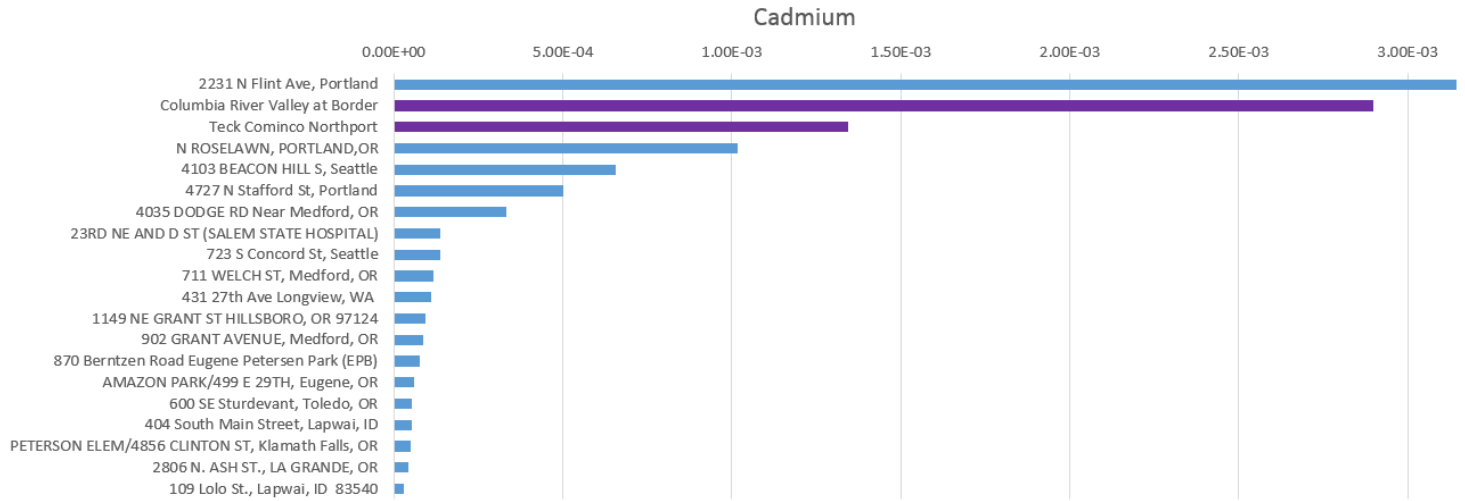
Those estimates are matched to comparable data from monitors in Washington, Oregon and Idaho as follows.

In the histograms below, the mean concentrations of US EPA Air Quality System (AQS)^[2] PM10 speciation data are compared to estimates of the mean concentrations near Northport and the upper Columbia River Valley near the border (UCR). All the means are of the February 2009 through December 2014 interval.



¹ <https://fortress.wa.gov/ecy/publications/SummaryPages/1702003.html>

² <https://www.epa.gov/aqs> accessed by Jill Schulte, 6 April 2017



DISCUSSION

The upper limit of each location's histogram bar is the ≈ 6-year mean PM10 element concentration in micrograms per cubic meter (µg/m³). The purple bars are the estimated concentrations in the upper Columbia River Valley area and near Northport. The blue bars are the observed mean concentrations at the AQS monitor locations.

CONCLUSIONS

Average airborne PM10 arsenic and lead concentrations in the upper Columbia River valley near the international border are potentially the highest known levels in Washington, Oregon and Idaho. Likewise, the average airborne cadmium concentrations are potentially the highest known anywhere in three states except at the

monitor at 2231 N Flint Ave, Portland, OR, which is about 500 feet from an art-glass foundry known to have emitted high levels of cadmium in particulate matter.^[3]

Previously interpreted air monitoring data from 2009 through 2014 suggest that current emissions from the Trail smelter continue to influence upper Columbia River valley air quality. PM10 arsenic, cadmium and lead concentrations in the upper Columbia River valley near the international border exceed expected air quality conditions for a rural setting. Absent smelter emissions, the particulate metal concentrations in this rural portion or northeast Washington likely would be about as low as those at the monitors in rural Oregon and Idaho.

These findings reinforce the need for current PM10 speciation monitoring in the upper Columbia River Valley near the international border and Northport area.

³ <http://www.opb.org/news/article/why-portland-heavy-metals-pollution-went-undetected-for-so-long/>
Accessed 11 April 2017