U.S. DEPARTMENT of ENERGY | Office of Environmental Management

The **Idaho Environmental Coalition, LLC (IEC)** manages cleanup operations at the **Idaho National Laboratory (INL) Site** under direction of the **U.S. Department of Energy (DOE)**

Processing Transuranic Waste for the Idaho Cleanup Project (ICP)

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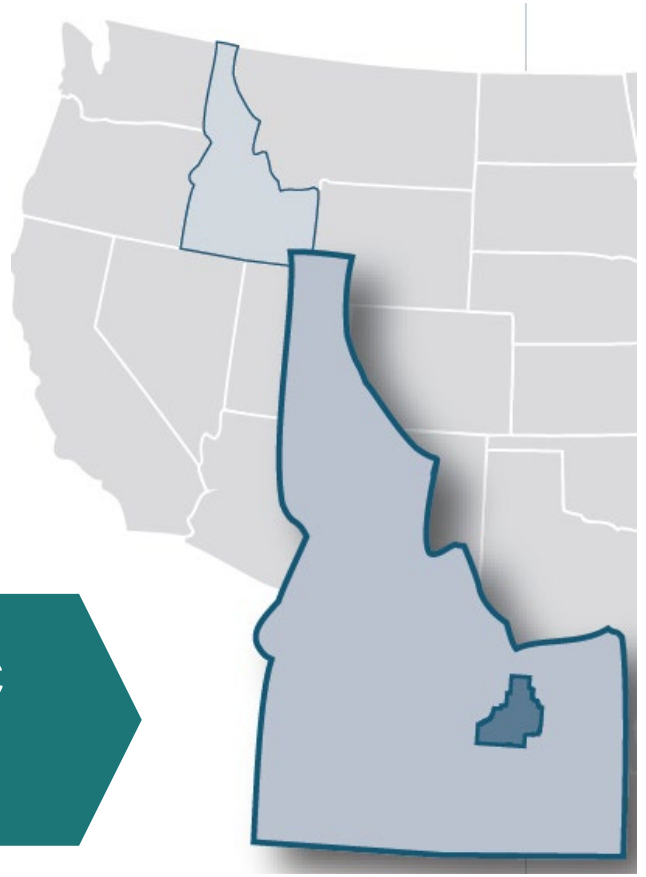
May 2025

IDAHO ENVIRONMENTAL COALITION

Idaho National Laboratory (INL) Site Cleanup

- Idaho Environmental Coalition (IEC) is working under a ten-year, $6.4 billion contract [called the Idaho Cleanup Project (ICP)] to clean up the INL Site.
  - The contract has an option for a five-year extension.
- IEC is led by corporate partners Amentum and North Wind Portage, with teaming subcontractors Navarro, Oak Ridge Technologies, and Spectra Tech.

Contract work for IEC started Jan. 1, 2022



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ICP Roadmap

- Spent nuclear fuel transfers from wet to dry storage completed
- Expansion of onsite landfill
- Completion of legacy TRU waste shipments to WIPP
- Closure of the Radioactive Waste Management Complex
- Complete sodium-bearing waste processing and Tank Closure
- Removal of three Naval Reactors Facility reactor buildings
- Development of site spent nuclear fuel repackaging capability
- Calcine waste transfers and bin set closures
- Calcine waste treatment and packaging capability

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National TRU Waste Program - Idaho Contribution

- The INL Site has made considerable progress toward a 1995 Idaho Settlement Agreement milestone to ship contact- and remote-handled transuranic wastes out of Idaho.
- Of the 14,316 total shipments to the Waste Isolation Pilot Plant (WIPP), 7,536 have come from Idaho.

Long-Term Container Storage Challenges

- WIPP experienced two unrelated incidents in 2014 – an equipment fire and an accidental release following an exothermic reaction of incompatible materials in the mine – resulting in its closure.
- These events resulted in the suspension of contact-handled transuranic waste shipments and the longer-term curtailment of shipments of remote-handled transuranic waste.
- A long-term shutdown adversely affected the ICP; significantly longer waste drum storage of legacy packaged waste introduced concerns with drum corrosion, condensation, and hydrogen gas generation.

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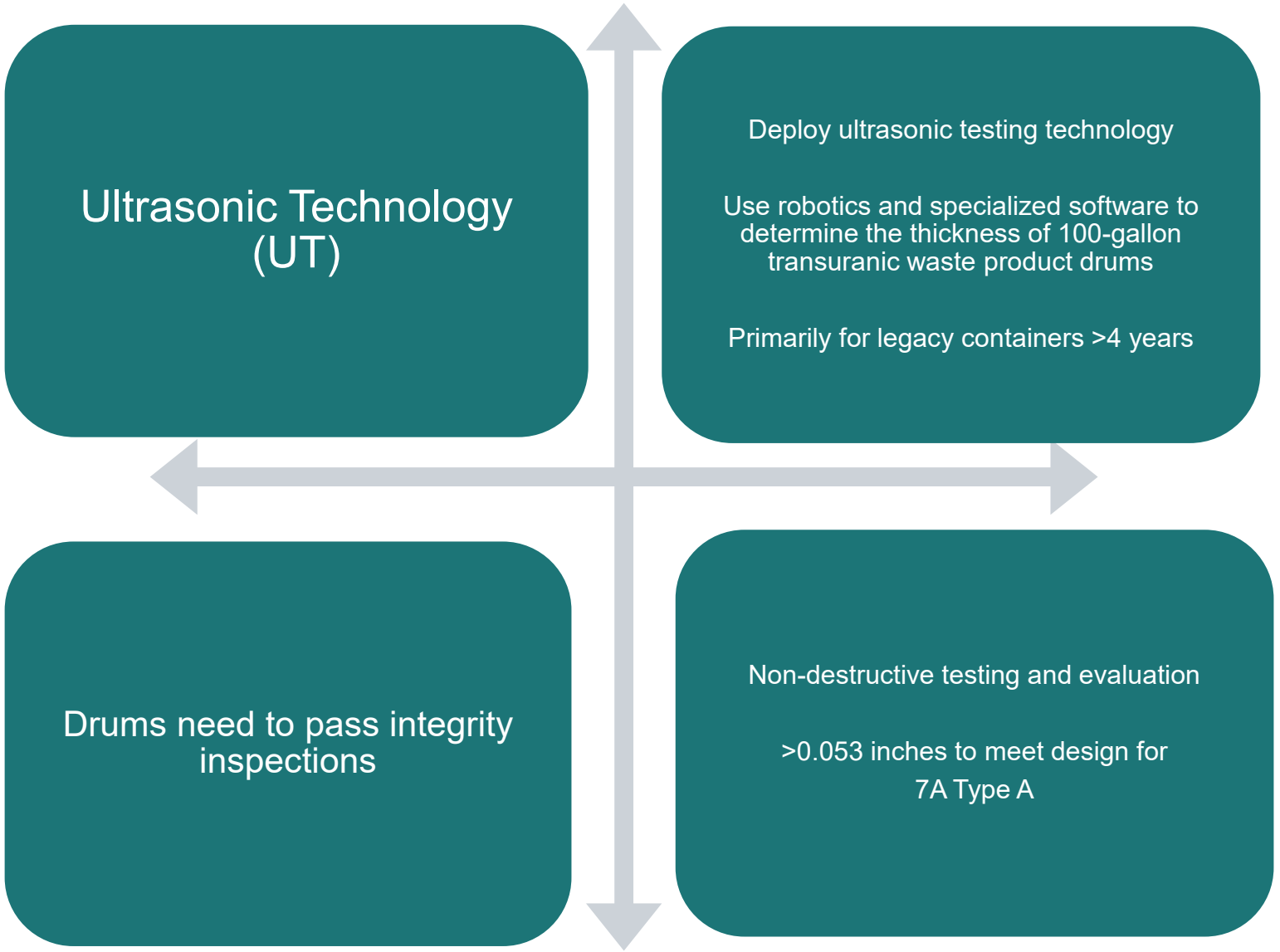
IEC Innovations



Why Implement UT?

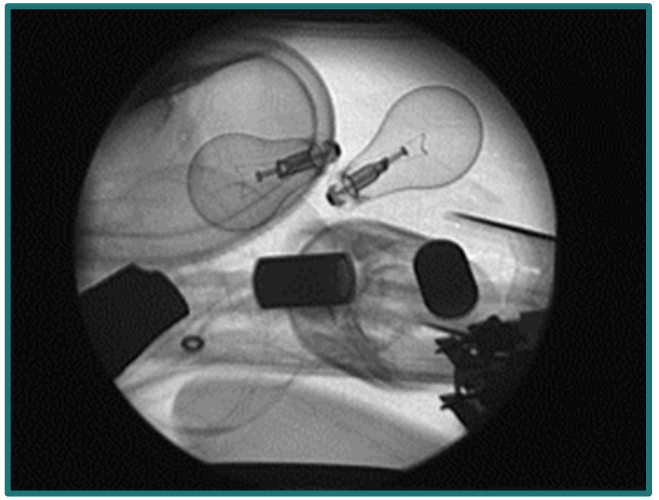
Two contamination events occurred in 2022 within TRUPACT-IIs. The contamination was a result of failed drum container integrity.

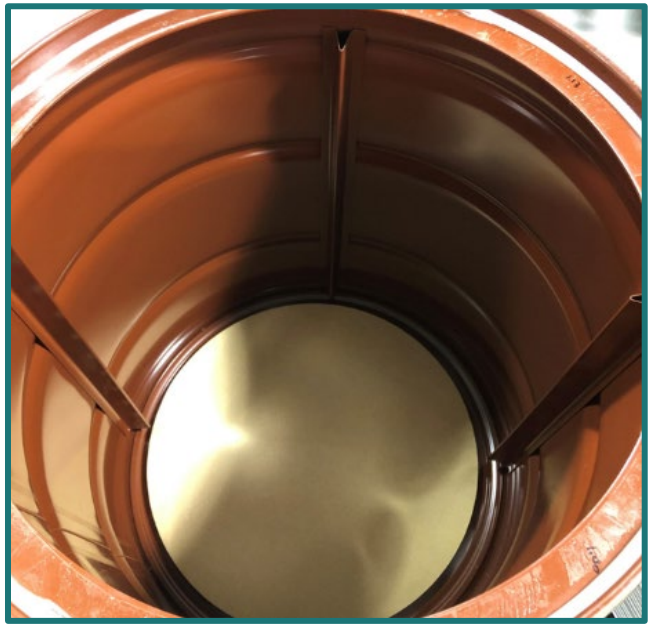
Why Implement UT? (cont'd)

- Corrosion concerns create need to overpack; UT in many cases provides an alternative.

Actions Taken Due to Contamination

- Investigated TP-148 and TP-180 shipping issues.
- Select BN-510 waste in 100-gallon drums containing super-compacted pucks are required to run through a Real Time Radiography (RTR) scan.
- Containers over 5 years old require UT or alternative non-destructive evaluation based on corrosion evaluations.
- New drums are procured with a phenolic coating inside the drums to minimize corrosion and contain a 1-inch fiber disc in the bottom for puck impact absorption.





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More about Ultrasonic Testing

- Spectra Tech/Integrity Assessment Group (IAG)/Robotic Technologies of Tennessee (RTT) teamed to develop, assemble, and demonstrate a robotic UT process.
- The UT process uses a test plan to demonstrate remaining wall thickness (RWT) at or above 0.055”.
- As of April 30, 2025, 693 drums have processed through UT, 582 passed, and 111 failed (84% passing rate).
- The robotic UT process is operational and is demonstrating a higher passing rate than initially anticipated.

Idaho Processing Capabilities

- IEC manages two facilities that have specialized capabilities to accomplish treatment, size reduction, and final characterization of waste.
  - The Advanced Mixed Waste Treatment Project Supercompactor provides for effective waste reduction.
  - At Idaho Nuclear Technology and Engineering Center, hot cells and remote work allow for processing remote handled and other difficult wastes.
- Facilities provide a resource for low-level, TRU waste-like materials to be processed at the ICP to facilitate final steps towards WIPP disposition

How to Transport to Idaho?

- The U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) has reached agreements with the states and tribes from or through which it ships TRU waste to WIPP or other destinations
  - They are implemented in OE/CBFO-98-3103, “TRU Waste Transportation Plan”

Standard Large Box 2 (SLB2)

Provisional TRU Waste Transportation Plan Between ICP and Other Sites

- An alternative transportation plan defines the process for making waste shipments (i.e., materials not certified under the NTP) in preparation for final disposition.
- The plan defines requirements and addresses an approach to flexible supplemental agreements while also ensuring appropriate regulatory authority is met.
- How is it organized?
  - The body of the plan defines administrative processes, and Appendix A provides tables of site- and material-specific information and requirements; affected states and tribes are also incorporated.

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Elements of Appendix A
Tables of Site- and Material-Specific Information

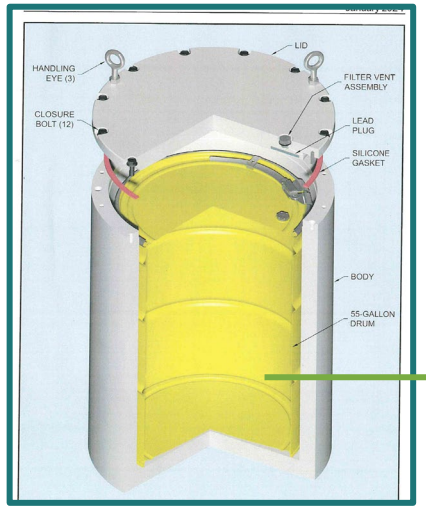
- Projected Shipping Window
- Material Description
- Packaging Description
- Special Requirements (includes routing)
- Carrier
- Inspections
- Shipment Tracking
- Hazard Communication
- Notifications and Schedules
- Delays and Safe Parking
- Emergency Considerations
- Transportation Security

Provisional TRU Waste Transportation Plan Between the ICP and Other Sites (cont'd)

- Communication is key!
- With materials transported to Idaho how long does the processing take to perform final disposition for offsite waste at WIPP?
  - The 1995 Idaho Settlement Agreement, with 2008 addendum, requires any new TRU waste brought into the INL Site to be processed and shipped out within 12 months of its arrival
  - Additionally, Idaho continues to be a primary shipper to WIPP, with the 2019 addendum allocating more than 55% of shipments

Keep Rolling On

- IEC is addressing legacy RH-TRU waste and is focused on completing CH-TRU waste shipping commitments.
- Shielded containers are planned for direct shipments of remote-handled TRU waste to WIPP by FY 2026.



Summary

- Our priority is safe shipments of transuranic, low-level, and mixed low-level radioactive waste in compliance with agreements and regulations.
- IEC is developing solutions and deploying innovative technologies to ship difficult waste streams and assist other sites across the complex.

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Questions?

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