



The Experimental Breeder Reactor II D&D Review and Status

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Idaho
Cleanup
Project

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Review

- Alternative 3 - Grouting the EBR-II Reactor Vessel in place and Demolition of the Containment Building
- Continuous progress being made in:
 - Asbestos and lead removal
 - Mechanical and electrical isolations
- Sodium treatment
 - Elemental sodium treatment completed
 - Preparations for passivated sodium treatment
- Development of the EBR-II Historical Exhibit
 - Captures ideas from the June 2010 Focus Group



Existing Facility



*U.S. Department of Energy
Idaho Operations Office*

Alternative 3 - Conceptual End State



*U.S. Department of Energy
Idaho Operations Office*

Progress: Asbestos Abatement

- 1.3 miles of asbestos removed
- MFC-766 completed
- MFC 767 (EBR-II Reactor Building)
 - Abatement continues
 - No asbestos found in the basement
- Letter to DEQ and EPA for concurrence on leaving inaccessible asbestos in-place at MFC-795 and MFC-767 has been completed



Asbestos covered piping in MFC -766 before removal



Asbestos removal outside MFC -767



Progress: Lead Removal

- Identified approximately 800,000 lbs of lead
 - Continuing to find more (lead bricks and lead shot)
- Removed approximately 425,000 lbs of lead to date



Lead removal within MFC -767



Progress: Mechanical and Electrical Isolations/Demolition Preparations



Contents of Alcohol tanks
removed (MFC-793A)

- MFC 766 – Sodium Boiler Building
 - Isolated - temporary power
- MFC 767 Reactor Building
 - Electrical: 25%; Mechanical: 75%
- MFC 793 A – Alcohol Recovery Facility Pad and Tanks
 - Electrical: 95%; Mechanical: 100%
 - Alcohol has been removed and sent to an offsite energy recovery facility (Radiological and Sodium Contaminated)
- MFC 793 B – Alcohol Recovery Facility Annex
 - Not yet isolated
- MFC 795 – Cover Gas Cleanup System
 - Both electrical and mechanical completed



Progress: Buildings Demolished

- MFC 757 – EBR-II Cooling Tower foundation
- MFC 757A – EBR-II Cooling Tower System Building
- MFC 793E & F – Sodium Components Maintenance Shop (SCMS) Storage Buildings
- MFC 795 – Cover Gas Cleanup System (above-ground)



Demolition of MFC-795 above-ground structure



MFC 767 Demolition Preparations

- Tight area to perform Demolition
- Technologies being reviewed
- Leading option for tight area demolition
 - Water Jet Cutting



Mockup water jet demonstration



Elemental Sodium Treatment



Secondary Sodium Drain Tank in MFC-766 prior to treatment

- Super-heated steam treatment in MFC-766 Secondary Sodium Drain Tank was successfully completed in July, 2010
 - Designed by CWI and Creative Engineering
 - Skid mounted equipment built at Premier Engineering
 - Approximately 60 gallons of elemental sodium treated
- Treatment was conducted in an inert nitrogen gas atmosphere



Passivated Sodium Treatment

- Passivated sodium: the layer of sodium bicarbonate formed from previous sodium treatment technique called passivation
 - In some areas, elemental sodium still remains below this layer
- The remaining sodium is in MFC-766 east piping and MFC-767 primary reactor tank and equipment
- In situ treatment of passivated sodium will involve a citric acid treatment solution
 - A new approach to treating sodium covered by sodium bicarbonate
 - Tested extensively in the laboratory (beaker-scale testing) and in Bench-scale tests
- Will also be conducted in an inert nitrogen gas atmosphere



Passivated Sodium Treatment Continued

- The citric acid treatment solution will be used in a trickle-down flow through the pipes instead of super-heated steam
 - Acid dissolves and neutralizes sodium bicarbonate in order to reach the elemental sodium still in the pipes (about 12 gallons)
- Treatment expected to commence in February 2011



Passivated sodium inside the secondary sodium yard piping



Sodium Potassium Alloy (NaK)

- A limited quantity of NaK exists
 - Pressure transmitters (Primary and Secondary systems)
 - Shutdown cooler bayonets
- The approximately 50 gallons of NaK will also be treated using the citric acid treatment solution
 - Also tested extensively in the laboratory (beaker-scale testing) and in Bench-scale tests



Development of the EBR-II Historical Exhibit

- “Breaking ground” in early 2011
 - Demolition of existing interior walls will be conducted first
- Schedule baseline currently being worked
- Captures ideas from the June 2010 Focus Group
- Exhibit projected to be ready for viewing by Memorial Day 2011



EBR-I: Location of the EBR-II Historical Exhibit



Conceptual Views of the EBR-II Historical Exhibit



The Reactor Room Exhibit



The Control Room Exhibit



Questions

