U.S. DEPARTMENT OF ENERGY | OFFICE OF ENVIRONMENTAL MANAGEMENT

Permeable Treatment Wall Update

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Summary – Design Requirements

Summarized PTW Functional Design Requirements

- Limit expansion of Sr-90 contaminated groundwater
- Demonstrate overall stable or downward trend in the Sr-90 in groundwater passing through the PTW
- Prevent redirection of Sr-90 contamination to less contaminated areas
- Preclude substantial changes in groundwater flow
- Maintain passive mitigation system with minimum maintenance and waste generation
- Maintain PTW groundwater monitoring
- Preclude any limitation on strategies for addressing the plume during site decommissioning
- Expended PTW media (e.g., zeolite) is removable

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Monitoring and Maintenance

- PTW Installation: Completed November 2010
- Monitoring System:
  - 66 wells installed – December 2010
  - 22 existing (off- platform wells)
- Monitoring Activities:
  - Monthly visual inspections (erosion, standing water, rutting, excessive vegetation growth)
  - Hydraulic (water level) monitoring – January 2011 to January 2012
  - Baseline sampling & monitoring – Completed January 2011
  - Quarterly sampling and monitoring – Ongoing beginning in April 2011
  - Expanded Annual sampling and monitoring – Ongoing beginning in January 2012
  - Five Year Comprehensive sampling and monitoring – Beginning in January 2015

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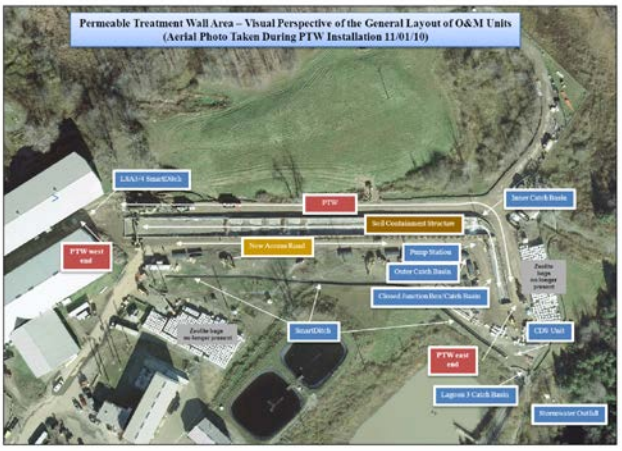
System Operation and Maintenance



- O&M Plan followed
- Road salt and limestone use restrictions
- Minor O&M of PTW itself
- Periodic inspections/ maintenance of:
  - Soil containment structure
  - Storm water system
- SWPPP Notice of Termination filed August 2011
- Relocated Outfall S09 data submitted January 2013

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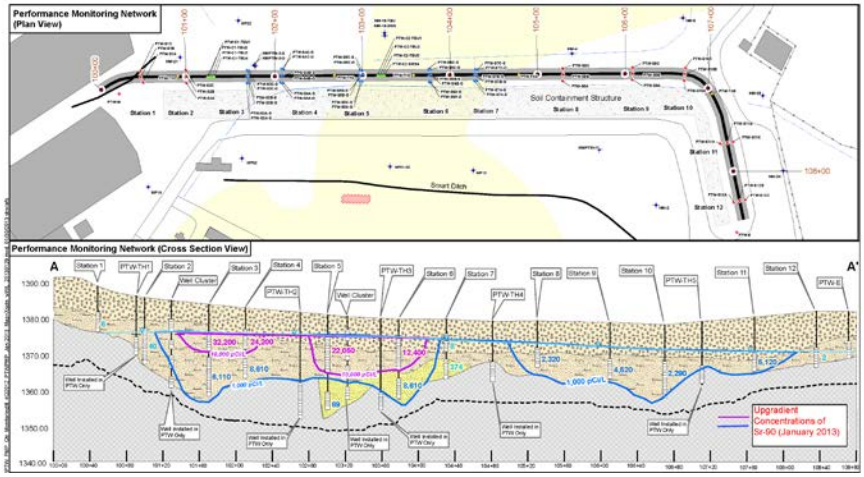
Performance Sampling and Monitoring



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Sampling and Monitoring Indications

- Inspections: No significant erosion or standing water, monitoring wells in good condition, and only minor maintenance actions
- PTW does not substantially alter groundwater flow on the North Plateau
- Sampling continues to indicate effective removal of Sr-90:
  - Down-gradient platform wells exhibiting significant decreases in Sr-90
- Functional Design Requirements continue to be met

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Sampling and Monitoring Indications

- The PTW is a large and complex system – expected local variation in performance observed:
  - Sr-90 detected in 6 intra-PTW wells
    - 4 intra-PTW wells with elevated or upward trending Sr-90 Concentrations
    - 2 wells exceed DOE Derived Concentration Standard (1,100 pCi/L)
      - PTW-S6B-D Sr-90 concentration = 1,150 pCi/L
      - PTW-S6B-S Sr-90 concentrations = 1,930 pCi/l
  - One down-gradient well has exhibited Sr-90 levels that exceed up-gradient concentrations since the baseline, January 2011 sampling
    - This is the result of localized west to east groundwater flow
    - Concentrations in this down-gradient well have decreased since 2011

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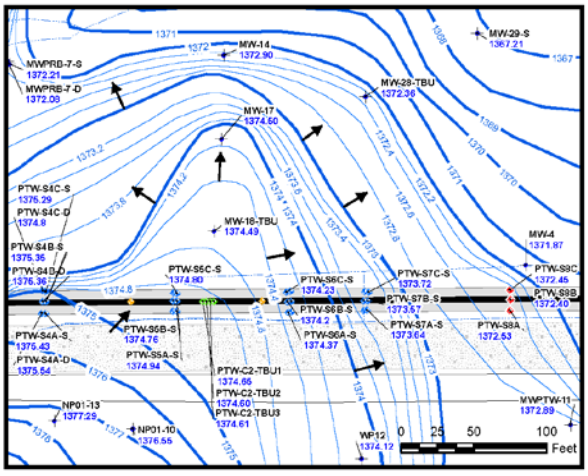
Hydraulic Gradient in Thick Bedded Unit



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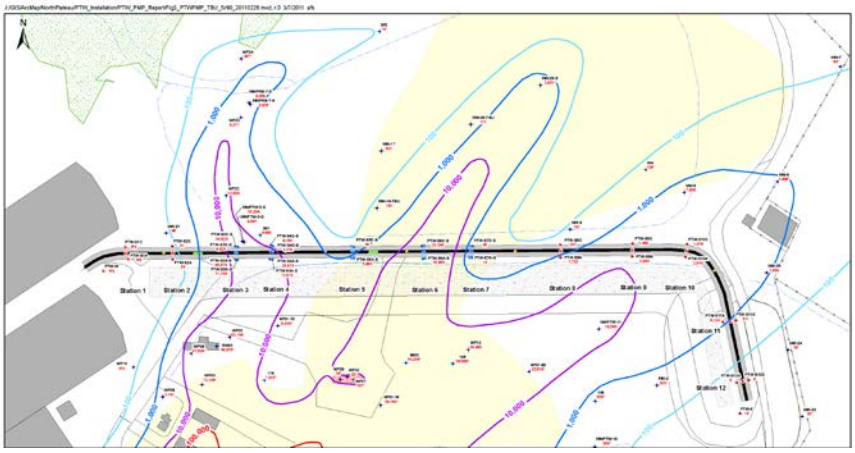
Sr-90 Plume Delineation in Thick Bedded Unit (January 2011 Baseline)



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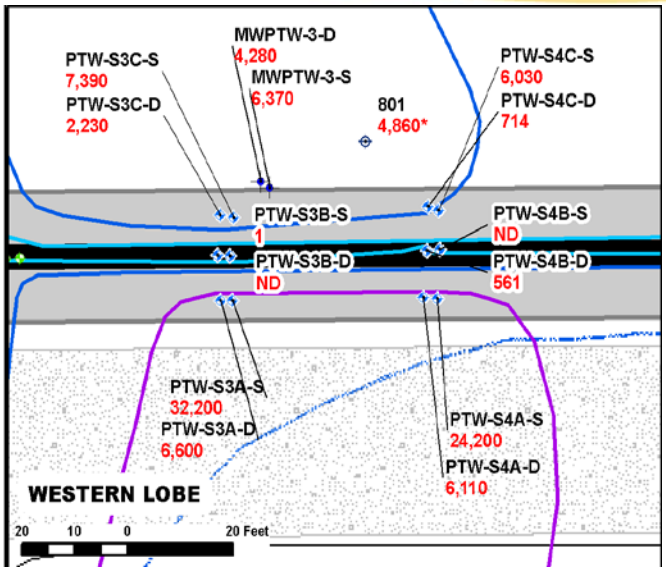
Sr-90 Plume Delineation in Thick Bedded Unit (January 2013)



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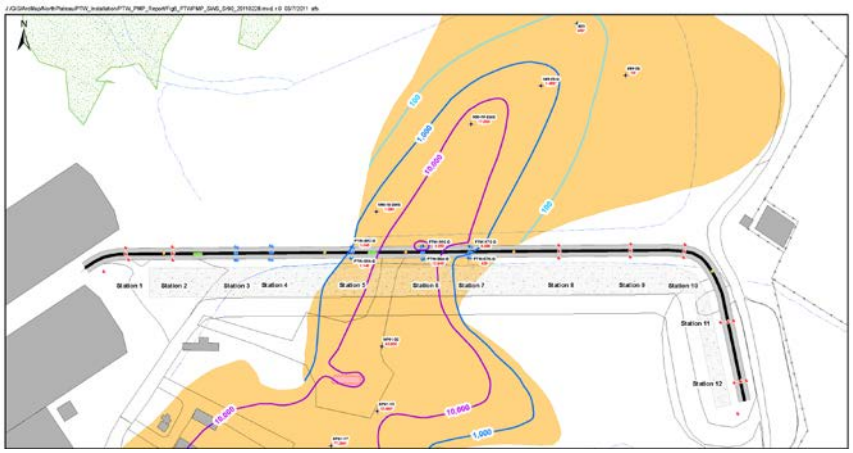
Sr-90 Plume Delineation in Slack Water Sequence (January 2011 Baseline)



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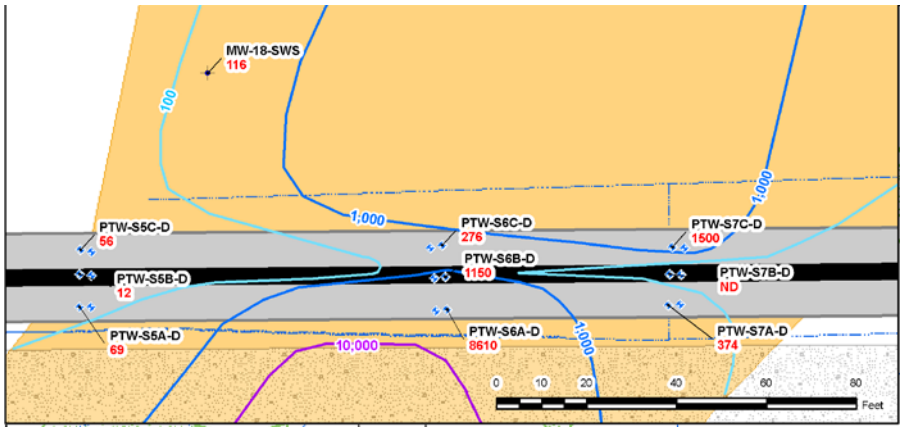
Sr-90 Plume Delineation in Slack Water Sequence (January 2013)



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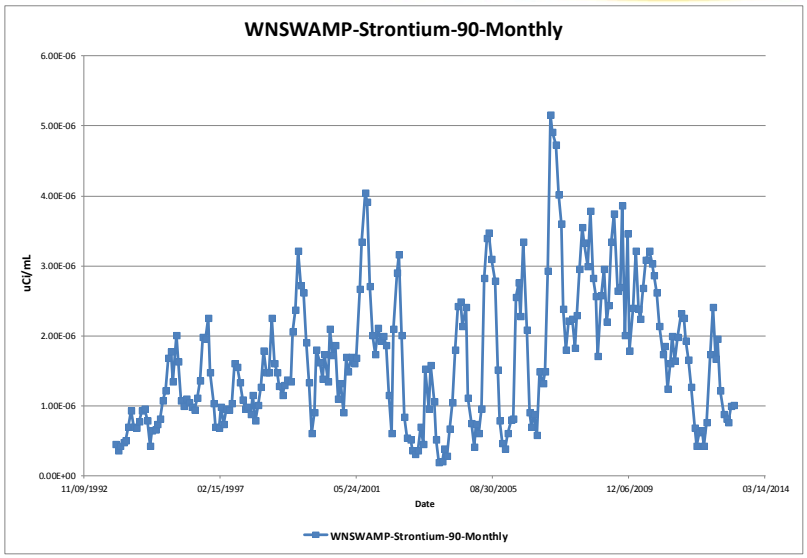
Swamp Ditch Sr-90 Concentrations



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Conclusions and Future Actions

- PTW continues to perform as designed
  - Continue quarterly monitoring and performance evaluations, document in annual reports
  - Continue monitoring and observation of intra-PTW well Sr-90 concentrations
- Passive System – DOE 2012 Sustainability Award Honorable Mention
- Review PTW (WVDP-512) and North Plateau (WVDP-518) monitoring procedure manuals
  - Evaluate for program improvements/efficiencies/enhancements
  - Coordinate any changes to monitoring and sampling through DOE-WVDP

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Questions