**Distributed on August 25, 2015**

**DOE-ID Operations Summary**
**For the Period June 1, 2015 – June 30, 2015**

***EDITOR'S NOTE:*** *The following is a summary of contractor operations at the Idaho National Laboratory Site, managed by the DOE- Idaho Operations Office. It has been compiled in response to a request from stakeholders for more information on health, safety and environmental incidents at DOE facilities in Idaho. It also includes a brief summary of accomplishments at the Site. POC: Danielle Miller, (208) 526-5709.*

## *Advanced Mixed Waste Treatment Project (AMWTP)*

June 10: During a pre-job brief at the Advanced Mixed Waste Treatment Project, it was discovered that a lockout/tagout lock had not been applied to a hydraulic component on a scissor lift during preparations for a maintenance repair task. A fact finding was held and it was determined that a lockout/tagout is required. [EM-ID--ITG-AMWTF-2015-0007]

***Notable Accomplishments:*** **Innovative Idaho Site Crews Find Ways to Make Waste Retrieval Safer, More Efficient:** It's comparable in size to an aircraft carrier, and it was once packed with above-ground transuranic waste. Years ago, the Transuranic Storage Area-Retrieval Enclosure (TSA-RE) held an estimated 65,000 cubic meters of the waste, a variety of boxes and drums filled with contaminated clothing, tools, paper, and wood.

Less than 2,800 cubic meters of the waste remain to be retrieved from the enclosure, which is part of the Advanced Mixed Waste Treatment Project.

"Retrieval operations have made substantial progress over the years," DOE-Idaho Retrieval Manager Mary Willcox said. "Today, less than 2,500 cubic meters remain to be retrieved from the final pad of waste in TSA-RE, and what remains is some of the most challenging waste to retrieve, the first step in the process that ends with waste being shipped out of Idaho."

Most of the waste was sent to the Idaho site from the now-closed Rocky Flats site near Denver from the late 1960s through the early 1970s.

Located in a sophisticated retrieval contamination enclosure within TSA-RE, the remaining waste was the first to arrive from Rocky Flats. The structural integrity of the boxes and drums has declined due to being stored under an earthen berm for more than four decades, making retrieval a challenge.

Over the past 36 months, crews have retrieved about 490 boxes and more than 9,700 drums, equivalent to nearly 3,610 cubic meters of waste. They retrieve a degraded box every two days using a methodical approach based on a careful balance of safety, compliance, and production.

With a focus on continuous improvement, AMWTP's retrieval crews have retrieved the waste safely and compliantly. They also have enhanced the retrieval process, improving safety and efficiency, by developing innovative techniques, including:

- Controlling contamination through expanded use of point-source ventilation, which is ductwork that can be pointed at a specific item to ensure airborne contamination from the item is caught at the source and is removed from the work area;
- Use of the Retrieval REBOX, a large wooden box used to hold degraded barrels and contain contamination, instead of metal boxes previously used. The REBOX is easily broken apart, versus shredding the metal boxes, which reduces wear and tear in the treatment facility;
- A second Inner Contamination Enclosure (ICE) and a cantilever system designed by an AMWTP Engineer allows the ICE to be moved easier, faster, and with more precision to maintain the schedule for retrieving severely degraded boxes. The cantilever system positions the ICE, a mobile facility, over the degraded containers to contain contamination;
- The Box Retrieval Forklift Carriage, designed by employees, handles degraded boxes safely;
- Process changes in radiological controls. With the significant amount of waste being retrieved, radiological controls crews have considerable real-time data to refine their approach to working in the radiological environment; and
- The Bull Run Soft-Sided Overpack replaced heavy, metal cakebox overpacks to provide a safer and more efficient way to overpack degraded boxes.

### *Idaho Cleanup Project (ICP)*

June 8: An operator at the Integrated Waste Treatment Unit was splashed with simulant feed solution on the face during the performance of a valve post maintenance test. The operator quickly flushed the affected area on his face with water and was immediately evaluated by a medical response team member. The operator was transported to an onsite medical facility for evaluation, and as an additional precaution, evaluated by an offsite ophthalmologist. Following both medical evaluations, the affected operator was cleared to return to work without restrictions. [EM-ID--CWI-IWTU-2015-0004]

June 22: An operator was struck on the hand by a drum lid assembly at the Idaho Nuclear Technology and Engineering Center when a drum ring and lid expelled unexpectedly from an empty over pack drum. The drum was being opened by another operator when the event occurred. Operators were performing overpack project related evolutions, both were wearing the proper Personnel Protective Equipment, and neither operator was injured. [EM-ID--CWI-ICPWM-2015-0002]

June 24: Using recent testing data, personnel at the Integrated Waste Treatment Unit determined that a minimum auto-ignition temperature for combustible material accounted included in the hazard analysis may too low. Analyses to determine the proper temperature has been conducted. [EM-ID--CWI-IWTU-2015-0005]

***Notable Accomplishments:*** **Experimental Breeder Reactor –II decontamination and demolition continues to make progress:** Following the treatment of residual sodium from the Experimental Breeder Reactor-II cooling system, CWI Decontamination and Demolition crews

completed final removal of the MFC-766 heat exchanger sodium treatment systems at the Materials and Fuels Complex as part of the Experimental Breeder Reactor-II demolition project.

In recent years, EBR II has undergone extensive deactivation and demolition. In the process, more than 800,000 pounds of lead were removed and volumes of potentially dangerous sodium have been treated.

Elemental sodium, which was used as a reactor coolant at EBR-II, is highly reactive when exposed to humidity and becomes especially violent when it comes into contact with water, producing a highly volatile hydrogen gas. CWI's D&D team solved the intricate puzzle by safely treating the sodium inside the 34-foot-tall heat exchangers, this was achieved through development of first of its kind processes, initiating cutting edge technology, and implementing safety controls through research and development initially provided by the Department of Energy.

"It went remarkably well," CWI D&D Director Troy Donahue says, noting the team went above and beyond to safely and successfully tackle this extremely challenging project, incorporating lessons learned during each phase.

Overall, the project has used four different processes in treating the sodium at MFC since the team began evaluating sodium distillation seven years ago— in situ trickle down treatment, super-heated steam, liquid spray tank treatment, and saturated steam.

CWI Vice President Hoss Brown applauded the accomplishment, "I appreciate the exceptional professionalism and safe work ethic of our D&D crews leading to an exemplary safety record and proven results."

### *Idaho National Laboratory (INL)*

June 1: A Battelle Energy Alliance employee tripped at the Central Facility Area a suffered a broken foot. [NE-ID--BEA-CFA-2015-0003]

June 9: Firefighters from the Idaho National Laboratory Fire Department inadvertently advanced within 25 feet of an energized power line while supporting the Arco Fire Department during a wildland fire response. No contact was made with the line, and crew members were not injured. [NE-ID--BEA-CFA-2015-0004]

June 16: A radioactive source in a shielded container was inadvertently shipped from the Critical Infrastructure Test Range Complex to the Materials and Fuels Complex. This was a result of the wrong container being placed in the shipping package instead of a similar container holding a different radioactive source. Exposure to radioactive material did not occur as a result of this action. [NE-ID--BEA-INLLABS-2015-0002]

June 23: A maintenance worker at the Materials and Fuels Complex used a work control document to perform work on a steam boiler system that did not identify and analyze hazards or

develop and implement required hazard controls, such as a lock-out/tag-out. The steam boiler system was in a seasonal shutdown (i.e. cooled and drained). There were no hazardous energies present. [NE-ID--BEA-MFC-2015-0003]

***Notable Accomplishments:*** **Idaho National Laboratory mourns the passing of Leonard Koch:** Idaho National Laboratory recently recognized the passing of nuclear pioneer Leonard Koch at the age of 95. The American Nuclear Society announced his passing in a June 1 news posting.

"The visionary work of Leonard Koch and his colleagues lives on today as the world moves toward advanced nuclear reactor designs to meet global energy needs," said John Grossenbacher, INL Lab Director. "They proved essential principles of nuclear energy here in Idaho and established the basis for the advanced energy research that continues at INL today."

Koch was a pioneer in the development of the original concept of nuclear power and was a leading world expert on fast reactor technology. He was the associate project engineer for Argonne National Laboratory working on the Experimental Breeder Reactor-I at the National Reactor Testing Station in Idaho in 1951 during EBR-I's first successful run, which proved that nuclear power could be used to produce electricity.

Koch, who later became project manager for development of a successor reactor, the EBR-II, called his times working on the EBR programs his "happy days in this business." His research proved to be a fundamental blueprint for the construction of nuclear plants globally.

In just 12 years of operation, EBR-I achieved many firsts: the first reactor to generate usable quantities of electricity from atomic energy, the first breeder reactor, the first to use liquid-metal as a coolant, and the first plutonium-fueled reactor. While EBR-I successfully demonstrated the feasibility of breeder reactors–or reactors that could breed more fuel than they consumed–EBR-II showed that reactor and fuel recycle systems were scalable to a full-scale power station. During the first few years of its operation, EBR-II recycled the core through the reactor five times, demonstrating the feasibility of a closed fuel cycle.

EBR-I was dedicated as a Registered National Historic Landmark on Aug. 25, 1966, by President Lyndon Johnson and Glenn Seaborg, chairman of the Atomic Energy Commission. The facility is now a museum open to the public for tours throughout the summer season.