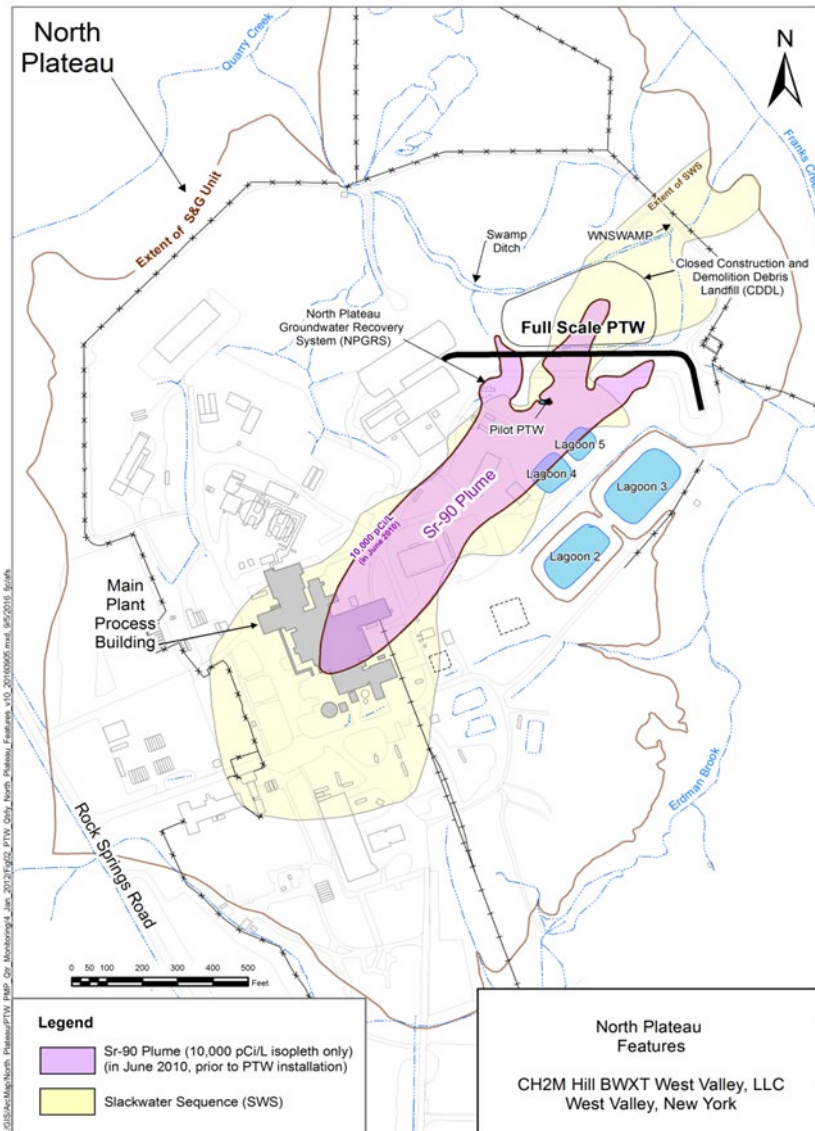


WVDP Permeable Treatment Wall Update

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Quarterly Public Meeting
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Installed 860-foot long Permeable Treatment Wall (PTW) in October/November 2010

- Designed to mitigate a groundwater plume of radiological constituents which originated during reprocessing operations
- Strontium-90 (Sr-90) identified as the primary radionuclide in groundwater

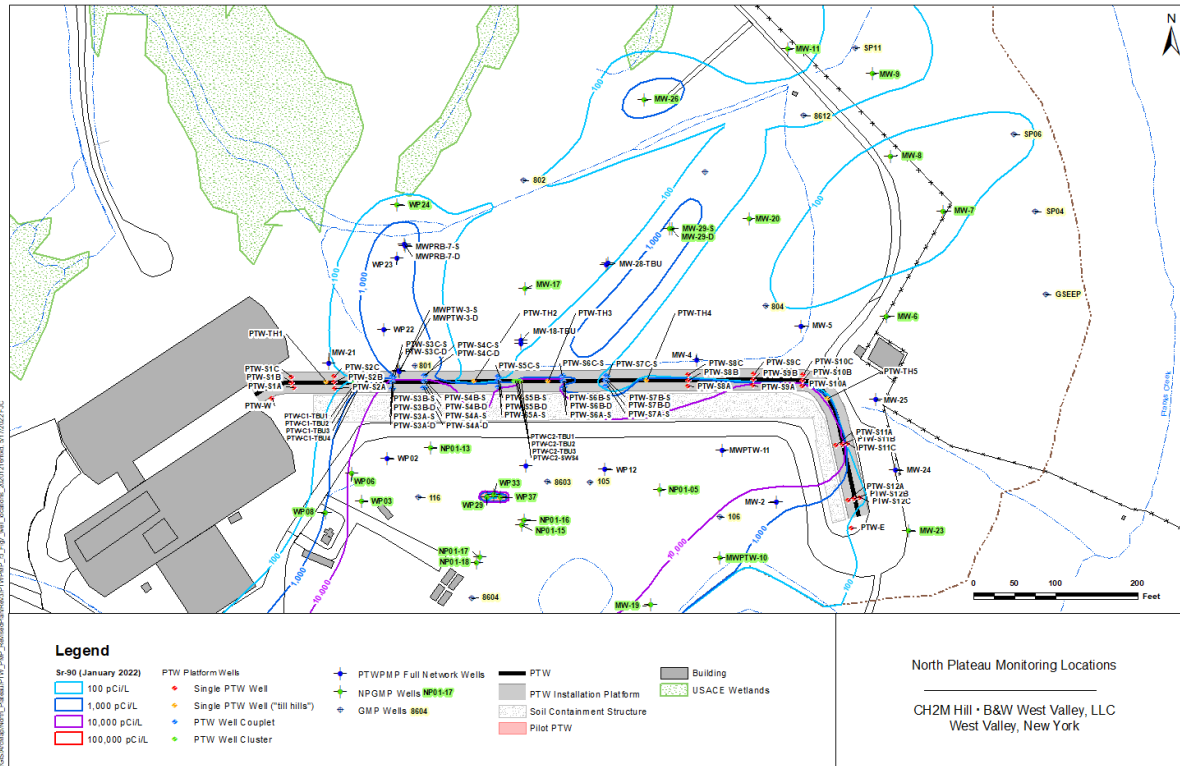
The PTW continues to function effectively after 11 years of operation

- PTW Technology Selected to Achieve North Plateau Plume Remedial Action Objectives (RAOs)
 - Reduce levels of strontium-90 (Sr-90) in groundwater seepage leaving the site to ALARA (goal < 1,000 pCi/L)
 - Minimize expansion of plume beyond the mapped extent prior to PTW installation
 - Selected technology used for plume containment does not preclude strategies for addressing the plume during Phase 2 decommissioning
- PTW Design Criteria Included the Following Requirements:
 - PTW system should be effective in removing Sr-90 for 20 years
 - PTW system to include ability to deploy potential contingent backup strategies

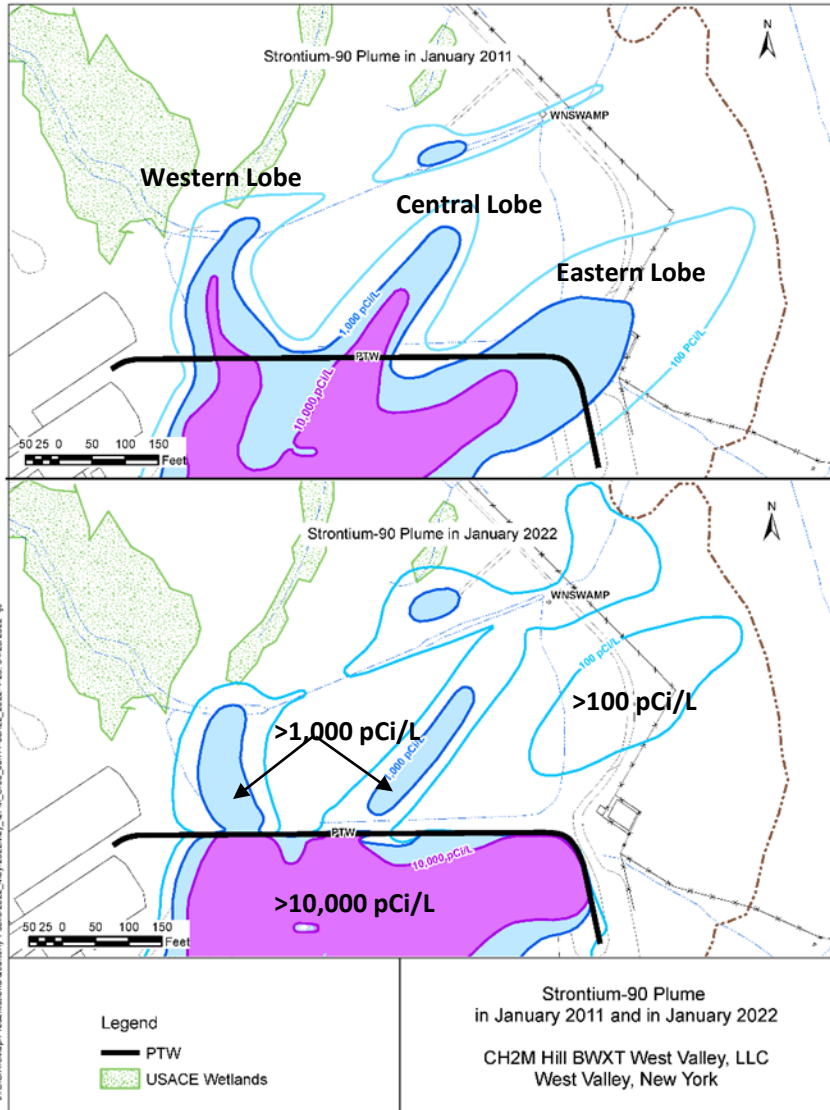
It was recognized during the design that parts of the PTW would be more stressed due to higher contamination levels and faster groundwater flow rates.

PTW Performance Monitoring

- Quarterly groundwater samples are collected from more than 60 wells
- Once a year samples are collected from about 20 additional wells to evaluate areas upstream of and beyond the PTW
- Every five years a Comprehensive Monitoring event is performed which includes additional testing; April 2021 being the most recent



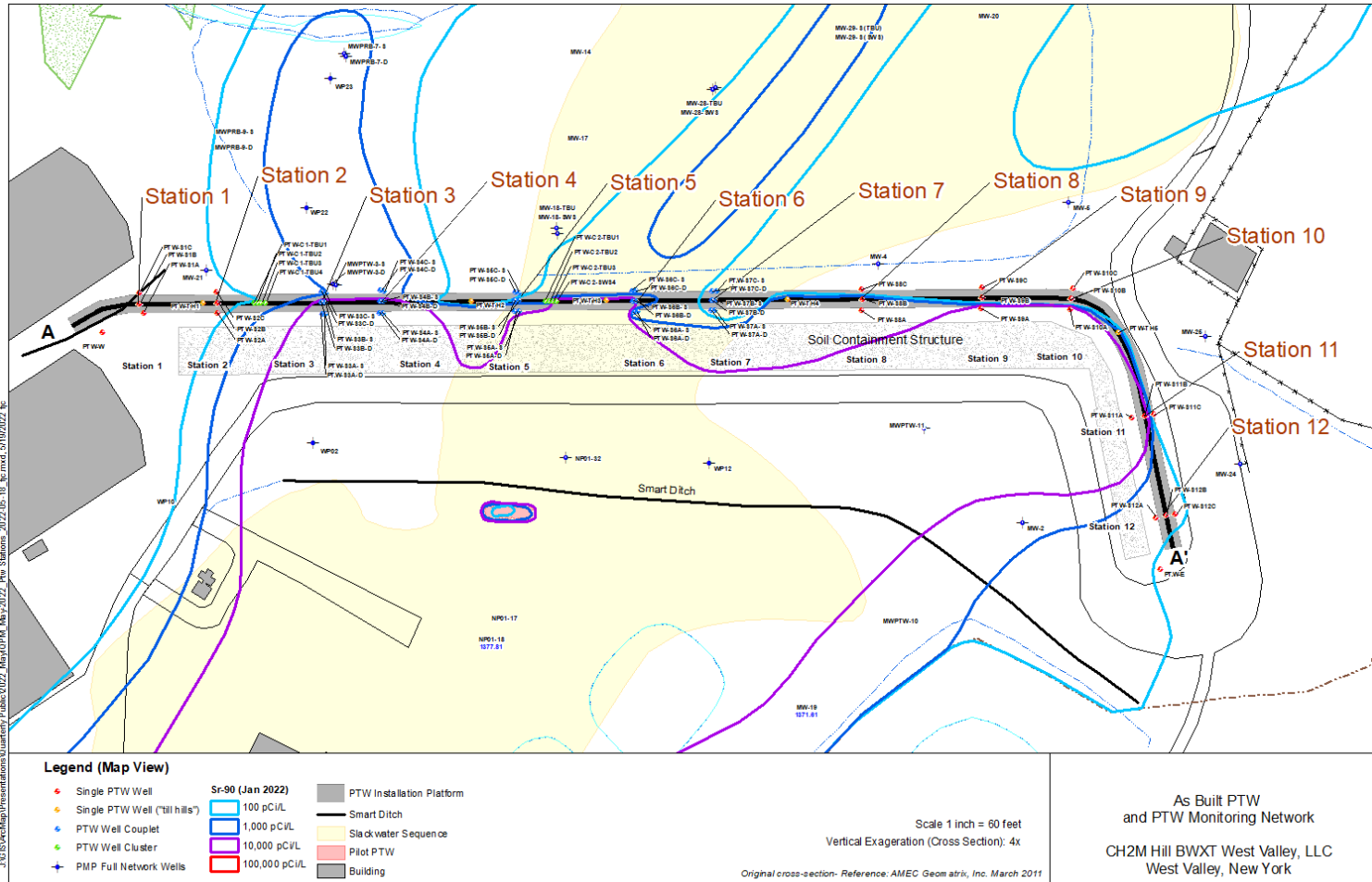
- Monitoring Results Continue to Support the Following General Observations:
 - The PTW continues to be effective in meeting the remedial objectives.
 - Groundwater monitoring results continue to indicate that groundwater treatment is occurring.
 - Sr-90 activity levels in groundwater beyond the PTW have decreased overall since installation.



- Total estimated dose to the public from WVDP liquid effluents is well below the DOE public dose limit of 100 mrem/year, which is about one-third the dose received from natural background sources.
- An off-site individual could have received a maximum dose of 0.012 mrem due to discharges from north plateau drainage pathways in 2021, far below the 100 mrem/year limit.
- This low dose was largely attributable to contaminated groundwater seepage into the WNSWAMP drainage point which flows off-site.

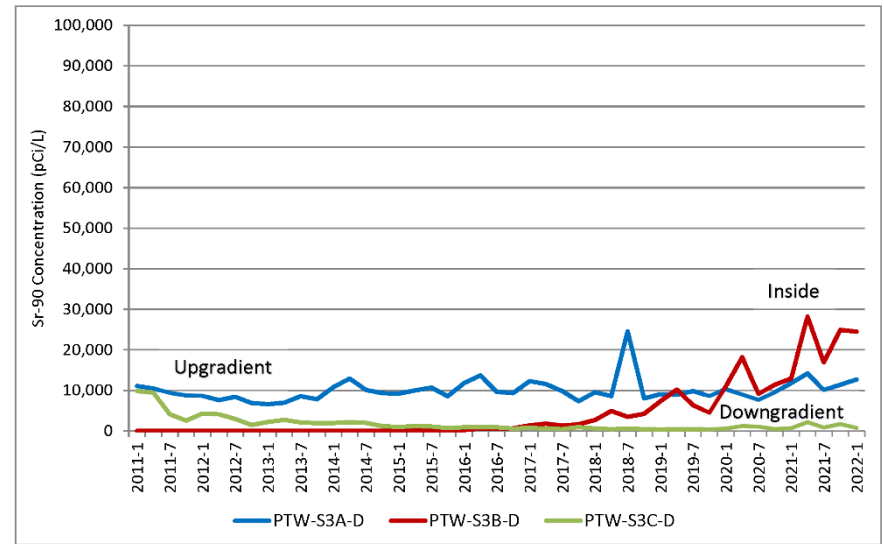
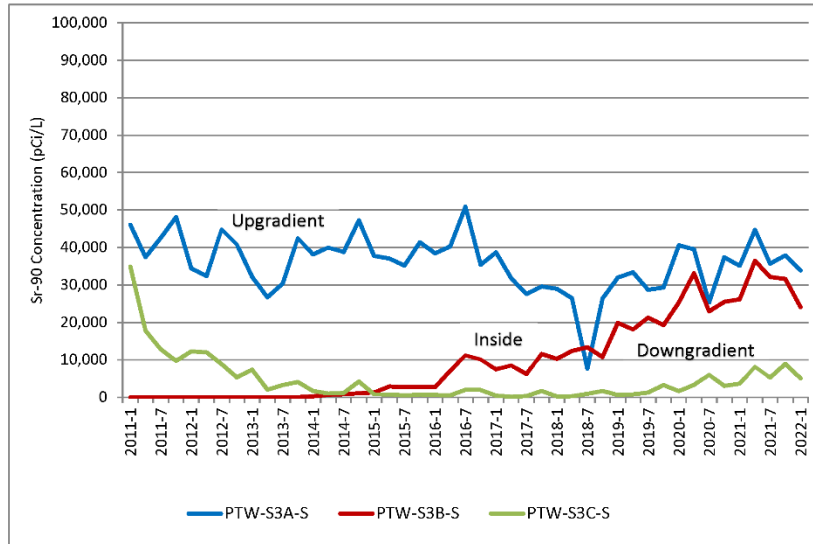
- Additional Observations from the April 2021 Comprehensive Monitoring Include:
 - The Eastern Lobe and most of the Central Lobe portions of the PTW are maintaining treatment performance.
 - Data from the past 2 years, suggests Sr-90 treatment performance is starting to moderate in the Western Lobe and to a lesser extent in the Central Lobe

Location of the PTW Monitoring Stations



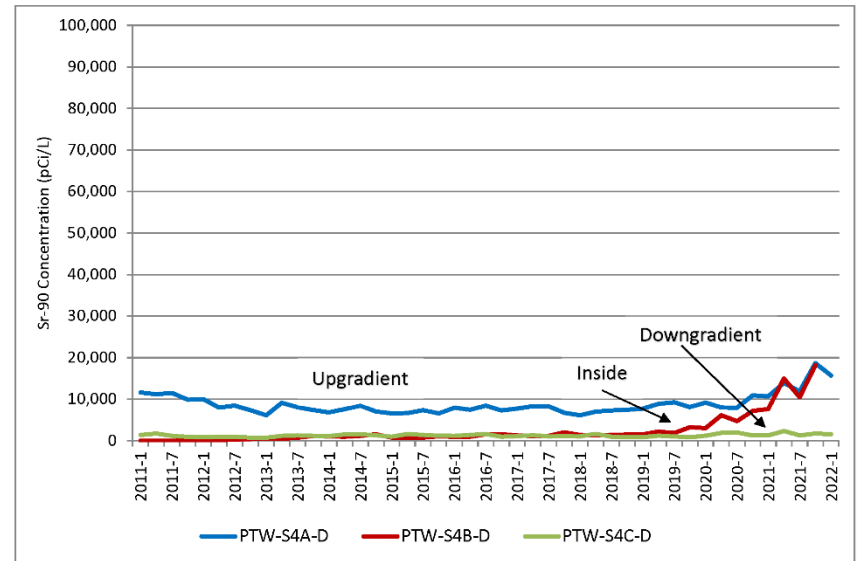
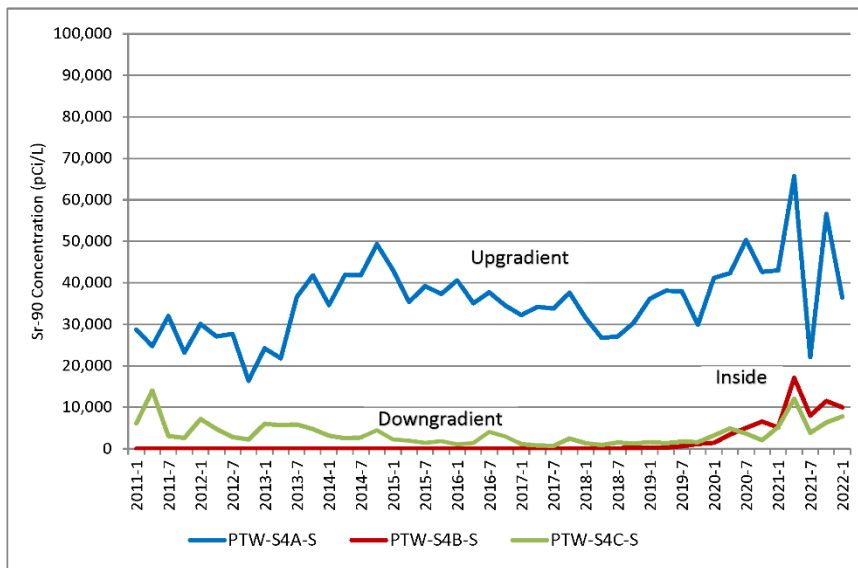
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Strontium-90 Concentrations Over Time at Station 3 in the Western Portion of the PTW (January 2011 – January 2022)

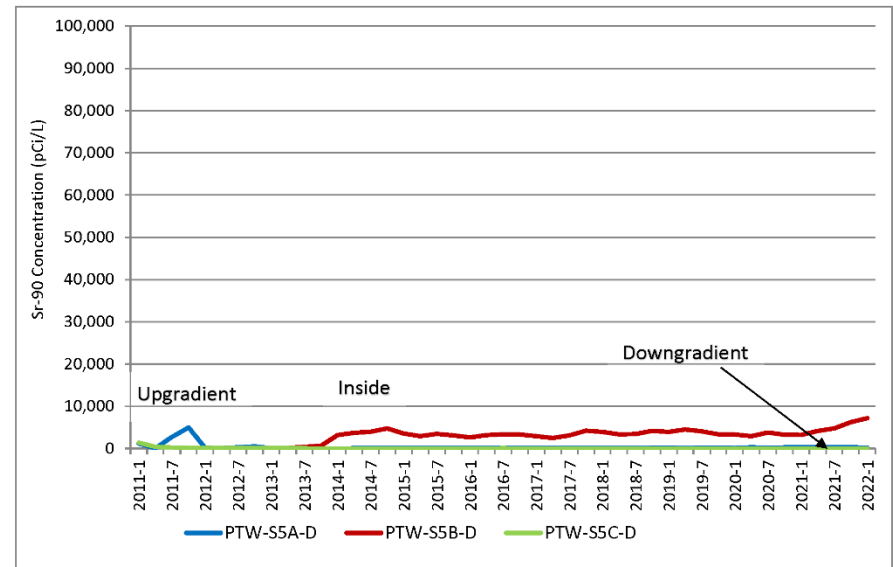
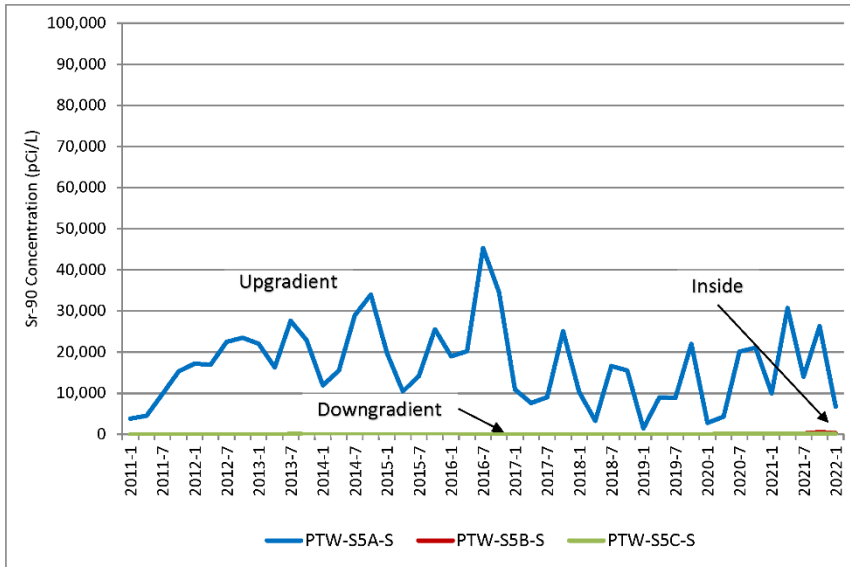


WVDP-Permeable Treatment Wall Update

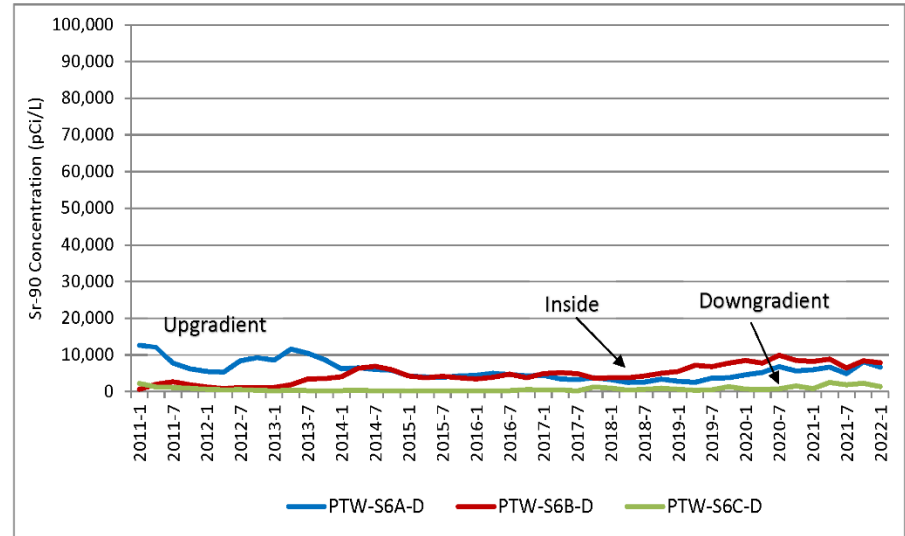
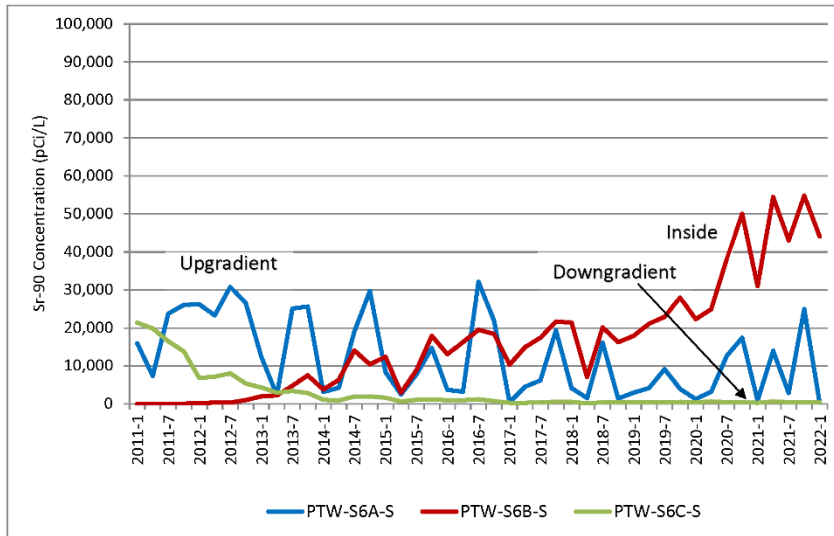
Strontium-90 Concentrations Over Time at Station 4 In the Western Portion of the PTW (January 2011 – January 2022)



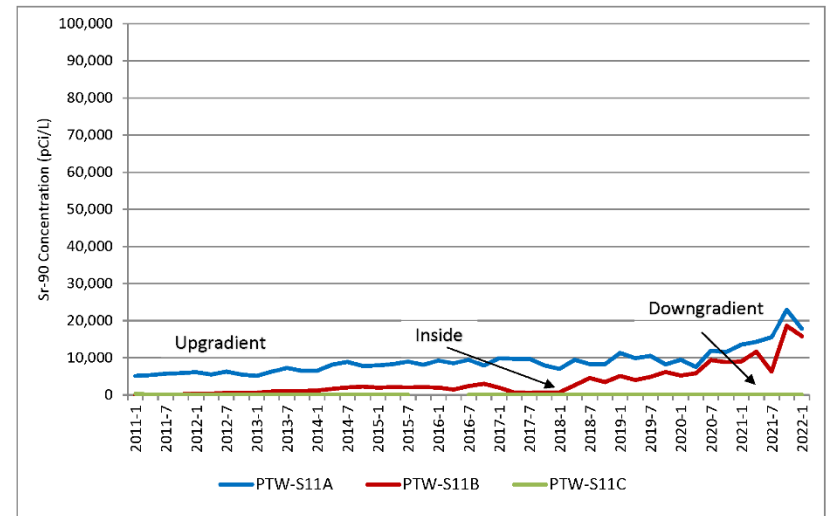
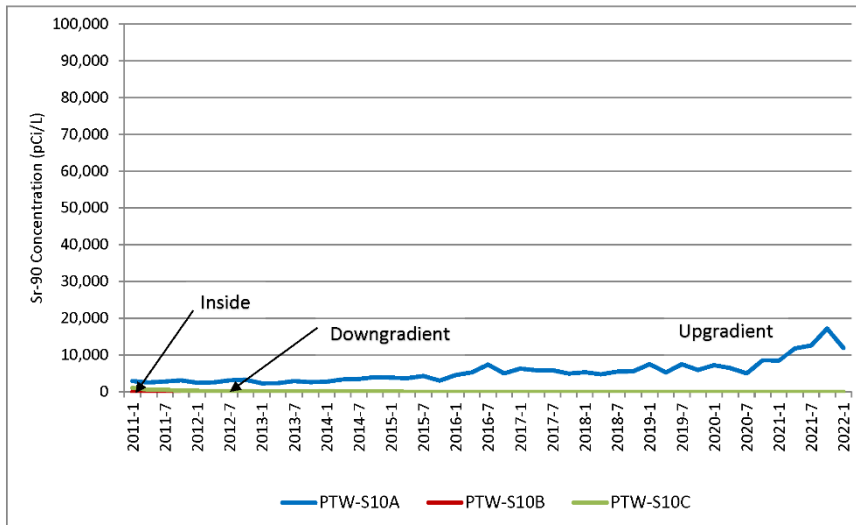
Strontium-90 Concentrations Over Time at Station 5 in the Central Portion of the PTW (January 2011 – January 2022)



Strontium-90 Concentrations Over Time at Station 6 In the Central Portion of the PTW (January 2011 – January 2022)



Strontium-90 Concentrations Over Time at Stations 10 and 11 in the Eastern Portion of the PTW (January 2011 – January 2022)



Groundwater Chemistry Observations

- PTW zeolite treatment media : natural mineral (clinoptilolite)
 - Contains high concentrations of sodium and potassium compounds, in addition to others
- General concentration trends as water is treated through PTW:
 - Strontium and other elements, such as calcium, are removed from the groundwater with their concentrations decreasing downgradient.
 - Sodium and potassium are released into the groundwater from the treatment media, and their concentrations increase downgradient.
- Monitoring results from recent years show some concentration increases in natural chemical constituents such as sodium and chloride in upgradient monitoring wells.
 - This appears to be related to site road and parking lot winter salting activities.
 - Ice melt application was modified this past winter season to a similar mixture of salt and sand as was previously used.

Path Forward

- Supplemental groundwater sampling has been performed to further evaluate the groundwater chemistry with evaluation ongoing.
 - Winter/Spring 2022 monitoring results will be used to evaluate the effects of the change in ice melt usage.
- Given that the PTW has performed well for over 11 years, consider additional, focused investigation to support the goal of enhancing the longevity of the PTW.
- Evaluate potential options to enhance treatment performance and the longevity of the PTW.