

Sturgis MH-1A Decommissioning Project Summary

US Army Corps of Engineers

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Program Manager

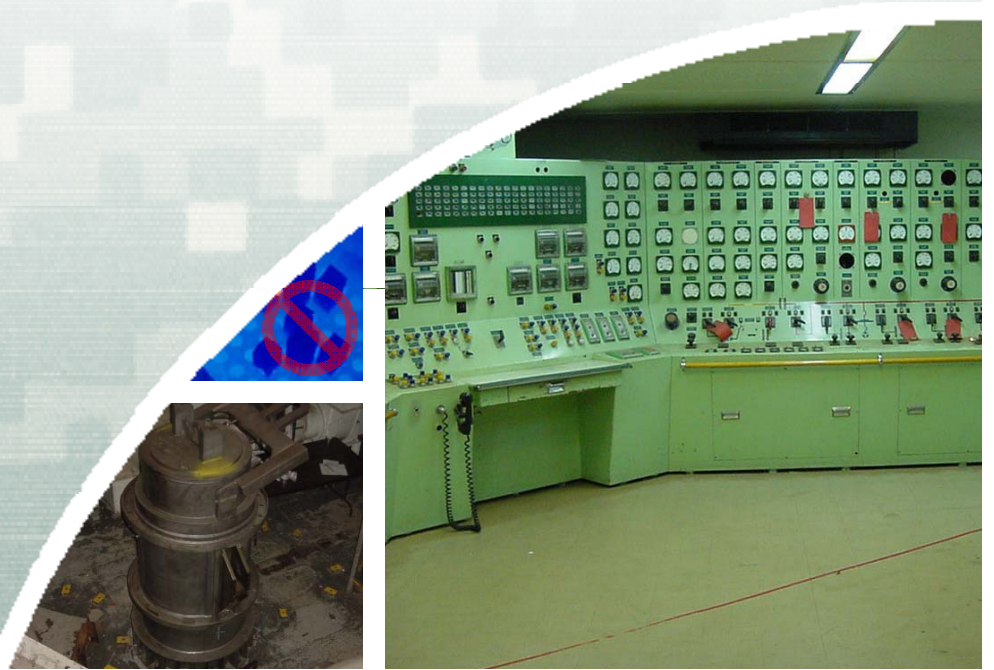
Radiological Health Physics

Regional Center of Expertise

USACE Baltimore District



US Army Corps of Engineers
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Overview

- History
- Progress to Date
 - ▶ Decommissioning Planning
 - ▶ National Environmental Policy Act (NEPA)
 - ▶ Contract Acquisition
- Planned Path Forward
 - ▶ Decommissioning Implementation
 - ▶ Oversight



History

- Former World War II Liberty Ship, SS *Charles H. Cugle*, converted into a nuclear power plant in 1966.
- The first barge mounted nuclear plant to regularly supply power to a shore station.
- The STURGIS' nuclear reactor, MH-1A, was used to generate electricity for military and civilian use in the Panama Canal from 1968-1976



History

- In 1977, the STURGIS returned to Fort Belvoir where the nuclear fuel was removed, and the vessel was prepared for safe long term storage.
- Stored and maintained in James River Reserve Fleet at Joint Base Langley-Eustis, VA since 1978.
- Corps of Engineers has performed monitoring for the past 36 years
 - ▶ No releases to environment identified

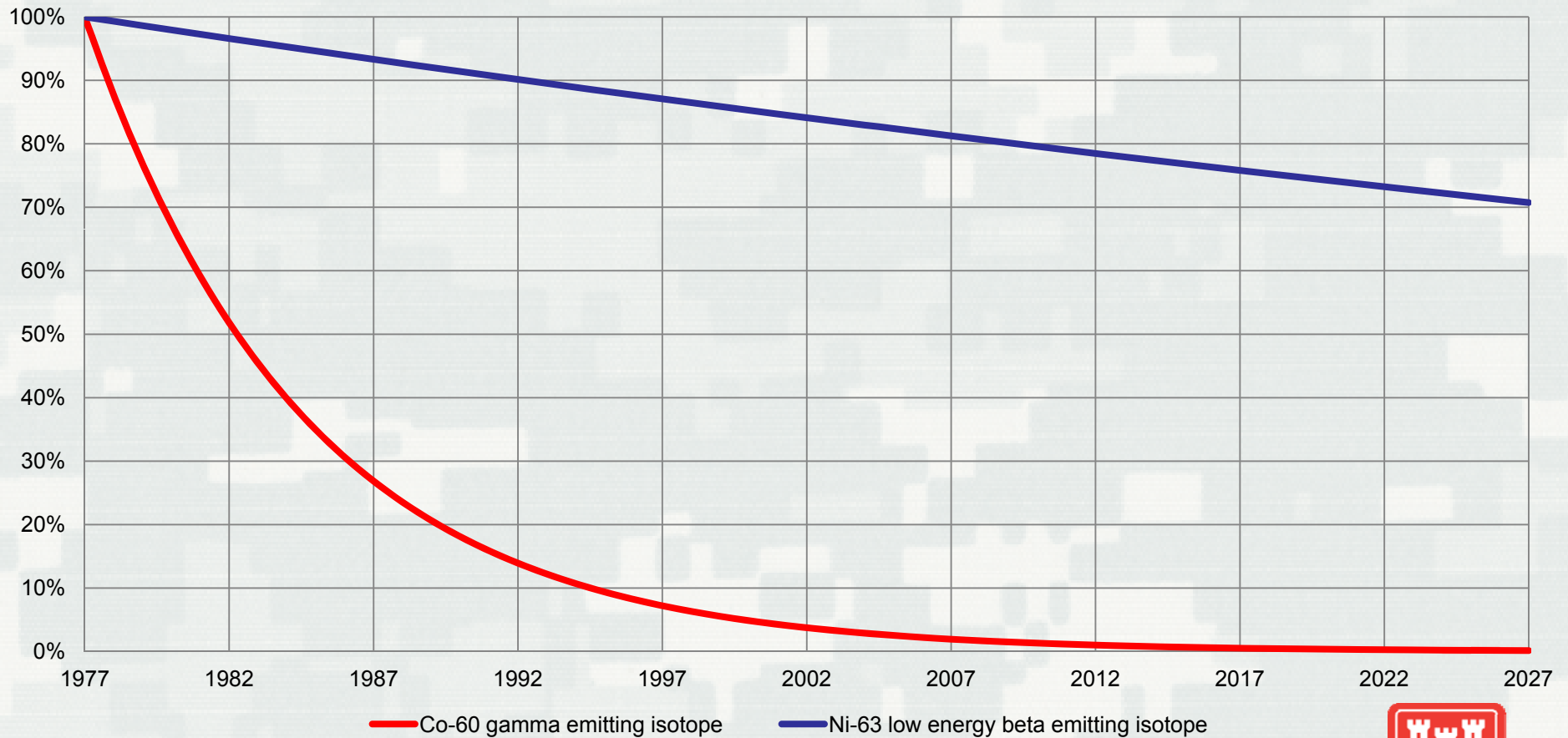


Progress to Date – Initial Data Gathering and Planning

- In 2001, characterization surveys were conducted to assess the radiological and chemical contaminants remaining
- Reports of the assessment were finalized in 2006 to summarize the field work and evaluate costs to support budget requests
 - ▶ Data collected confirmed that radiation levels have decayed as anticipated
- In 2012, funds were received to initiate decommissioning planning



Decay Chart for Primary Contaminants Associated with the MH-1A Reactor Radioactivity Since Shutdown in 1977



— Co-60 gamma emitting isotope

— Ni-63 low energy beta emitting isotope



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Progress to Date – Decommissioning Planning

- 2012 Planning included the following to support the U.S. Army issuance of a Decommissioning Permit
 - ▶ Development of Decommissioning Plan
 - ▶ Development of an Environmental Assessment (EA) and after public comment period a Finding of No Significant Impact (FNSI)
 - ▶ Development of Memorandum of Agreement to address Section 106 of the National Historical Preservation Act



Progress to Date – Environmental Assessment (EA)

- EA completed in accordance with Army implementing regulation found in 32 CFR 651
 - ▶ Specifically 32 CFR 651.12 states if the action is covered by an existing Environmental Impact Statement (EIS), but requires additional information, a supplement is prepared, considering the new, modified, or missing information and conclusions are published as either a FNSI or Notice of Intent (NOI) to supplement the EIS



Progress to Date – NRC Decommissioning Guidance

Table 1.2 Principal Regulatory Features of Decommissioning Groups

	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6	GROUP 7
Description	Sealed source, screening criteria	Screening criteria, no DP	Screening criteria, DP	Site specific, no ground water contamination	Site specific, ground water contamination	Restricted release	Alternate criteria
NEPA Compliance ^a	Categorical Exclusion	EA	EA	EA	EA	EIS	EIS
Licensee Requests Release for Restricted or Unrestricted Use	Unrestricted use	Unrestricted use	Unrestricted use	Unrestricted use	Unrestricted use	Restricted Use	Restricted use
Decommissioning Plan Required	No	No	Yes	Yes	Yes	Yes	Yes
Decommissioning Plan Review Documentation	N/A	N/A	Letter to the licensee or Safety Evaluation Report	Safety Evaluation Report	Safety Evaluation Report	Safety Evaluation Report	Safety Evaluation Report
Radioactive Material Disposition Documentation	NRC Form 314 or equivalent	NRC Form 314 or equivalent	NRC Form 314 or equivalent	NRC Form 314 or equivalent	NRC Form 314 or equivalent	NRC Form 314 or equivalent	NRC Form 314 or equivalent
Method for Demonstrating Site is Suitable for Release	Survey or demonstration	Survey or demonstration	Survey or demonstration	Site specific	Site specific	Site specific	Site specific
Confirmatory or Side-by Side Survey	Not Customary	Depends on licensee's survey and radioactive material use at facility	Depends on licensee's survey and radioactive material use at facility	Yes	Yes	Yes	Yes
Closeout Inspection	No	As appropriate	As appropriate	Yes	Yes	Yes	Yes
<i>Federal Register</i> Notices used to Inform the Public of Staff Actions	No	Yes--(1) announce FONSI	Yes--(1) announce DP receipt and NRC's intended actions ^b and (2) announce FONSI	Yes--(1) announce DP receipt and NRC's intended actions ^b and (2) announce FONSI	Yes--(1) announce DP receipt and NRC's intended actions ^b and (2) announce FONSI	Yes--(1) announce DP receipt and NRC's intended actions ^b and (2) announce EIS	Yes--(1) announce DP receipt and NRC's intended actions ^b and (2) announce EIS
Documentation Used to Support License Termination	License Amendment	License Amendment	License Amendment	License Amendment	License Amendment	License Amendment	License Amendment


Notes:

This table generally describes the major regulatory features of the different decommissioning groups. It does not describe all of the requirements, NRC staff actions, and licensee actions for each group, nor should it be used to determine the appropriate group. Licensees and NRC staff should refer to the detailed descriptions in each of the chapters of this NUREG report.

a See NUREG-1748 for detailed guidance.

b The *Federal Register* notice of license amendment for DP receipt provides opportunity for a hearing and opportunity for comment.

Progress to Date – EA, cont.

- The STURGIS EA Considered several Nuclear Regulatory Commission Environmental Impact Statements
 - ▶ Generic Environmental Impact Statement (GEIS) in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities, NUREG-1496 Volume 1, July 1997.
 - ▶ Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities, NUREG-0586, Initial Report (1988), Supplement 1, Volume 1 and Volume 2, 2002.
- Prior approved assessments for the transportation and disposal of waste also were applicable to the Sturgis Project EA 

Progress to Date

Summary from the NRC GEIS

- **Definitions of Levels of Significance and Applicability of Environmental Impact**
 - ▶ **SMALL** - Environmental impacts are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource. For the purposes of assessing radiological impacts, the NRC has concluded that those impacts that do not exceed permissible levels in the Commission's regulations are considered small.
 - ▶ **MODERATE** - Environmental impacts are sufficient to alter noticeably but not to destabilize important attributes of the resource.
 - ▶ **LARGE** - Environmental impacts are clearly noticeable and are sufficient to destabilize important attributes of the resource.



Progress to Date

Summary from the NRC GEIS

Issue	Generic	Impact
Onsite/Offsite Land Use		
- Onsite land use activities	Yes	SMALL
- Offsite land use activities	No	Site-specific
Water Use	Yes	SMALL
Water Quality		
- Surface water	Yes	SMALL
- Groundwater	Yes	SMALL
Air Quality	Yes	SMALL
Aquatic Ecology		
- Activities within the operational area	Yes	SMALL
- Activities beyond the operational area	No	Site-specific
Terrestrial Ecology		
- Activities within the operational area	Yes	SMALL
- Activities beyond the operational area	No	Site-specific
Threatened and Endangered Species	No	Site-specific
Radiological		
- Activities resulting in occupational dose to workers	Yes	SMALL
- Activities resulting in dose to the public	Yes	SMALL
Radiological Accidents	Yes	SMALL
Occupational Issues	Yes	SMALL
Cost	NA ^(a)	NA
Socioeconomic	Yes	SMALL
Environmental Justice	No	Site-specific
Cultural and Historic Resource Impacts		
- Activities within the operational areas	Yes	SMALL
- Activities beyond the operational areas	No	Site-specific
Aesthetics	Yes	SMALL
Noise	Yes	SMALL
Transportation	Yes	SMALL
Irretrievable Resources	Yes	SMALL

Environmental Assessment (EA) Timeline and Communications History

- USACE began EA – August 2012
- Public Notice to All Interested Parties – February 2013 (Enclosure 2 of EA)
 - ▶ Received concurrence feedback from TCEQ on March 11, 2013 - Texas Review and Comment System (TRACS) file no. 2013-185
- Endangered Species Consultation with the National Marine Fisheries Service – April 2013
- State and Congressional Notifications – January 24, 2014 (no comments/feedback)
- Public Notices in local newspapers – January 26, 2014
- Public Comment Period – January 27 to February 25, 2014 (no comments/feedback)
- Finding of No Significant Impact signed and posted – April 21, 2014
- News Release on award – March 29, 2014 (Galveston and Houston media outlets, local stakeholders, and elected officials - City of Galveston, county, state and federal)
- News article on project in Galveston Daily News – April 5, 2014



Progress to Date – Contract Award

- Request for Proposals sent to contractors – November 2013; Proposals received in January 2014
- Contractors proposing could select any location from the EA (Baltimore, Norfolk, Charleston, or Galveston)
- Award was based on best value considering technical approach, management, past performance, and cost factors
- Awardee was not the low cost offeror
- March 2014, award of \$34.6M to CB&I to complete the STURGIS decommissioning in Galveston, TX
- The current estimate on direct economic impact for the City of Galveston is \$17.5M



Progress to Date

- Post Award meetings conducted
 - ▶ Post award meetings were delayed due to a contract protest
 - ▶ 17/18 June 2014, meetings with Port of Galveston, Texas Commission of Environmental Quality (TCEQ), and Texas Department of State Health Services (TDSHS)
 - ▶ 10/11 July 2014, meetings with Texas Low Level Radioactive Waste Compact Commission, TCEQ, and TDSHS



Progress to Date

■ September 2014 Meetings

- ▶ Local First Responders and Security (including Port of Galveston Police, City of Galveston Police, County Sheriff, U.S. Coast Guard, U.S. Customs and Boarder Patrol, U.S. F.B.I – Joint Terrorism Task Force, Texas A&M University Police)
- ▶ Local Stakeholders included representatives from Congressman Weber's Office, Galveston City Council (Mr. Ralph McMorris), Galveston City, Galveston Sheriff and Fire Department, TDSHS, TCEQ, Economic Development Partnership, and the Port of Galveston
- ▶ Public meeting included Texas A&M Galveston, University of Texas Medical Branch, members of the public, local businesses, and local media



Planned Path Forward

- Project Objectives

- ▶ Complete Baseline Surveys of the Decommissioning Site
- ▶ Establish Site Security and Support Areas
- ▶ Decommission the MH-1A reactor by removing the primary reactor systems and support systems
- ▶ Segregation and disposal of specific wastes
- ▶ Dismantle/scrap the remaining portions of the STURGIS
- ▶ Complete post surveys of the site



Planned Path Forward

- Complete Baseline Surveys of the Decommissioning Site
 - ▶ Collect baseline radiological and chemical samples to determine a baseline of the project site
 - Sediment
 - Air
 - Radiological data from dock areas
 - ▶ Conduct continuous air monitoring during project activities
 - ▶ Conduct periodic monitoring of project site



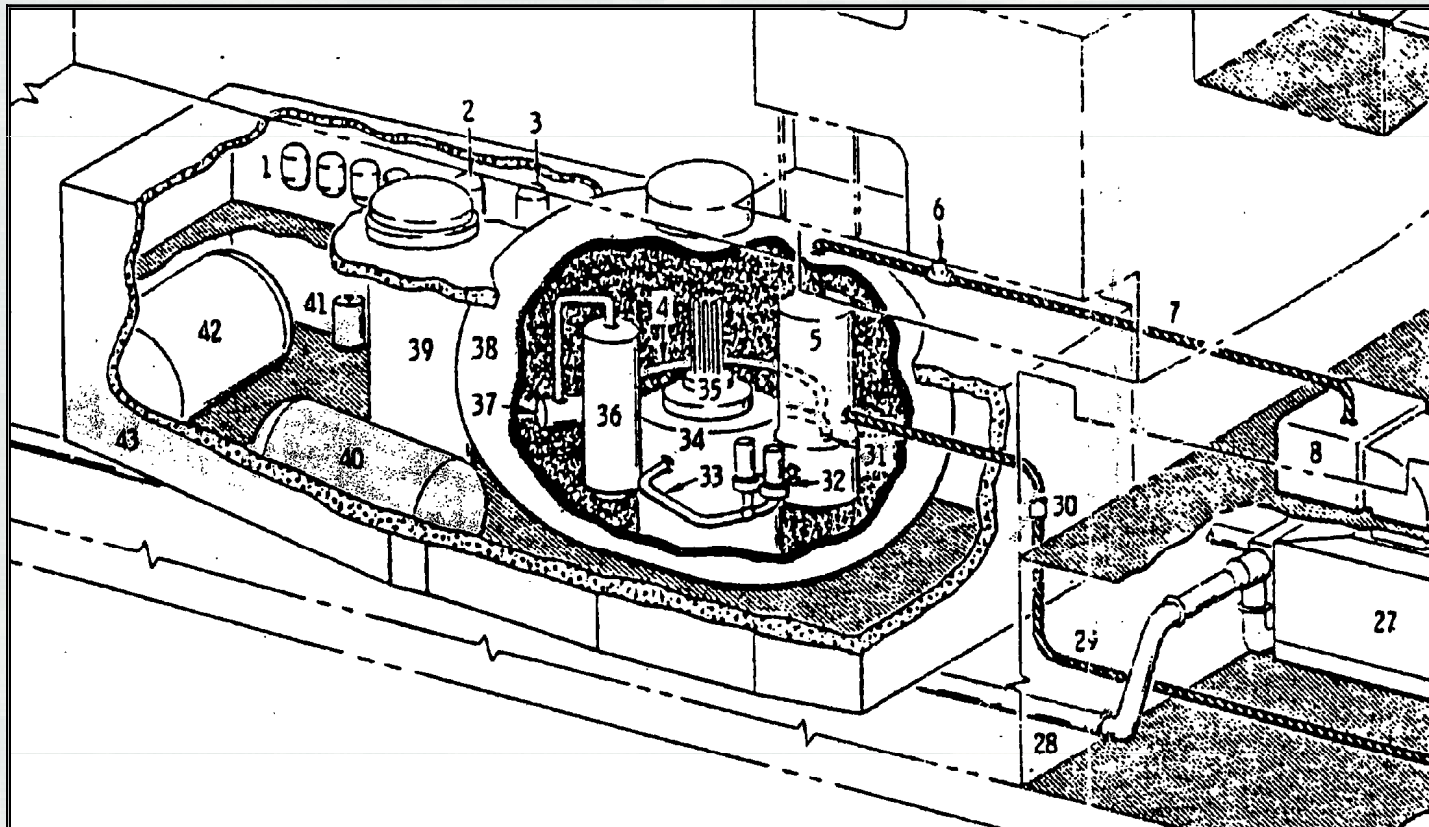
Planned Path Forward

- Prepare appropriate work and safety plans, including Hurricane Plan that will be reviewed by the U.S. Coast Guard and the Port of Galveston.
- Establish Site Security and Support Areas
 - ▶ Security Fence inside Port of Galveston to control access to site
 - ▶ Establish continuous air monitoring
 - ▶ Establish administrative areas to support project
 - ▶ Establish staging and storage areas for equipment



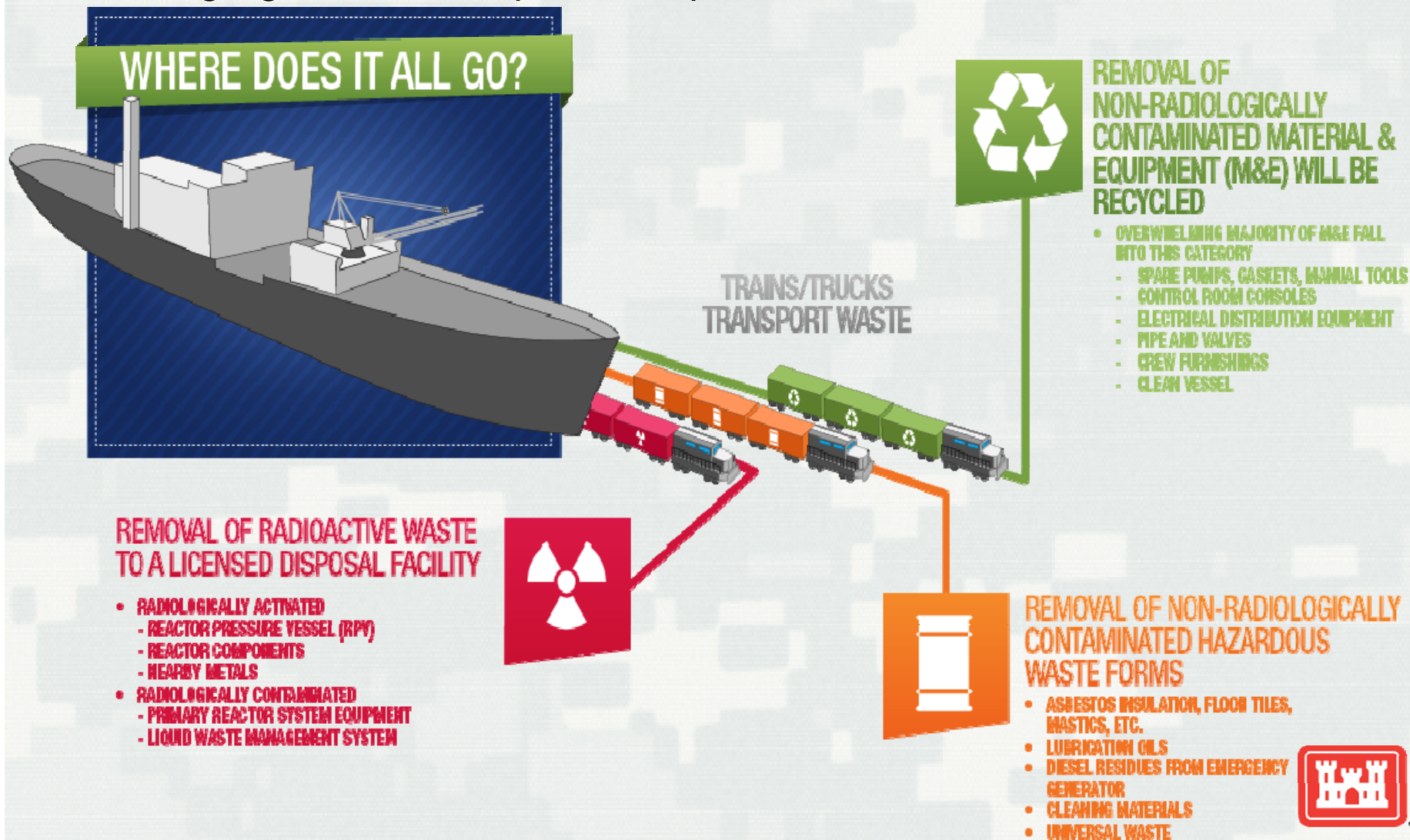
Planned Path Forward

- Decommission the MH-1A reactor by removing the primary reactor systems and support systems



Planned Path Forward

- Segregation and disposal of specific wastes



Path Forward

- ALL parts and contents of STURGIS and the MH-1A reactor will be disposed as
 - ▶ Clean (recycled/land filled) [Estimated ~90%]
 - ▶ Radioactive [Estimated ~8%]
 - ▶ Hazardous [Estimated ~2%]
 - ▶ Mixed waste (Radioactive and hazardous/asbestos/universal)



Lower Shield Tank over the Reactor Pressure Vessel



Primary Reactor Loop Pumps



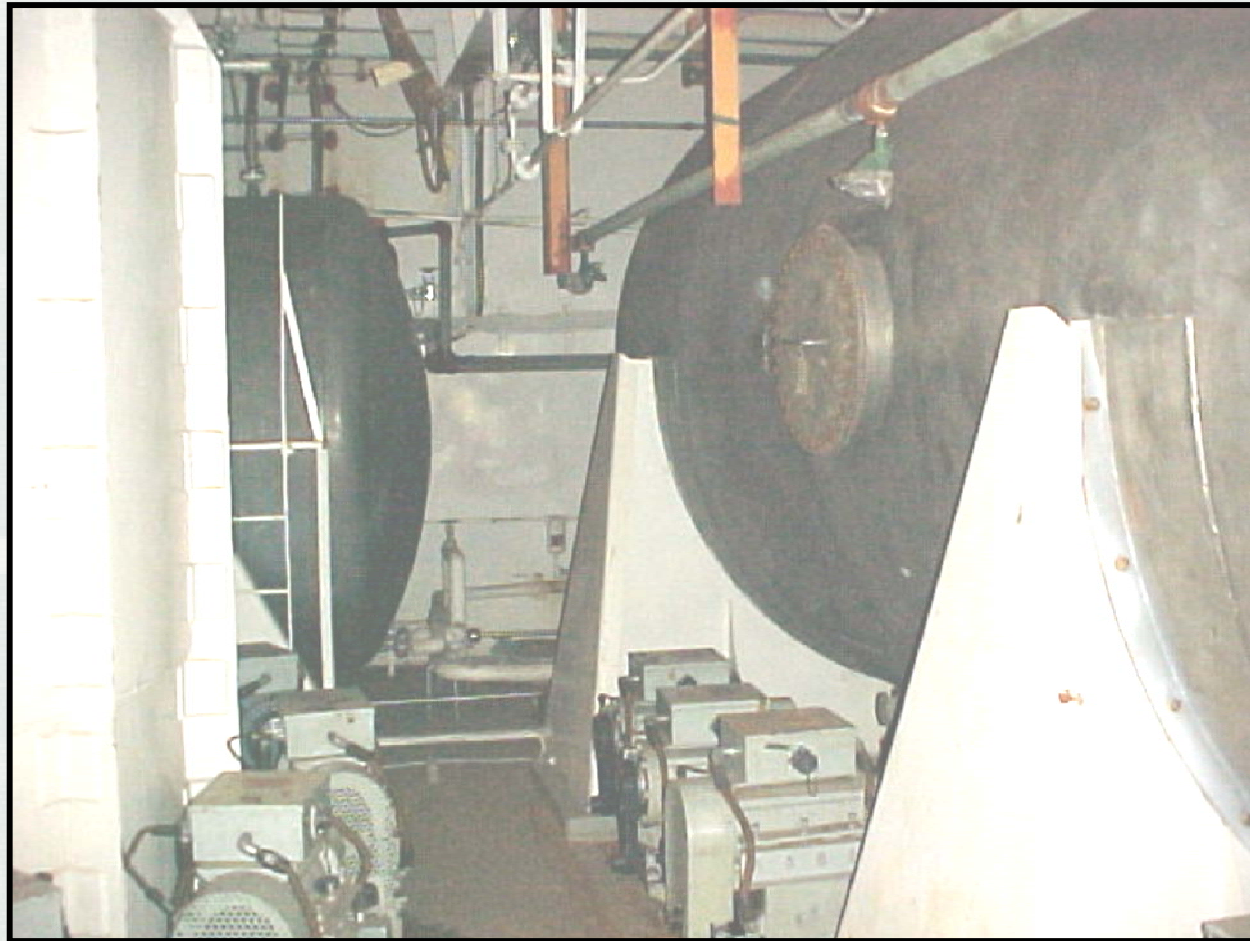
Pressurizer



Steam Generator



Waste Hold Up Tanks



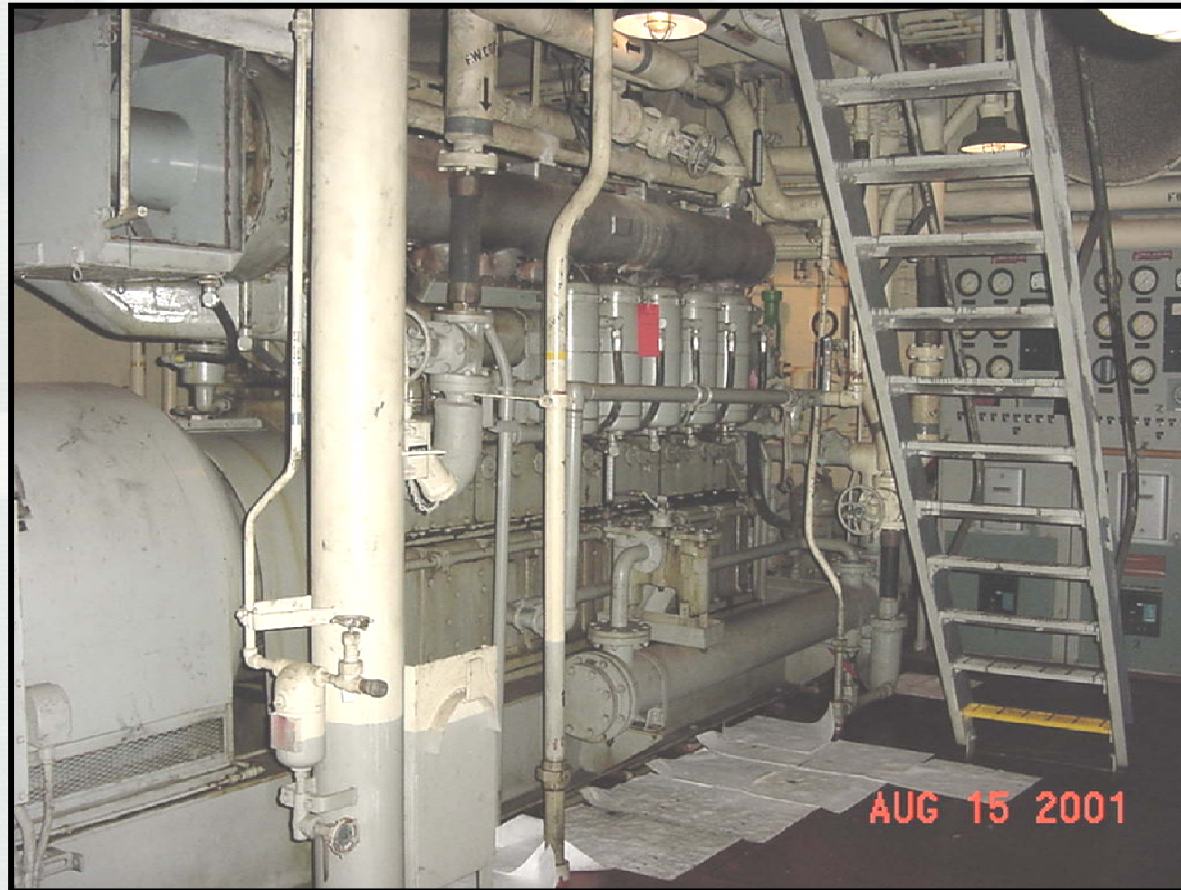


Transfer Casks



Planned Path Forward

- Dismantle/scrap the remaining portions of the STURGIS – Diesel Generators



Planned Path Forward

- Dismantle/scrap the remaining portions of the STURGIS – Control Panel



Planned Path Forward

- Dismantle/scrap the remaining portions of the STURGIS - Turbine and Condenser



Path Forward

- A Final Status Survey (FSS) will be conducted at the completion of the STURGIS decommissioning
- The FSS will be completed on the real property where the decommissioning took place
- Will be compared to the baseline surveys and used to ensure that the project did not impact the Port



Oversight

- U.S. Army Corps of Engineers will provide quality assurance over the contractor and their quality control program
 - ▶ Internal review by the Corps of Engineers
National Environmental Center of Expertise
- Army Reactor Office and Reactor Council oversight of project
- Independent review by Oak Ridge Associated Universities



Oversight

- Texas Commission on Environmental Quality
 - ▶ Disposal of Low level Radioactive Waste
 - ▶ Remediation of Asbestos Containing Materials
- Texas Department of State Health Services
 - ▶ Release of materials
 - ▶ Materials in transport
 - ▶ Licensing Asbestos workers



Oversight

- Unrestricted Release Criterion for Disposition of Material

- ▶ The STURGIS unconditional radiological release criteria for material and equipment to be disposed of as non-radioactive waste or recycled is equal to the levels of residual radioactivity that would contribute a dose of no more than 1 millirem per year (mrem/yr) to a critical exposure group.

- To put that dose in perspective, the typical dose to a member of the public from naturally occurring radioactive materials is about 310 millirem per year (0.85 millirem per day) of exposure



Oversight

- Exposure to members of public controlled by U.S. Nuclear Regulatory Commission and State of Texas Regulations set at 100 mrem/year
- Exposures to occupational workers controlled by using Corps of Engineers tiered exposure limits complying with Federal and State requirements and kept as low as reasonably achievable



Oversight

- Members of the project and oversight team
 - ▶ Professional Engineers
 - ▶ Certified Health Physicists (Radiation Safety)
 - ▶ Environmental Scientists
 - ▶ Regulatory Specialists
 - ▶ Safety Specialists
 - ▶ Qualified Technicians



QUESTIONS?

