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**West Valley Demonstration Project
Decommissioning Successes & Challenges**

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Session # 69

West Valley Demonstration Project (WVDP) Mission

The WVDP mission was defined by an act of Congress in 1980 – Public Law 98-368

- Solidify the high-level radioactive waste at the Center *Completed*
 - 99.7% of the curies in the tanks were vitrified and the glass is contained in 275 stainless steel canisters
- Develop containers suitable for permanent disposal of the waste *Completed*
- Transport the solidified waste to a federal repository for permanent disposal *Pending Repository*
- Dispose of low-level radioactive waste and transuranic waste *In Progress*
- Decontaminate and decommission the underground high-level waste tanks, facilities and any material and hardware used in connection with the Project *In Progress*



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WVDP Accomplishments/Successes

Commercial reprocessing plant sitting idle—WVDP Act signed into law in 1980

Processed, packaged, stored TRU waste on site

Processed, packaged, shipped LLW to offsite disposal

Project cost through vitrification - \$1.75 B
2 of 5 WVDP Act mandates fulfilled

\$0.5 B



1982 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 2000 01 02 03 04 05 06 07 08 09 10 11 2012

Shipped 625 spent fuel assemblies to owners

Started HLW pretreatment systems

Completed HLW pretreatment

Vitrified 24 million curies of HLW

Began Remote-Handled Waste Facility operations

Shipped 125 spent fuel assemblies to INL

Footprint reduction

Dismantled Vitrification Cell

Published Record of Decision for Phase 1 Decommissioning

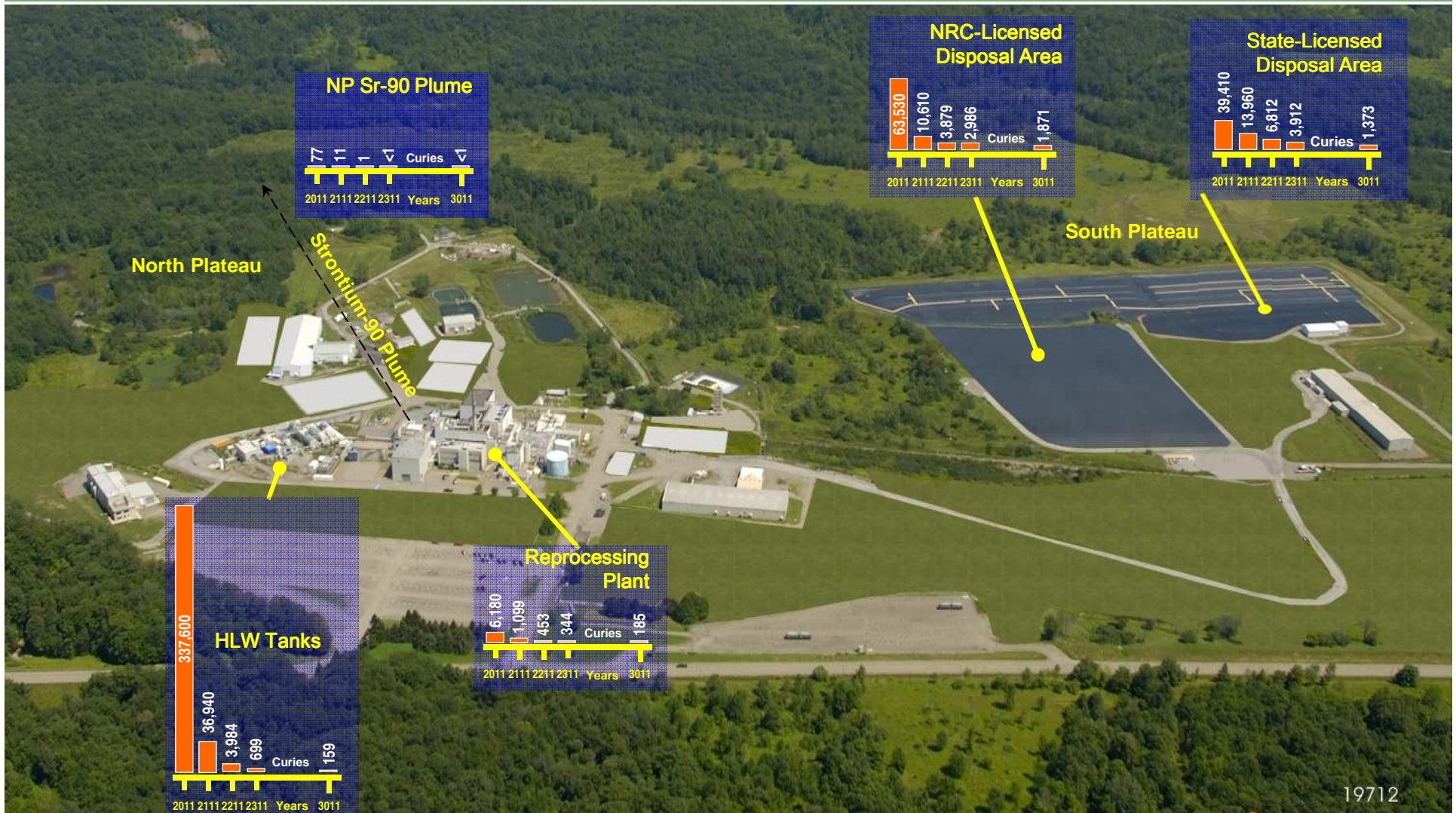


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Projected Radionuclide Inventory Over Time



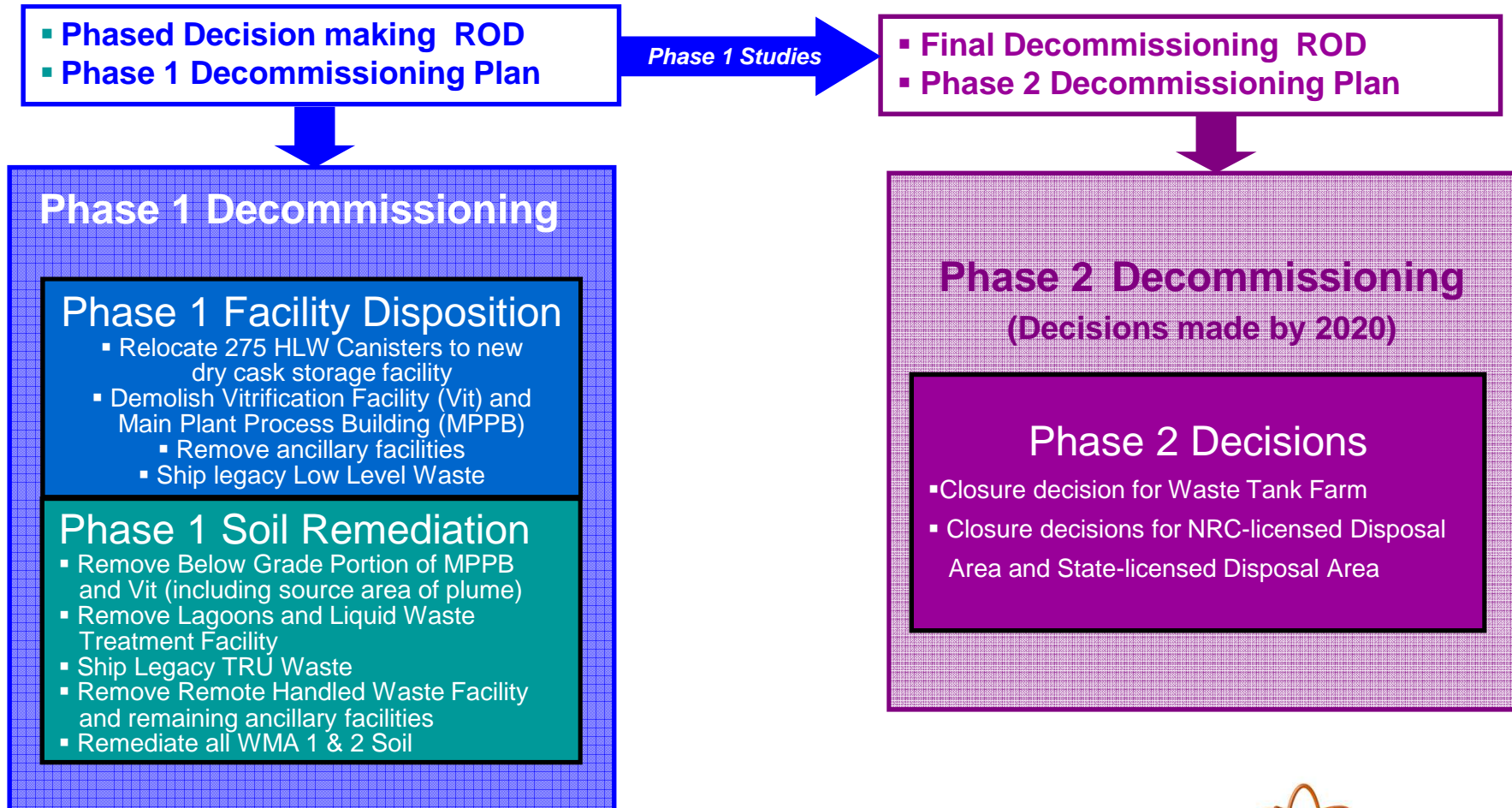
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Phased Decisionmaking

In 2010, DOE published the Final Environmental Impact Statement and Record of Decision (ROD) for Decommissioning and/or Long-Term Stewardship at the West Valley Demonstration Project and the Western New York Nuclear Service Center

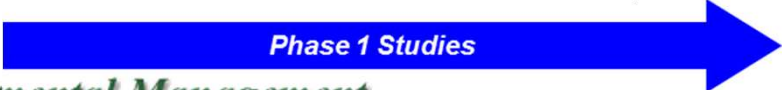
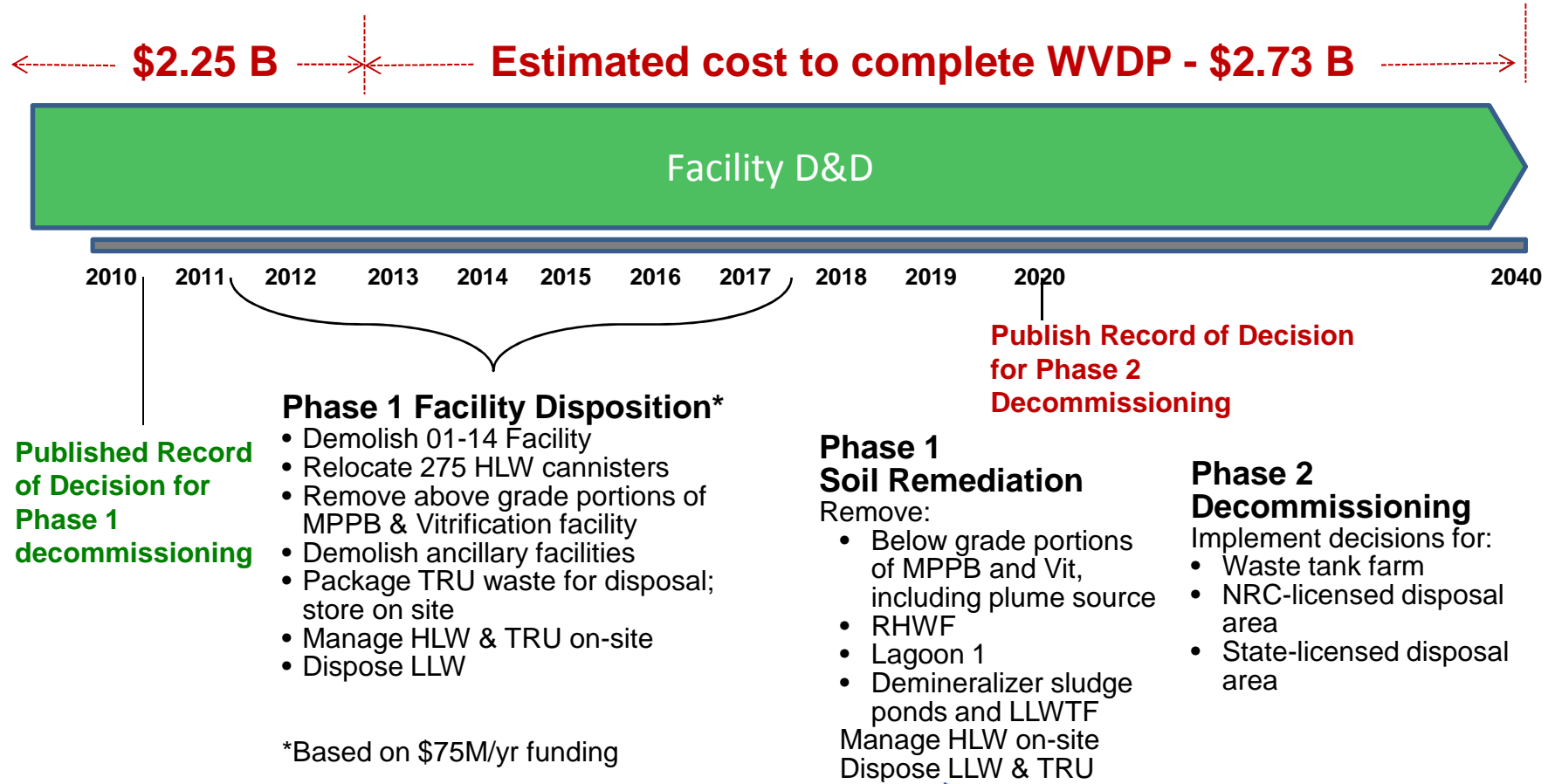


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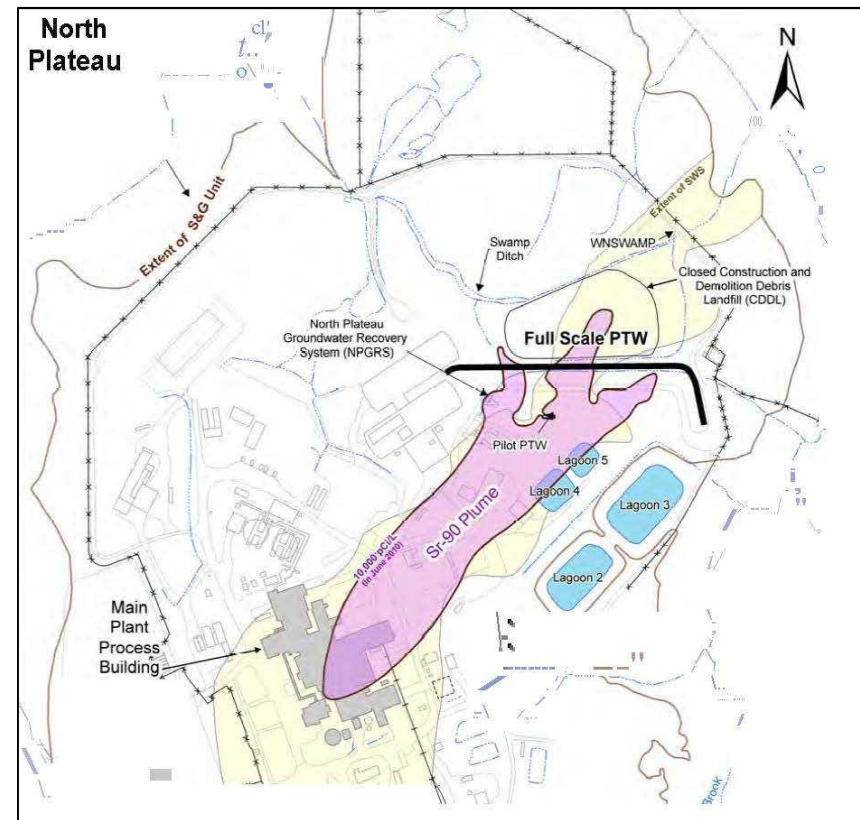
Decommissioning Timeline



Phase 1 Decommissioning Accomplishments

- Installed full scale, 860-ft, zeolite-filled permeable treatment wall to capture Sr-90 in groundwater
- Installed a slurry wall and geomembrane cover at the NRC-licensed disposal area to reduce infiltration of ground water and runoff

Permeable Treatment Wall



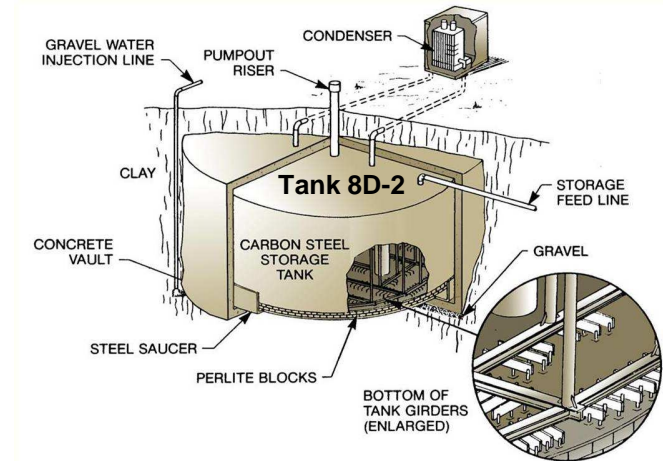
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Accomplishments continued

- Installed dehumidification system to evaporate residual liquid from 4 underground tanks that formerly held HLW
 - 750,000 gal tanks, 8D-1 & 8D-2, are dry
 - 15,000 gal tank 8D-3 nearly dry
 - 15,000 gal tank 8D-4, with ~5000 gal of mixed waste, will be dry in 5-8 yrs; pH adjustments will mitigate corrosion



New ventilation ductwork and desiccant drier



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Accomplishments continued

- Substantial progress toward removal of site facilities and off-site disposal of legacy low-level waste
 - Shipped ~20,000 drums of treated supernatant waste
- Demolition of 01-14 building underway
- Vitrification facility components removed and staged for disposal

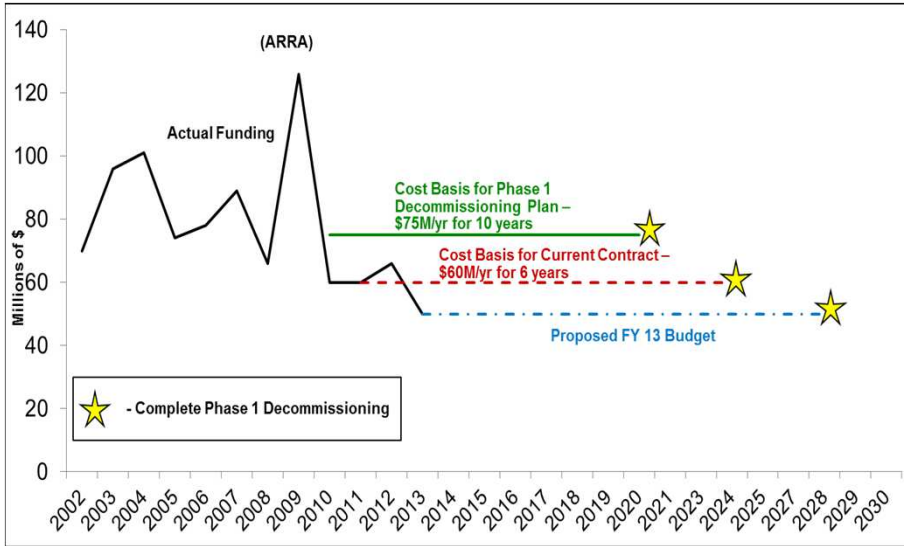


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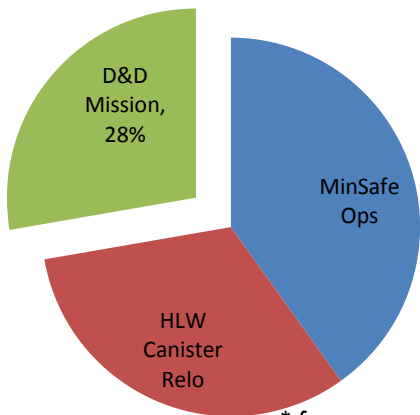
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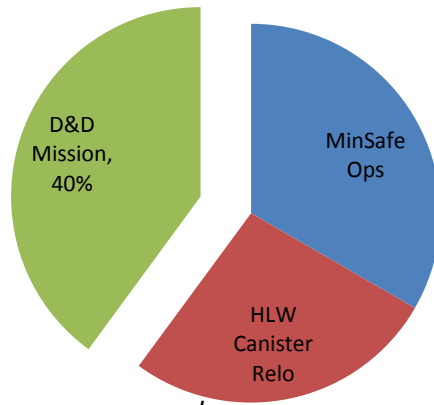
Challenge for WVDP Completion: Funding



Funded at \$49.9M*



Funded at \$60.0M*



* for comparison purposes only



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Funding priorities

- ~\$20M/yr for min safe operations
- HLW canister relocation (**critical path**)

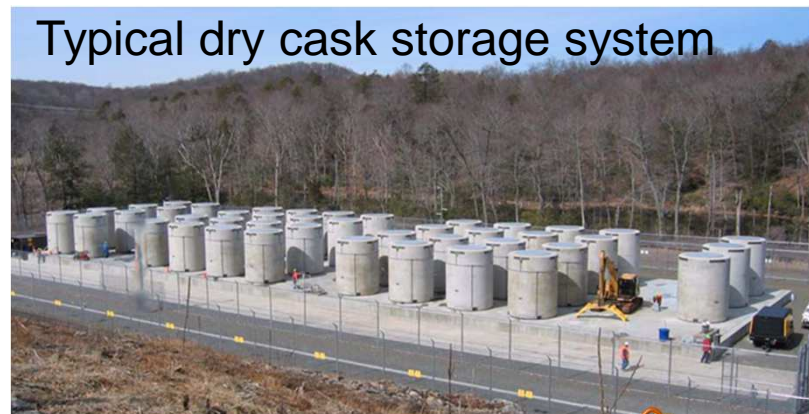
Impacts of reduced funding

- Delays scheduled activities
 - Waste shipments
 - Demolition of facilities
- Increases costs
 - Upgrades/maintenance of waste storage facilities
 - Continued monitoring & maintenance of waste in storage
 - Continued monitoring & maintenance of facilities slated for demolition



Challenge: Main Plant Process Building Demolition

- Relocating waste from Main Plant's High Level Waste Interim Storage to a stand alone dry cask storage system:
 - 275 HLW canisters
 - 2 evacuated canisters
 - 1 non-routine HLW canister
 - 2 drums of spent nuclear fuel (SNF) debris
- Use current licensed SNF shipping cask multi-purpose canister overpacks and current SNF cask designs:
 - 5 HLW canisters per package
 - 3 canisters in separate cask (2 evacuated canisters and 1 non-routine canister)
 - SNF debris in separate cask



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Challenge: MPPB Demolition continued

- Impact of reduced funding:
 - Schedule for relocating HLW canisters will lengthen
 - Time to place plant in cold, dark, & dry condition will lengthen
 - Maintenance costs will increase
 - Demolition will be delayed

Example: MPPB

- Roof
- Ventilation
- Utilities



Main Plant Process Building & associated facilities



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Challenge: TRU Disposal

- WVDP transuranic waste is non-defense
- Disposal of WVDP TRU at the Waste Isolation Pilot Plant would require Congressional action
- Costly and time consuming to meet WIPP specs for high activity waste
 - TRU packaging requirements continue to evolve
 - Previously packaged waste may not meet current standards
 - WIPP schedule to package for transport or disposal



The Horizontal Emplacement and Retrieval Equipment (HERE) is used to push remote-handled transuranic waste into horizontal boreholes in the disposal room walls.



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Challenge: TRU Disposal continued

- DOE reviewing options for disposal of greater-than-class-C (GTCC) low level radioactive waste and GTCC-like waste through the GTCC environmental impact statement (EIS)
 - Potential disposal sites include generic commercial sites, WIPP, and 5 additional DOE sites
 - EPA is participating as a cooperating agency
 - NRC is participating as a commenting agency
- Prolonged storage of TRU at WVDP will slow decommissioning progress, i.e. need to maintain storage facilities



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Phase 2 Decommissioning Decisions

- Final decommissioning decisions are yet to be made
 - Underground storage tanks
 - NRC-licensed disposal area
 - State-licensed disposal area
- Phase 1 studies will aid decommissioning decisions for the Phase 2 ROD in 2020

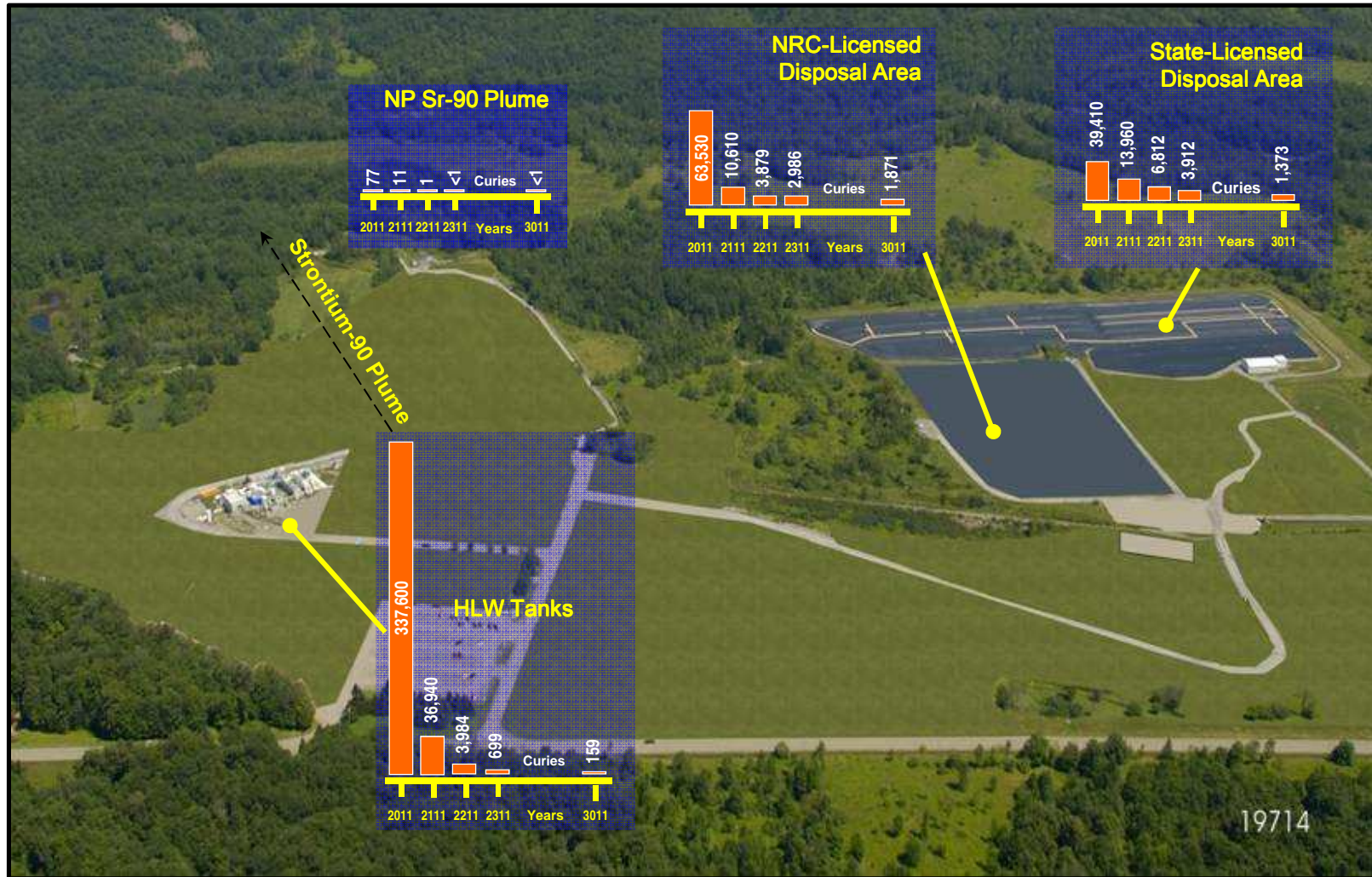


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The WVDP Vision for 2020



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