Distributed on May 14, 2015

DOE-ID Operations Summary
For the Period December 1, 2014 – December 31, 2014

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)

December 4: A waste retrieval operator entered into an airborne activity posted area and was observed not to have the required filters installed on his Powered Air Purifying Respirator. Upon discovery, the operator immediately egressed without incident. No contamination was measured on the operator upon exiting the area. The affected operator was placed into bioassay monitoring; no internal contamination was detected. An investigation into the incident was conducted and corrective actions were immediately put in place to prevent a reoccurrence. The AMWTP Plant Manager conducted meetings to discuss the significance of this event and path forward. [EM-ID--ITG-AMWTF-2014-0016]

Notable Accomplishments: **Cargo container unloading commences**- In late November waste retrieval operators at the Advanced Mixed Waste Treatment Project began operations to remove drums of waste from 55 cargo containers loaded with drums of transuranic waste. In the 1970s, 209 cargo containers were loaded with drums of transuranic waste as part of an experiment to shed light on the risks associated with waste retrieval from subsurface storage and the best approaches to safely retrieve and repackage buried waste.

The ITG team continues to make safe and compliant progress. Fourteen drums were successfully extracted from the first cargo container. Earlier in their contract ITG had successfully completed sending 105 empty cargo containers to the Idaho CERCLA Disposal Facility for permanent disposal. The 105 cargo containers had been emptied by a prior AMWTP contractor.

Idaho Cleanup Project (ICP)

December 4: The Integrated Waste Treatment Unit (IWTU) experienced a failure of an airlock valve. The failure of the airlock resulted in a manual activation of the rapid shutdown system. The facility was placed in a stable condition and appropriate notifications were made. The failure with the valve was determined to be due to a failed actuator. A fact finding meeting was held. [EM-ID--CWI-IWTU-2014-0021]

Notable Accomplishments: Light replacement project nets big savings-The Idaho Nuclear Technology and Engineering Complex's ongoing energy reduction effort has been an illuminating success. Recently Idaho Cleanup Project system engineers designed and implemented a LED light replacement project at the CPP-663 high bay, which resulted in Idaho Power presenting a check to the Idaho Cleanup Project for over $22,000.

Within CPP-663 high bay, 40 of the 400-watt metal halide lights were replaced with 16 285-watt LED lights saving approximately $10,000 a year in electricity costs. The LED lights will last 10 times longer than the original bulbs, saving over 2,000 hours in light and ballast replacement time over the course of 10 years.

If the high bay has fewer lights with a lesser power output, the building must be darker inside, right? Actually, according to light measurements taken before and immediately after installation, the opposite is true. The new LED lights more than doubled the illumination in the high bay, which has an increased safety component as well.

This is the first of many LED replacement projects currently planned for INTEC. Warehouses and radiological facilities where lights are left on 24/7 are prime candidates and will be evaluated for potential for energy reduction.

Idaho National Laboratory (INL)

December 3: Bolts being used on the casters of two equipment lifts at the Materials and Fuels Complex were identified as potential suspect/counterfeit fasteners during a new equipment inspection. The bolts were confirmed to be listed on the suspect/counterfeit fastener list. [NE-ID--BEA-MFC-2014-0009]

December 3: A potential inadequacy in safety related documentation regarding fueled experiment storage in the Advanced Test Reactor (ATR) reactor vessel was declared. An unreviewed safety question determination was initiated and interim controls were established to protect fueled experiments in the reactor vessel. Existing requirements to protect ATR fuel also provided protection for the fueled experiments. [NE-ID--BEA-ATR-2014-0033]

December 8: An emergency firewater injection system deep well pump at the Advanced Test Reactor (ATR) did not start in automatic as expected. The deep well pump maintains the ground level storage tank inventory above an alarmed set point. At the time of discovery, ATR was shut down and defueled and the pump was not required to be operable. [NE-ID--BEA-ATR-2014-0034]

December 9: Bolts being used on a gas cylinder handcart safety chain mechanism were identified by Materials and Fuels Complex personnel as potential suspect/counterfeit fasteners. The equipment was placed out-of-service. Management was notified. The bolts were confirmed to be listed on the suspect/counterfeit fastener list. [NE-ID--BEA-MFC-2014-0010]

December 12: An Advanced Test Reactor Process Operator discovered that the latch for a confinement door was stuck and failed to keep the door latched shut. The reactor was shut down and defueled at the time of the discovery. [NE-ID--BEA-ATR-2014-0035]

December 10: Equipment operators at the Materials and Fuels Complex discovered potential suspect/counterfeit fasteners on a forklift. The bolts were confirmed to be listed on the suspect/counterfeit fastener list. The equipment was placed out-of-service and management was notified. [NE-ID--BEA-MFC-2014-0011]

December 10: Equipment operators at the Materials and Fuels Complex (MFC) discovered a potential suspect/counterfeit bolt on the handle of a chain fall during a preventative maintenance inspection. The bolts were confirmed to be listed on the suspect/counterfeit fastener list. The equipment was placed out-of-service and management was notified. MFC personnel have taken a concerted effort to identify Suspect/Counterfeit Items (S/CI) on in service equipment and on new equipment undergoing inspections. As a result, they have identified many items that may potentially be S/CI. [NE-ID--BEA-MFC-2014-0012]

December 15: A Lockout-Tagout (LOTO) was installed by personnel with an expired LOTO qualification. [NE-ID--BEA-IMCL-2014-0001]

December 16: Emergency pump flow Reactor Safety System (RSS) instrumentation at the Advanced Test Reactor began to alarm while being set-up for instrument calibrations. At the time of the alarm the ATR was in outage with fuel removed from the reactor vessel. [NE-ID--BEA-ATR-2014-0037]

December 15: A potential inadequacy in safety related documentation regarding the Advanced Test Reactor (ATR) experiment loop pressurizer was declared. An unreviewed safety question determination was initiated. The condition was re-analyzed and found to be safe prior to restart. [NE-ID--BEA-ATR-2014-0036]

December 17: An employee leaving the Energy Innovation Laboratory slipped and fell to the ground. Medical evaluation x-rays showed a fracture. [NE-ID--BEA-INLLABS-2015-0001]

December 20: An Advanced Test Reactor Process Operator discovered that a confinement door had a filed latch. All confinement doors were checked to identify if other door issues existed. As a result of this check another door was found to have a damaged seal. At the time of discovery ATR was shut down and defueled. [NE-ID--BEA-ATR-2014-0038]

December 23: It was discovered that a mobile trailer at the Central Facilities Area had been connected to a power panel without following a hazardous energy control process. Immediate notifications to appropriate management were made. [NE-ID--BEA-CFA-2014-0005]

Notable Accomplishments: **New supercomputer available to Idaho researchers**-Idaho National Laboratory is enabling researchers to leverage their work with a newly acquired supercomputer. The 16,416-processor Silicon Graphics International Corporation (SGI) supercomputer known as “Falcon” will allow INL researchers to build more complete scientific models and better predict outcomes for a variety of nuclear and energy-related issues.

“We’re excited about the acquisition of Falcon,” said Jeff Staffon, director of Scientific Computing at INL. “Partnering with Intel® through its ‘Early Adopters Program’ allowed us to get this highly anticipated architecture early in the release cycle to meet an important milestone. Our expectations are high that this addition to INL’s high-performance computing capabilities will further enhance modeling and simulation of complex systems and processes.

INL awarded a contract to ComnetCo, Inc. for the new supercomputer, which is more than five times faster than its predecessor, Fission, which came online in 2011. Initial Falcon benchmarks, a SGI ICE-X™ supercomputer based on Intel Haswell™ processors, has demonstrated a

floating-point performance in excess of 500 teraflops, which means it can perform over 500 trillion floating-point calculations per second. Its Top500.org ranking of the 97th fastest supercomputer in the world was announced at this year's Supercomputing Conference, SC14, in New Orleans.

"Nearly all physics in nuclear power applications are interdependent," said Dr. Richard Martineau, director of INL Nuclear Science and Technology Modeling and Simulation. "Thus, modeling and simulation efforts of INL's Nuclear Science & Technology Directorate are primarily focused upon efforts to resolve coupled phenomena." Reliable and capable high-performance computing (HPC) resources are required when solving nuclear fuels performance, radiation transport and nuclear physics, and thermal fluids phenomena associated with INL programs, he said. The SGI Falcon supercomputer will bring a new level of capability in meeting these INL missions.

"This computer acquisition positions the laboratory for continued leadership in modeling and simulation which is tightly coupled to both national scientific user facilities and nationally recognized experimental expertise," said Eric Whiting, director of INL Applied Computing and Visualization. "Falcon and other INL compute resources enable laboratory science and engineering staff to innovate highly creative modeling and simulation capabilities which produce relevant results."

Denise Stephens, INL chief information officer, believes that high-performance computing to support INL's modeling and simulation capability and core research mission is vital to supporting INL's vision.

"A modern, high-performance computing capability is a resource that must be available to today's researcher," Stephens said. "With the rate of technology change, a continued and strategic investment in high-performance computing is imperative to support INL's missions."