



NYCDEP Comments on East Branch Early Action

June 12, 2023

The City is supportive of the East Branch Early Action (EA).

- ❖ Addressing a major contaminated segment of the Creek sooner rather than later is a good idea.
- ❖ The East Branch is a sensible area to conduct an EA.

However there several key concerns that must be addressed:

1. Anthropogenic Background should be considered for cleanup goals for an area designated as Significant Maritime Industrial Area (SMIA)
2. The Remedial Action Objectives are not comprehensive and should include non-aqueous phase liquids (NAPL) seeps from adjacent upland sites.
3. The CSM is highly uncertain, significant ongoing sources of COPCs, including groundwater (GW) and NAPL, are not sufficiently characterized.
4. Bulkhead stability must be considered for the EA.
5. The Applicability of the EA to other parts of the Creek may be limited.

EA FS must address these concerns for success

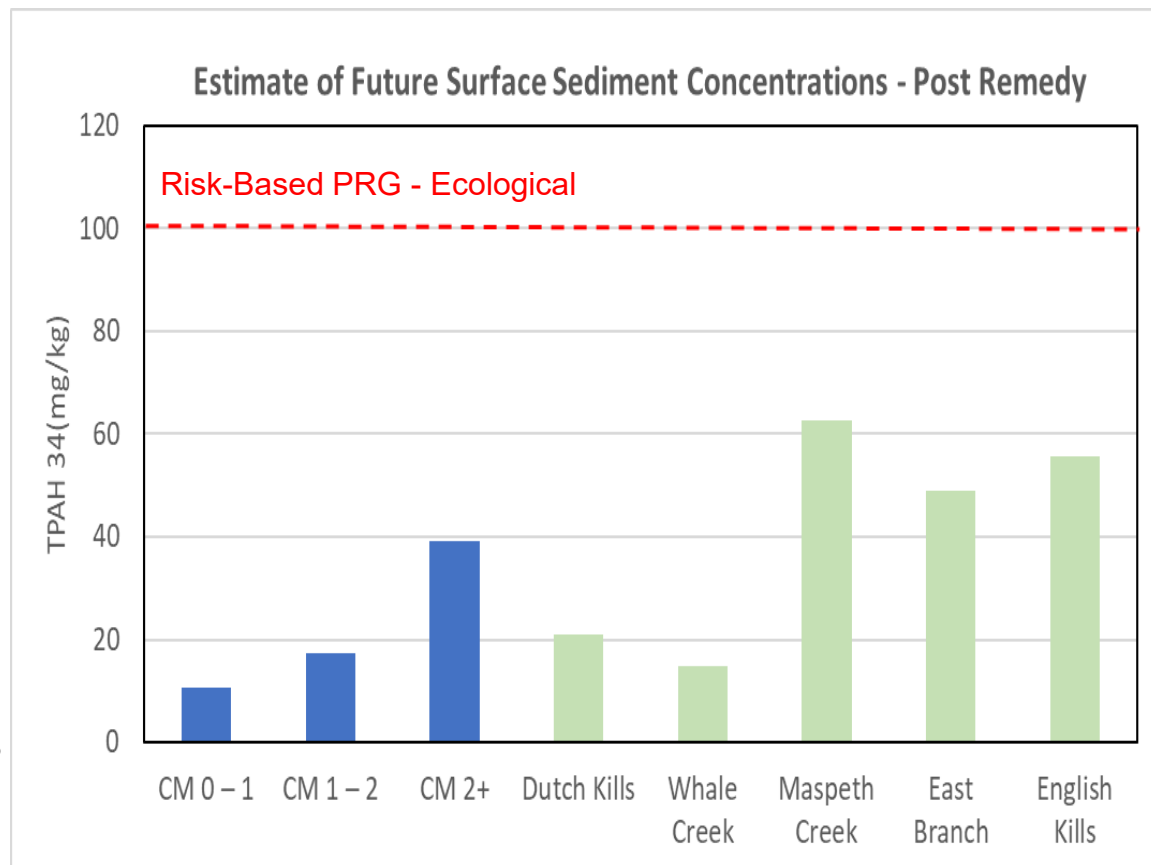
Concern 1: Role of Anthropogenic Background

- ❖ USEPA guidance (USEPA 2002) states that “*Background information is important to risk managers because the CERCLA program, generally, does not clean up to concentrations below natural or anthropogenic background levels.*”
- ❖ USEPA has followed this guidance to set up cleanup levels for Superfund Sites in NY/NJ (Lower Passaic River, Gowanus, etc.).
- ❖ For Newtown Creek EA proposal:
 - Clean up goals will be set at risk-based levels.
 - Interim Performance/Evaluation Measures (IPM/IEM) based on Long Term Equilibrium (LTE) will be used to assess “long term performance”.
 - Definition of “long-term” is unknown. 30 years? 5 years?
 - USEPA expects IPM/IEM to reduce over time to risk-based levels.

Rationale to use risk-based PRGs based on the assumption that IPM/IEM may not be protective.

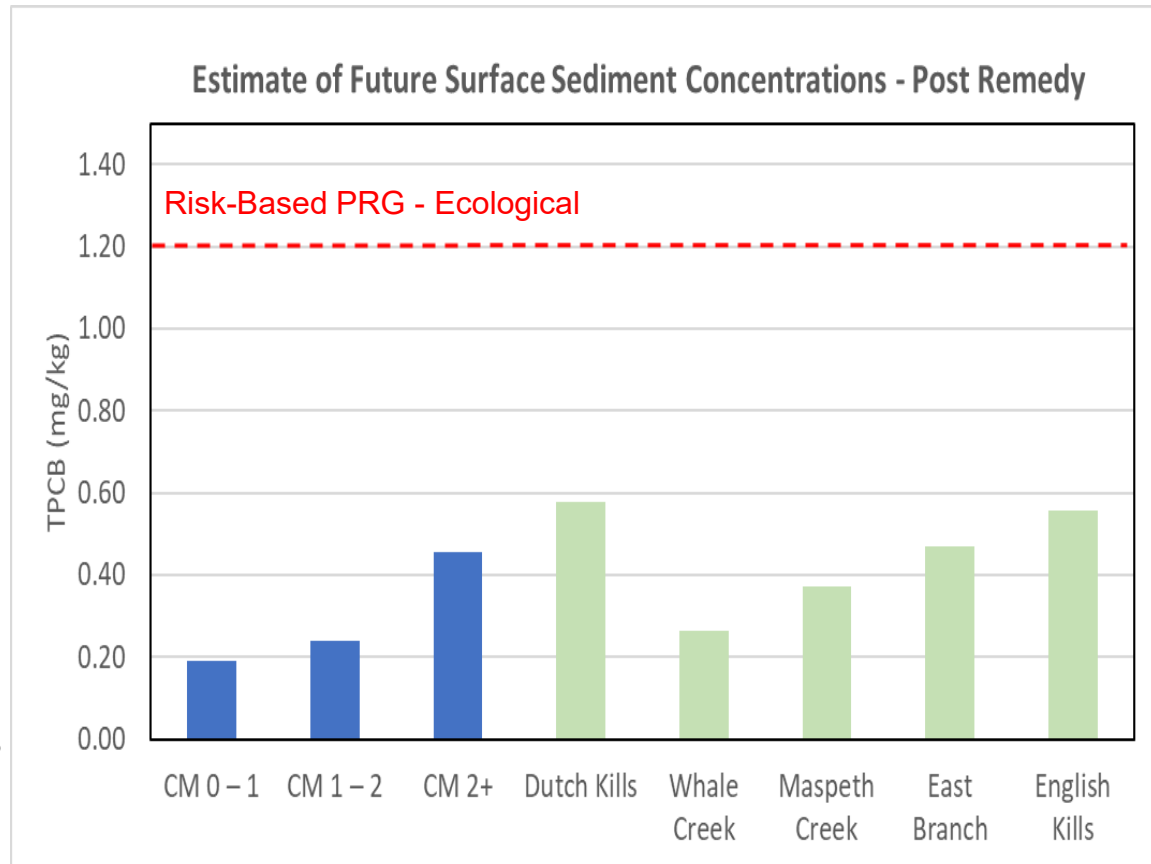
Comparison of IPM/IEM with Risk-Based PRGs

- ❖ IPM/IEM is an estimate of the steady-state concentrations in the Creek after the entire Site has been remediated.
 - Assumes ongoing sources continue at current levels.
 - Ongoing sources include; East River, point sources, groundwater, shoreline erosion & atmospheric deposition.
 - NAPL seeping from upland properties is not included as an ongoing source.
- ❖ IPM/IEM estimates **are at or less than** the risk-based PRGs for all COPCs except dioxin/furans.



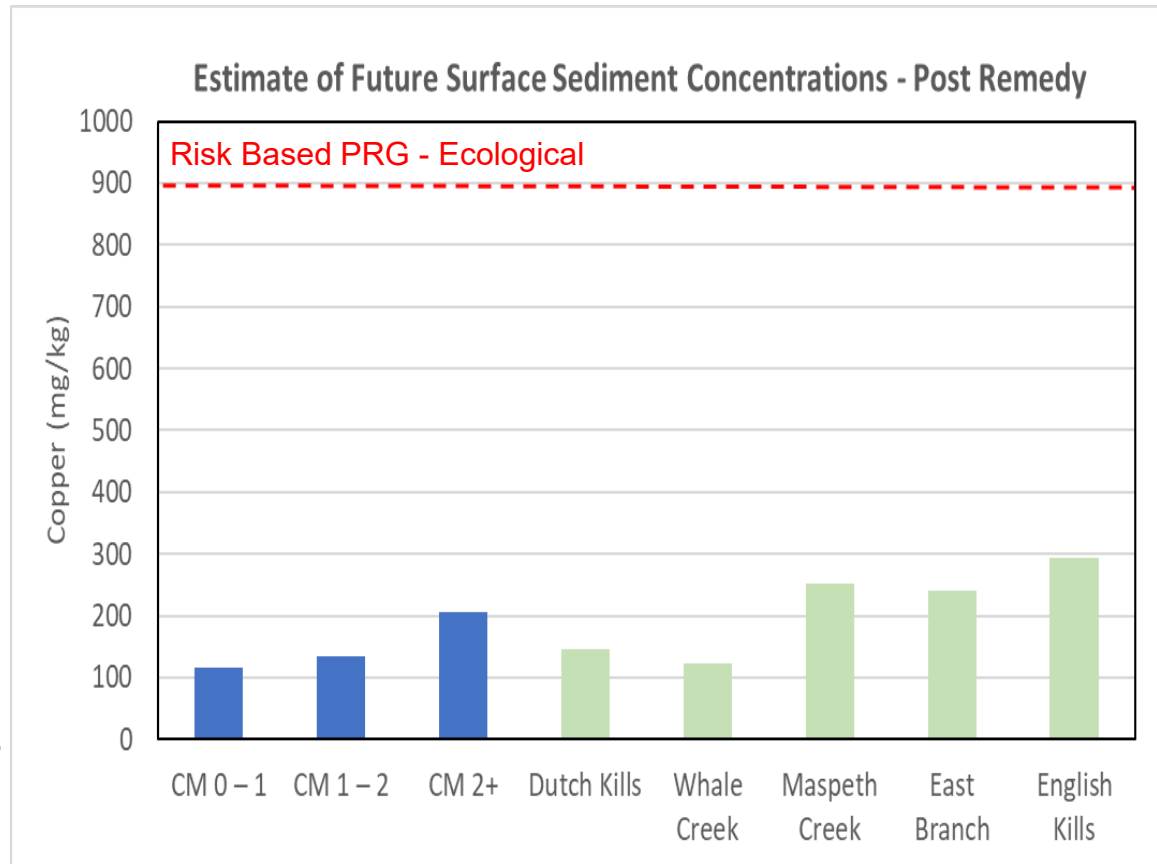
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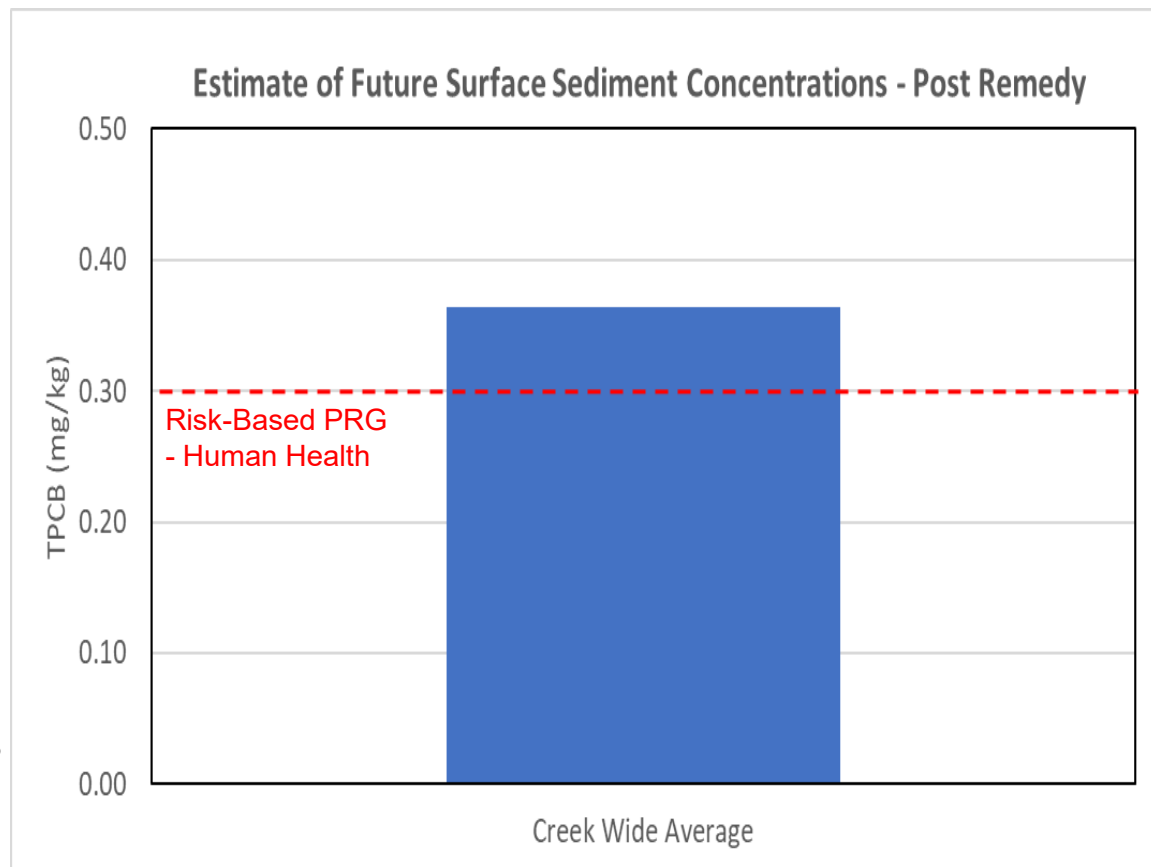
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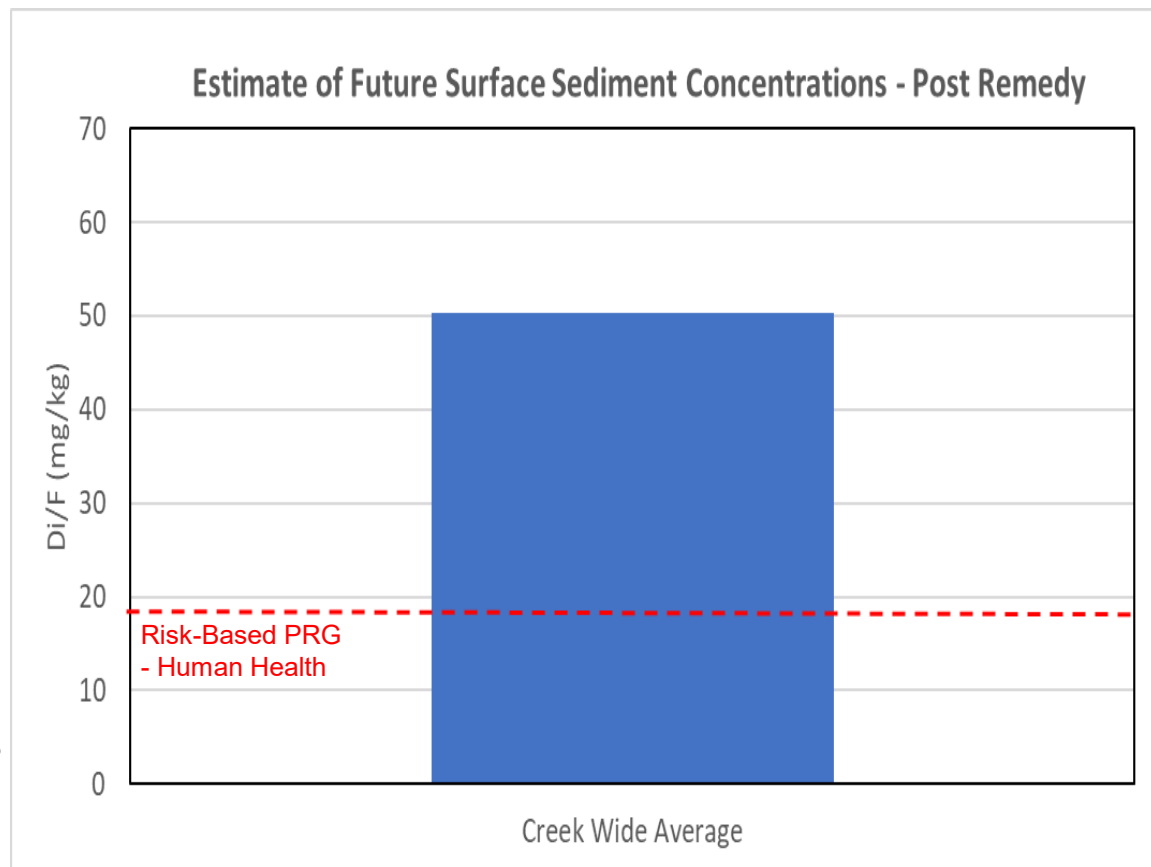
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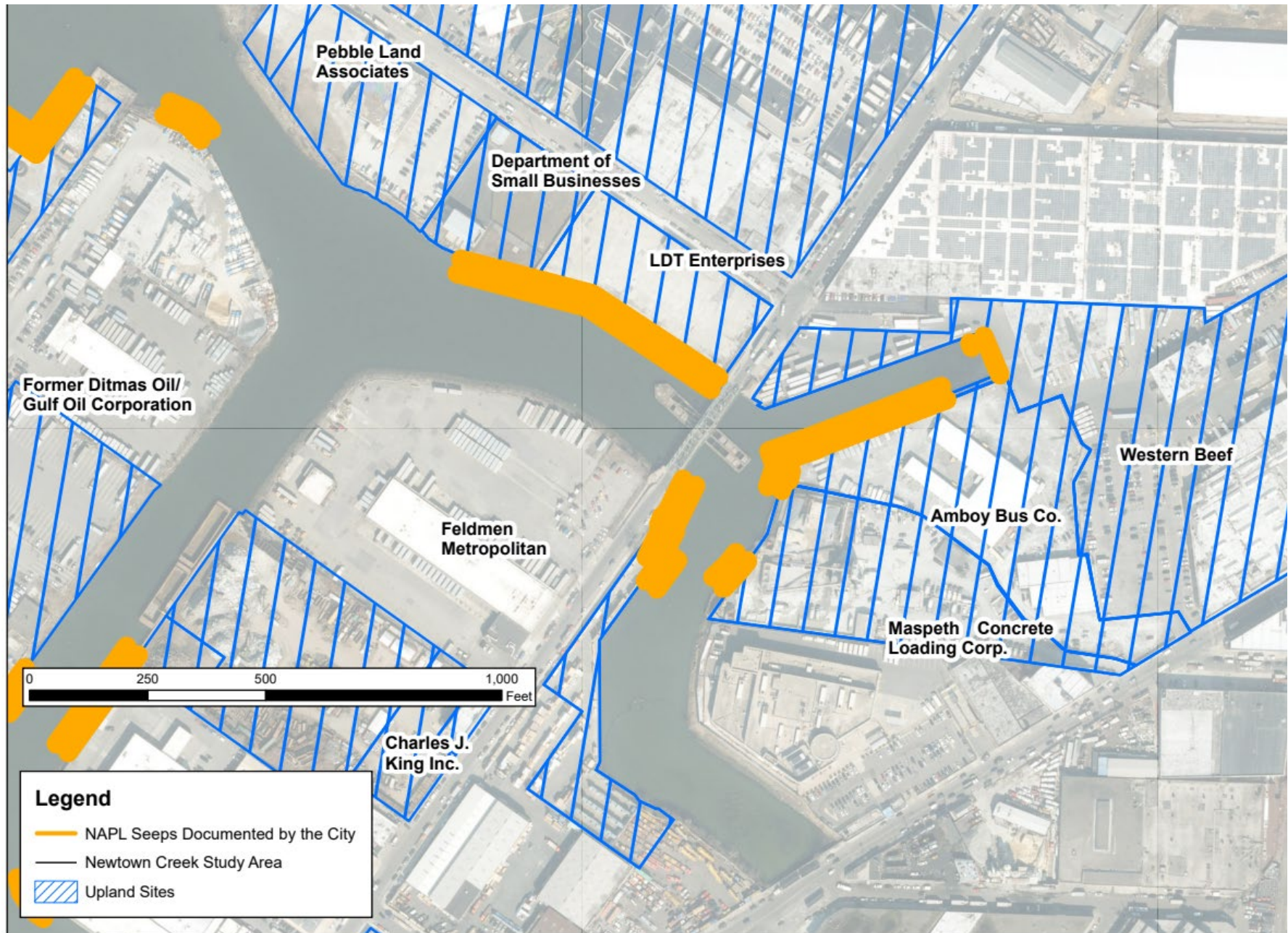
IPM/IEM cannot be estimated accurately for C19-C36 due to data gaps associated with most sources used to develop this analysis

- ❖ USEPA is also proposing to use IPM/IEM to control ongoing sources.
 - Since IPM/IEM is developed using East River, point sources, groundwater and atmospheric deposition, it can be used to control only these sources.
- ❖ IPM/IEM (i.e. Anthropogenic Background) Exceeds Risk-Based PRGs for Dioxin/Furans TEQ based on available data.
 - Based on the available data, **all** ongoing sources exceed the Dioxin/Furans TEQ. NY harbor sediments also pose risk due to Dioxin/Furans TEQ.
- ❖ Control of some sources is at the limit of technology (municipal stormwater and CSOs) and needs to be considered as per CERCLA guidance, along with cost-benefit of additional controls.
- ❖ Efforts and focus on monitoring and controlling relatively low-level sources is **misplaced** while known NAPL sources enter the Creek uncontrolled.

Concern 2: Comprehensive Source Control RAOs

- ❖ Proposed Source Control RAO for EA and OU1 states: “Reduce migration of site-related Non-aqueous Phase Liquid (NAPL) and other sources **within the Study Area** to sediment and surface water above levels that are protective for human health and ecological exposure.”
- ❖ Terminology “within the study area” means that the source control RAO will not control/reduce ongoing migration of NAPL from Upland Sites.
- ❖ Superfund sites include a goal for control and reduction from offsite impacts for NAPL inputs.
- ❖ NAPL seeps from uplands have been documented by NYCDEP, NYSDEC and the public since 2016.
- ❖ Characterization samples have been collected showing high COPC concentrations in NAPL seeping from upland properties.

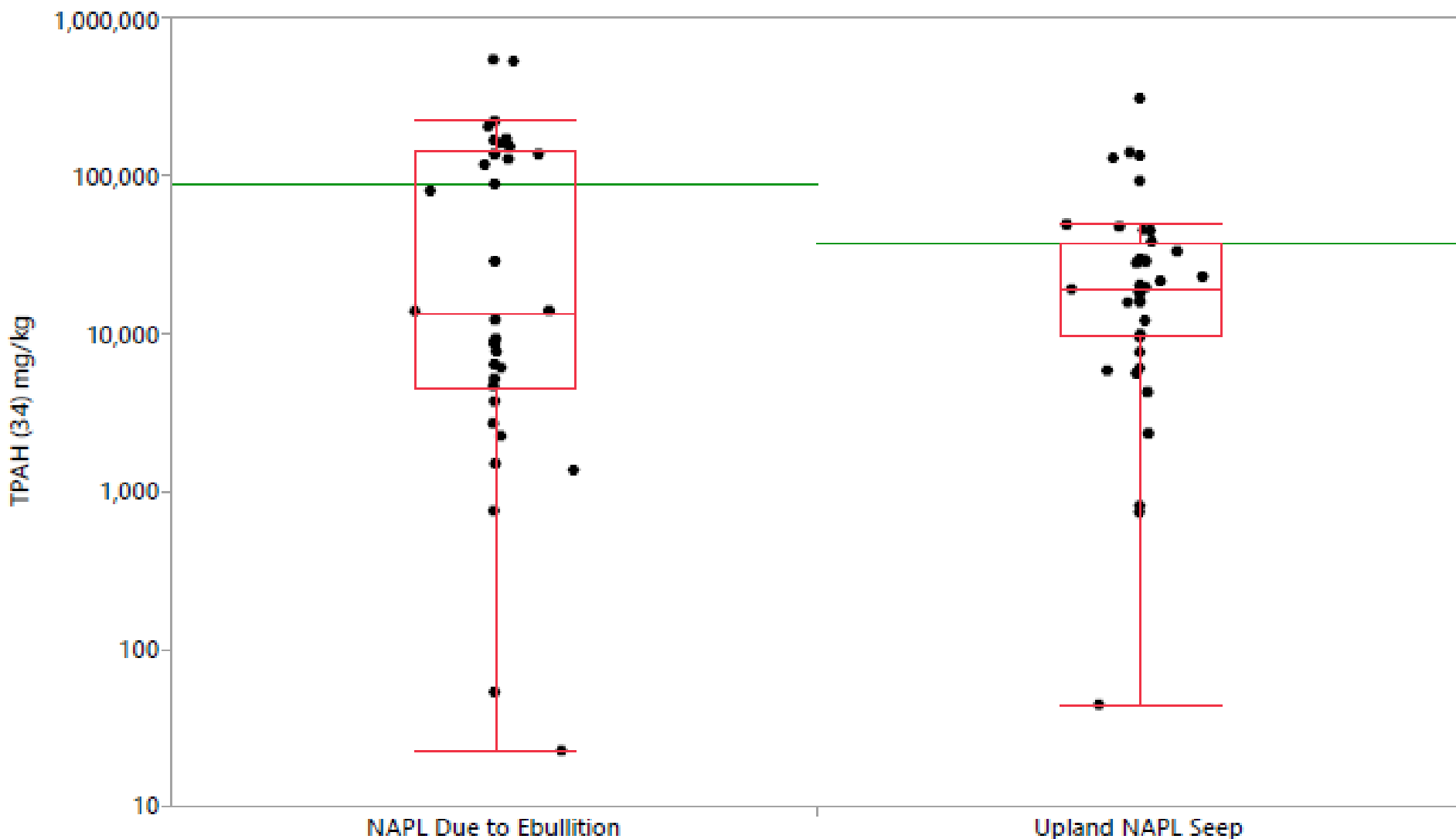
Source Control RAO for EA and OU1 is not Comprehensive



NAPLs Migrate Across the Creek from the Point of Entry

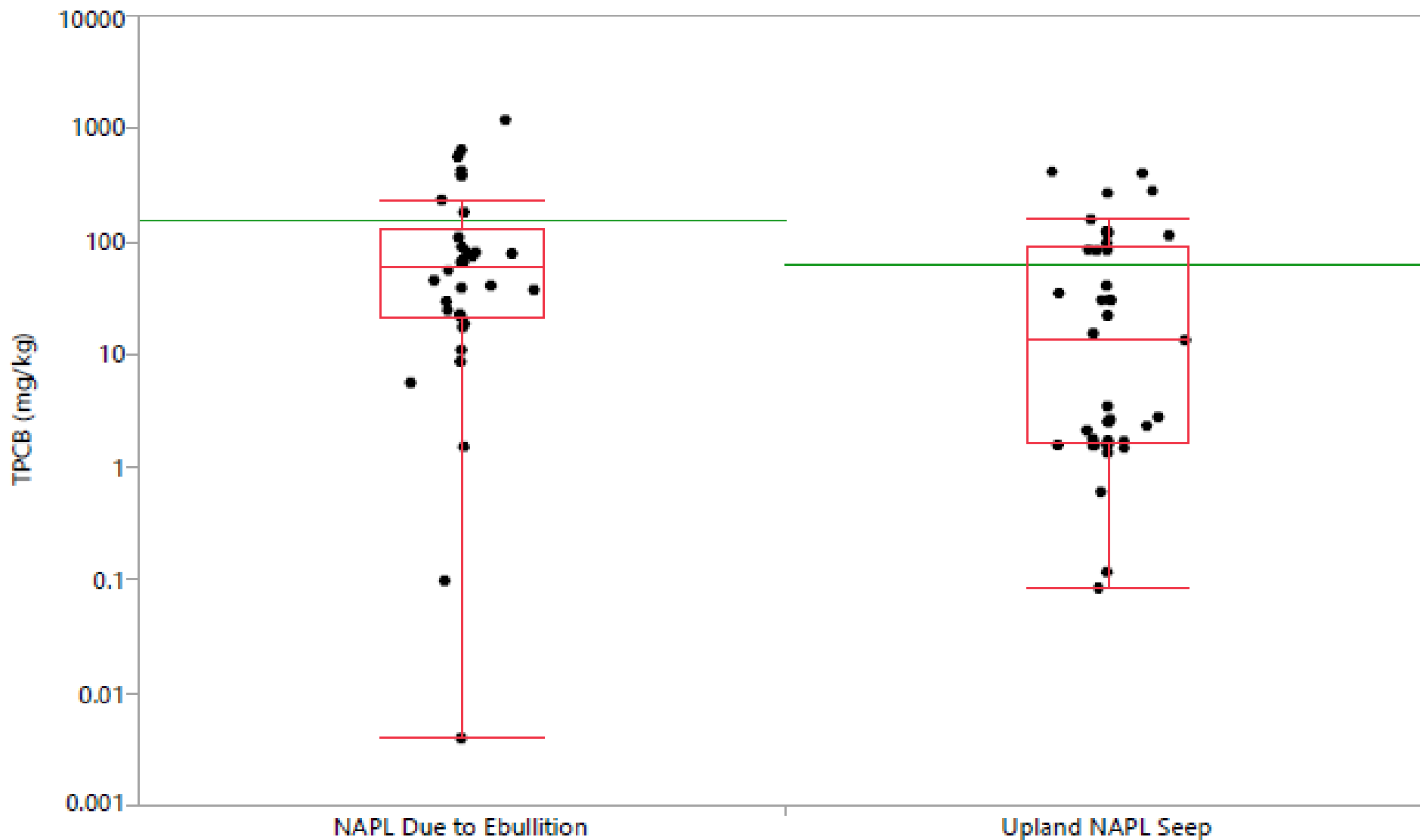


High Contaminant Concentrations in NAPLs



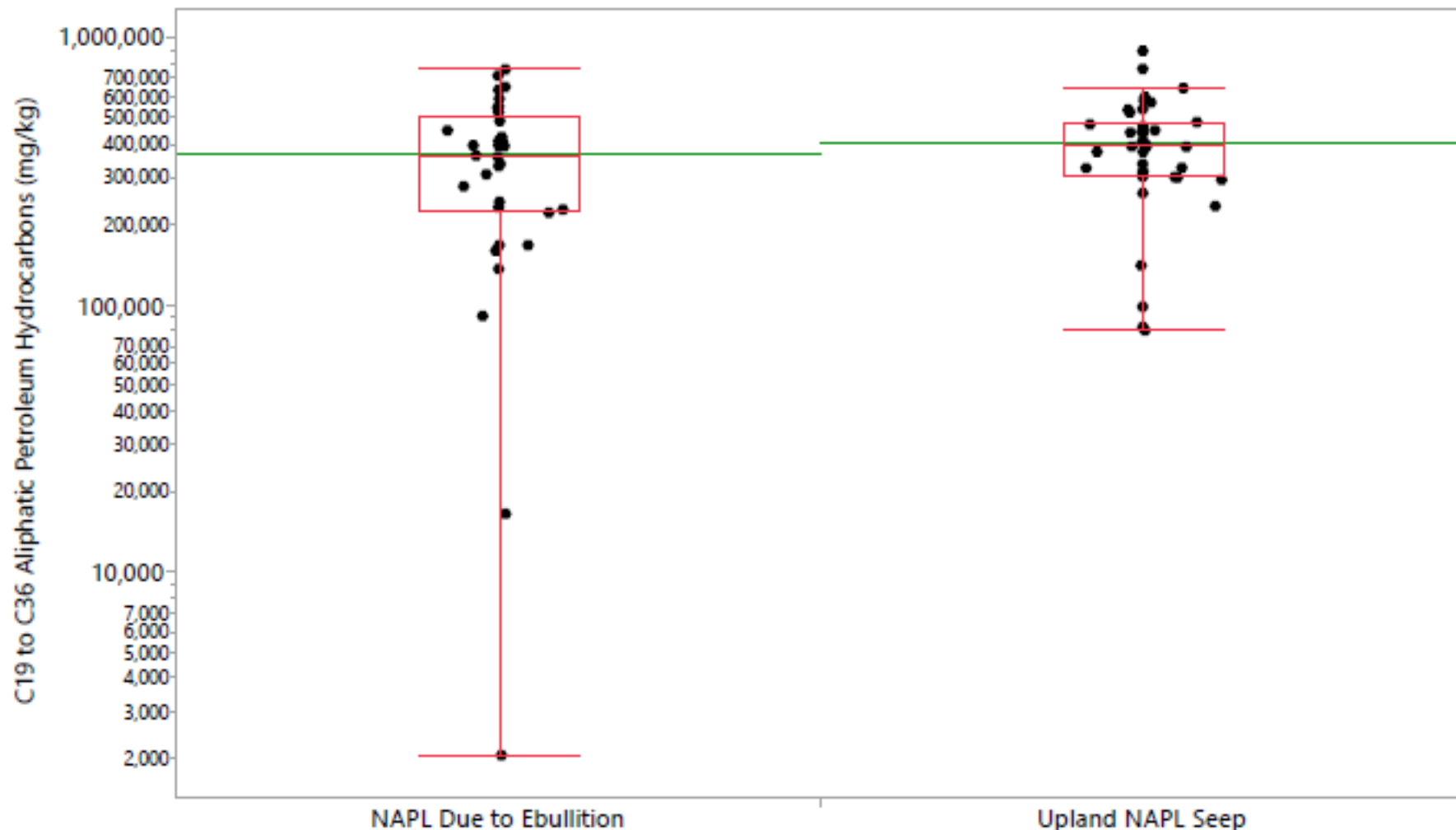
Concentrations are expressed as mass of contaminant to mass of NAPL

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- ❖ NYSDEC, the public and NYCDEP have collected samples which characterize COPC concentrations in NAPL seeping from upland properties.
 - Data has not been specifically collected for the RI/FS to characterize this source of COPCs.
 - Although City and NYSDEC data is available to address this data gap for the RI/FS and EA FS, it has not been incorporated into RI/FS documents.
- ❖ COPC concentrations in NAPLs entering the Creek from the upland properties is high and comparable to NAPL migrating within the study area.
 - CFT model developed for the OU-1 and EA sets the COPC loads from this source and lateral groundwater to **zero**.
- ❖ **E.g., Regular low-tide survey for one year (similar to point source initial sampling program).**
 - Identify key Sites and NAPL seeps and include in EA FS Remedial Alternatives.
 - Work with other regulatory bodies to control as part of Remedial Action (cut-off walls, source remediation, etc.).

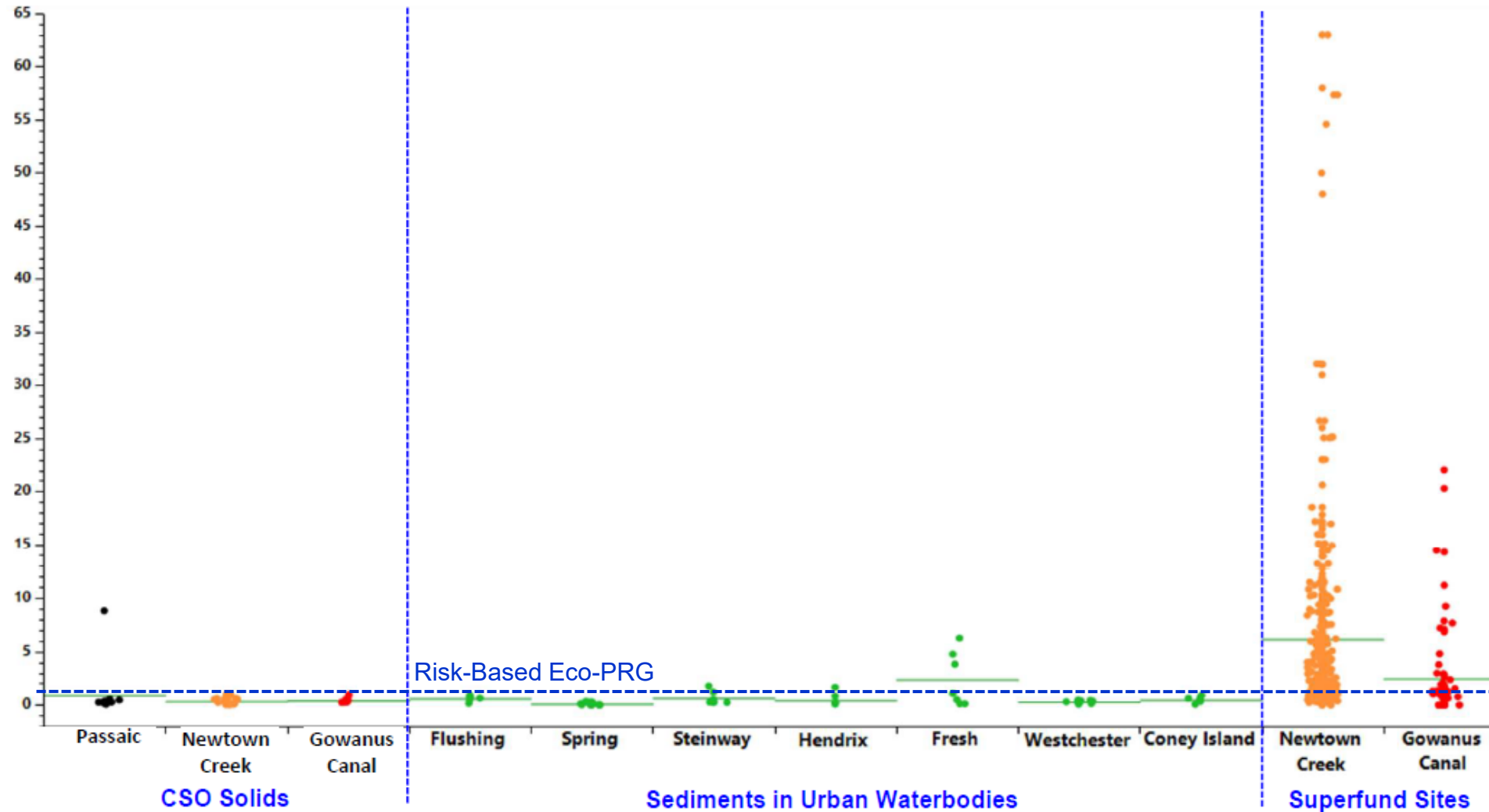
- ❖ The RAOs for the EA and the Site must include control/reduction of NAPL migrating from upland properties.
 - Many ecological receptors including bivalves, birds, fish etc. are exposed to NAPL and associated COPCs directly.
 - Coordination of regulatory bodies will be important for controlling NAPL upland sources under USEPA CERCLA program.
- ❖ Performance monitoring and PDI proposed for EA (and OU1) must include systematic NAPL seep surveys and consider ongoing impacts from other un-remediated parts of the Creek.

The risk to ecological receptors and human health will continue if the NAPL seeps from Upland Sites are not controlled.

Post-remedial recontamination due to NAPL seeps will occur.

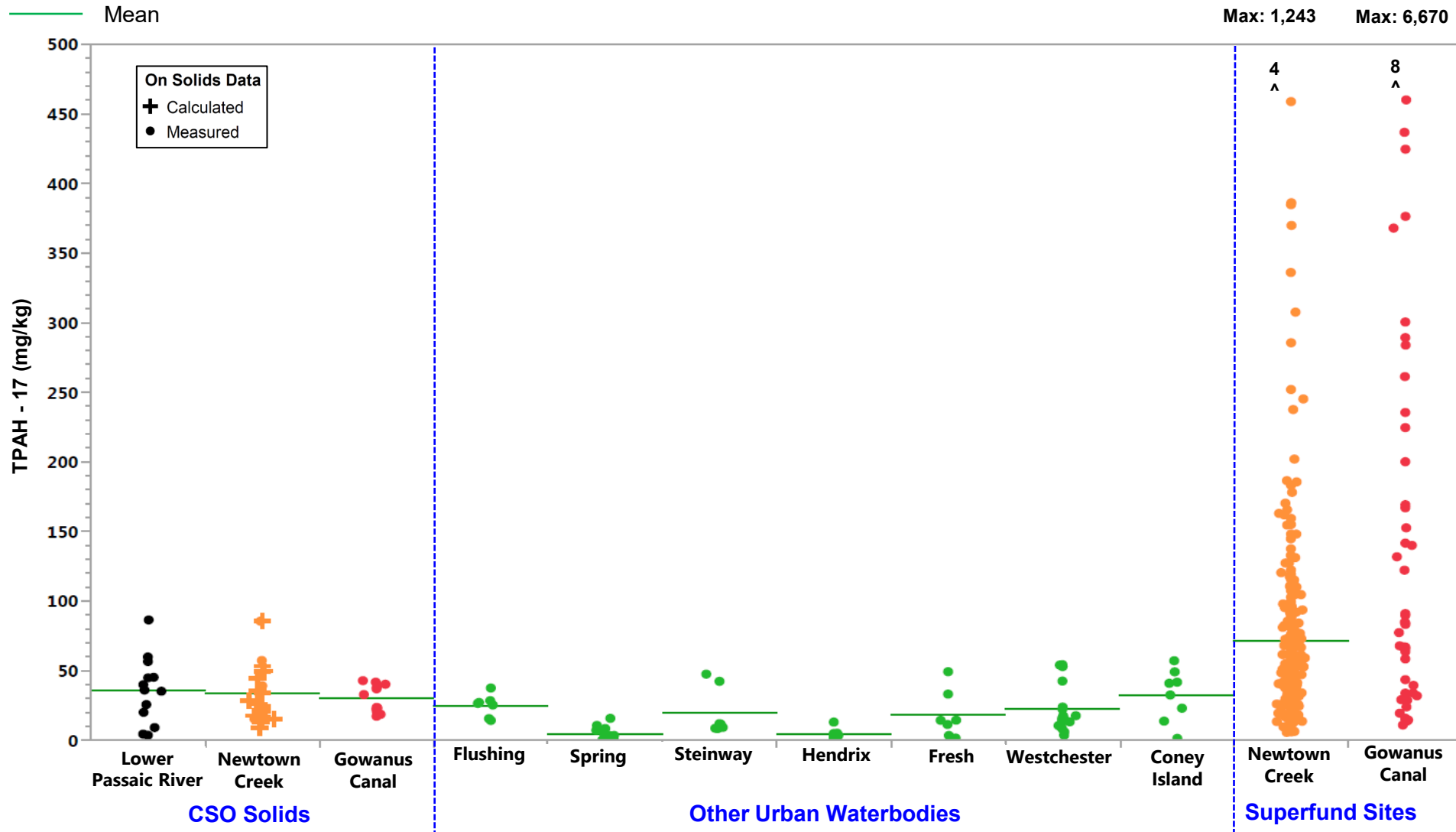
Concern 3: CSM Uncertainty is High

- ❖ CSM is basically a “solids-based mixing” model.
 - Significant uncertainty exists in the Sed-Trans Model
 - NAPL/GW inputs significantly impact solids entering the Creek from East River and point sources.
 - Data gaps are associated with contaminants entering the Creek from the intertidal zone (ITZ) – i.e., GW and NAPL Seeps.
 - No data in RI/FS characterizes NAPL seeping into the Creek.
- ❖ The CFT model used for developing remedial alternatives currently sets the COPC loads from ITZ entering to the Creek to **zero**.
- ❖ The CFT report currently attributes inability of the model to estimate elevated concentrations in surface sediments to **uncertainty in point sources** (as opposed to model uncertainty).

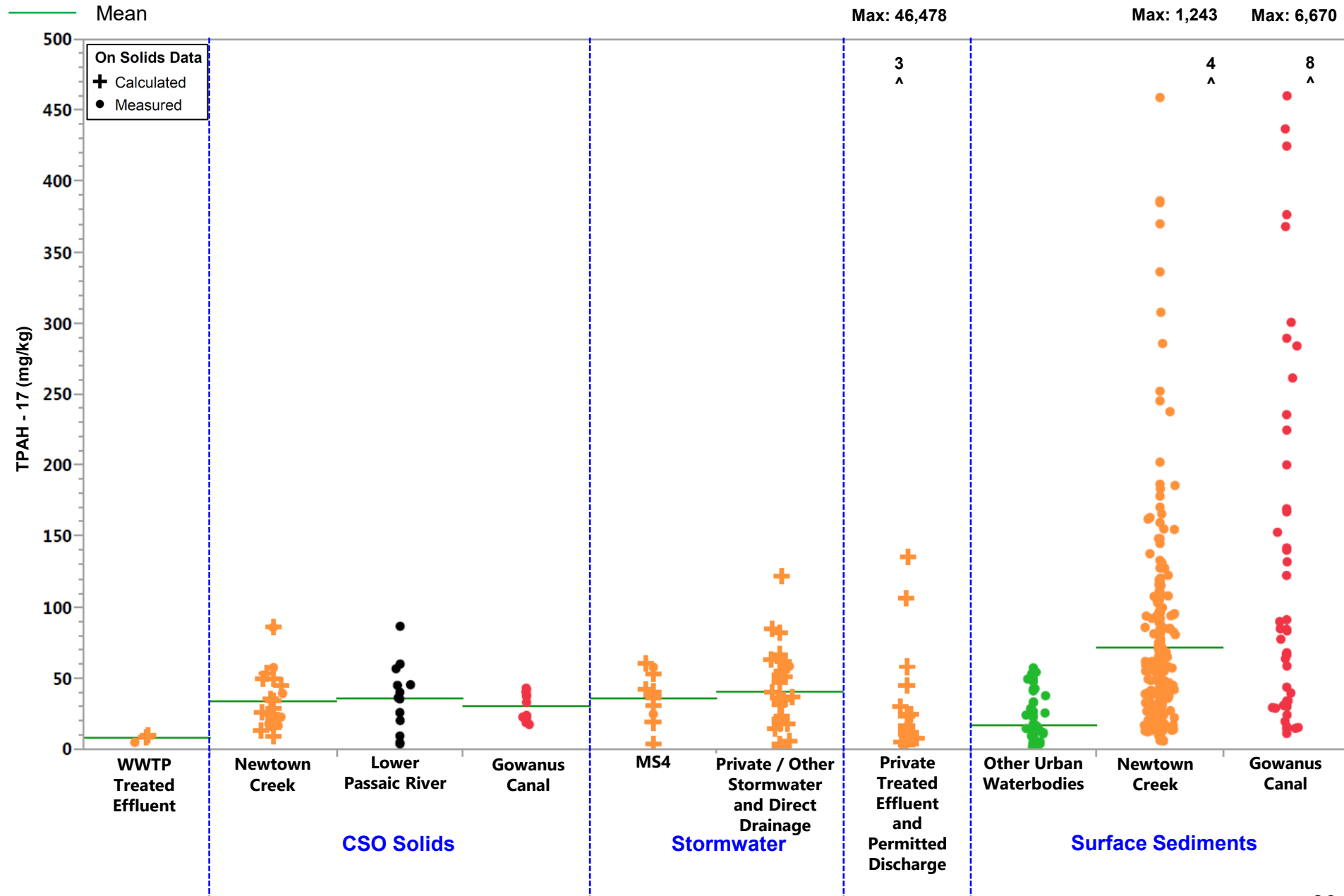


Point sources have been extremely well-characterized with low uncertainty (multi-million-dollar, multi-year/seasonal program).

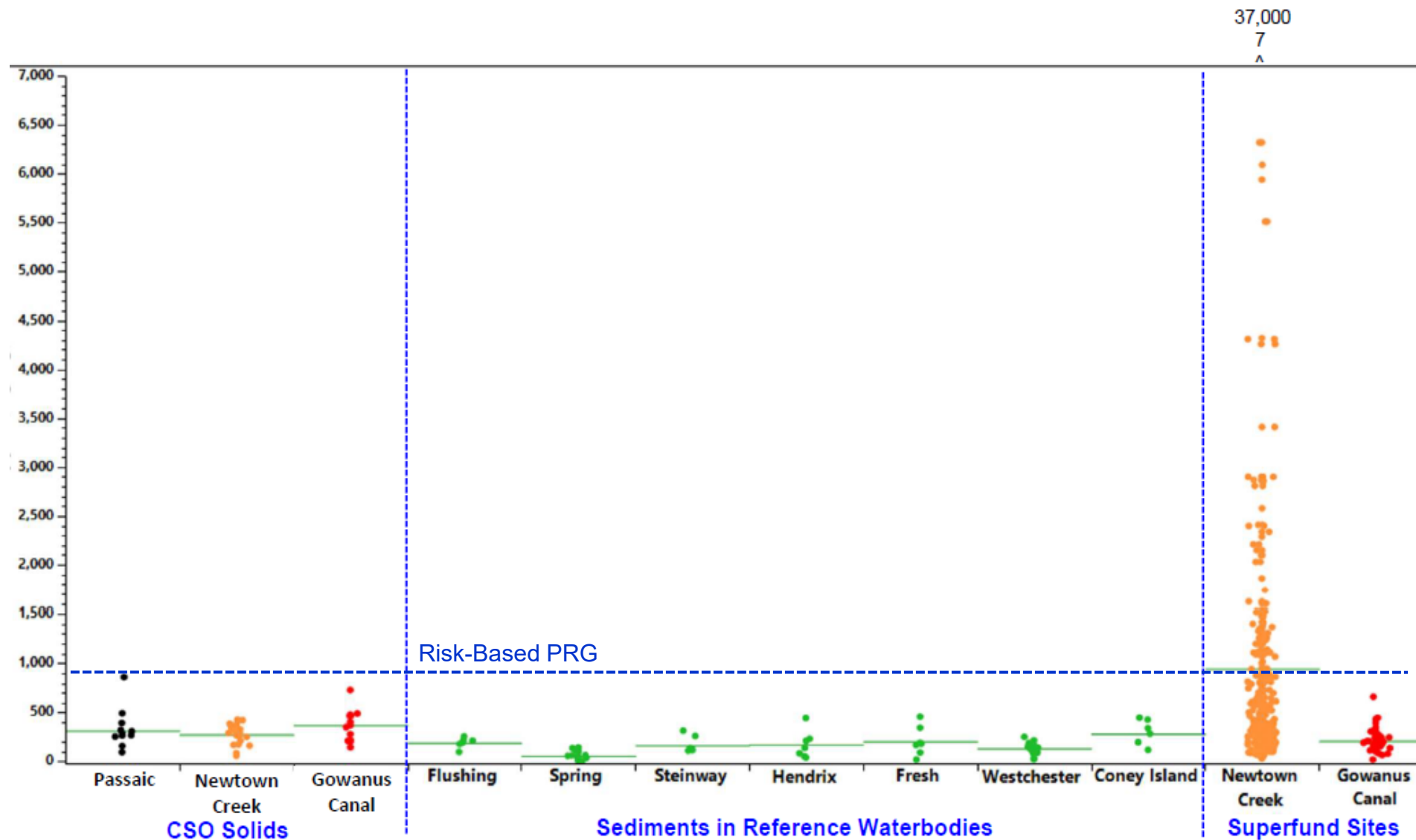
CSO TPAH(17) levels similar across Urban Areas



Relative Point Source TPAH(17) Concentrations



Copper in Surface Sediments at Urban Water Bodies and CSO Solids



- ❖ NAPL Delineation for EA and OU1 is underestimated
 - Sheens documented as part of visual observations or documented as part of Shake tests are not considered indicators of NAPL presence in sediments
 - Not in accordance with NYSDEC or NOAA guidance
 - NAPL presence documented under other programs is not considered as part of NAPL delineation.
- ❖ Areas where sheens are documented in sediments show NAPL migration due to ebullition, including East Branch.

Presence of NAPL in Sediments in Underestimated

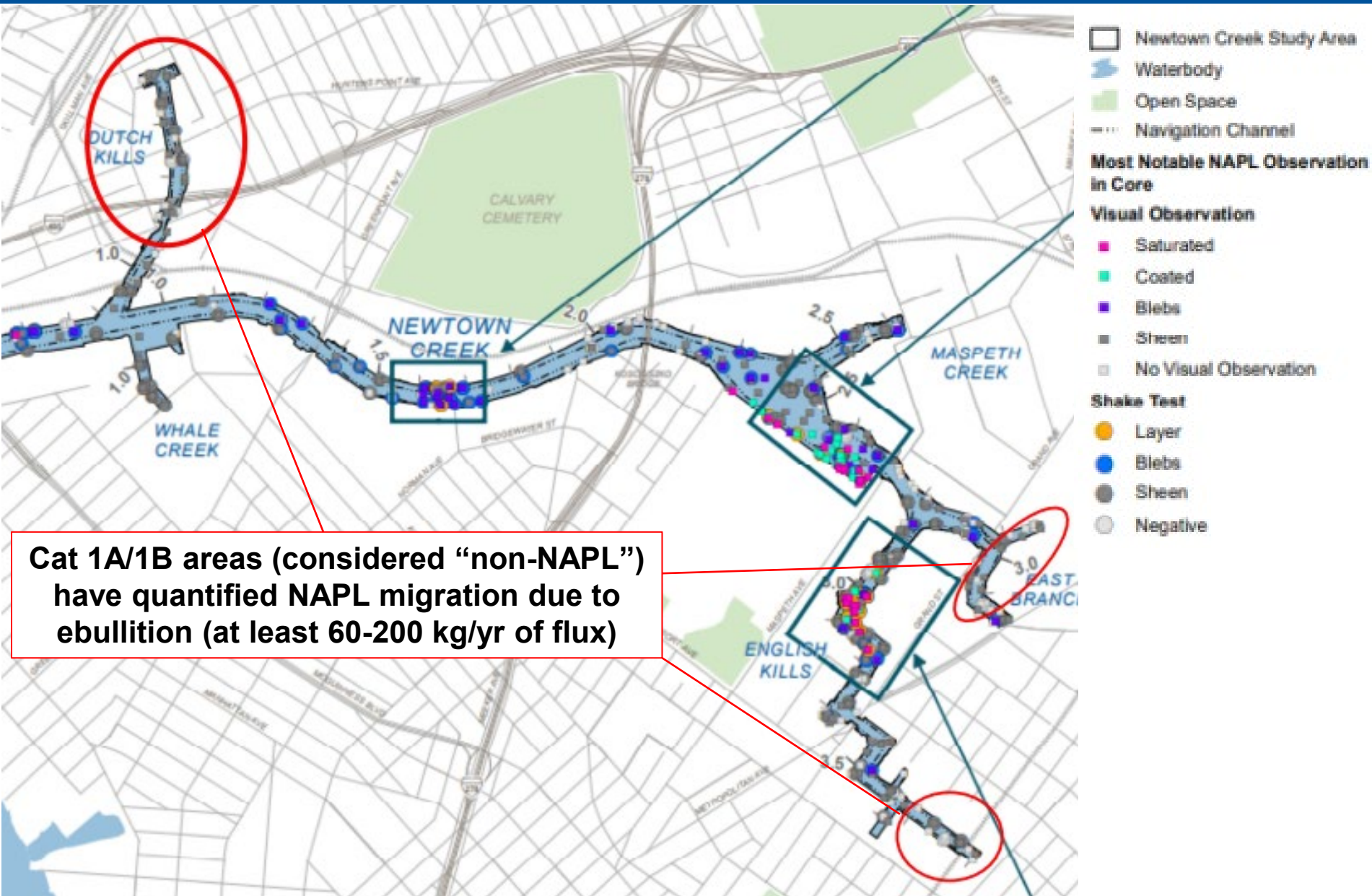


Figure adapted from AQ RI Figure C3-1 “Most Notable NAPL Observations”

- ❖ RI states that NAPL is not mobile in sediments of the Creek.
- ❖ RI used ASTM method designed for determining moisture content in freely draining soils on soft grained soils as the first step in determining NAPL mobility in sediments.
 - Compressing fine grained sediments is well known to be a way to decrease permeability and therefore NAPL mobility.
 - During Stage 1 testing, the sample volume was compressed by the high pressure placed on the soft samples which decreases the permeability
 - This approach was rejected by USEPA Region 2 for the Quanta Resources Superfund Site in NJ for this very reason.
- ❖ Sheens which were documented during subsequent tests of NAPL mobility were not considered as indicators of NAPL mobility in the RI.
- ❖ No alternative tests were conducted to test the validity of this method in determining NAPL mobility.

NAPL mobility assessment is highly uncertain. Alternative testing techniques are needed during EA Remedial Design.

Concern 4: Upland Control and Bulkhead Stability Must be Assessed During EA FFS



❖ Most of the shoreline along the Study Area, including East Branch are in poor condition.

FFS must consider bulkheads and the potential need to repair or replace them during alternative development in the FFS

Concern 5: Applicability of EA to OU1

- ❖ East Branch CSM may not be representative of other parts of the Site.
 - **Impacts of NAPL in other areas of the Creek on the surface sediments are even more significant than those in East Branch.**
 - **GW impacts vary across the Site.**
 - **Validation of CSM in the East Branch may not be indicative of validation of CSM in other parts of the Creek.**
- ❖ As per the approved schedule in Spring of 2023:
 - EA FFS will be finalized in February 2024.
 - The FS report for the OU1 is expected to be approved by Dec 2027.
 - It is unlikely that the EA PDI will be completed in the time OU1 FS.
 - Any lessons learned from the EA will not be available to help in determining the remedy selection for OU1.

Next Steps

- ❖ Anthropogenic Background must be used to develop PRGs for the Site.
- ❖ Investment of \$100M+ for EA, ~\$1B for OU1, \$1B for OU2 (NYC) – the EA remedy must be robust (CERCLA Evaluation Criteria for Cost Effectiveness):
 - Source control RAO must include control of NAPL seeps from Upland Sites to be protective of ecological and human health. Sequencing needs to be considered along with RA - **before recontamination!**
 - Data gaps associated with upland NAPL seeps must be addressed during pre-design investigation for the EA and during FS for OU1.
- ❖ CSM for the Site is uncertain and needs to be updated after data gaps have been addressed to ensure remedy success.
 - High uncertainty in sediment transport model.
 - Data gaps in significant sources for complex CFT model make it unreliable.

The FFS must address these concerns for a successful EA

- ❖ Principle 1 - Control Sources Early, Recommendation 1: *“... address groundwater discharges that may recontaminate the Creek.”*
- ❖ Principle 4 - Develop and Refine a Conceptual Site Model that Considers Sediment Stability, Recommendation 4: *“...include a description of how any models used in remedy selection were reviewed, calibrated, validated, and how the uncertainties in model predictions were considered.”*
- ❖ Principle 5 - Use an Iterative Approach in a Risk-Based Framework, Recommendation 6: *“...more quickly remediate the nonaqueous phase liquid (NAPL) sources near the manufactured gas plants, upland source areas not addressed by the State, and discrete hot spots...”*
- ❖ Recommendation 9: *“...the CSTAG recommends that Region 2 develop a plan for evaluating information that was not generated under an EPA approved work plan...”*
- ❖ Principle 6 - Carefully Evaluate the Assumptions and Uncertainties Associated with Site Characterization Data and Site Models, Recommendation 10: *“The determination of background concentrations for primary contaminants of concern is an important consideration...”*
- ❖ Principle 7 - Select Site-specific, Project-specific, and Sediment-specific Risk Management Approaches that will Achieve Risk-based Goals, Recommendation 13: *“...consider whether bulkhead upgrades are necessary as part of any remedy...”*
- ❖ Recommendation 14, *“...determine where the coal tar/NAPL is located within the Study Area... how the coal tar is entering the Creek will be critically important for evaluating effective remedies in the FS to contain, treat, or remove it.”*

Q&A