Region 2 PFAS study update
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Study background

- Study consistent with State Water Board investigation orders
- Two phases
- Initial results from phase 1 available
- Phase 1 results to inform phase 2 design
Study background

- Influent, effluent, biosolids at 15 facilities
- 1-170 MGD, 0-100% residential, different treatment technologies
- 40 target PFAS analytes plus Total Oxidizable Precursors (TOP) assay
- Comparison of composites to grab samples

Graphs and study information courtesy of Diana Lin and SFEI
Influent composite vs. grab samples

Graphs and study information courtesy of Diana Lin and SFEI
Influent – target analytes

- 27 ppt median
- What compounds come from what sources?

Graphs and study information courtesy of Diana Lin and SFEI
Influent - total oxidizable precursors

- 231 ppt median
- Compare with 27 ppt median for target analytes

Graphs and study information courtesy of Diana Lin and SFEI
Influent vs. effluent – target analytes

- 58 ppt median in effluent
- Compare with 27 ppt median in influent

Graphs and study information courtesy of Diana Lin and SFEI
Biosolids – target analytes

- 178 ppb median
- 5:3 FTCA
- Statewide order

Graphs and study information courtesy of Diana Lin and SFEI
Biosolids – total oxidizable precursors

- 594 ppb median
- Compare with 178 ppb median in target

Graphs and study information courtesy of Diana Lin and SFEI
Effluent over time

- 3 facilities with historic effluent data
- Decrease in long chain compounds

Graphs and study information courtesy of Diana Lin and SFEI
• 53 target analytes in cosmetic study

• Study looked at 29 cosmetic products purchased in the US and Canada in 2020

• Median sum of all analytes 1,050 ppb

• Highest concentration of 10,500 ppb

• 17 target analytes

• Study looked at dust from 104 US households collected between 2014-2016

• Median sum of all analytes 22,637 ppb

Biosolids vs. blood – specific analyte

• Blood serum testing from California biomonitoring project
  • 101 firefighters in 2011
  • 1,759 teachers in 2011
  • 358 individuals in R2 in 2019

• https://biomonitoring.ca.gov/results/chemical/2183
Phase 1 takeaways

- Sample procedures sufficient to minimize contamination
- Composites and grab samples are generally comparable
- PFAS concentrations in municipal influent and effluent are significantly lower compared to industrial operations
- Municipal influent, effluent, and biosolids generally comparable
- No detections of GenX and ADONA
- Quantified concentrations of PFAS increased in effluent compared to influent due to conversion of PFAS precursors to terminal PFAS products through treatment process.
- Significant presence of unknown PFAS precursors in influent and biosolids

Graphs and study information courtesy of Diana Lin and SFEI – this slide taken verbatim from SFEI.
Phase 2

- Under development – slated to be finalized in September
- Upstream sampling?
- Identifying sources of particular compounds possible?
- Determining what is from residential versus commercial users of our collection systems?
- Actionable data
Looking ahead on the horizon

- SB 1044 requires Fire Departments to get rid of their PFAS foam – limits on discharge concentrations?
- EPA has encouraged permit writers to include PFAS monitoring in new NPDES permits
- Tools needed to deal with this
  - Local limits?
  - Disclosure laws?
Thank you