DEACTIVATED NUCLEAR POWER PLANT PROGRAM SM-1, FT BELVOIR, VA

WM2018

Session 097b US Army Corps of Engineers - Deactivated NPP Program D&D Contracting Opportunities

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TOPICS

- History
- Decommissioning Planning

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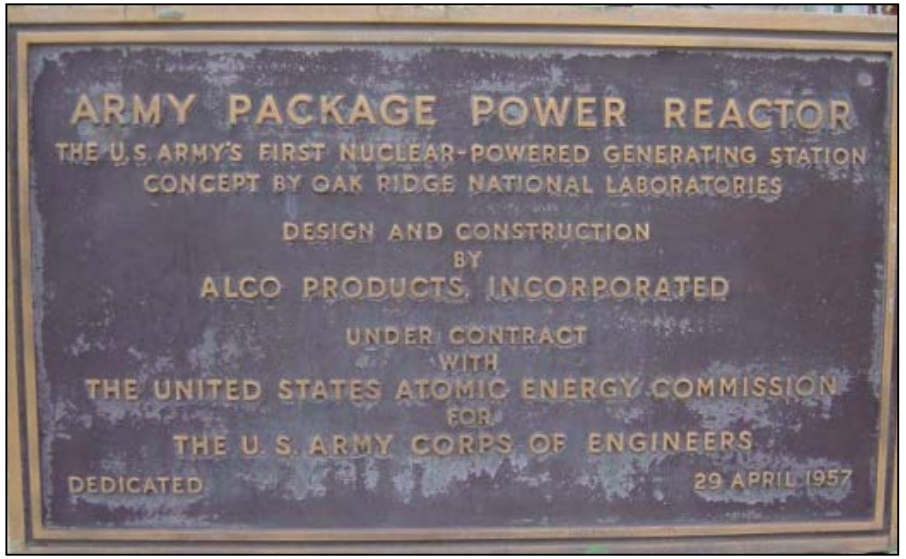
SM-1 TIMELINE: DETAILS

- SM-1 Reactor Startup: April 1957
  - Core II installed, June 1961
  - Core III installed, July 1968
- Last operation: March 1973
- Minimal Decommissioning: 1973 – November 1974
- USACHPPM Survey: October 1996
- Contractor Gamma Surveys: 1997 and 2009
- Core Component Activation Analysis: 2003
- Contractor Historical Site Assessment: 2003
- Contractor Characterization Survey Report: 2013
- Contractor Dap Gap Analysis: 2015
- Archeological Survey: 2016
- Supplemental Field Characterization: 2016

Fort Belvoir, Virginia

U.S. Army Engineer Reactors Group



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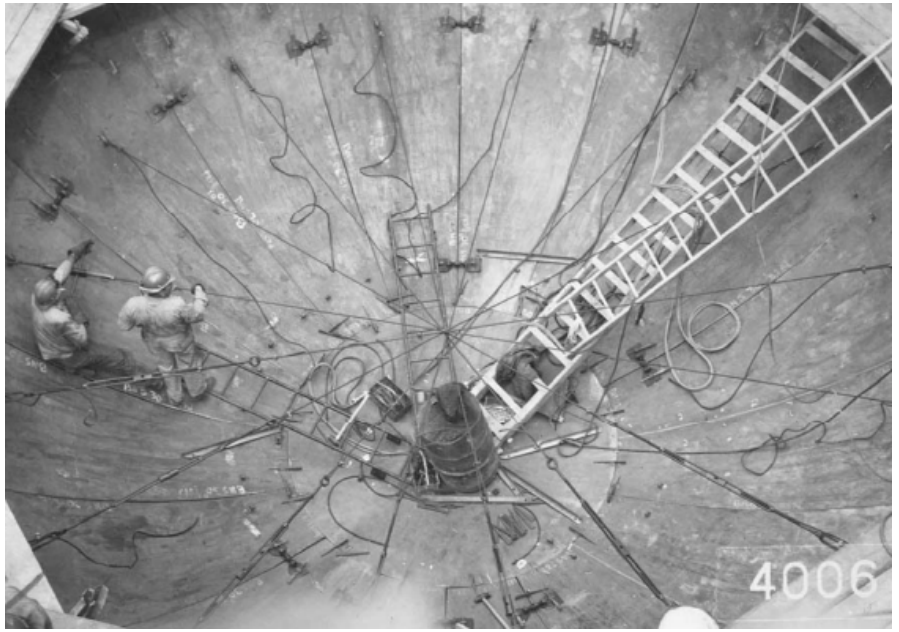

1956
Construction Photos

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PRE-SHUTDOWN DECOMMISSIONING ACTIVITIES

- Cleaned out Diesel Building
- Cleaned up Retention Building and Waste Facility
- Cleaned up “Hot Maintenance Area”
- Cleaned up secondary system
- Dug up old piping not in use
  - including discharge from retention sump (seal pit)
- Dug up selected “hot dirt areas”

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POST-SHUTDOWN DECOMMISSIONING ACTIVITIES

- Laid up systems; generally drained of oil and filled with preservative or air dried
- Shipped absorbers, fuel, and neutron sources
- Drained and flushed primary systems, including spent fuel pit
- Cut and welded penetrations to Vapor Container
- Removed contaminated piping outside of the Vapor Container (VC), including decontamination of vent and blowdown systems
- Peeled out liner, decontaminated, welded shut spent chute, installed cover on Spent fuel pit

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POST-SHUTDOWN DECOMMISSIONING ACTIVITIES

- Conducted final survey of Gunston Cove
- Cleaned and sealed VC door with chain lock system
- Filled pipe pit with concrete
- Removed Waste Facility tanks, building, and pad
- Removed Retention Building
- Removed contaminated underground piping
- Secured and posted restricted areas: Modification (MOD) area, VC, primary make-up tank room, spent fuel pit area, demineralizer room, fan loft
- Demolished Guard House (Building 373)
- Demolished Flammable Storage Building (Building 376)
- Demolished Tree House Mockup (Building A390)
- Decontaminated underground liquid radioactive waste tanks outside Training Building (Building 358) and filled them with concrete

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PRIOR CHARACTERIZATION EFFORTS TO SUPPORT DECOMMISSIONING PLANNING

- Gamma walkover surveys inside the fenced area
  - Completed in 2009; small area surveyed in 2016
- Biased and systematic soil sampling
  - Executed in 2010 and 2016
- In-plant survey to determine H-3 and alpha isotopic activity
  - Considered complete outside the VC
  - Additional samples for HTD isotopes (including H-3) collected in 2016
  - Alpha false-positive/radon analysis conducted in 2016
- Scoping surveys of buildings/sites associated with SM-1
  - Completed in 2010

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PRIOR CHARACTERIZATION EFFORTS TO SUPPORT DECOMMISSIONING PLANNING

- More extensive survey of Gunston Cove sediment
  - Completed in 2010 (20 samples collected between Whitestone Pt. and discharge pipe)
- Sampling of underground pipes
  - All pipe waste and outfall pipes assumed to be contaminated
  - Geophysical surveys to verify pipes present in 2010 and 2016
  - Investigation of sewer pipes still to be planned/executed
- Soil under SM-1 to be sampled
  - Soil is assumed to be impacted and require disposal as LLRW
  - Sampling not considered to have a significant impact on cost estimates or planning efforts

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DECOMMISSIONING PLANNING EFFORTS

- Decommissioning Planning is underway – anticipate completion by 2019
  - Contract was awarded in 2014
  - Scope includes:
    - review historical documents associated with the All Hazards Analysis
    - prepare planning documents that will support the Army Reactor Office issuing the USACE a decommissioning permit for the SM-1 reactor
    - comply with other relevant Federal and State requirements that will support the long term decommissioning planning
    - Ensure adherence of project activities to NRC, Army, and Federal standards and guidance , as well as, other Federal standards and guidance where relevant, and
    - coordinate with appropriate federal, state, and public parties to support issuance of decommissioning permit and other NEPA requirements.

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MAJOR DECOMMISSIONING PLANNING DOCUMENTS

- Final Disposal Plan, Schedule and Cost Estimate
- Waste Management Plan
- Environmental Assessment
- Section 106 Effects Assessment and agreement document
- Decommissioning Plan

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DECOMMISSIONING CHALLENGES

- Site has a small footprint and limited area for infrastructure
- Limited transportation routes off installation
- Coordination with the installation staff
- Proximity to base housing
- Proximity to the U.S. Capital

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Questions?

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