



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

Demolition and Removal of The Stack

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BNL Community Advisory Council

November 8, 2018

This presentation

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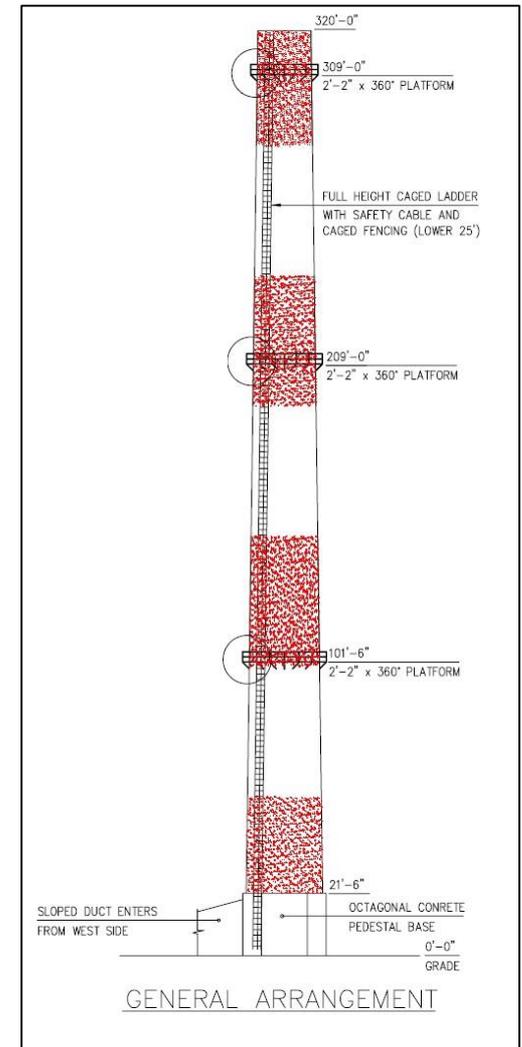
- Federal Project Director (FPD) for EM projects at BNL 2007-2013
- 29 years with DOE leading EM cleanup projects, including Fernald, Columbus, Brookhaven, and Moab.
- DOE EM Project lead for the Stack Demolition Project

Background

Project Status

Discussion and Questions/Answers

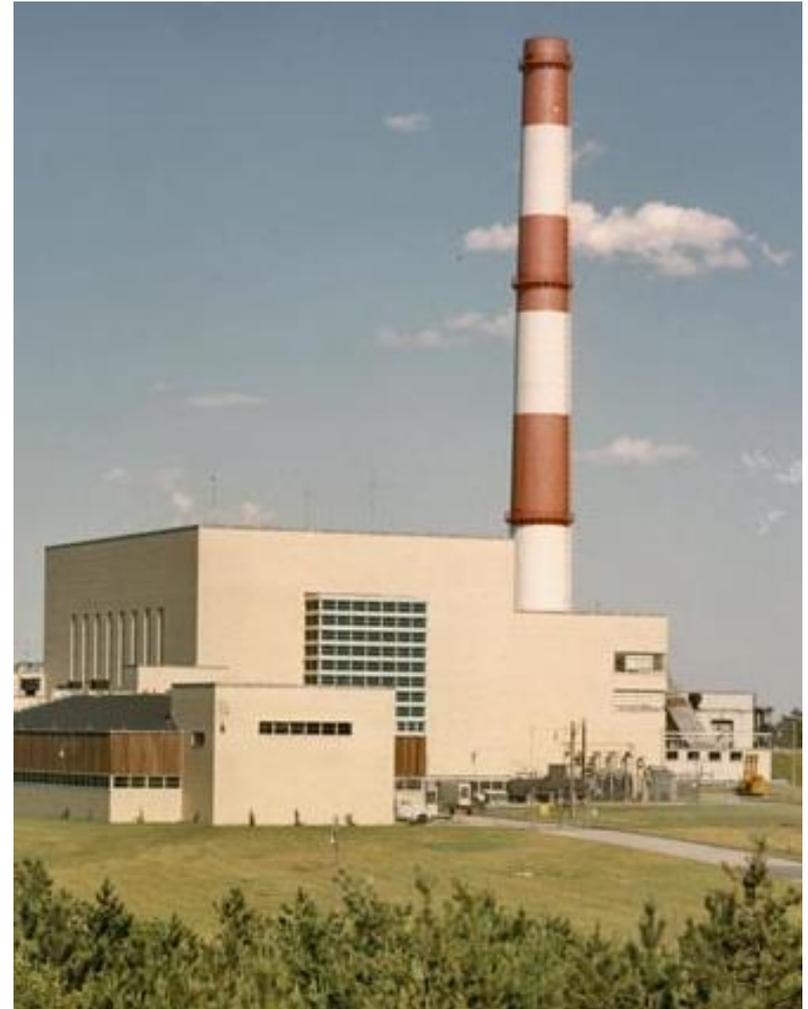
- Final Record of Decision (ROD) for the High Flux Beam Reactor (HFBR) signed in 2009.
- ROD = Agreement between DOE and US Environmental Protection Agency on remedy for final disposition for the HFBR, including its exhaust stack.
- ROD scope includes all HFBR remedial activities to be completed by the end of Fiscal Year 2020.
- All ROD scope has been completed except for removal of the HFBR exhaust stack.



HFBR-Related Cleanup Actions Already Complete

- All spent fuel was shipped to an off-site facility (1998).
- The cooling tower superstructure was dismantled and disposed of as waste (1999).
- More than 10,900 gallons of tritiated heavy water, the primary coolant for the reactor, was removed (2001).
- Shielding blocks and chemicals were removed and are being reused at the Laboratory and at other facilities (2000-2005).
- Scientific equipment was removed and is being reused or has been sent to an off-site disposal facility (2003).
- The confinement structure and spent fuel pool were modified to meet the requirements of Article 12 of the Suffolk County Sanitary Code. Article 12 regulates toxic and hazardous materials storage and handling. (2004)
- The Cold Neutron Facility was decontaminated and cleaned for reuse (2006).
- The cooling tower basin, the guard house, the electrical/pump house, the water treatment house, and the stack monitoring facility were dismantled and removed (2006).
- Control rod blades and beam plugs were removed (2009).
- Waste transfer lines were removed (2009).
- Confinement placed in long-term safe storage (2010).
- Underground utilities were excavated and removed (2010).
- Building 704 Fan House was dismantled and removed (2011).
- Building 802 Fan House was dismantled and removed (2011).
- Stack silencer baffles were removed (2011).

- Stack is 100-meter tall and made of reinforced concrete.
- Constructed in late 1940s to provide cooling-air exhaust for the Brookhaven Graphite Research Reactor (right), which operated between 1950 and 1968.
- From 1965 to 1996, the stack served the HFBR, other buildings.
- The stack, out of service since 1996, is no longer needed.



Stack removal includes:

- Isolation of utilities
- Demolition and removal of the stack
- Final status and independent verification surveys
- Waste packaging, transportation, and disposal
- Restoration of the affected site

September 2016

- Critical Decision 0 – Approval of Mission Need and Cost Range \$13.3M - \$25M

December 2017

- US Army Corps of Engineers (USACE) Analysis of Alternatives Report
 - Evaluated 8 technical alternatives against 7 evaluation criteria.

August 2018

- Critical Decision 1 (CD-1) – Approval of Alternative Selection and Cost Range of \$12.8M to \$19.3M
- Schedule completion range of FY 2020-FY 2024

Demolition Techniques

- Segmentation
- Toppling
- Scabbling
- Variations and combinations of the above

Decontamination Methods

- Fixative
- Scabbling
- Sandblasting

Seven evaluation criteria

- Completeness
- Effectiveness
- Efficiency
- Acceptability
- Lab Operations
- Environmental Considerations
- Public Perception

Now

- Interagency agreement between DOE Office of Environmental Management and the U.S. Army Corps of Engineers to procure demolition contractor and provide project oversight.

Funding

- FY 18 - \$2M (\$1.8M carryover)
- FY-19 - \$20.5M

Schedule

- Begin field work in spring 2019

Demolition/Removal of The Stack

Discussion and Questions/Answers