Informational Webinar:
DOE National Laboratory Program Announcement (LAB-23-EM001)
Hanford Tank Waste R&D

Announcement Issue Date:	**June 7, 2023**
Submission Deadline for Letter of Intent:	**June 19, 2023 at 5 PM Eastern Time**
Submission Deadline for Proposals:	**July 17, 2023 at 5 PM Eastern Time**

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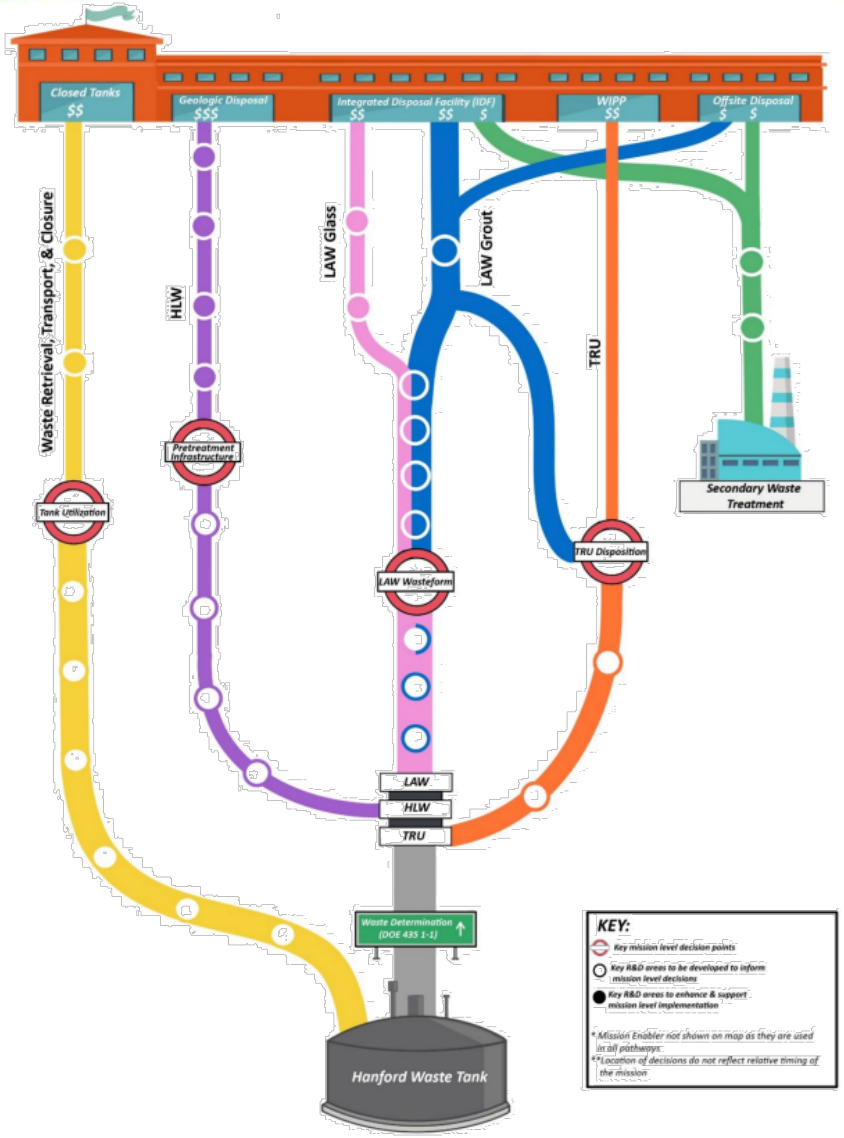
June 9, 2023

Disclaimer: This presentation summarizes the contents of the Funding Announcement to DOE National Labs (Lab Call). Nothing in this webinar is intended to add to, take away from, or contradict any of the requirements of the Lab Call. If there are any inconsistencies between the Lab Call and this presentation or statements from DOE personnel, the Lab Call is the controlling document.

DOE Hanford Tank Waste Mission

- **The Hanford Site was established during World War II to produce plutonium for the nation's nuclear weapons.**
- **The Hanford mission is now primarily site cleanup and environmental restoration to protect the public and the environment.**
- **The largest portion of Hanford's environmental liability is associated with the cleanup of the 56 Mgal of radioactive and chemical waste currently stored in 177 underground tanks**
- **The Hanford tank waste mission is to:**
  - Retrieve radioactive and chemical waste stored in underground tanks;
  - Treat tank waste;
  - Prepare the waste for permanent disposal;
  - Close the tanks;
  - Remediate contaminated waste sites; and
  - Demolish facilities.

NNLEMS Recommended R&D Roadmap



- A recommended portfolio of R&D investments:
  - 35 focus areas, including: 9 Top Priority Areas, 13 High Priority Areas, 13 Medium Priority Areas
  - 7 items as part of baseline TD program
- A competitive process for R&D investments
- A communication/engagement strategy

EM Advisory Board Review of the Roadmap

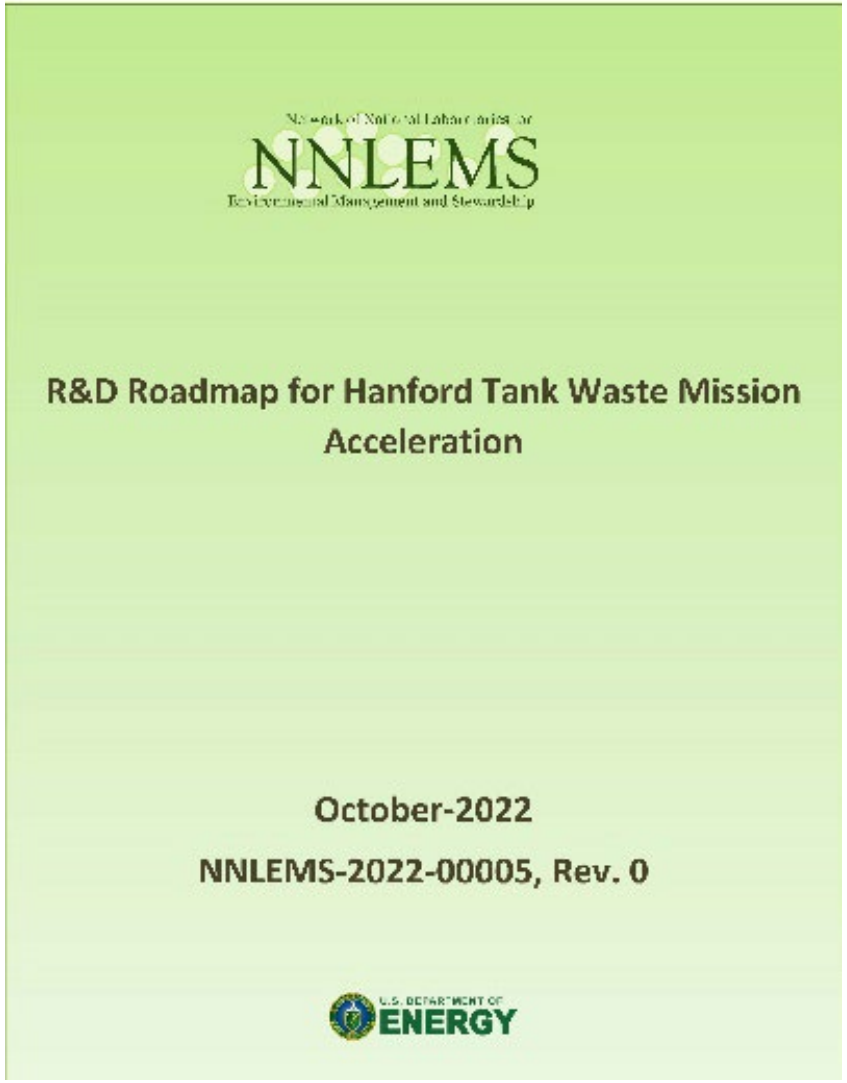
- **March 28, 2023: EM-1 chartered EMAB to perform a focused review of the Hanford Tank Waste R&D Roadmap and provide feedback on metrics for measuring success**

  - Generally, what does the EMAB think of the R&D Roadmap, does the roadmap represent a sound approach for acceleration of the tank waste mission?
  - Generally, do you agree with the priorities represented in Table 4? Which priorities deserve the most attention? Does the EMAB have other suggestions on priorities that do not appear to have been considered?
  - Are there any metrics the EMAB would recommend to measure the success of the R&D program to implement the Roadmap?

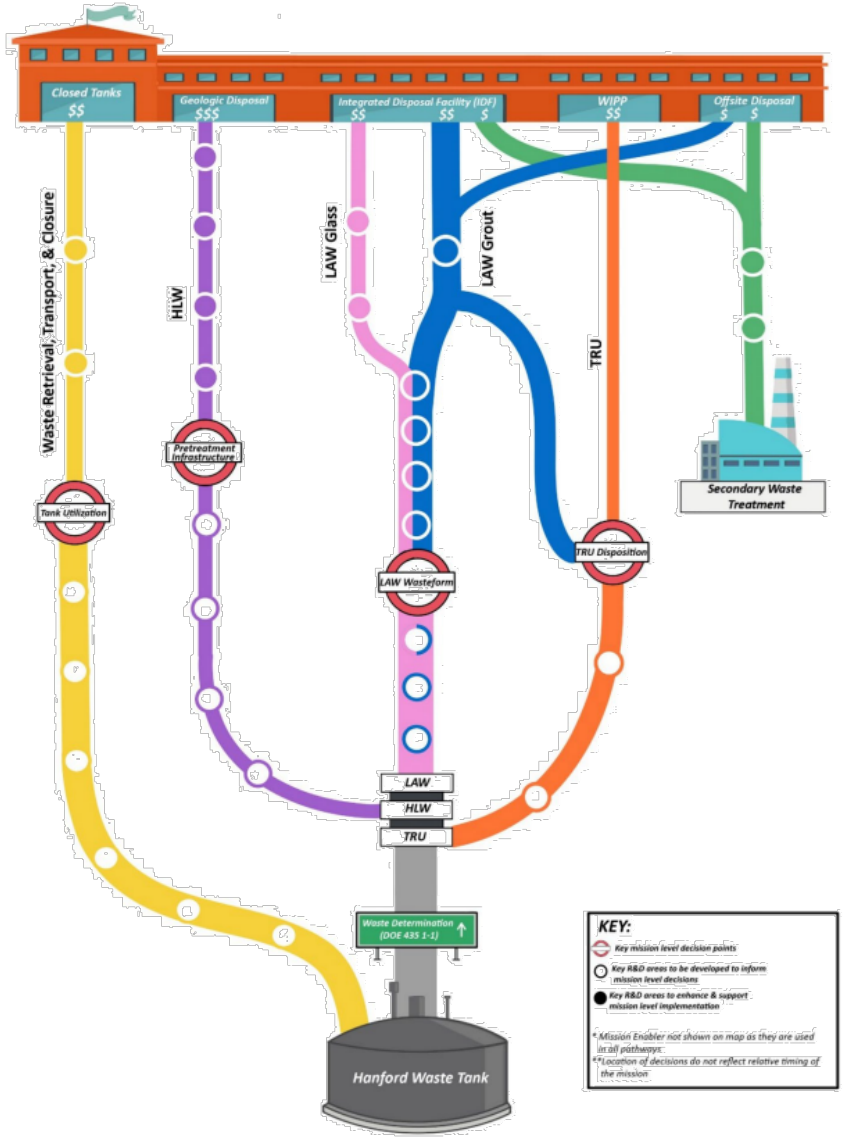
- **May 22, 2023: EMAB briefed EM-1 on findings and recommendations**

Solicitation Context

- **The DOE National Laboratory Program Announcement (LAB-23-EM001) for Hanford Tank Waste R&D expands ongoing research directions to provide approaches and technologies that are game-changing to reduce the long-term life-cycle cost and schedule.**
- **The emphasis of this Lab Call aligns with current EM priorities and is coordinated with efforts by the Hanford Site, Office of Science and ARPA-E**
- **The focus is to drastically reduce the overall cost and duration of the Hanford tank waste mission**
- **The scope is informed by priority research directions/opportunities identified in the NNLEMS R&D Roadmap for Hanford Tank Waste Mission Acceleration (NNLEMS-2022-00005, Oct. 2022)**



Scientific Scope (see Section I of the Lab Call)



- Research proposals are requested to address opportunities identified in the NNLEMS R&D Roadmap and described in the following Supplementary Information
- The focus is to drastically reduce the overall cost and duration of the Hanford tank waste mission
- Include both opportunities for near term implementation and transformational technologies that require development

Scientific Scope (see Lab Call, Section I)

Supplemental Information:

- This solicitation requests proposals to address five focus areas:
  1) Waste Retrieval, Transport and Closure
  2) Waste Pretreatment
  3) Waste Immobilization and Disposal
  4) Secondary Waste Treatment
  5) Mission Enablers
- For each of the Focus Areas, there are 1-7 Priority Research Areas identified
- The underlined are Top Priority Areas* and will be given a higher priority for funding than the remaining areas

* These Top Priority Areas have incorporated feedback from the EM Advisory Board, and therefore differ from the top priority areas as identified in the NNLEMS R&D Roadmap.

Eligibility and Teaming Requirements (see Lab Call, Sections I and III)

- Multi-institutional, multi-investigator, multi-disciplinary teams led by DOE National Labs
- EM encourages the teams to include other Federally Funded Research and Development Centers, academic institutions (including Minority Serving Institutes and Historically Black Colleges and Universities), and industry partners
- Each National Lab is limited to lead up to 7 proposals
- No more than 2 proposals from each Lead Lab per Focus Area
- The lead lab must perform a greater portion of the scientific and technical work than any other team member

Award Information (see Lab Call, Section II)

- **Type of Award**: National Lab Work Authorizations
- **Estimated Total Funding**: $30M out of the $50M per year appropriations*
- **Award Size**: Between $1M and $3M per year for each project
- **Expected Number of Awards**: Approximately 10 – 15 projects
- **Period of Performance**: Up to 3 years

*** Remaining $20M used by Hanford to fund WRPS-led technology deployment activities in support of near-term project deliverables**

Letter of Intent (see Lab Call, Section IV)

- National Laboratories should submit a list of Lead PIs for all partnering institutions and intended project areas to **EM-LabCall@em.doe.gov** for all anticipated proposals
- **Due date**: June 19, 2023, 5 pm Eastern Time
- No pre-application is required

Proposal Submission (see Lab Call, Section IV)

- National Laboratories should submit the proposals to the DOE through the Office of Science PAMS system: https://pamspublic.science.energy.gov/
- Due date: July 17, 2023, 5 pm Eastern Time
- Lab Call includes information for creating an account and submitting through PAMS
- "PAMS Help" available on PAMS website

PAMS Customer Support
855-818-1746 (toll free)
301-903-9610
sc.pams-helpdesk@science.doe.gov
Monday – Friday, 9AM – 5:30PM Eastern Time

Proposal Review (see Lab Call, Section V)

- **External merit-based peer reviews**
- **Review Criteria:**
  - Mission Relevance (35%)
  - Scientific and/or Technical Merit of Project (35%)
  - Appropriateness of the Proposed method and Approach (20%)
  - Competency of Applicant's Personnel and Adequacy of Proposed Resources (10%)

Important Dates

June 19, 2023: Labs Letters of Intent with list of lead PIs and intended project areas due

July 17, 2023: Proposals due

End of September, 2023: Project awards announced

For More Information

- **Lab Call**: Posted on the DOE EM Website (https://www.energy.gov/em/science-technology)

- This webinar is being recorded; slides and the recording will be posted on the DOE EM Website (https://www.energy.gov/em/science-technology).

- For additional questions about the Lab Call, please send an email to:

  EM-LabCall@em.doe.gov

Backup

Checklist for Applications

- ✓ Lab Call requires a **table of collaborators and conflicts of interest** with the application, submitted in Excel format
  - ✓ List of Individuals Who Should Not Serve as Reviewers (Lab Call, p. i and 27)
  - ✓ Office of Science template recommended: https://science.osti.gov/grants/Policy-and-Guidance/Agreement-Forms
- ✓ **Budget**: For multi-institutional projects, the lead institution must request a larger percentage of the budget than each of the other institutional partners
- ✓ **Biographical sketch** and list of current/pending support
  - ✓ Required for each senior/key personnel; follow instructions in the Lab Call, including the use of the NSF format (Lab Call, p. 27)
  - ✓ Ensure complete list of activities regardless of source of funding
  - ✓ Do not attach a list of individuals who should not be used as merit reviewers as part of the biographical sketch
- ✓ Submit application **via PAMS** (due July 17, 2023 by 5 pm ET)
- ✓ **Late submissions** of applications are rarely accepted (see Lab Call, p. 18)
- ✓ See page iii of Lab Call for other common errors

Required Proposal Elements (see Lab Call, Section IV)

Cover Page	• Entered into PAMS as structure data
Budget	• Entered into PAMS budget tool
Abstract	• One page, separate pdf
Budget Justification	• Entered into PAMS as separate pdf

Proposal

Single PDF in PAMS

- Proposal Title Page
- Table of Contents
- Project Narrative
- Appendix 1: Biographical Sketch(es)
- Appendix 2: Current and Pending Support
- Appendix 3: Bibliography and References Cited
- Appendix 4: Facilities and Other Resources
- Appendix 5: Equipment
- Appendix 6: Other Attachments (optional)

Focus Area 1: Waste Retrieval, Transport and Closure

Priority Research Areas:

1) Increase volume available for tank storage
2) Risk-based waste retrieval sequencing
3) Dry waste characterization, monitoring, & retrieval technologies
4) Process automation & feedback of monitoring, retrieval, and transport technologies
5) Formulate & install barriers targeted for constituents of concern at tanks or disposal site with active monitoring
6) Improved methods to detect/repair leaks for storage tanks
7) Improved sampling methods for double shell tanks

*Top priority areas are underlined

Focus Area 2: Waste Pretreatment

Priority Research Areas:

1) In-tank pretreatment of HLW sludge
2) At-tank pretreatment of HLW sludge: At-tank pretreatment is needed to provide the necessary sludge
3) RCRA organics removal from tank supernate
4) Increased solids concentration during waste processing with water management
5) Improved understanding of aluminum chemistry to optimize sludge processing

*Top priority areas are underlined

Focus Area 3: Waste Immobilization and Disposal

Priority Research Areas:

1) Cementitious materials development to improve long-term performance

2) Improved high level waste glass formulations

3) NOx management through sludge washing or off-gas abatement

4) Improvements to high level waste glass melter design & throughput

*Top priority areas are underlined

Focus Area 4: Secondary Waste Treatment

Priority Research Area:

1) Improved grout waste forms

*Top priority area is underlined

Focus Area 5: Mission Enablers

Priority Research Areas:

1) Improved equipment decontamination/disposal options

2) Real time monitoring for liquid process feeds

3) Develop system model for infrastructure & technology cost evaluation

4) Alternative disposal options for crystalline silicotitanate ion exchange media

*Top priority areas are underlined

Proposal Review: Mission Relevance Criterion (Weighted 35%)

- **Does the proposal demonstrate a clear understanding of the current state of the mission?**
- **How well does the proposed research align with the mission need to reduce life cycle cost and schedule?**
- **Does the proposal address implementation of the work within the Hanford tank waste mission?**
- **For wider applications within the EM complex, is the research useful to more than one mission requirement or beyond the Hanford Site?**

Proposal Review: S&T Criterion (Weighted 35%)

- Does the proposal provide sufficient technical detail to assess whether the proposed work is scientifically meritorious?
- Does the proposed work attempt to realize its objectives in a way that others have not previously considered or exploited?
- What is the likelihood of achieving valuable results?
- Will the proposed method provide demonstratable improvements over the baselined approach or current technology?
- What is the technology maturity of the proposed work?
- How well does the proposed work fit within or inform the regulatory framework and technical approach of the Hanford tank waste mission?

Proposal Review: Method/Approach Criterion (Weighted 35%)

- Is the proposal plan sufficient to achieve the proposed results?
- Is this a logical and feasible approach given the current state of science and technology and environmental regulations?
- How well does the proposed management structure ensure project execution and accountability?
- Is the proposal clear with well-defined milestones and appropriate deliverables?
- Does the applicant recognize significant potential problems and consider alternative strategies?
- Are the go/no-go milestones reasonable and appropriate to complete the proposed work?

Proposal Review: Personnel and Resources Criterion (Weighted 10%)

- What is the past performance of the team lead?
- How well qualified is the team to carry out the proposed work?
- What level of partnership exists between the team lead and other team members?
- Are the environment and facilities adequate for performing the proposed effort?
- Are the proposed budget and staffing levels adequate to carry out the proposed work?
- Is the budget reasonable and appropriate for the scope?