

Groundwater Update

*Brookhaven National Laboratory
Progress Update on Western South Boundary Treatment System
and North Street East Ethylene Dibromide (EDB)*

*Presentation to Community Advisory Council
June 13, 2019*

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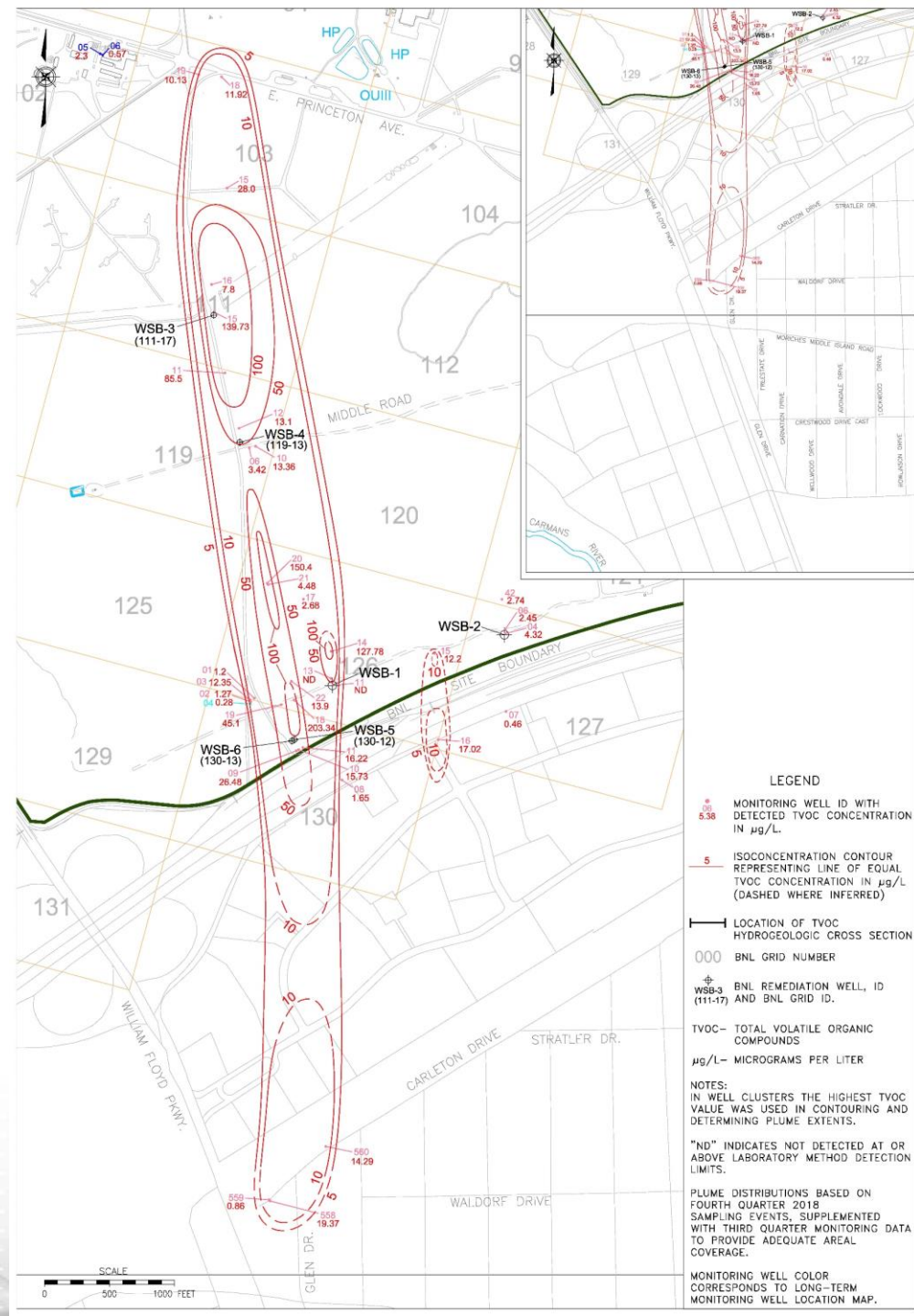


Agenda

- Update on Western South Boundary Groundwater Treatment System Modification
- North Street East Ethylene Dibromide (EDB)
 - Plume monitoring update
 - Groundwater Modeling Results
 - Path Forward

OU III Western South Boundary

- Last Update for the CAC on this project was in January 2019.
 - Original system was WSB-1 and WSB-2.
 - Monitoring and additional characterization (21 VPs) detected VOCs slightly deeper and west of WSB-1.
 - Data showed the cleanup goals would not be met without additional actions
 - Monitoring confirms the higher concentrations (>50 ppb) confined to the on site portion of the plume.



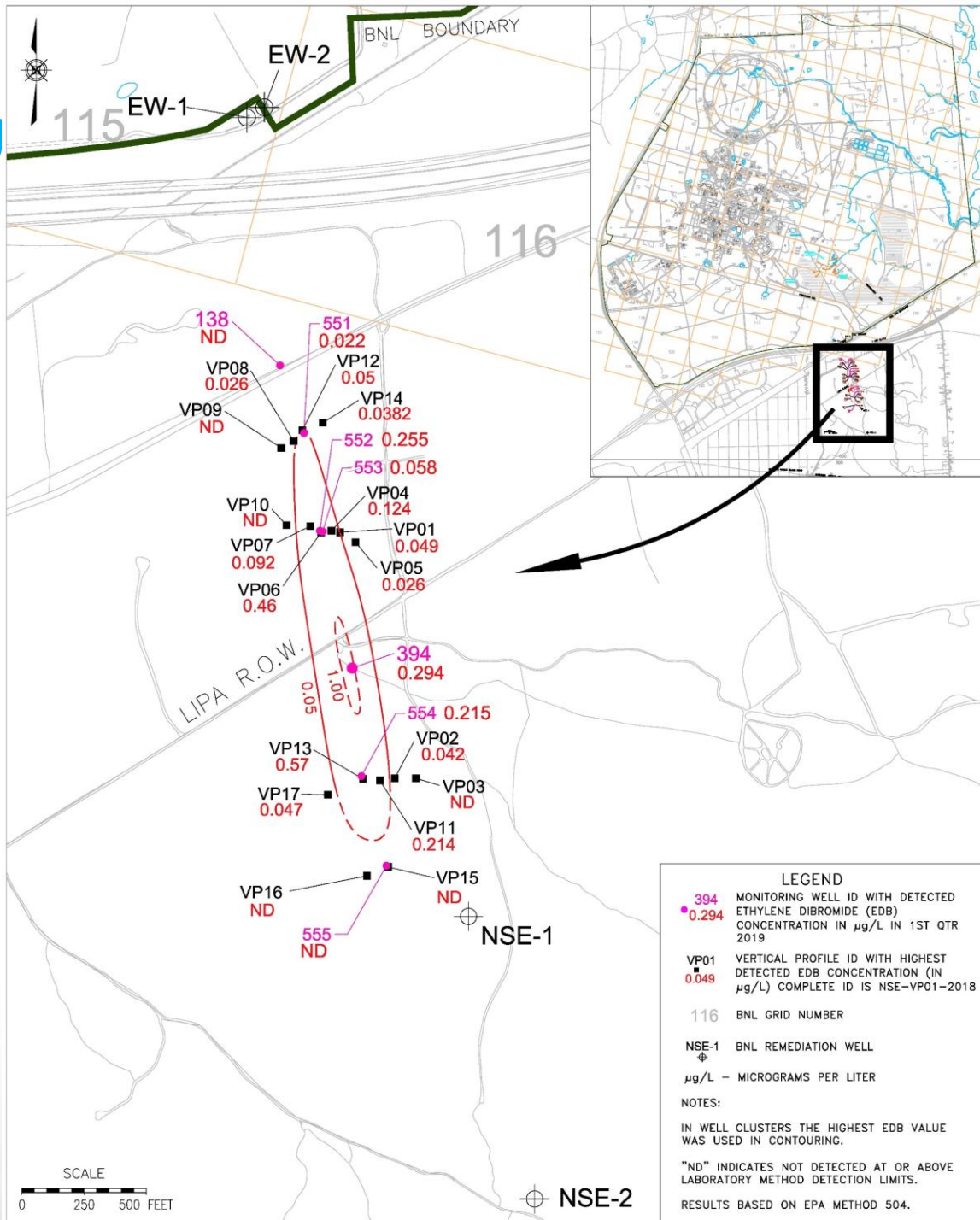
OU III Western South Boundary

- Began system modification construction in June 2018
- Completed Modification to add four new extraction wells in February 2019.
- Necessary to meet the cleanup objectives in the OU III ROD.
 - Completed installation and development of the new extraction wells, mile of new pipeline and utilities
 - Began startup testing of the four new extraction wells and WSB-1 in March 2019.
 - Extraction well completion



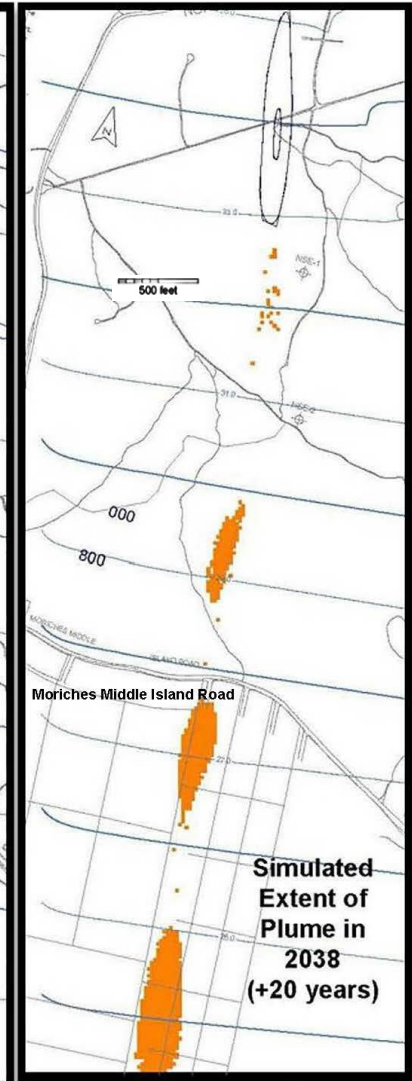
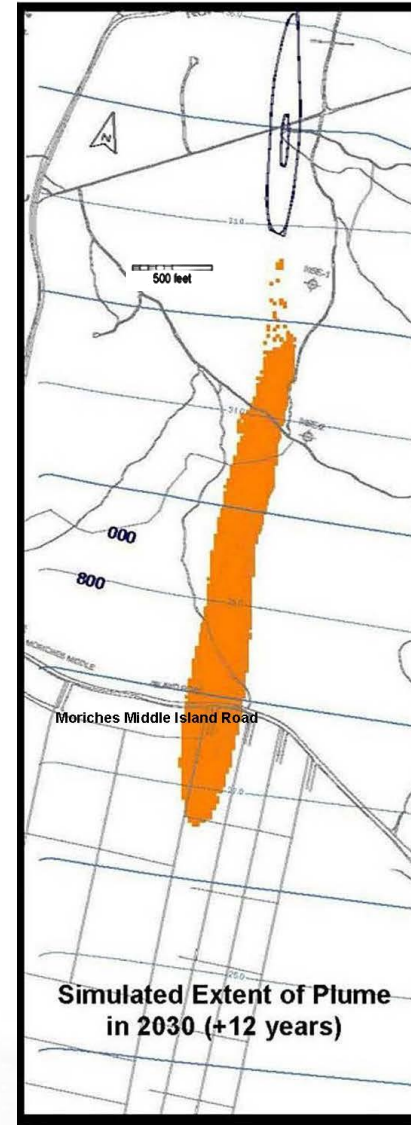
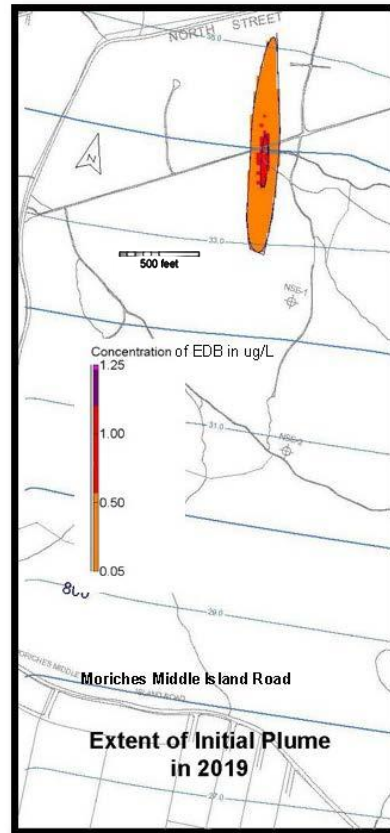
NSE EDB Groundwater Modeling

- Performed several groundwater modeling simulations utilizing characterization data
- Performed Particle Back Tracking from well 000-394. Showed source of EDB in Central portion of the site.
- Groundwater modeling indicates that the two existing extraction wells (NSE-1 and NSE-2) will not capture the entire plume.
- OU III ROD Cleanup Goals reach MCL's by 2030 and minimize plume growth.
- Performed simulation of natural attenuation of plume



NSE EDB Plume – Natural Attenuation Modeling

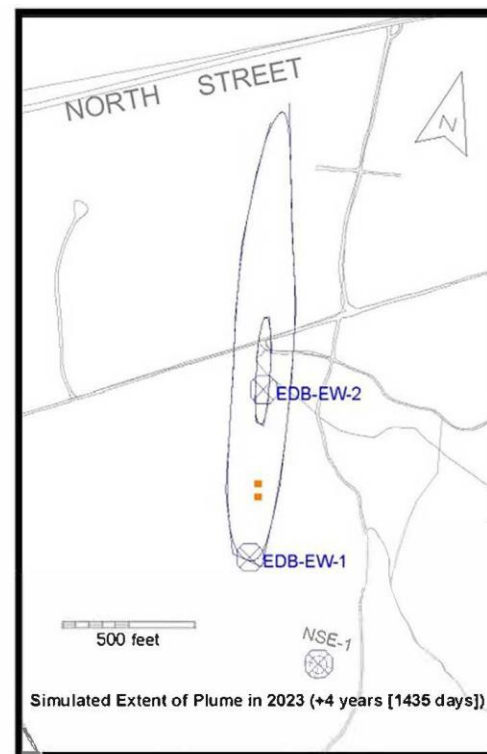
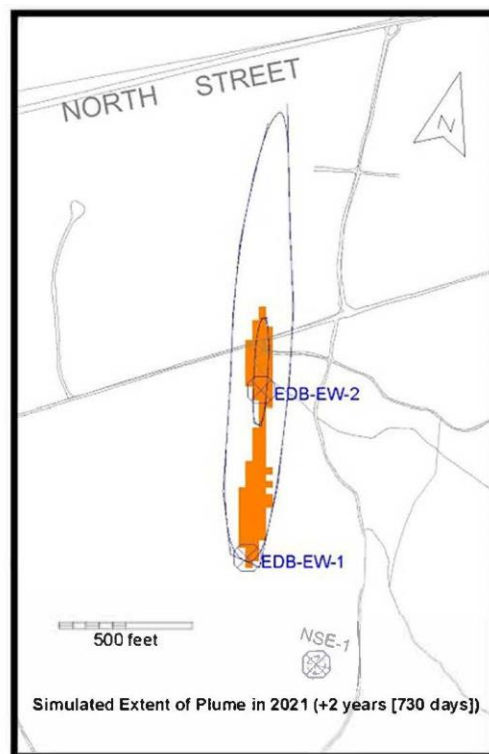
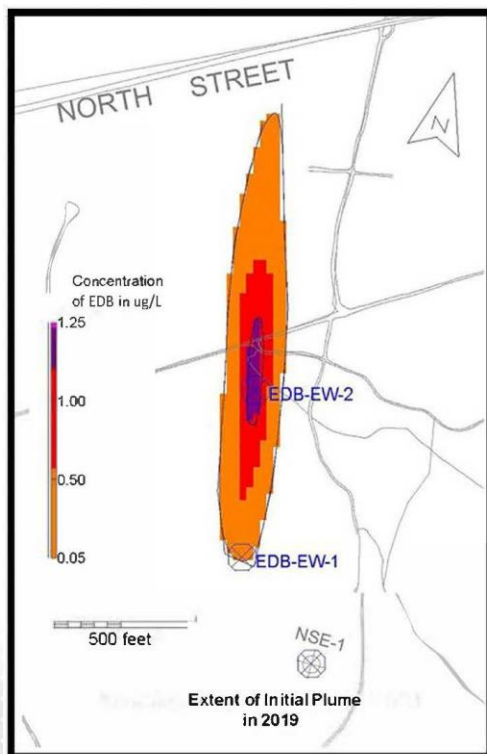
- Natural attenuation simulation indicated that plume concentrations would not decrease to below the Groundwater Cleanup Goal (0.05 ug/L by 2030)
- Model shows concentrations above Cleanup Goal beyond 2048 and significant plume growth



NSE EDB Plume - Pump and Treat Modeling

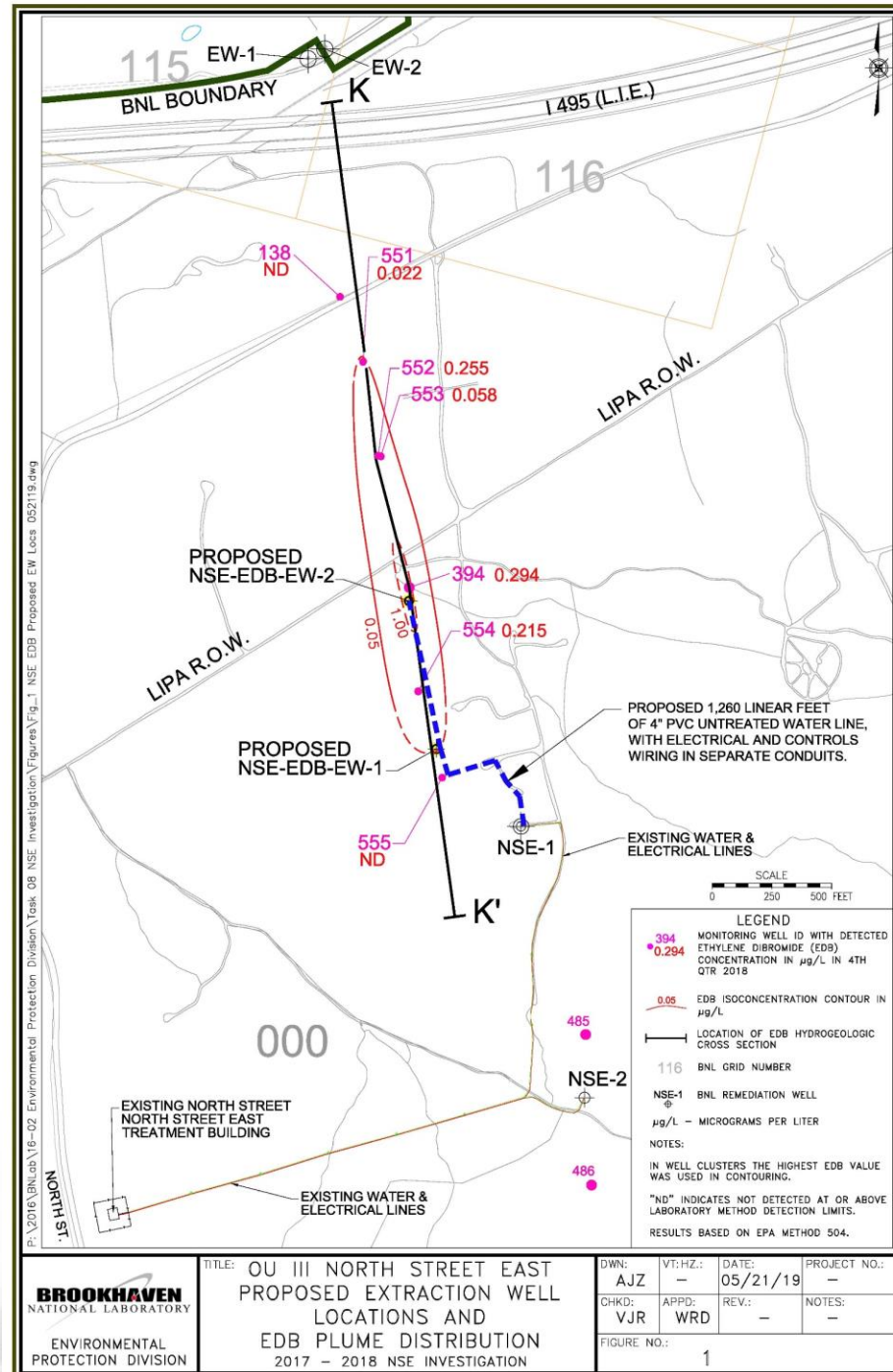
- Simulated plume with existing well NSE-1 turned on (Does not capture the entire plume)
- Simulated plume with one new extraction well – (cleanup in 7 years by 2026 (7 years pumping and 3 years monitoring))
- Simulated plume with 2 new extraction wells - (cleanup in 4 years by 2023 (4 years of pumping and 3 years monitoring))

Model simulation with two new extraction wells



NSE EDB Summary

- Monitored Natural Attenuation (MNA) does not meet the ROD cleanup goals
- The selected alternative is a modification to the North Street East Treatment System (carbon system), utilizing two extraction wells
- Currently proceeding with system modification design
 - The design will provide details needed to construct modification
 - Met with property owners and received approval for construction



NSE EDB Path Forward

- Briefed regulators
- Brief CAC
- Brief Central Pine Barrens Commission on planned work
- Complete draft design work (June 2019)
- Submit design modification to regulators (July 2019)
- Install extraction wells (Summer 2019)
- Complete construction in 2020

Questions?

