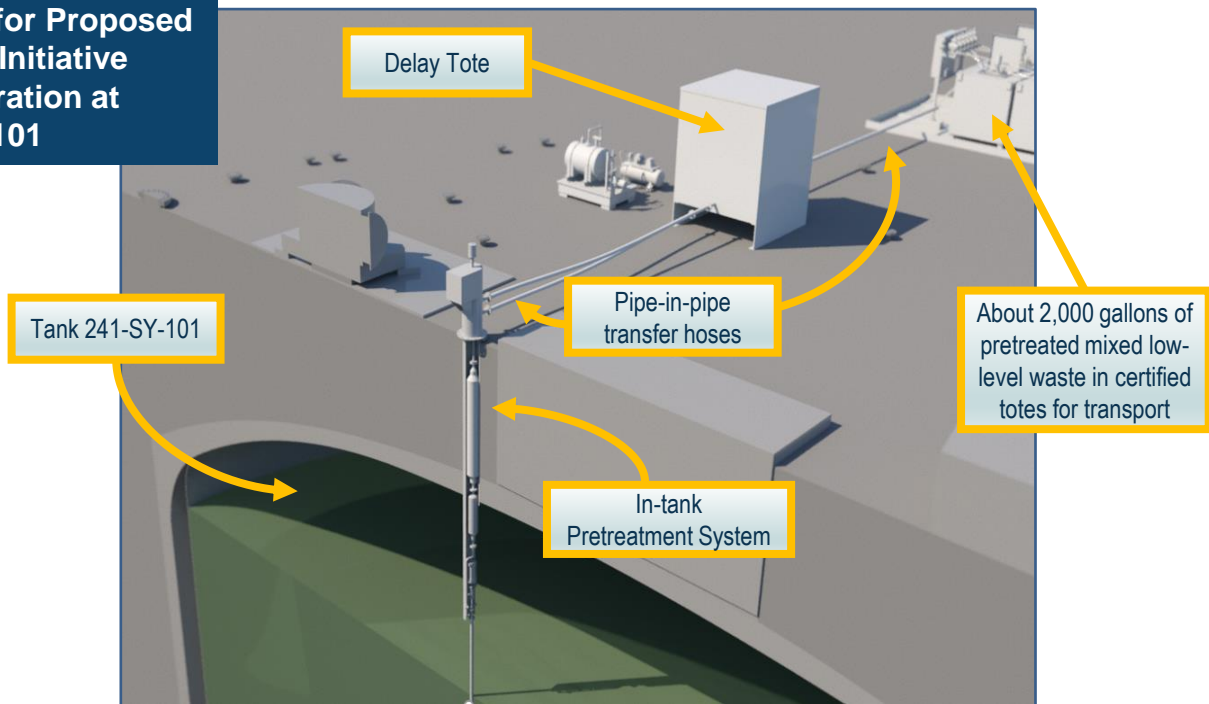


**Concept for Proposed  
Test Bed Initiative  
Demonstration at  
Tank SY-101**



**Hanford Site Background**

The 580-square-mile Hanford Site in southeastern Washington state was created in 1943 as part of the Manhattan Project to produce plutonium for the nation’s defense program. Treating, stabilizing and safely dispositioning radioactive and chemical waste in underground tanks and stabilizing it is a high priority for the U.S. Department of Energy (DOE).

**Fast Facts**

- DOE continues to make progress toward the start of vitrifying, or immobilizing in glass, Hanford’s low-activity tank waste under the Direct-Feed Low-Activity Waste (DFLAW) Program.
- Vitrification alone will not treat all low-activity tank waste at Hanford.
- In parallel with DFLAW preparations, DOE is working with the state of Washington to consider additional options for safe and efficient low-activity waste treatment like the proposed Test Bed Initiative (TBI) Demonstration, also known in the President’s budget request as the Low-Level Offsite Waste Disposal Project.
- DOE has made a Waste Incidental to Reprocessing (WIR) determination that approximately 2,000 gallons of liquid waste from Tank SY-101 can be treated, transported to an offsite commercial facility for solidification and disposed of as low-level radioactive waste in a licensed and permitted facility outside of the state of Washington.
- Based on the analysis in an Environmental Assessment under the National Environmental Policy Act (NEPA), DOE is also issuing a Finding of No Significant Impact concluding that the proposed TBI Demonstration Project will not significantly affect the quality of the human or natural environment.
- Any proposal to pretreat, stabilize and dispose offsite of more than approximately 2,000 gallons of supernate tank waste would be evaluated in a separate NEPA review.
- On Nov. 5, 2021, the Department published a Federal Register Notice to make the Draft WIR Evaluation available to the public and began a 90-day comment period. After carefully considering the public comments and Nuclear Regulatory Commission (NRC) consultation advice, DOE prepared a Final WIR Evaluation and made its WIR determination.



# Waste Incidental to Reprocessing Evaluation for the Test Bed Initiative Demonstration at the Hanford Site, Washington

## WIR Evaluation

The WIR Evaluation for the TBI Demonstration specifies that the following criteria will be met:

- Key radionuclides will be removed to the maximum extent practical during pretreatment.
- The pretreated waste will be incorporated in a solid form and not exceed Class C low-level radioactive waste concentrations.
- NRC and DOE performance objectives for safe disposal of the treated waste form will be met.

## TBI Demonstration

The demonstration will include the following actions:

- Pretreating approximately 2,000 gallons of waste as it is retrieved from double-shell Tank SY-101 at the Hanford Site to produce a low-activity waste liquid safe for transport.
- Solidifying the pretreated liquid into a grout form at an offsite facility.
- Disposing of the solid, treated waste form in a licensed, permitted, commercial disposal facility in either Texas or Utah.

Should the TBI Demonstration be completed successfully, the Department will evaluate the results and benefits of further implementation of the technology.

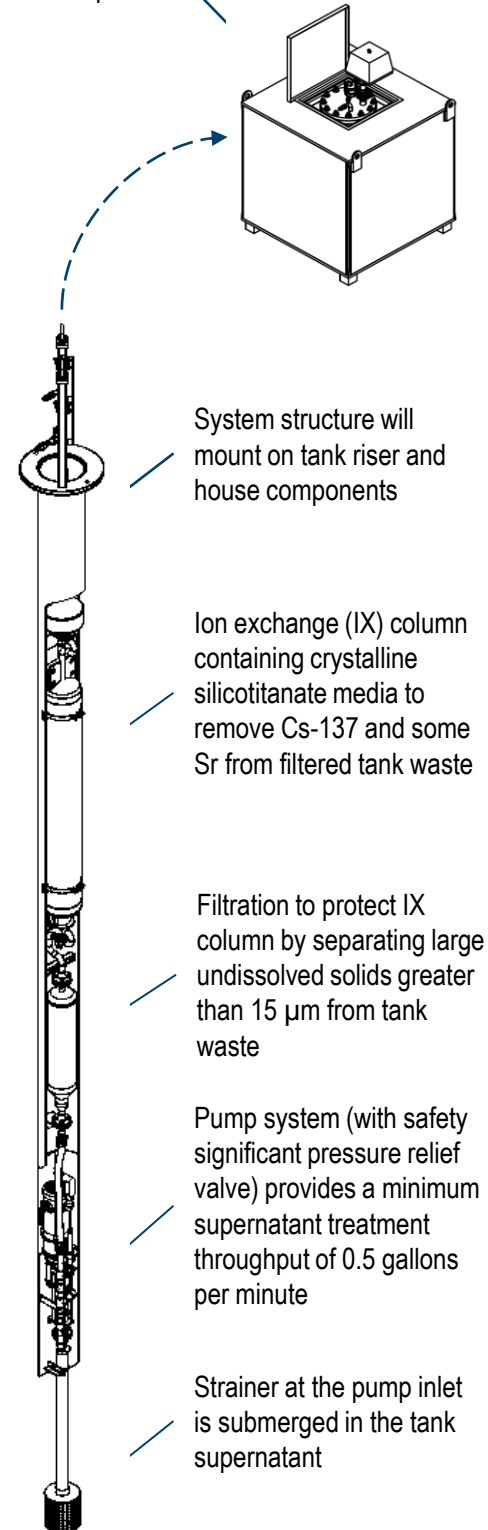
Implementation of this technology on an industrial scale may have the potential to safely pretreat low-activity waste from Hanford tanks, solidify the waste in grout and dispose of it offsite in a manner that would reduce risks to workers, the public and the environment.

## Potential Benefits of TBI

- Provides information to better inform ongoing conversations between DOE and the state of Washington on a safe, viable path forward for pretreatment, solidification and offsite disposal of some of Hanford's low-activity tank waste.
- Could demonstrate the viability of shipping a waste form out of the state of Washington for safe disposal in licensed and permitted commercial facilities.
- Would increase the availability of double-shell (full secondary containment) tank space.
- Could lead to the acceleration of the tank waste mission.
- Could lead to significant cost savings that could be used to accelerate other Hanford tank waste priorities.
- Would address independent recommendations and comments from the Government Accountability Office; the National Academy of Sciences; the Federally Funded Research and Development Center; and the Energy Communities Alliance to further study the potential cost, safety and environmental performance of potential treatment and disposal alternatives.

## In-tank Pretreatment System Design Concept

The pretreated waste stream will be transferred into Department of Transportation compliant containers, or totes, suitable for offsite shipment



SY Tank Farm



# Waste Incidental to Reprocessing Evaluation for the Test Bed Initiative Demonstration at the Hanford Site, Washington



## Consultation with the Nuclear Regulatory Commission

DOE consulted with the NRC on the Draft WIR Evaluation. The NRC provided a Technical Evaluation Report that helped inform the Final WIR Evaluation. DOE’s WIR determination comes after consulting with the NRC and receiving input from the states, Tribal Nations, stakeholders and the public.

## Public Involvement

The DOE is committed to an open and transparent process. A 90-day comment period for the Draft WIR Evaluation was held from Nov. 5, 2021, through Feb. 2, 2022. The corresponding virtual [public meeting](#) was held on Nov. 18, 2021.

For more information please visit the [Hanford website](#). Questions? Please contact Jennifer Colborn, DOE, at [Jennifer.Colborn@rl.doe.gov](mailto:Jennifer.Colborn@rl.doe.gov).

## FREQUENTLY ASKED QUESTIONS

QUESTIONS	ANSWERS
How will this affect work on the Direct-Feed Low-Activity Waste program?	The proposed Test Bed Initiative Demonstration will not affect work associated with the Direct Feed Low-Activity Waste (DFLAW) Program. Tank SY-101 was specifically selected as the source for tank waste because it is not associated with DFLAW operations.
Will DOE be applying the high-level waste interpretation to this Test Bed Initiative waste?	No, this is unrelated to the high-level radioactive waste interpretation.
Where would this waste be disposed?	The pretreated and solidified (grouted) waste would be disposed of as mixed low-level radioactive waste at a licensed and permitted disposal facility, either EnergySolutions in Utah or the Waste Control Specialists Federal Waste Facility in Texas.
Why is DOE moving forward with this now?	This is being proposed to demonstrate proof-of-concept initiatives to treat Hanford low-activity waste using commercial, licensed, permitted facilities; assess existing regulatory criteria for alternative approaches to the Hanford mission; address a Government Accountability Office recommendation that the Department should update information on performance of waste forms other than glass for supplemental Hanford Low-Activity Waste treatment and disposal methods; demonstrate a supplemental treatment option in accordance with the Tri-Party Agreement to augment and accelerate the mission to disposition Hanford tank waste; and to initiate ways to reduce cleanup costs, accelerate schedules and maximize public-private partnerships.
Does this mean DOE is now planning to use media other than glass as a treatment option for Hanford tank waste?	The 2,000-gallon Test Bed Initiative Demonstration will provide the Department with additional information to evaluate other treatment options for Hanford’s low-activity waste.

