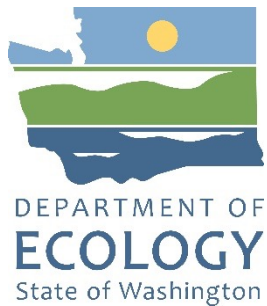




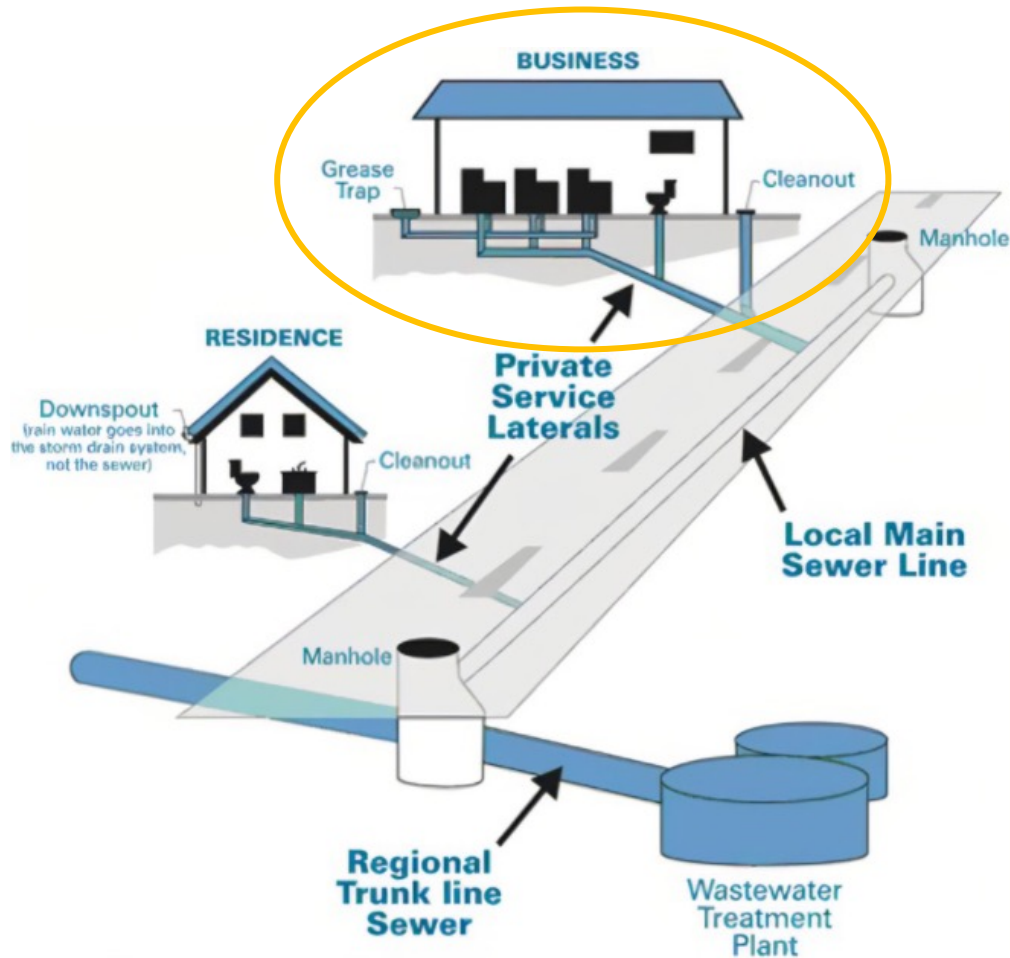
Sampling of Pretreated Industrial Wastewater in NW Washington

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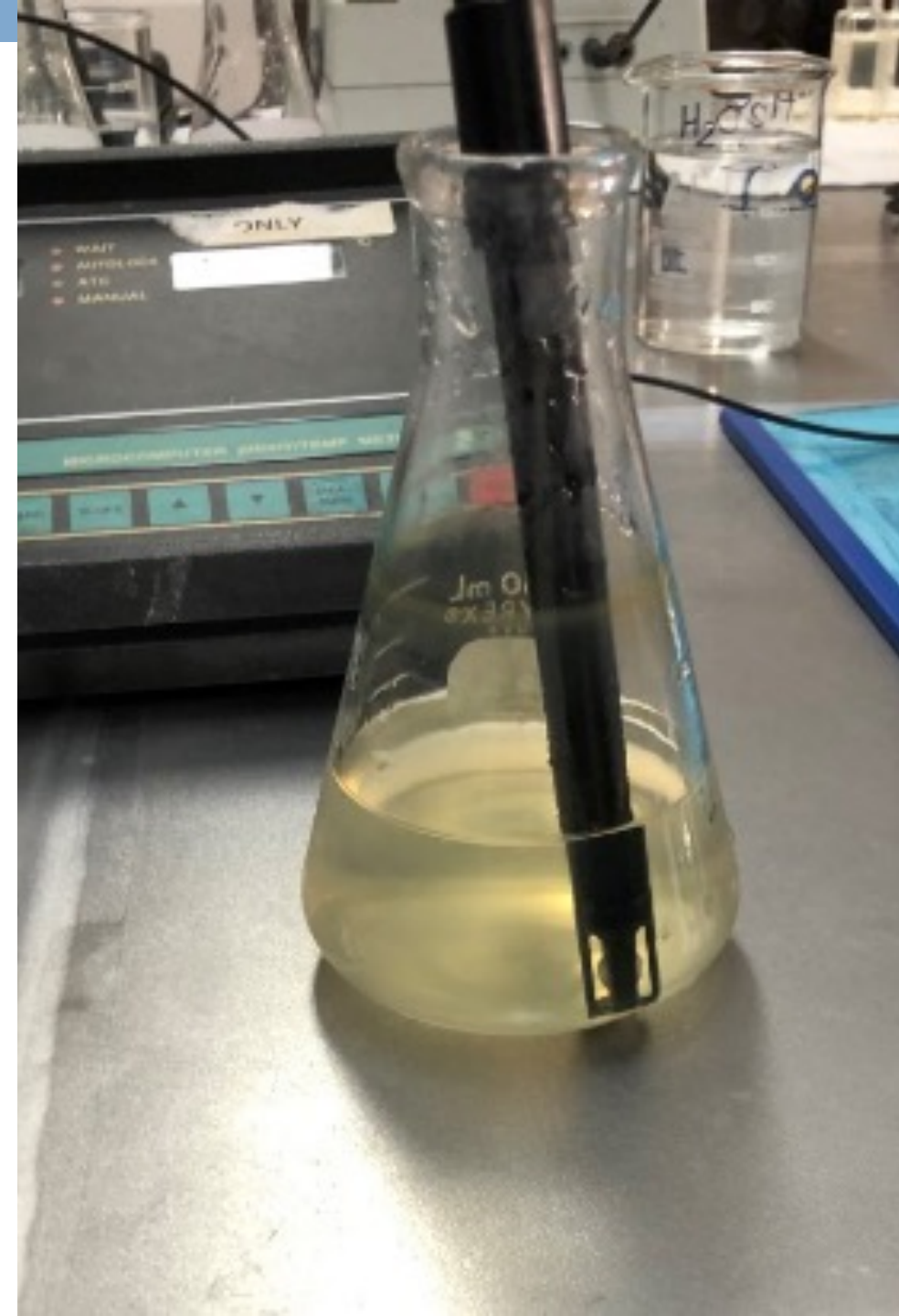
Industrial Pretreatment and Permitting



- Ecology issues permits to industrial facilities discharging process wastewater to POTWs, implementing effluent limits and other permit conditions to protect POTWs from pass through or interference that would impact water quality.
- Permits typically include routine self monitoring and reporting of pretreated effluent, following BMPs, and complying with prohibited discharge rules.

Sampling project

- Ecology's Environmental Assessment Program sampled pretreated wastewater effluent for a suite of toxic contaminants from 9 industrial facilities.
- All facilities sampled are permitted by Ecology or City of Everett.
- In addition to PBDEs, parameters sampled and analyzed for include OPFRs, PFAS, PCBs, phenolic compounds, and SVOCs.



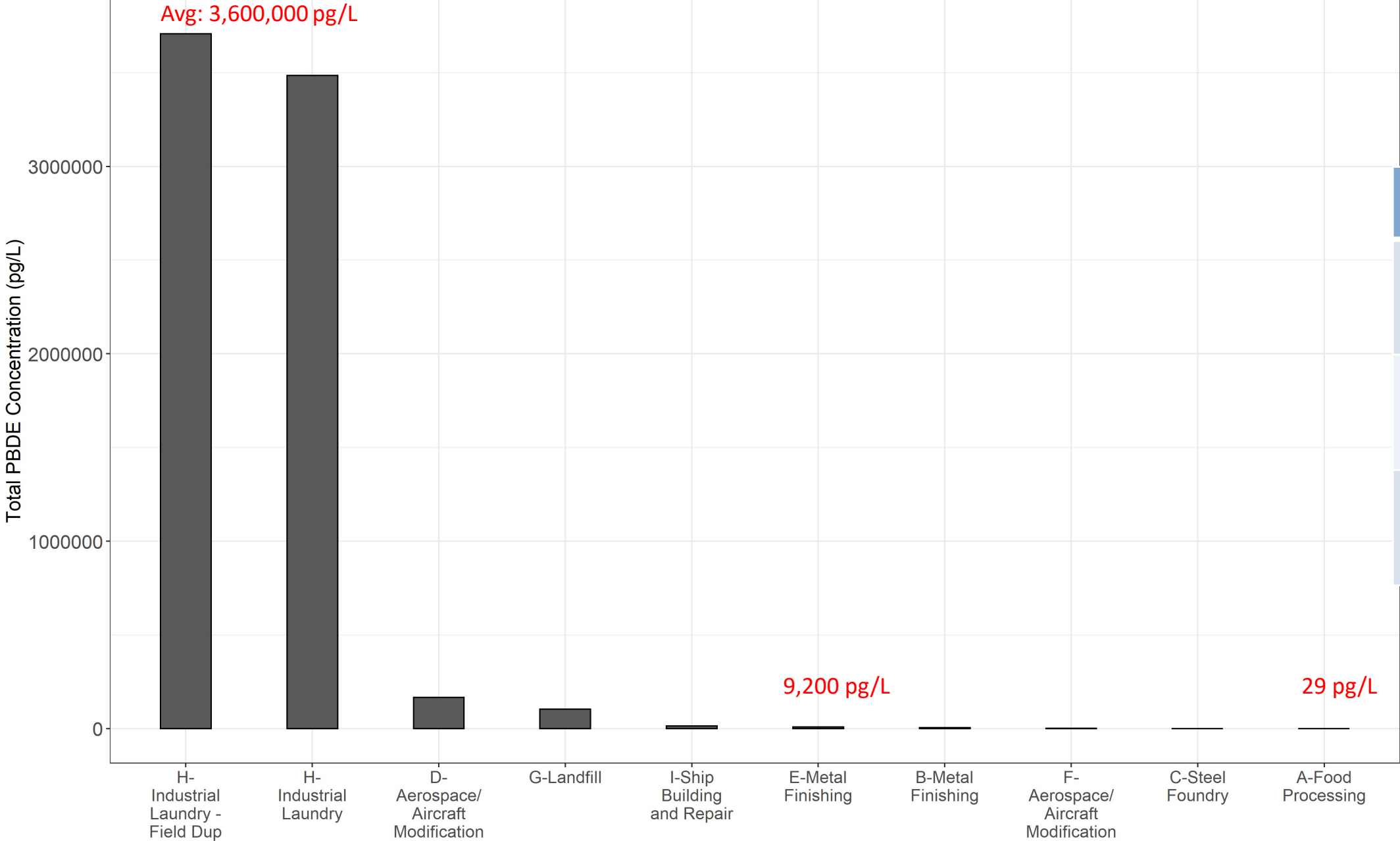
Types of industrial facilities sampled

Facility Site Study ID	Type of Industry	Description of Pretreated Industrial Wastewater Sampled
Facility A	Food Processing	Egg processing and cleanup wastewater
Facility B Facility E	Metal Finishing	Chemical metal finishing process wastewater (acid etch, chromium conversion coating, anodizing, and dyeing)
Facility C	Steel Foundry	Mechanical metal finishing process wastewater (hydroblasting of metal parts)
Facility D Facility F	Aerospace/Aircraft Modification	Chemical metal finishing, aircraft cleaning, and painting cleanup process wastewater
Facility G	Landfill	Leachate and catch basin cleanout wastewater
Facility H	Industrial Laundry	Industrial laundry process wastewater
Facility I	Ship Building and Repair	Facility wide wastewater (chemical metal finishing and various industrial wastewater and domestic wastewater)

Method Summary

- One grab sample collected from each facility to measure various analytes
- 1 field duplicate & 1 equipment blank collected for each analyte
- PBDE samples analyzed by SGS AXYS, Sidney, BC using USEPA Method 1614
- Laboratory QC samples included laboratory blank, ongoing precision & recovery, & surrogate recovery
- Level 2B data validation performed externally by Manchester Environmental Laboratory

Total PBDEs



Summary (N=9)	
Min	29 pg/L
Max	3,600,000 pg/L
Med	9,200 pg/L

Samples from 2021
NWP study

Samples from receiving POTW (*source: unpublished data, City of Everett*)

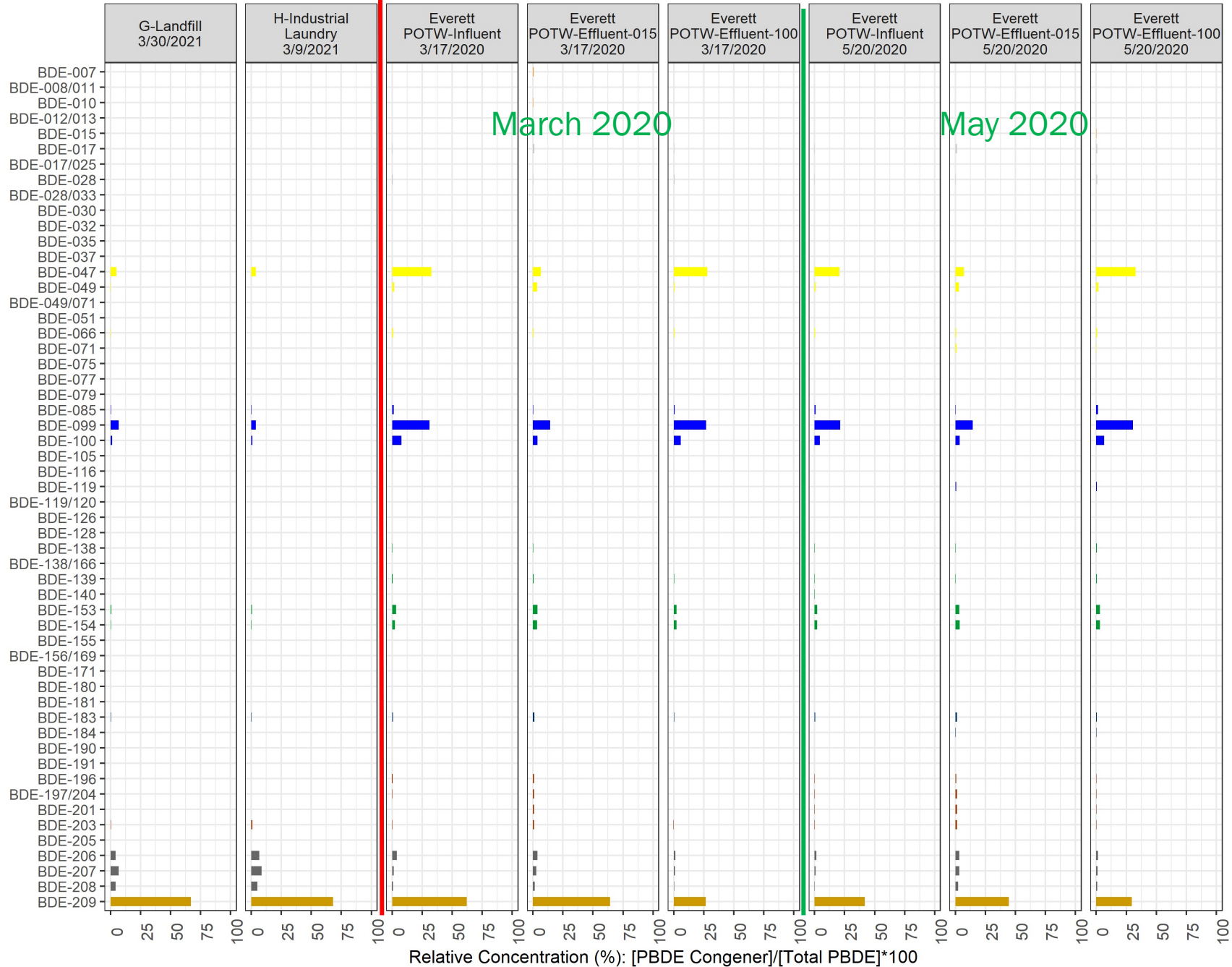
Comparison
to previous
POTW
samples



Samples from 2021 NWP study

Samples from receiving POTW (source: unpublished data, City of Everett)

Comparison to previous POTW samples



Summary

- PBDEs detected at all 9 sampled facilities
- Industrial Laundry had total PBDE concentration order of magnitude higher than the other sites (>3,000,000 pg/L)
- Aerospace/Aircraft Modification & Landfill facilities had 2nd & 3rd highest total PBDE concentration (>100,000 pg/L)
- Specific congeners were present more frequently & at higher concentrations than other congeners among samples, esp. BDE-047, 099, 209
- BDE-209 dominated the samples

Questions?

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Chemical Action Plan
Implementation Monitoring
(EAP)

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