American Recovery and Reinvestment Act Projects at the WVDP

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Safety

#1 Safety ranking in DOE's Office of Environmental Management

• Overall Project Stats:
  – Total Recordable Case Rate (TRC) 0
  – Days Away, Restricted, Transferred (DART) 0
  – Safe work hours since last lost-time work accident 2,066,842

• Recovery Act Safety Stats:
  – TRC 0
  – DART 0
  – Safe work hours 114,473

Star of Excellence
Recovery Act Projects

$74M

The Projects
- Accelerate decontamination of the Main Plant Process Building (MPPB) in preparation for demolition
- Install solidification system for Main Plant liquids
- Install Tank and Vault Drying System
- Accelerate stored waste processing/packaging
- Install Permeable Treatment Wall to mitigate North Plateau Sr-90 plume
- Remove 01-14 Building

The People
- 54 new hires, 10 additional new hires expected to start Nov 30

Main Plant D&D

- Accelerate work activities in the MPPB to accomplish removal of residual process vessels and piping from the facility by June 30, 2011
- Targeted areas are:
  - Off-Gas Cell and Off-Gas Blower Room
  - Uranium Load-Out area
  - Liquid Waste Cell
  - Miscellaneous Piping in Process Aisles
  - Fuel Receiving and Storage
  - Asbestos-Containing Material Removal
  - Ventilation Exhaust Cell functional replacement in kind
- This scope integrates with related removal scopes from existing Project baseline that includes the Acid Recovery Cell, Hot Acid Cell, and Extraction Cells 1 and 3
Main Plant D&D (cont)

- MPPB
  - Acid Recovery Cell (ARC)
    - Completed in-cell equipment removal and applied spray fixative
    - Core drilling through wall of cell into adjacent Off-Gas Cell to prepare for Off-Gas Cell D&D
  - Extraction Cell-3 (XC-3)
    - 100% of process piping removed from cell
    - 11 of 14 vessels removed to date
    - In-cell work to be complete in January 2010
  - Head End Cells
    - Decontaminating the Process Mechanical Cell Crane Room Extension (PMCRE)

Main Plant Liquids Solidification

- Solidify ~7,500 gallons of residual liquids from flushing the Liquid Waste Treatment System tank in the Main Plant (Tank 5D-15A1 in the Uranium Product Cell)
  - Will use process similar to that used for solidifying the sodium-bearing waste in 2004
    - Process knowledge
    - Lessons learned
  - System will be placed in the Fuel Receiving Storage area, for potential future reuse during Main Plant decommissioning
## Main Plant Liquids Solidification (cont)

- **Major Tasks**
  - Develop recipe
  - Design Systems: waste liquid feed, dry ingredient feed, controls, ventilation
  - Revise and submit RCRA Part A permit application
  - Procure equipment, install and check-out
  - Develop waste profile, obtain NTS approval
  - Train personnel
  - Conduct readiness evaluation
  - Verify stabilization to land disposal restrictions and compliance with waste acceptance criteria
  - Ship waste containers to disposal site

  ![IP-2 containers](https://www.em.doe.gov/20398_7)

  IP-2 containers, like the ones used for shipping sodium-bearing waste in 2004 shown above, will be used for this project.

## Tank & Vault Drying System

- **Design, install and operate the Tank and Vault Drying system in all four underground storage tanks and the three associated vaults by December 31, 2010**
  - Solidification of Tank 8D-4 liquids (including the Decontaminated Tank 8D-4 liquid) will be completed by June 30, 2011
  - Integrate Recovery Act scope with the following scope:
    - Waste Tank Farm isolation
    - HLW Tank characterization
    - Liquid removal from the STS vessels
    - Groundwater infiltration mitigation

  ![Tank & Vault Drying System](https://www.em.doe.gov/20398_8)

  ![Park 2.jpg](https://www.em.doe.gov/20398_8)
Tank & Vault Drying System (cont)

- The T&VDS will:
  - Eliminate liquid heels in Tanks 8D-1, 8D-2, 8D-3 and 8D-4
  - Reduce the risk and consequences of a tank leak
  - Reduce the relative humidity of the air inside the tanks, and between the vaults and the tanks
  - Reduce corrosion and prolong the lives of the tanks
  - Additional decontamination of 8D-4 liquid
  - Solidification of decontaminated 8D-4 liquid and shipment for disposal

Radioactive Waste Management

- Accelerate processing of Contact Handled-Transuranic (CH-TRU) waste, legacy (stored) Low-Level Waste (LLW), and Mixed LLW (MLLW) for offsite disposal by December 31, 2010
  - Two strategies:
    - Process 5,100 ft³ of legacy LLW and MLLW off-site
      - Procurement underway
    - Employ a second crew to accelerate legacy CH-TRU processing on-site
      - Second crew deployed in October
      - Combination of new and experienced operators
  - Modifications made to enable CH-TRU waste processing in two facilities
    - Waste Packaging Area (WPA)
    - Container Sorting and Packaging Facility (CSPF)
Sr-90 Groundwater Plume

- Install a permeable reactive in-ground barrier that will contain a naturally-occurring mineral (zeolite) to remove Strontium-90 from groundwater by adsorption as the groundwater passes through the barrier by December 2010
  - Major activities include:
    - Install barrier using a continuous trencher that can excavate trench to required depth and width, and place zeolite in excavation
    - WVES partnering with University at Buffalo and AMEC Geomatrix

Sr-90 Groundwater Plume (cont)

- Recent Actions
  - September
    - Completed report on field characterization of the plume
  - October
    - Completed draft zeolite testing laboratory report
  - November
    - Conducted preliminary permeable treatment wall design review
    - Conducted test of zeolite installation using one-pass trenching equipment
Remove 01-14 Building

• Decontaminate and demolish the 01-14 Building
  – Reduce future infrastructure and support costs
  – Provide a model for demonstrating demolition techniques and cost data directly applicable to the future potential Main Plant demolition

Remove 01-14 Building (cont)

• Demolition Preps are underway
  – Isolate electrical equipment
  – Drain and sever incoming and outgoing piping runs for steam, water, air, chemical and process piping, communications lines
  – Cap and air-gap utility lines
  – Isolate and stabilize filter bank with filters
  – Remove remaining process piping
  – Isolate, stabilize and prepare the Waste Dispensing Vessel for removal during demolition

• Demolition contractor mobilize June 2010
• Demolition complete October 2010