

Update on Health Assessment of VOC Monitoring Results for Portland – South Portland

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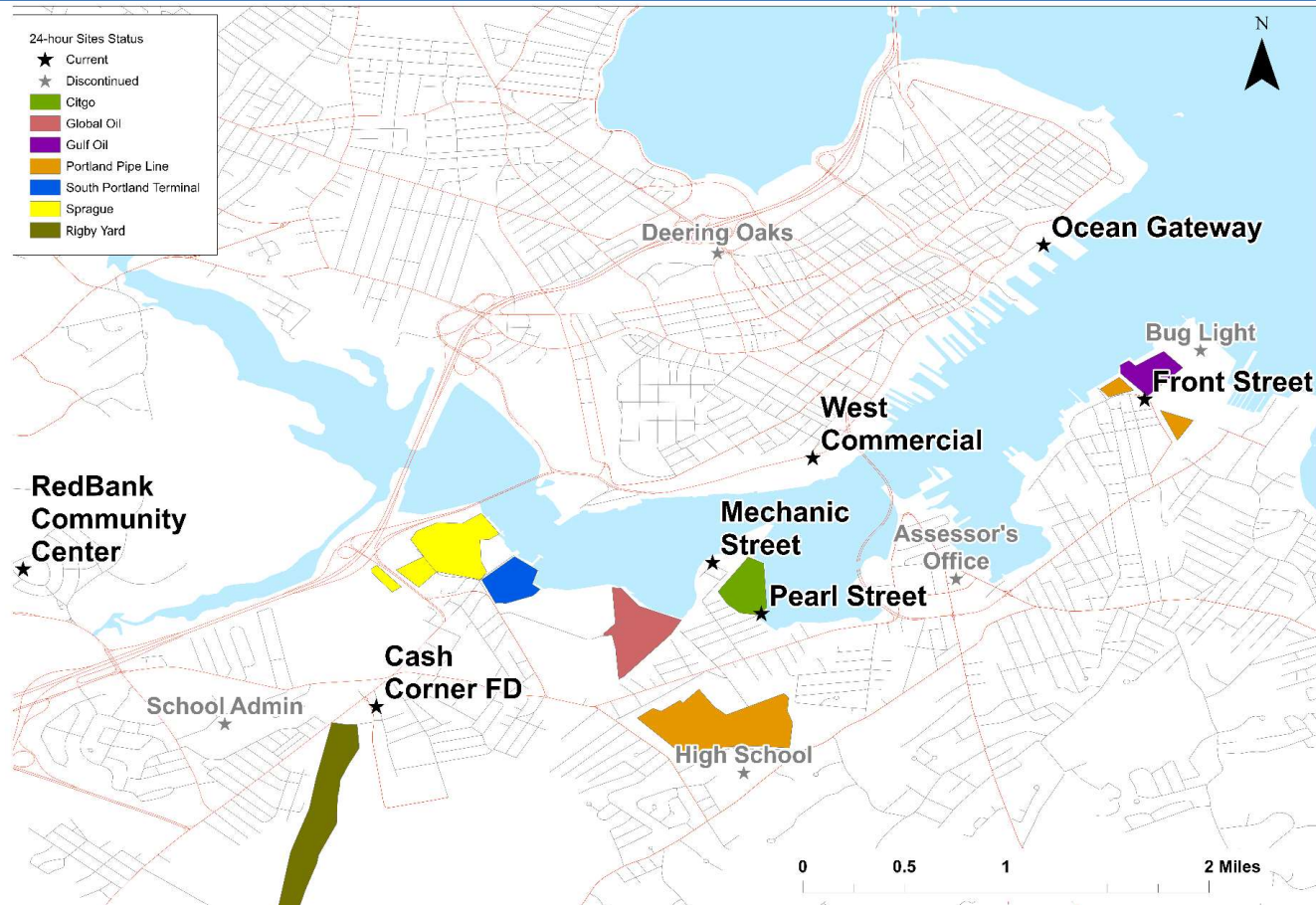
Topics

- The first year of benzene data from Pearl Street Station
- New chronic toxicity value for acrolein
- New acute toxicity values for naphthalene
- Laboratory issues with the measurement of naphthalene
- Written report on findings expected summer of 2026

Background on the SoPo/Po Ambient Air VOC Study

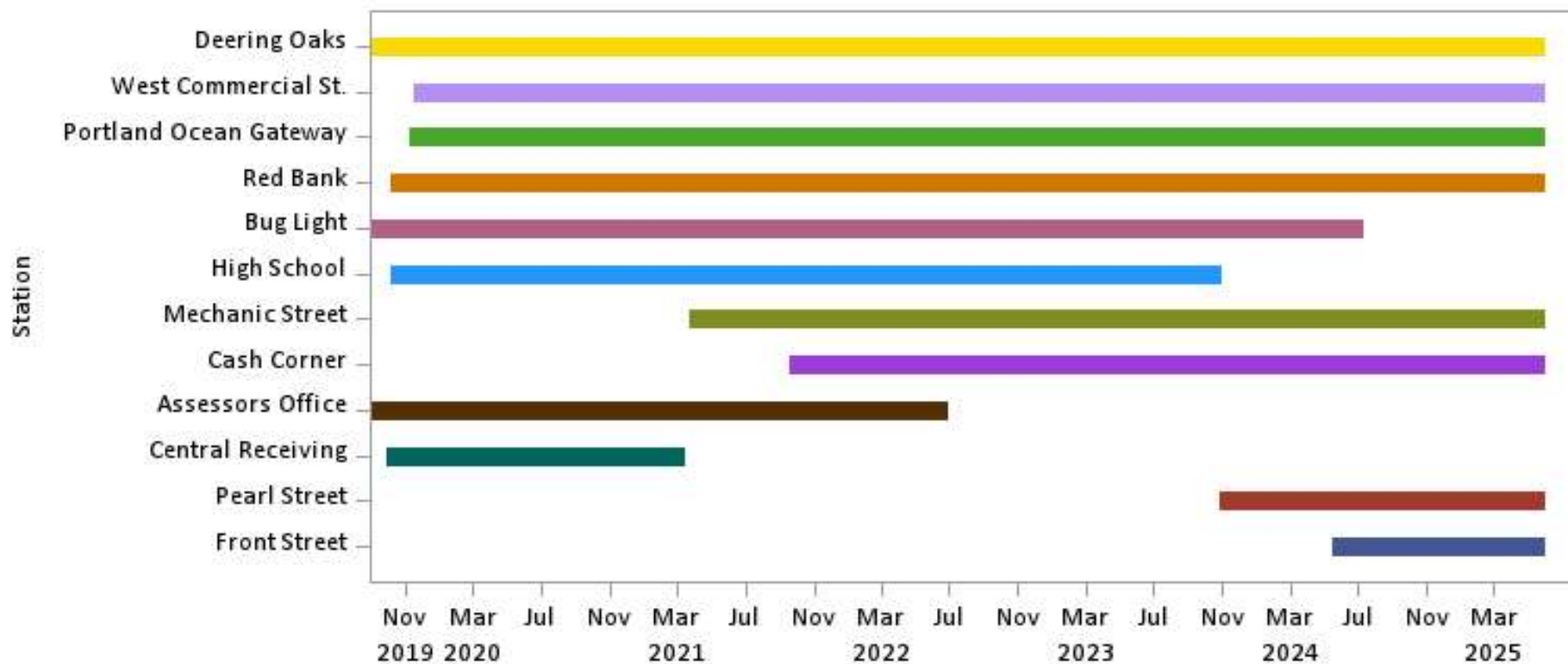
- Study began in response to community concerns about odor and Volatile Organic Compounds (VOCs) potentially released from petroleum tank farms
- DEP initiated a community ambient air study in 2019
- 24-hour ambient air samples collected every 6 days at multiple SoPo/Po locations
- Data are compiled and published on DEP's website
- Written reports on data provided in 2020 and 2023

Locations of Monitoring Sites



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Timeline of Operation of Monitoring Stations



Pearl Street Station

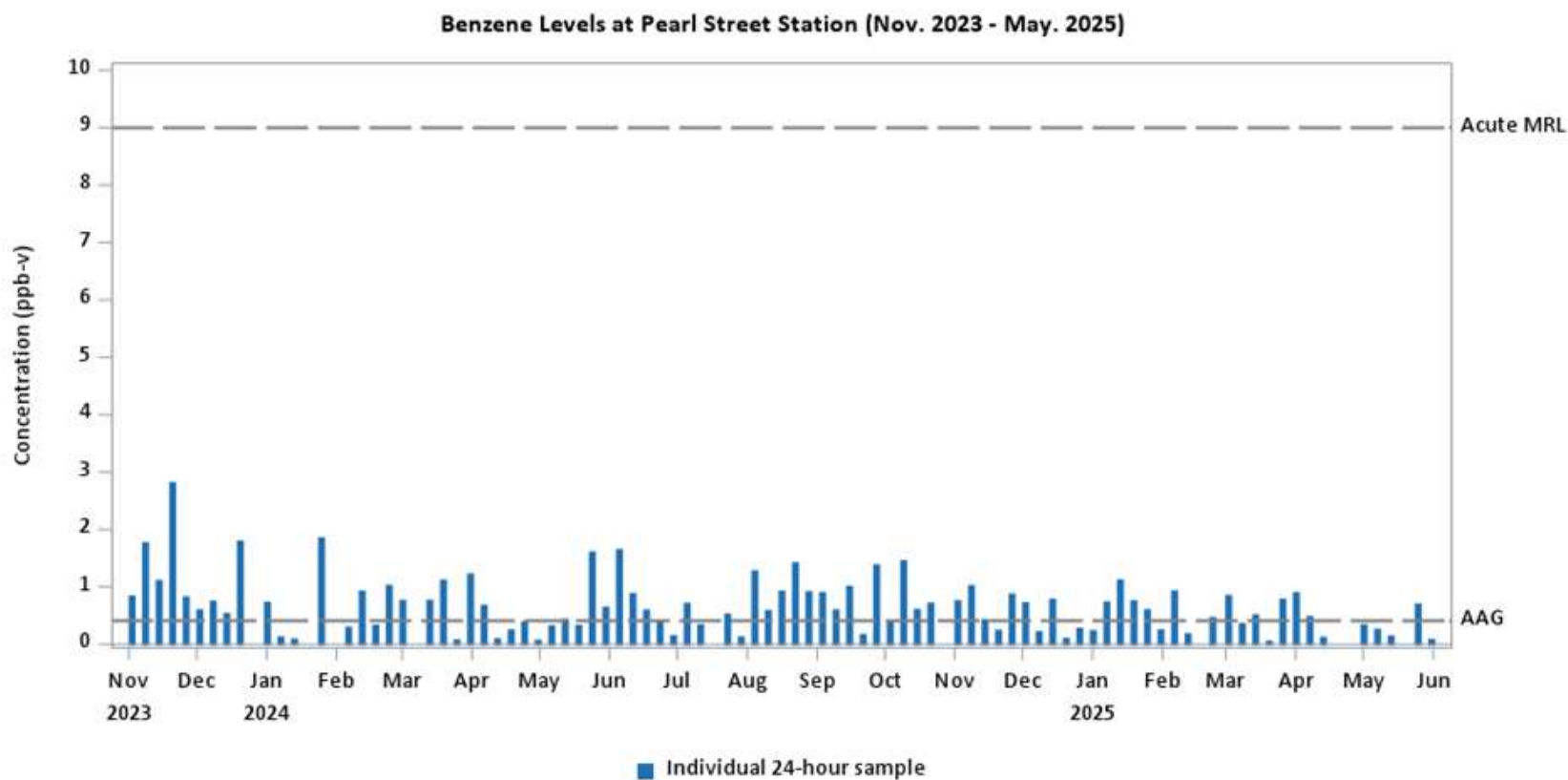


Pearl Street Station is located on the CITGO South Portland Terminal fenceline

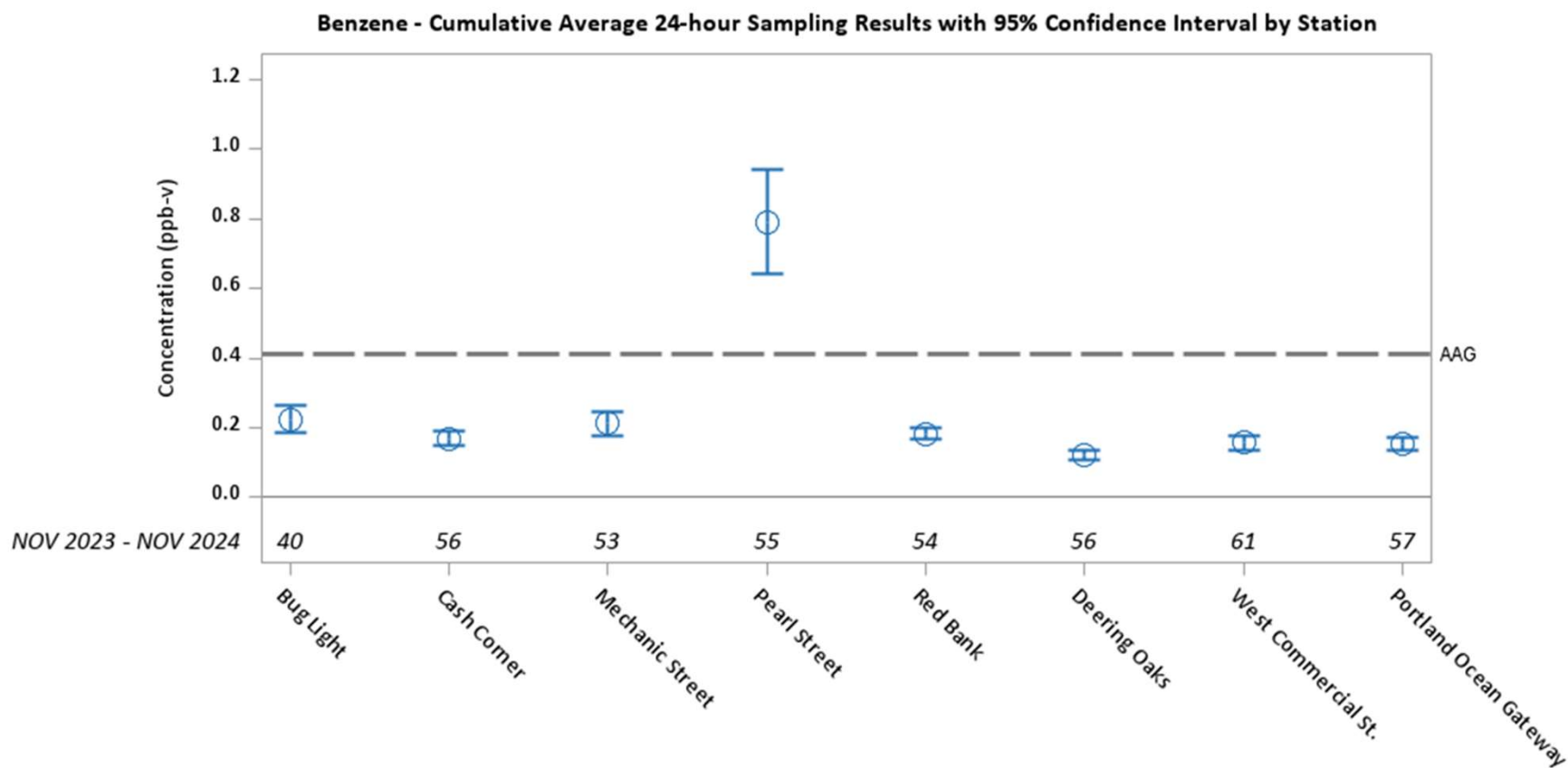
Benzene

- Sources – petroleum storage tank facilities, gasoline stations, vehicle exhaust, burning wood, gas stoves, cigarette smoke
- Short-term exposure to benzene in air can increase the risk of effects on white blood cells which are important for a well functioning immune system
- Long-term exposure to benzene may increase risk for certain types of cancer of the blood and bone marrow
- Toxicity values are levels of exposure that have only a small risk of health effects from either short-term (acute MRLs) or long-term (AAGs) exposures

Pearl Street Station - Benzene



Pearl Street Station - Benzene





Pearl Street Station

Next Steps:

- Obtain, compile, review 2nd year of data
- Assess feasibility of monitoring benzene as you move away from the fenceline

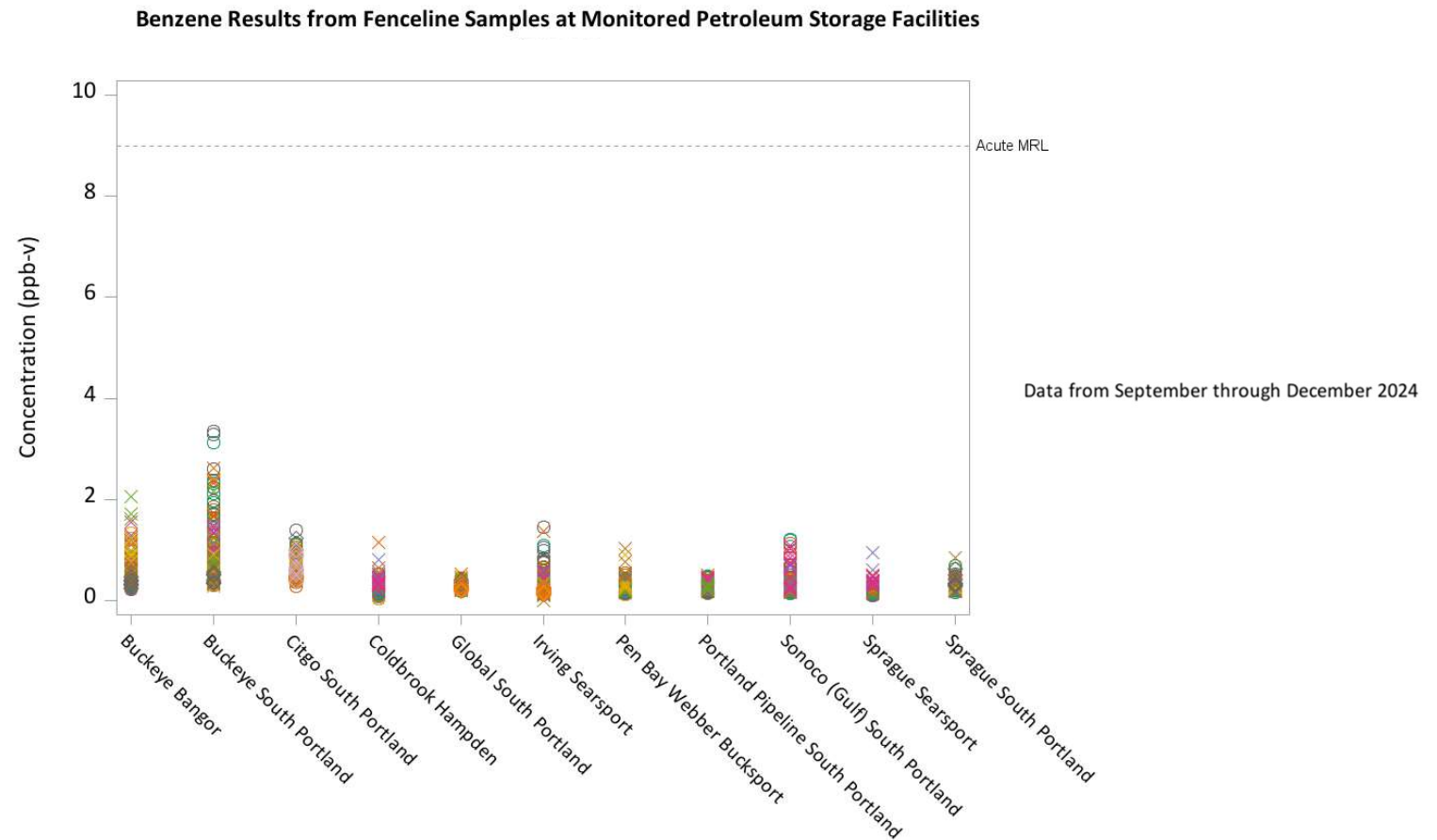


Pearl Street Station

Fenceline monitoring

- Awaiting a full year of data (February 2026)
- Currently developing methods for analyzing these data
- Keeping an eye on data to make sure none are above our short-term health guidelines

Fenceline Data - Benzene



Acrolein

Sources: Petroleum storage facilities, vehicle exhaust, smoke from fires or tobacco, cooking fats and oils at high temperatures

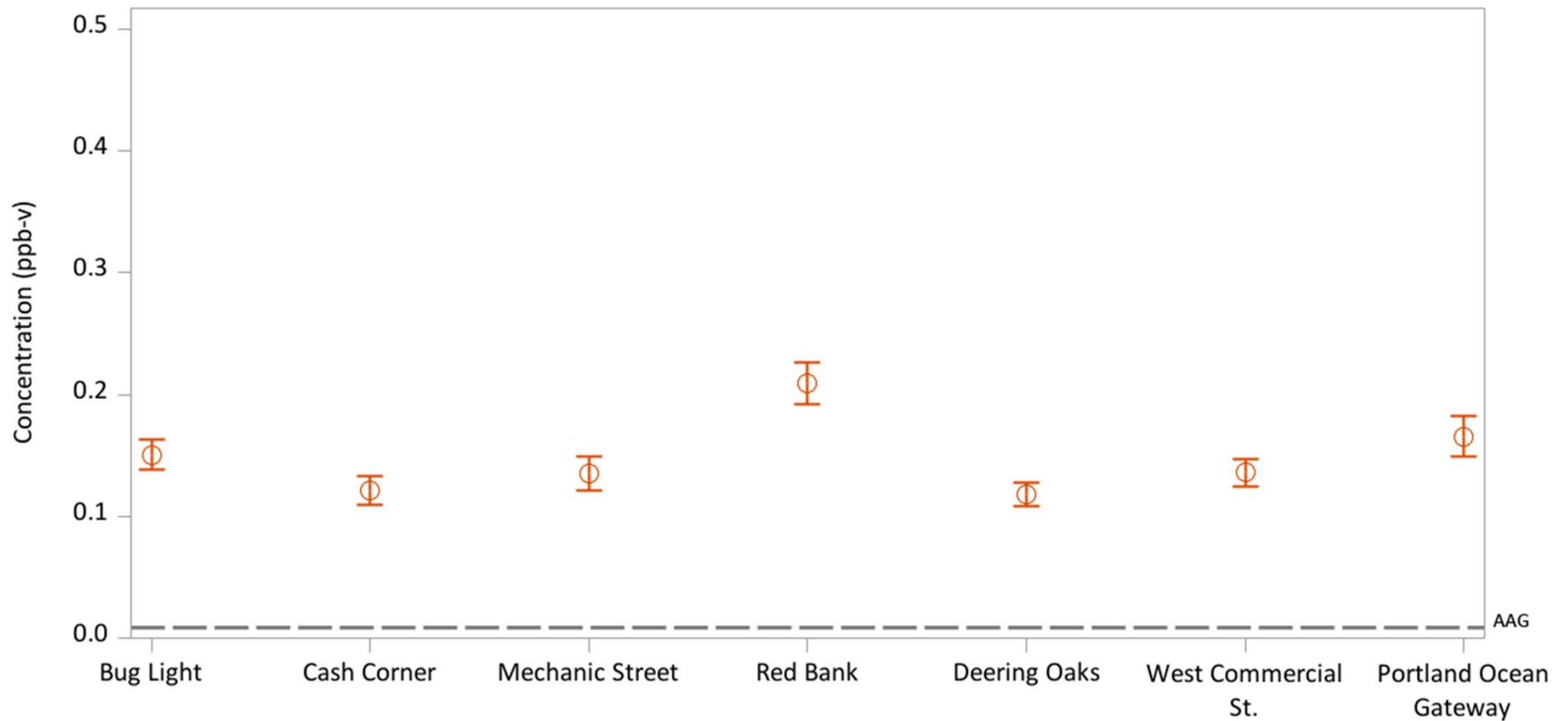
Short-term exposure to acrolein caused nose and throat irritation in humans

Long-term exposure to acrolein caused an increase nasal lesions in laboratory rats

Toxicity values are set well below the levels where health effects occur

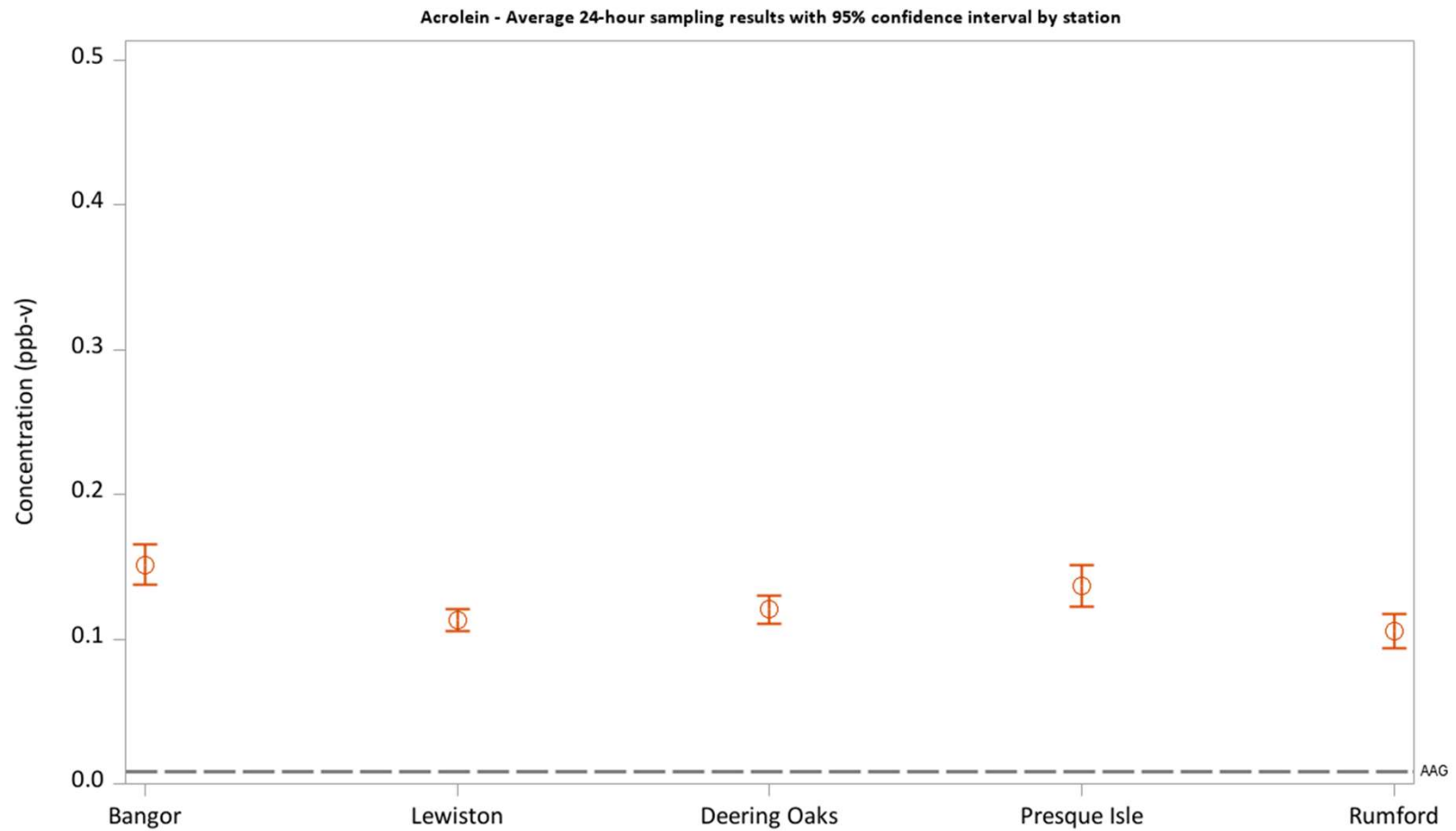
Acrolein

Acrolein - Average 24-hour sampling results with 95% confidence interval by station



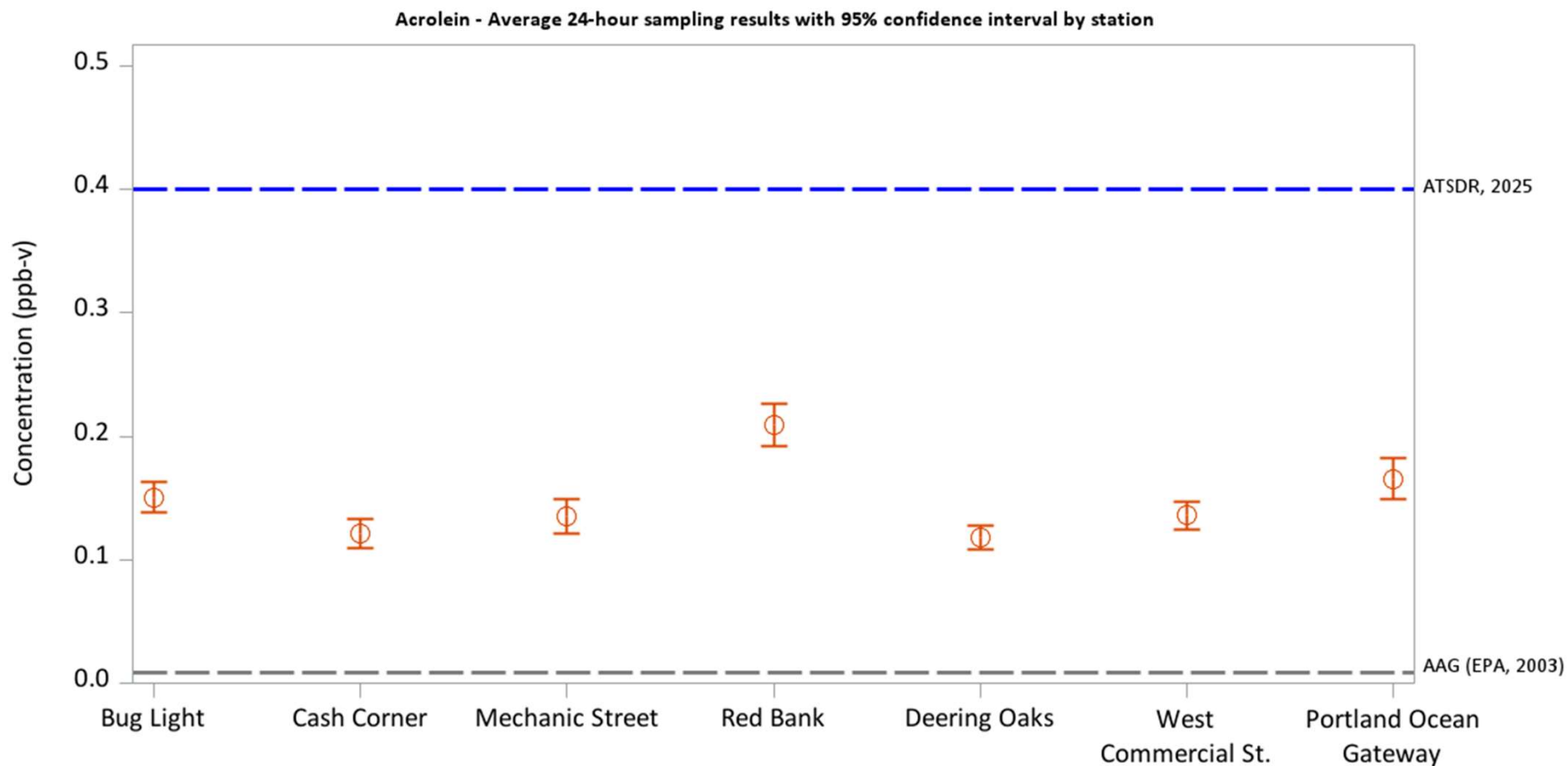
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Acrolein



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New Chronic Toxicity Values for Acrolein



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Next Steps for Acrolein Toxicity Values

Monitor whether EPA adopts the new ATSDR toxicity value in their November 2025 update of the Regional Screening Levels

If they do not, Maine CDC will decide whether to recommend use of the new ATSDR toxicity value as the basis for an AAG

Naphthalene

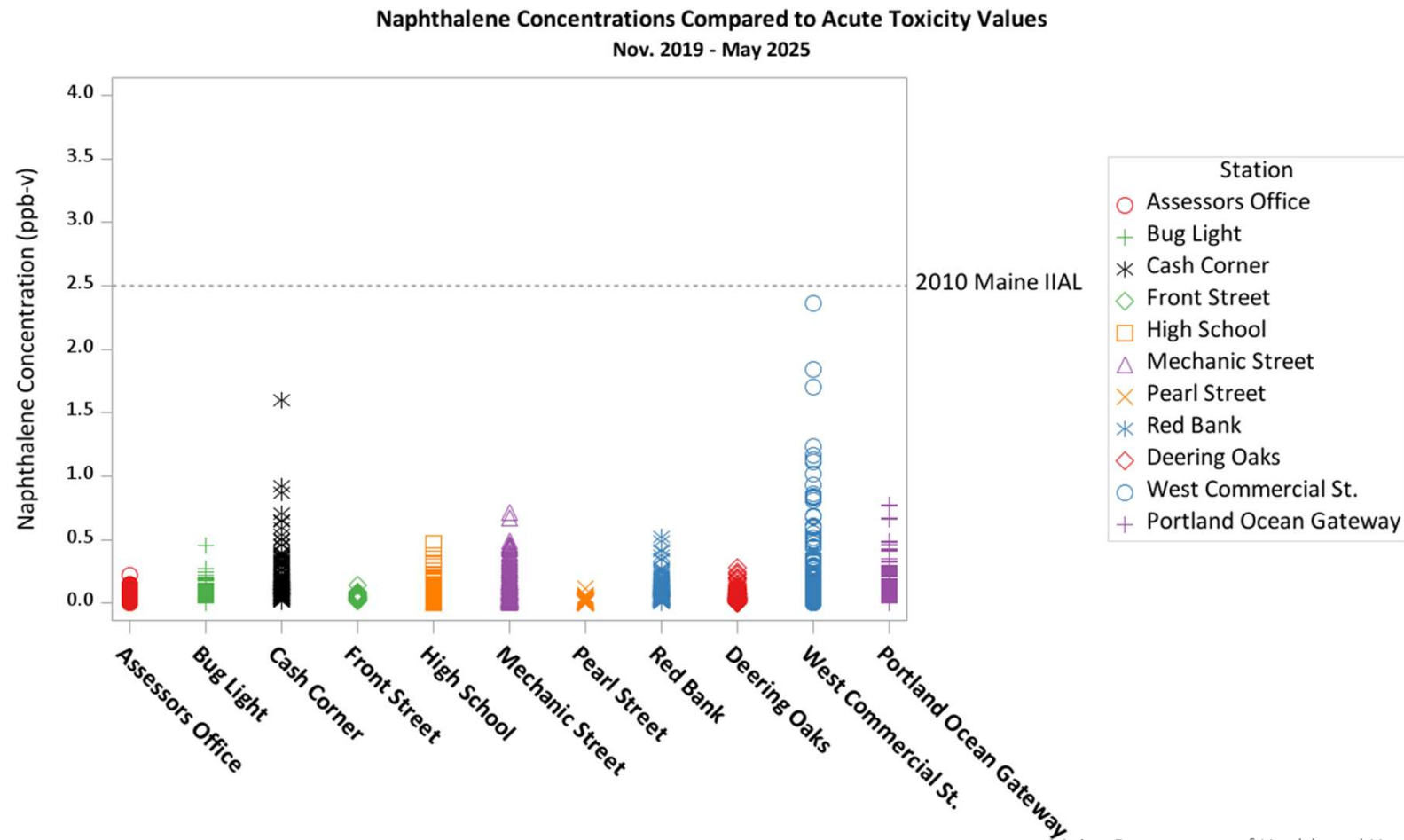
Sources: Petroleum storage tank facilities, vehicle exhaust, fossil fuel combustion, wood burning, burning of tobacco, moth repellents and toilet deodorant blocks

Short-term exposure to naphthalene caused nasal lesions in rodent studies

Long-term exposure to naphthalene caused nasal tumors in rodent studies

Toxicity values are set well below the levels where health effects occur

New Acute Toxicity Values for Naphthalene



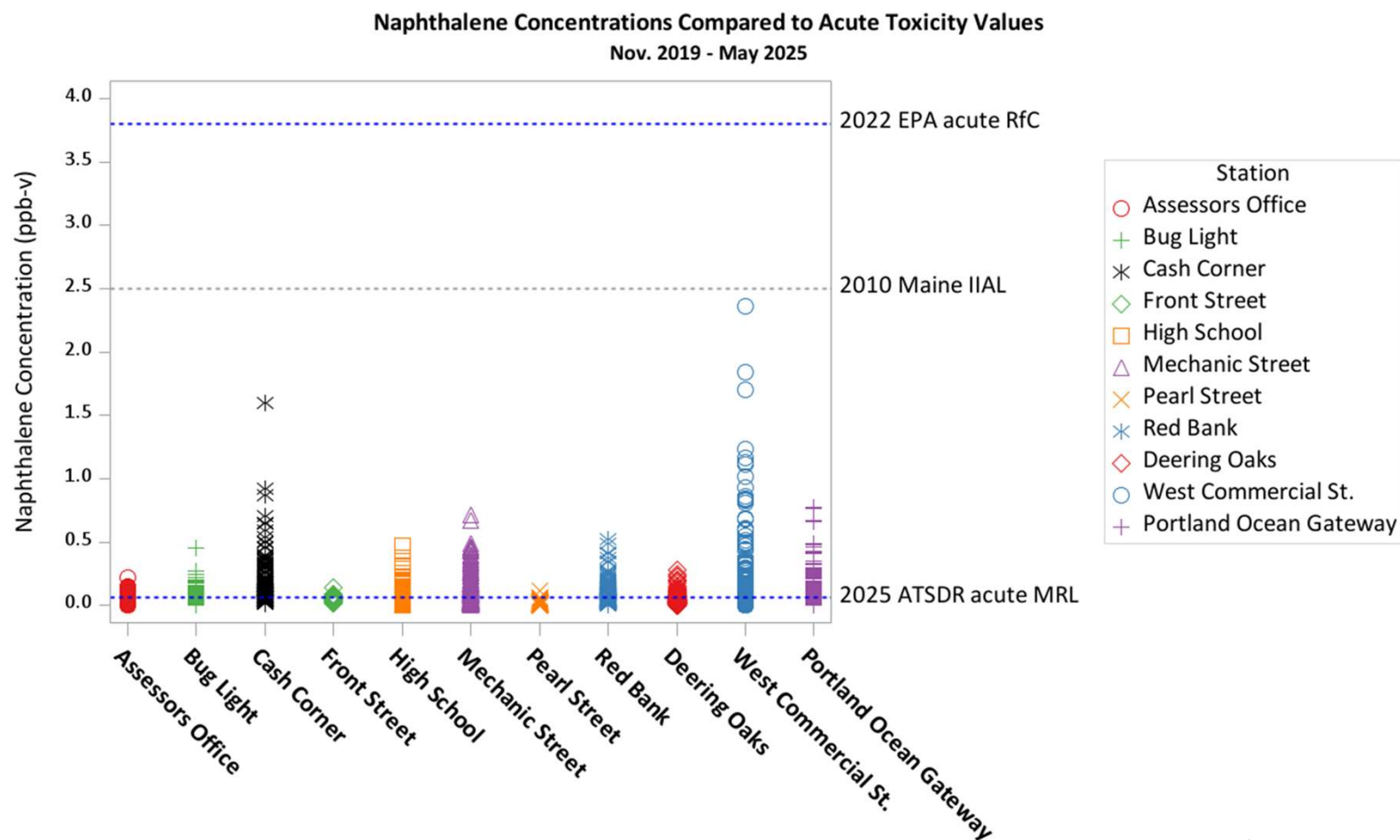
Slide 19

AS1

Can we make this as two slides, with only difference of one with just the 2010 Maine IIAL guideline, and one with the new EPA and ATSDR values added (and can we make them a different color - blue?)

Smith, Andy E. (DHHS), 2025-10-13T15:55:50.098

New Acute Toxicity Values for Naphthalene



Slide 20

AS1

Can we make this as two slides, with only difference of one with just the 2010 Maine IIAL guideline, and one with the new EPA and ATSDR values added (and can we make them a different color - blue?)

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Next Steps for Naphthalene Toxicity Values

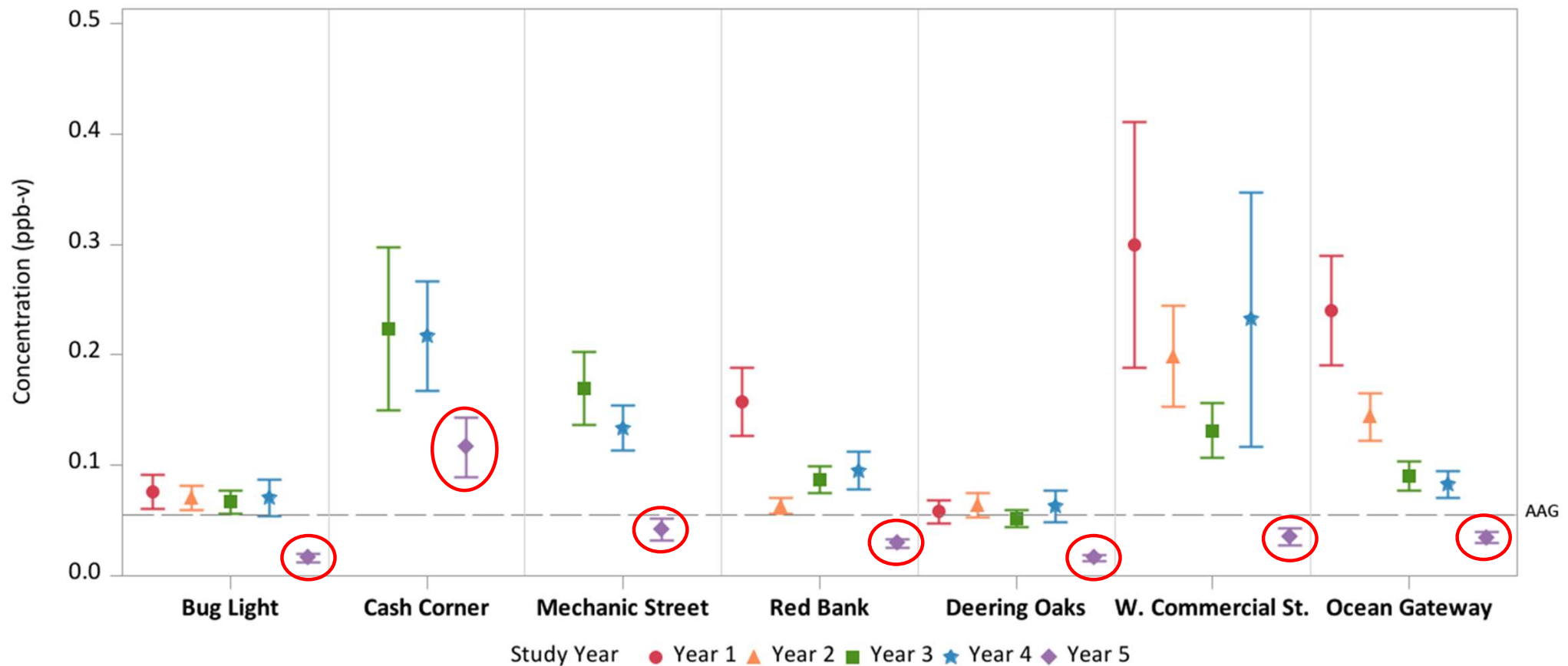
Review EPA model for extrapolating from rodents to humans

Review EPA's additional model runs performed at our request so using the same animal bioassay data as ATSDR

Select acute toxicity value to use

Naphthalene Levels in 5th Year Look Different

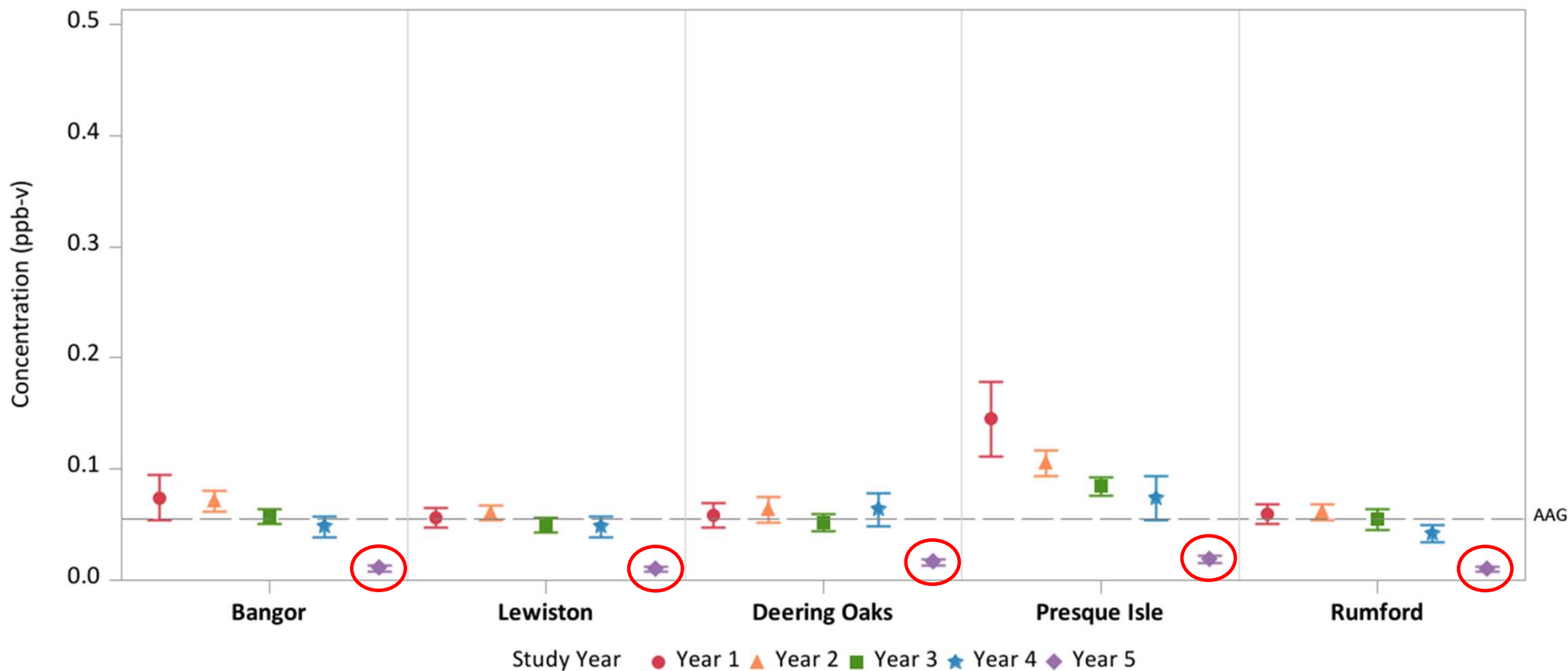
Naphthalene - Cumulative Average 24-hour Sampling Results with 95% Confidence Interval by Station

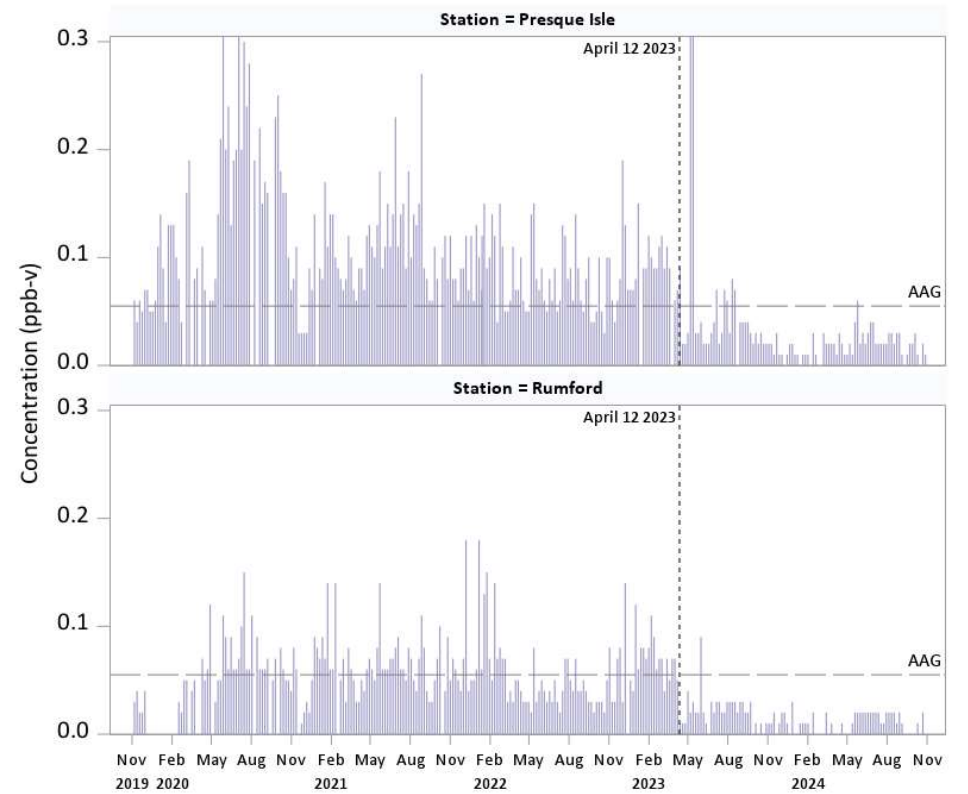
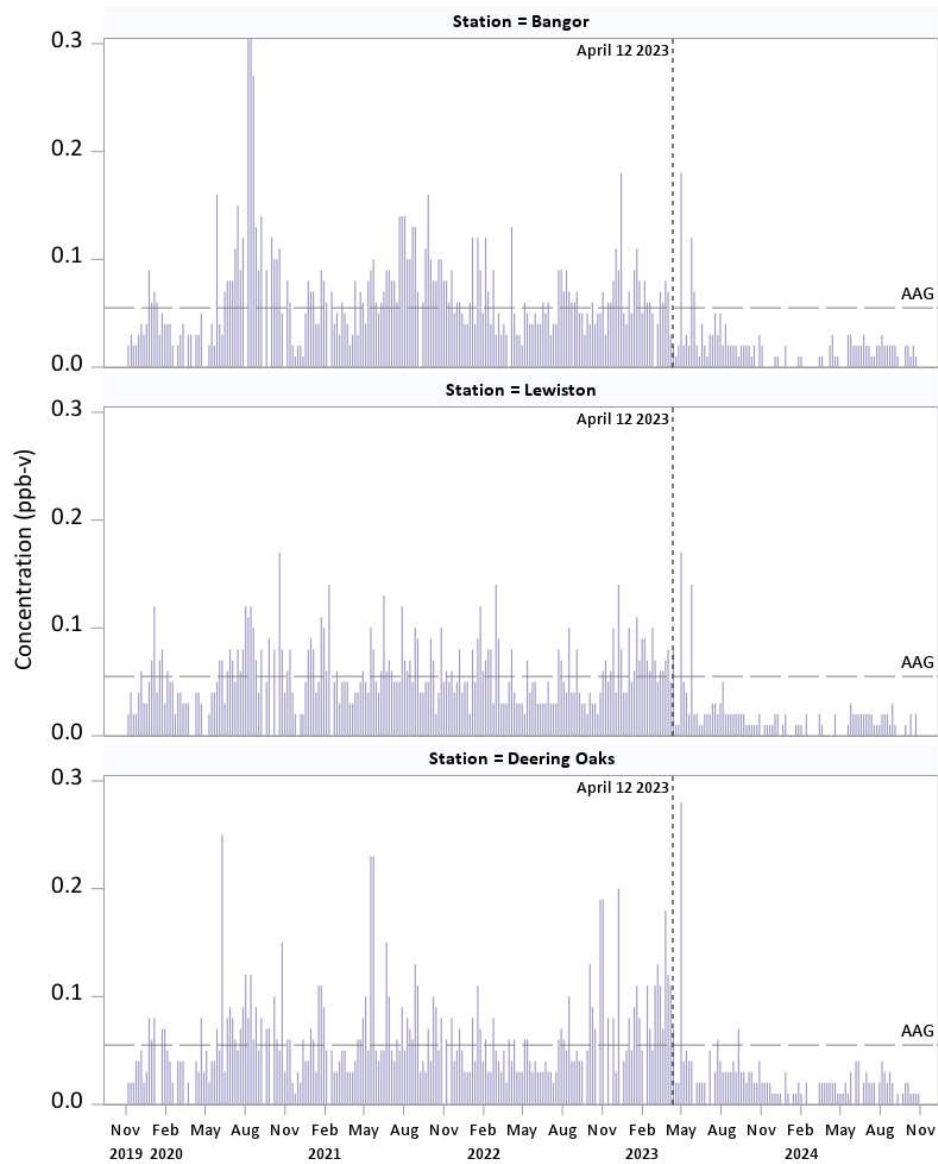


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Naphthalene Levels Look Different Statewide in Year 5

Naphthalene - Cumulative Average 24-hour Sampling Results with 95% Confidence Interval by Station





Next Steps on Naphthalene Measurements

- Perform interlaboratory comparisons of DEP collected samples to compare measured naphthalene levels
- Obtain spiked air samples prepared by U.S. EPA and analyze
- Compile and analyze data from monitoring through November 2025 to see if current trends of lower naphthalene levels are continuing

Written Reports

- 6th year of data (results through November 2025) will be available February 2026
- Updated analyses and written report on community ambient air sampling expected summer 2026
- Need at least a full year of data before analysis of fenceline data. Report expected fall 2026