

TMI-2 CAP Meeting

Date: September 21, 2023

Time: 6:00pm – 7:30pm

Meeting Access

Virtual: Microsoft Teams through

www.tmi2solutions.com

Dial In: +1 385-500-4880

With Conference ID 500079013#

**In-Person: Penn State Harrisburg
Educational Activities Building - North, Room 110
299 College Avenue, Middletown, PA 17057**

Welcome & Attendance

Marie-Louise Abram
Vice Chairperson,
TMI-2 Community Advisory Panel



TMI-2 CAP Introduction

- What is the TMI-2 Community Advisory Panel?
 - A volunteer, non-regulatory body formed to enhance open communication, public involvement and education about the TMI-2 Nuclear Power Station decommissioning project.
 - Serves as a conduit for public information and as a formal channel of community involvement and communication related to the decommissioning project.
 - Provides community feedback to TMI-2 *Solutions* including any issues or concerns related to TMI-2 decommissioning activities.
 - Includes a broad cross-section of members who are appointed by various community, business, and government organizations from around Three Mile Island.



Agenda

- Decommissioning Status Update
- Regulatory Update
- Department of Energy Presentation
- Oversight Comments
 - PADEP Bureau of Radiation Protection
 - Decommissioning Nuclear Safety Review Board (DNSRB)
 - Nuclear Regulatory Commission
- CAP Business & Open Discussion
 - Introduce new CAP member
 - Election of new Chairperson
 - Vote on Past Meeting Minutes and Charter Revision
- Community Q&A

Virtual attendee questions -- email to Hannah Pell at hepell@energysolutions.com

TMI-2 Decommissioning Status Update





Frank Eppler
TMI-2 Deputy Project Director

The logo for TMI-2 SOLUTIONS features a stylized graphic of two curved lines, one blue and one green, arching over the text. The text "TMI-2" is in a bold, blue, sans-serif font, and "SOLUTIONS" is in a black, italicized, serif font.

TMI-2 *SOLUTIONS*

TMI-2 D&D Partnerships



	<p>Parent company of TMI-2Solutions and owner of waste management assets; JV partner with Jingoli Nuclear of ESJ Decommissioning, LLC</p>
	<p>Wholly-owned subsidiary of EnergySolutions, owner, and licensee of TMI-2</p>
	<p>JV partner to EnergySolutions for Decommissioning General Contractor</p>
	<p>Decommissioning General Contractor, an EnergySolutions and Jingoli joint venture</p>

TMI-2 Decommissioning Project Overview



- **Phase 1 – Planning, Engineering, Remediation**
 - Phase 1a – Preparation for Decommissioning
 - **Phase 1b – Fuel Bearing Material Recovery and Source Term Reduction (2023 - 2029)**
- Phase 2 – Typical Decommissioning and Dismantlement, Site Remediation, License Termination
- Phase 3 – Fuel Bearing Material Management



Phase 1b – Source Term Reduction

- Quantity of fuel remaining at TMI-2 is a small fraction of the initial fuel load --
 - ~99% of the damaged fuel was removed and transferred to the Department of Energy during the post-accident defueling and decontamination activities
- Phase 1b activities include:
 - Decommissioning Support Building (DSB) Construction
 - Independent Spent Fuel Storage Installation (ISFSI) Construction
 - Dose reduction and decontamination of locked High Radiation Areas
 - Packaging and transportation of Low-Level Radioactive Waste (LLRW)

Phase 1b Timeline

Description	Start	End
Planning, Engineering, Regulatory	12/2020	11/2024
Phase 1 Long Lead Procurement	1/2021	3/2025
Infrastructure Upgrades & Modifications	1/2022	6/2025
Surveys, Shielding and Contamination Control	6/2022	12/2023
Rad Building Source Term Reduction	1/2023	9/2028
Waste Packaging, Transport & Disposal	6/2023	3/2029
Reactor Vessel Source Term Reduction	1/2025	3/2027
Large Component Source Term Reduction	6/2025	6/2027
Phase 1 Source Term Reduction Complete	9/2028	9/2028
Phase 1 Complete*	6/2029	6/2029

*Reduction of radiological conditions at TMI-2 to levels that are generally consistent with a plant at the end of its operational life.



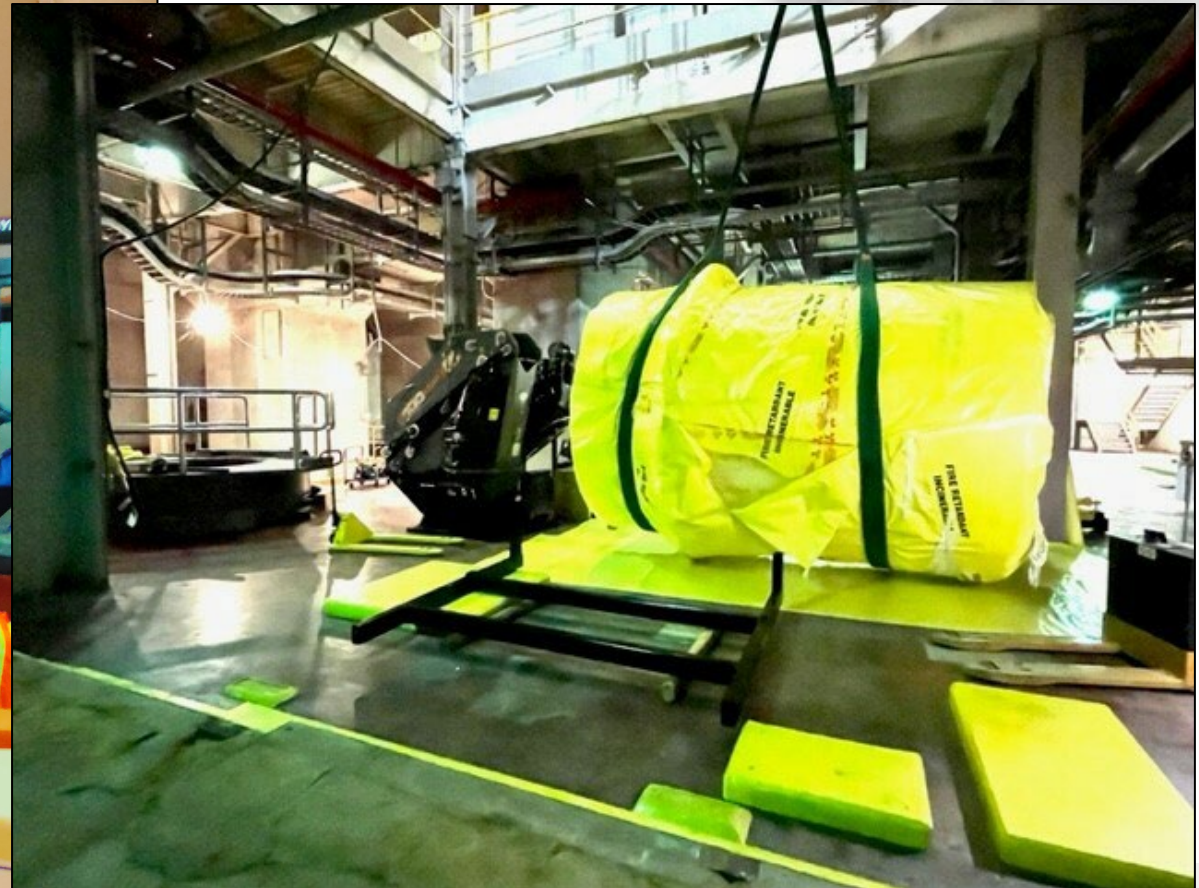
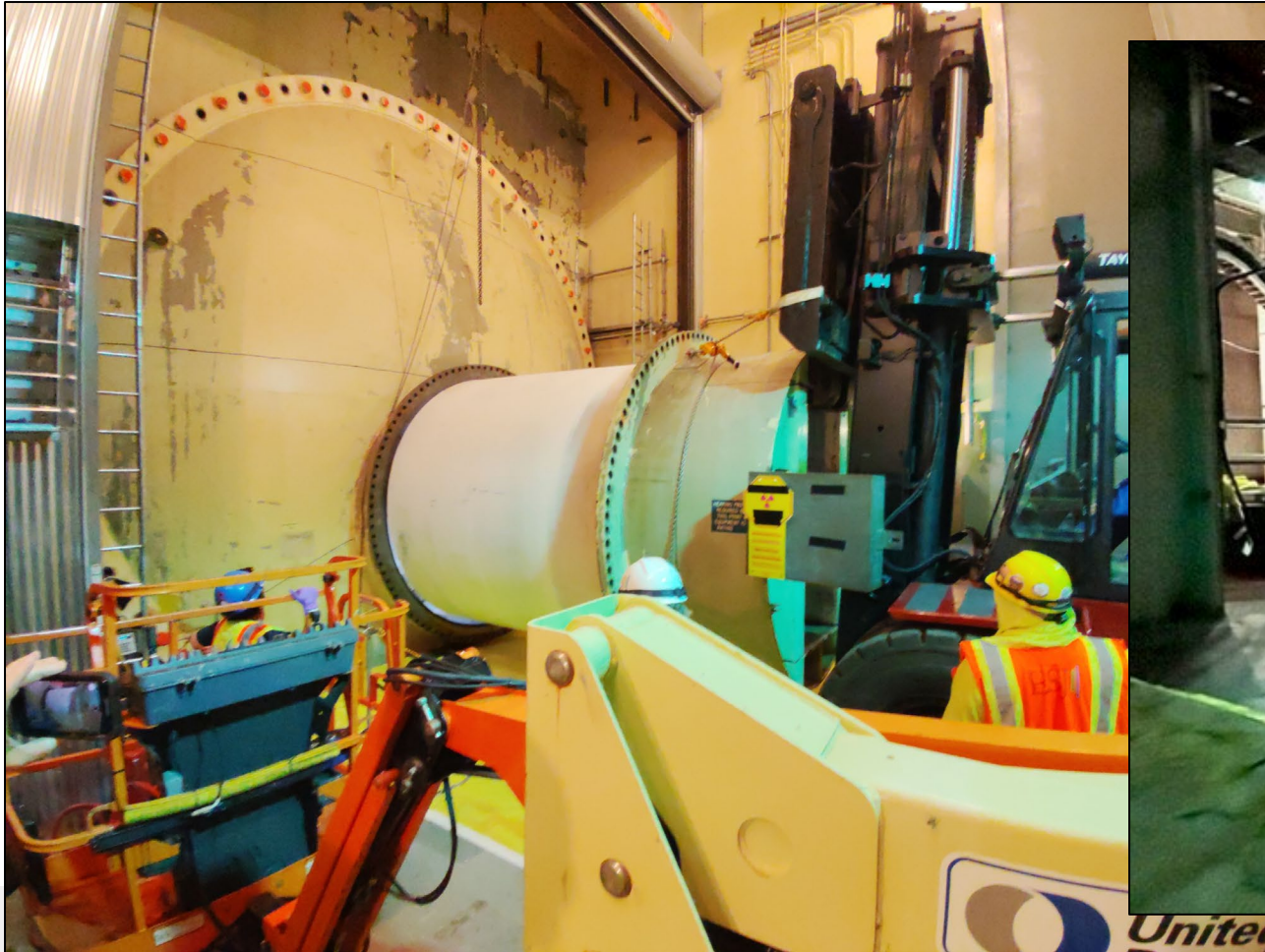
Information from Table 5-1 of the TMI-2 Post-Shutdown Decommissioning Activities Report

Accession # [ML22306A051](#)

Initial DECON Work – Reactor Building Exterior



Initial DECON Work – Personnel Air Lock (PAL) Removal



Initial DECON Work – Equipment Hatch Segmentation



Videos

- [Reactor Core Inspection](#)
- [B D-Ring Drone Survey](#)
- [Spot, RB Basement Surveys](#)



Radiation Monitoring

- Radiation monitors will be maintained to evaluate airborne radiological conditions
- Monitors provide necessary information to evaluate environmental and air quality conditions of the plant
- Radiological Environmental Monitoring Program (REMP)
 - Conducted in the vicinity of the TMI site
 - Verifies that levels of radiation are not higher than normal background based on effluent measurements and models of the environmental exposure pathways
- TMI-2 Reactor Building down-posted from Very High Radiation Area to Locked High Radiation Area

Waste Planning and Shipments

- TMI-2 Waste Planning
 - ISFSI Design and Preparations
 - ISFSI will store the remaining TMI-2 Fuel Bearing Material (~14 casks)
 - On Site Storage Containers (OSSCs)
- First DECON Waste Shipments
 - Abandoned shielding on the TMI-2 Fuel Handling Building 347' elevation
 - Arrived by truck at EnergySolutions disposal facility in Clive, Utah with no issues



First DECON LLRW Shipments



2023 Charity Golf Tournament

TMI-2 SOLUTIONS
STEWARDS OF THE ENVIRONMENT



- August 3, 2023 at Sunset Golf Course
- Raised \$40,000 for Londonderry Fire Company

A promotional banner for the Three Mile Island Charity Golf Tournament 2023. The banner features the text "THREE MILE ISLAND" in large white letters with stylized cooling towers on either side. Below this, it says "Charity Golf Tournament 2023" on a golf ball graphic. In the top right corner, it says "Benefits Londonderry Township Fire Dept." with a fire truck icon. At the bottom, there are logos for "ESJ DECOMMISSIONING LLC AN ENERGY SOLUTIONS | JINGLI D&D JOINT VENTURE" and "Constellation".

THREE MILE ISLAND

Charity Golf Tournament
2023

Benefits
Londonderry
Township
Fire Dept.

ESJ DECOMMISSIONING LLC
AN ENERGY SOLUTIONS | JINGLI D&D JOINT VENTURE

Constellation

Regulatory Update

Tim Devik

TMI-2 Licensing Manager



DECON License Basis

- **DECON LAR was approved by the NRC on March 31, 2023** ([ML23051A043](#))
 - TMI-2 project implemented DECON LAR requirements and officially transitioned to the DECON License Basis on May 3, 2023.
- **PDMS vs. DECON – What does this transition mean?**
 - TMI-2 was placed in PDMS in 1993 following the post-accident cleanup efforts. The TMI-2 facility has been in monitored storage since then to allow for residual radioactivity to decay.
 - The transition to DECON means that TMI-2 can now apply decontamination techniques to remediate the facility such that radiological conditions are comparable to levels that are generally consistent with a plant at the end of its operational life.



TMI-2 Historic & Cultural Resources

- TMI-2 submitted a LAR on February 22, 2023 ([ML23058A064](#))
 - Requested NRC review of decommissioning activities which would impact the TMI-2 buildings previously deemed eligible for the National Register of Historic Places
 - Submitted in anticipation of the eventual and necessary demolition of the facility following Phase 1b source term reduction efforts
- NRC initiated acceptance review on March 31, 2023 ([ML23062A737](#))
 - Review will include consultation under Section 106 of the National Historic Preservation Act (NHPA)
- TMI-2 submitted a response to the Request for Additional information to support the NRC's Environmental Assessment on May 1, 2023 ([ML23121A249](#)).



Section 106 Process



- **What is the Section 106 process?**
 - Process under NHPA that seeks to accommodate historic preservation concerns with the needs of Federal undertakings.
 - *Handout -- American Council on Historic Preservation Section 106 process flowchart*
 - Determines how adverse effects to historic properties can be mitigated through various preservation options (e.g., documentation, records, educational materials)
- Summary of Section 106 process meeting between NRC, PA SHPO, TMI-2 Solutions held on June 12, 2023 ([ML23181A034](#))
- First Section 106 Consultation Meeting held on August 3, 2023 (Meeting minutes will be made public on ADAMS).

NRC Inspection Status

- **Inspection Results for Q2 2023 (ML23227A193; dated August 17, 2023)**
 - Routine decommissioning inspection
 - NRC Inspection Program for overseeing decommissioning nuclear power plants is described in [Inspection Manual Chapter 2561](#), “Decommissioning Power Reactor Inspection Program.”
 - Included review of problem identification and resolution, decommissioning performance and status, and occupational radiation exposure
 - Onsite inspection activities were performed April 25-26, May 16-18, June 20-21, and August 28 – 30, 2023
 - Results – No violations identified.
- **Upcoming Q3 2023 Inspection Activities**
 - Onsite visit September 2023



Licensing Activities Update

Licensing Area	Description of Activities	Accession #s / Links
Section 106 Process	NRC sent invitation letters to consulting parties requesting participation in the Section 106 process and held meetings with TMI-2S, PA SHPO, and the American Council on Historic Preservation. TMI-2S continued correspondence with PA SHPO.	ML23192A827 ML23209A763 ML23138A066
TMI-2 License Am. 67	Corrections of typographical and reference errors identified in issuance of Am. 67 and the Safety Evaluation Report (SER). All errors were editorial in nature and were introduced inadvertently, and were not a “change” to the NRC’s determination of no significant hazards or conclusions in the SER.	ML23200A188 ML23199A021
Exemption – 10 CFR 20 Appendix G	The exemption extends the receipt acknowledgment period from 20 days to 45 days before TMI-2S will have to investigate, trace, and report on the status of a low-level radioactive waste shipment being transported from the Three Mile Island Station, Unit 2 to a licensed LLW processing or land disposal facility.	ML23167A464 ML23167A463
PSDAR	NRC issued a Request for Additional Information on June 29, 2023 to support their reviews of the TMI-2S PSDAR and Decommissioning Trust Fund Report. TMI-2 Solutions provided a response on August 8, 2023.	ML23187A020 ML23187A033 ML23221A140

Receive Links for Public Documents for TMI-2 via Email

- Go to www.nrc.gov
- Select **Public Meetings and Involvement**
- Select **Subscribe to Email Updates**
- Scroll down to **Lyris Subscription Services**
 - Click the link to the **Decommissioning and Uranium Recovery Correspondence page**
- Add your name and email address and select **Three Mile Island Station, Unit 2 - 5000320 (Middletown, PA)**
 - As items are put on the docket, you will get an email notification




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Also, see the following **additional lists not on this page**:

- To subscribe to all outgoing public correspondence on operating reactors, see our [Operating Reactor Correspondence](#) page.
- To subscribe to all outgoing public correspondence on Decommissioning and Uranium Recovery, see [Decommissioning and Uranium Recovery Correspondence](#) page.

 **Three Mile Island Station, Unit 2 – 5000320 (Middletown, PA)**

DOE Integrated Waste Management Program & Three Mile Island Site Evaluation Overview

Dr. Erica Bickford

**US Department of Energy, Office of
Nuclear Energy**

September 21, 2023

Disclaimer

- This is a technical presentation that does not take into account contractual limitations or obligations under the Standard Contract for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste (Standard Contract) (10 CFR Part 961).
- To the extent discussions or recommendations in this presentation conflict with the provisions of the Standard Contract, the Standard Contract governs the obligations of the parties, and this presentation in no manner supersedes, overrides, or amends the Standard Contract.
- This presentation reflects technical work which could support future decision making by the U.S. Department of Energy (DOE or Department). No inferences should be drawn from this presentation regarding future actions by DOE, which are limited both by the terms of the Standard Contract and Congressional appropriations for the Department to fulfill its obligations under the Nuclear Waste Policy Act including licensing and construction of a spent nuclear fuel repository.

Congressional Direction



Through the Consolidated Appropriations Acts of 2021, 2022, and 2023, DOE was directed by Congress to work toward identifying a site for federal consolidated interim storage for spent nuclear fuel using a consent-based siting process.

OFFICE OF INTEGRATED WASTE MANAGEMENT MISSION:

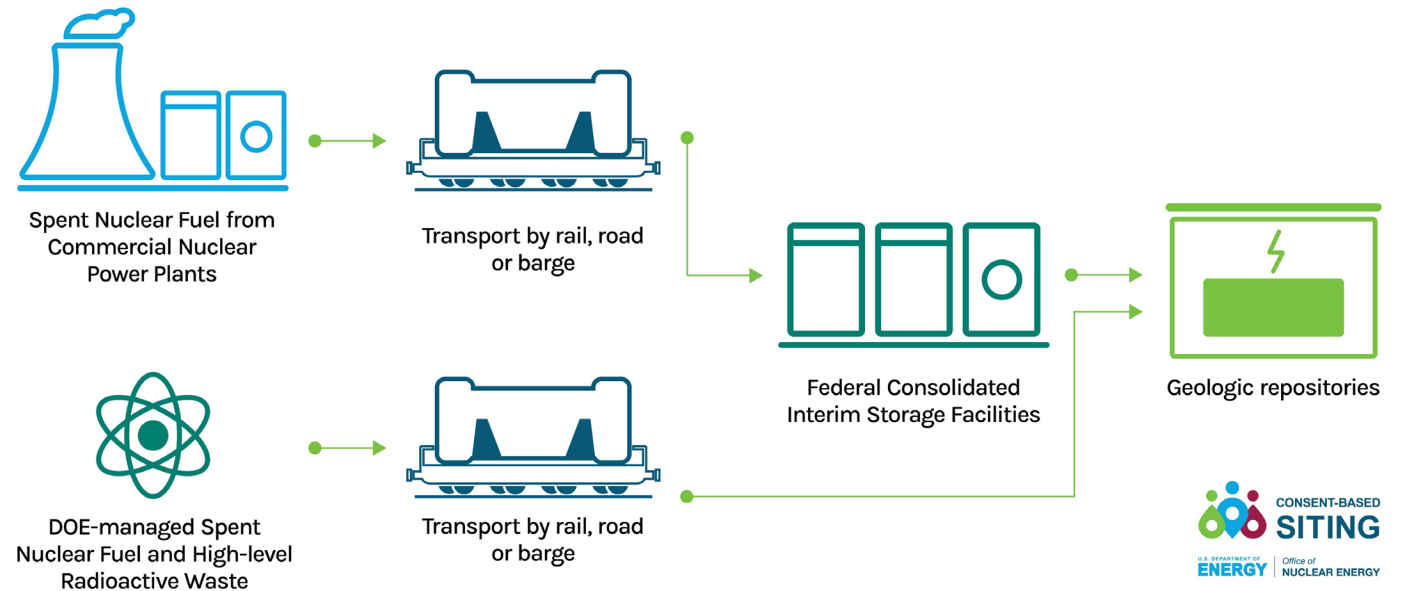
Construct one or more federal interim storage facilities, using a consent-based siting process, ready to receive commercial spent nuclear fuel as soon as practicable.



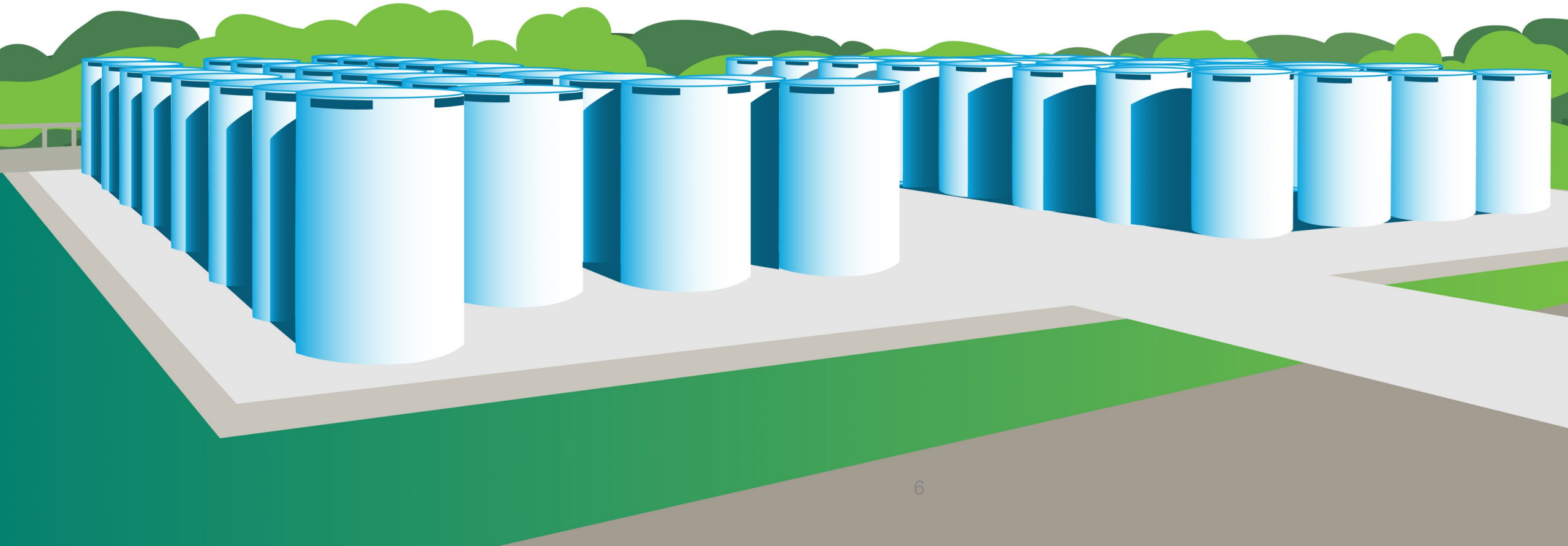
What is an Integrated Waste Management System?

- **Storage facility(ies)**
- **Transportation capability**
- **Disposal facility(ies)**
- **Interfaces**

INTEGRATED WASTE MANAGEMENT SYSTEM



Storage & Transportation Preparations



Transportation Projects

Infrastructure Evaluations and Operational Planning

- **Nuclear Power Plant Infrastructure Evaluations for Removal of Spent Nuclear Fuel**

- 21 site visits completed to date
- 1 more visit in 2023, more than 50 sites to go
- Site visit data is used to develop initial site-specific plans for removing spent nuclear fuel from each site

- **Security Considerations**

- Origin and transload site security needs
 - Heavy-haul truck to rail, or barge to rail
- US regulations require armed guards escort shipments of spent nuclear fuel
 - Evaluating options to meet Federal requirements
 - Coordination needed to ensure mutual understanding of Federal/State/Tribal roles and responsibilities



TMI-2 Reactor Building and Cooling Towers



Norfolk Southern Railway at Rockville Bridge Crossing the Susquehanna River



Cask Transporter Stored at ISFSI Area (Currently Decommissioned)



ISFSI Pad with Expansion Room for TMI-2 Casks

Near-Site Transportation Infrastructure and Experience

- Evaluate transportation mode options for the sites
- **Near-Site Rail Access**
 - Condition and capacity of near-site rail infrastructure
 - Potential transload locations
 - Site experience with rail shipments
- **Local Roads and Highways**
 - Distance to potential rail transload locations (rail spurs or sidings)
 - Characteristics and condition of roads and associated infrastructure that would be used by heavy haul vehicles
 - Site experience with heavy haul shipments
- **Barge Access**
 - Characteristics of onsite or nearby docks/slips/shorelines
 - Site experience with barge shipments



Railway at TMI at site entrance with overhead clearance considerations

Key Part of NPP Site Evaluations Are On-Site Visits

- Site visits typically take place over three days
- First day – NPP site
- Second day – near-site transportation infrastructure
 - Rail infrastructure
 - Potential heavy haul truck routes
 - Potential rail and barge transload locations
- Third day – often spent meeting with community engagement panels, Tribes, local representatives, or advisory panels

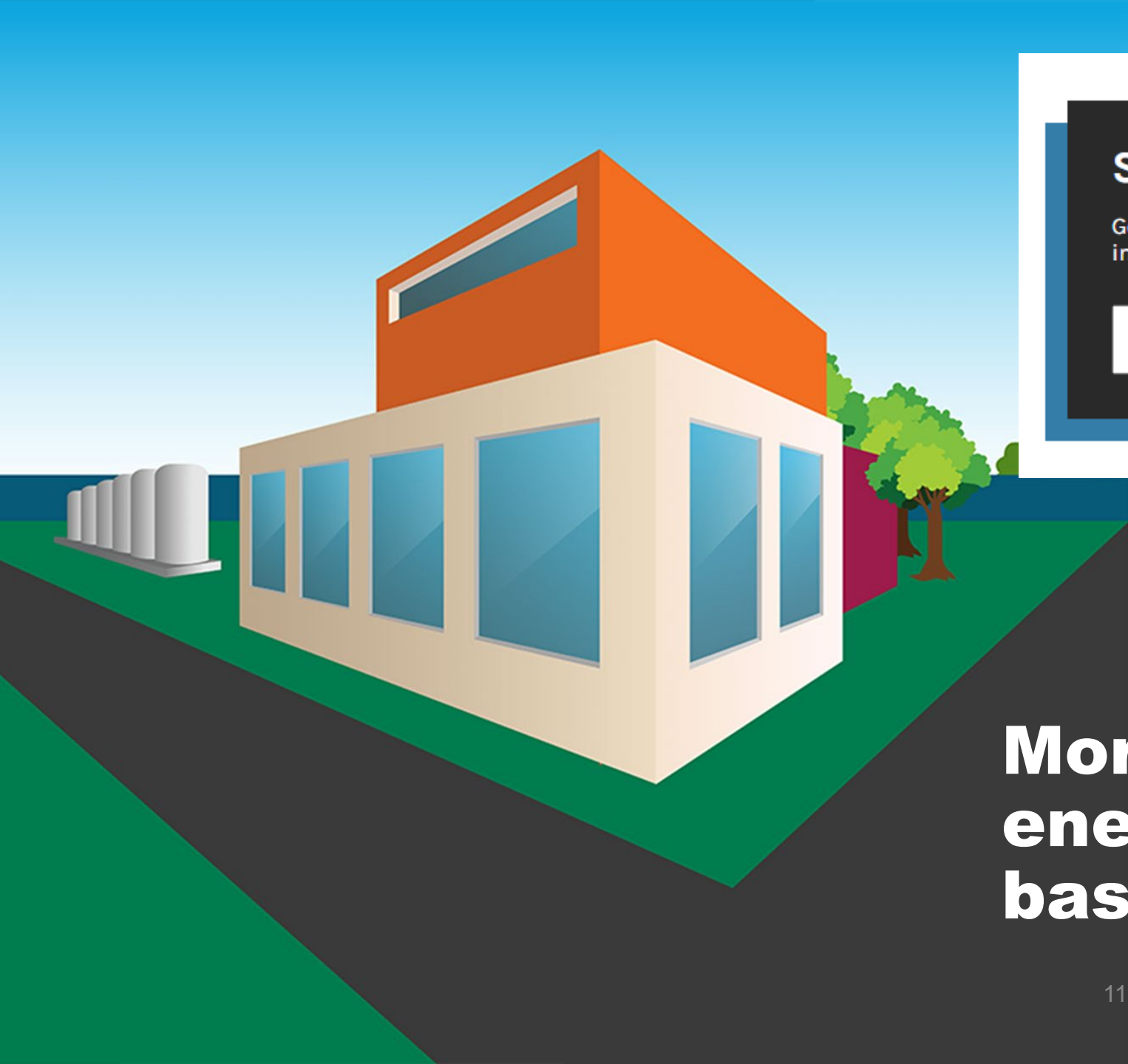




DOE's Site Visit to Three Mile Island

- TMI-2 SNF shipping experience provides useful information
- Shared infrastructure with TMI-1 for decommissioning both facilities
- Remaining TMI-2 debris and GTCC to be removed in the future
- Received good insights on local bridge, road, and rail infrastructure





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[energy.gov/consent
basedsiting](http://energy.gov/consentbasedsiting)**

Oversight Comments

Dwight Shearer, Director
PADEP Bureau of Radiation Protection

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TMI-2 *SOLUTIONS*

Three Mile Island Air Sampling Locations



TMI Air Sampling Results 2012-2022

Station Name	Code	Gross Alpha (x 0.01 pCi/m ³)			Gross Beta (x 0.01 pCi/m ³)		
		Average	Minimum	Maximum	Average	Minimum	Maximum
Mill Street	01C2	0.3	0.1	1.4	1.5	0.5	3.7
Visitor's Center	05A2	0.3	0.1	1.3	1.4	0.5	3.0
Collins	08C2	0.3	0.1	1.8	1.5	0.6	3.6
Gouldsboro	12B2	0.3	0.1	1.4	1.4	0.5	3.1
Harrisburg (Control)	16L1	0.3	0.1	1.2	1.6	0.1	4.1

* No detectable levels of Iodine-131

Sediment, Water, Milk and Fish Tissue 2012-2022

Sediment (pCi/L)

09B1-12	Sediment Downstream			
		average	high	low
Mn-54		5.62	25	ND
Co-60		9.5	49	ND
Nb-95		9.75	78	ND
Cs-137		44	71	ND

01A4-12	Sediment Upstream			
		average	high	low
Mn-54		4.12	17	ND
Co-60		3.12	25	ND
Cs-137		20.37	42	ND

* No detection of any other isotopes

Water (pCi/L)

Steelton Water	15J1			
		Average	High	Low
Gross Beta		0.68	8	ND
Tritium		2.23	156	ND

Columbia Water	07L1			
		Average	High	Low
Gross Beta		0.89	4	ND
Tritium		30.7	529	ND

* No detection of any other isotopes

Milk (pCi/L)

Site	07B1			
		Average	High	Low
K-40		1200	1700	673

Site	10K1			
		Average	High	Low
K-40		1300	1570	650

Site	09Q1			
		Average	High	Low
K-40		1406	1590	1270

* No detection of any other isotopes

Predator Fish
Vegetation

10A1-14
08A1-15

No Detectable Isotopes
No Detectable Isotopes

Oversight Comments

Bill Ostendorff, Chairperson
Decommissioning Nuclear Safety Review Board

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TMI-2 *SOLUTIONS*

***NRC Reactor Decommissioning
Licensing
Three Mile Island Station, Unit 2
Community Advisory Panel -
Virtual***

Amy M. Snyder
Senior Project Manager
U.S. Nuclear Regulatory Commission

21 September 23



Licensing Actions

- **Amendment Issued: March 31, 2023**
 - [ML23051A042](#) Pkg
 - **TECHNICAL SPEC CHANGES: Post-Defueled Monitored Storage (PDMS) to Decommissioning under 10 CFR 50.59**
 - [Correct to SER – references corrections \(ML23200A187\) dated July 31, 2023](#)
- **Amendment Under Review:**
 - **HISTORIC AND CULTURAL RESOURCES LICENSE AMENDMENT REQUEST (ML23058A064) submitted in Feb 2023.**
 - SER and EA being developed
 - Section 106 of the National Historic Preservation Act Review triggered



Licensing Actions

- Exemptions:
 - TMI-2 Exemption from Certain Criticality Monitoring Requirements ([ML23026A279 Pkg](#)) – Issued May 2, 2023
 - TMI-2 Exemption from Certain Waste Reporting Requirements ([ML23167A462 Pkg](#)) – Issued July 5, 2023



Future Licensing Submittals

– Other submittal:

- **Post Shutdown Decommissioning Activities Report, Rev. 5 under view**
- **Request for Additional Information issued 6-29-23**
([ML23187A033](#)) on schedule, cost, and confirmation of historical and cultural status.
 - **As related to the Decommissioning Fund Status Report (ML23094A116) submitted on March 30, 2023**
 - **RAI response in January on Cultural and Historic resources ML23025A039.**
- **RAIs response August 8, 2023 ([ML23221A140](#))**



Site Inspections

- **Inspection Manual Chapter (IMC) 2561, “Decommissioning Power Reactor Inspection Program”**
 - **End of January 2023-**
 - review of design changes and modifications, problem and identification and resolution, decommissioning performance and status, and occupational radiation exposure. [ML23100A057](#)
 - May 1- June 30, 2023
 - examined activities conducted under your license as they relate to safety and compliance : [ML23227A193](#)
 - Inspections July through Present- reports to be issued (waste, environmental, decommissioning, etc.)



Questions and Contact Information

- **Questions on Presentation?**
- **Contact Information:**
 - Amy Snyder, Senior Project Manager**
 - Amy.Snyder@nrc.gov**
 - 301 415-6822**

CAP Business & Open Discussion

Marie-Louise Abram
Vice Chairperson,
TMI-2 Community Advisory Panel





TMI-2 CAP Business

- Introduce new CAP member
- TMI-2 CAP votes:
 - TMI-2 CAP Chairperson
 - TMI-2 CAP Charter Revision
 - Previous Meeting Minutes

Summary – NRC Best Practices

- **Charter Development**
- **Local Preferences for Engagement**
 - Panel should reflect the concerns and level of engagement of each community.
- **Membership Composition**
 - Panel should reflect the community surrounding the nuclear facility and include adequate consideration of demographics and a variety of technical expertise.
- **Licensee Participation**
 - Licensee participation such as providing site tours, conducting open houses, providing technical expertise, and communicating ongoing and planned activities is important to a fully-functioning community panel.
- **Meeting Frequency**
- **Public Engagement**
 - Other opportunities for engagement – websites, newsletters, annual reports.
- **Community Panel Use of Experts and Training**
- **Topics to be Brought Before the CAB**
 - Decontamination and dismantlement; NRC regulatory filings; NRC inspections; radiation monitoring; storage and disposal of waste; dry cask storage issues; environmental impacts

BEST PRACTICES FOR ESTABLISHMENT AND OPERATION OF
LOCAL COMMUNITY ADVISORY BOARDS ASSOCIATED WITH
DECOMMISSIONING ACTIVITIES AT NUCLEAR POWER PLANTS

A Report for the Senate Committee on Environment and Public Works
and the House Committee on Energy and Commerce



By the U. S. Nuclear Regulatory Commission

Enclosure



NRC Best Practices – Charter Development

- Issues addressed in a typical Community Advisory Board (CAB) Charter:
 - Purpose of the CAB
 - Selection of members
 - Operation -> logistics, budget, communications, record requirements
 - Procedure for meetings / voting
 - Requirements for licensee, community, and other stakeholder interactions and engagement
- Important consideration → life cycle of the CAB as the site goes through the decommissioning process (e.g., when funding will end, how a CAB's operations will evolve based on site conditions and community needs)
- Mechanism to periodically review and revise the CAB charter

CAP Charter – Proposed Revisions



- Added Record of Revisions.
- Appointment of new members responsibility updated to TMI-2 CAP Chairperson.
- Revised new member nomination process.
- Replaced TMI-2 Solutions Community Relations Associate/Manager duties with a locally based “TMI-2 Solutions CAP Representative.”
- Updated Purpose section to emphasize independence of the CAP.
- Updated guidelines with requirement that all meetings will include a virtual option and TMI-2 Solutions will provide funding for any necessary logistics.
- Reference section added for NRC Best Practice report.
- Standing agenda item for external oversight and regulatory agency participation.
- Updated “CAP Initial Term” to “CAP Evaluation” to include annual reviews of the Charter.
- Various editorial changes.

Next CAP Meeting

- Thursday, January 11, 2024 – 6pm-730pm (Hybrid)
- All CAP meetings will continue to be virtually accessible

Community Q&A

Please contact Hannah Pell at hepell@energysolutions.com with any additional questions or requests for information.

