PANEL SESSION 50: US DOE Featured Site: Idaho

Co-Chairs: **Jim Cooper**, *US DOE*
Ken Whitham, *US DOE*

Panel Reporter: Kelly Rhodes, *CH2M-WG Idaho (CWI)*

Panelists Part 1:

1. **Jim Cooper**, *Deputy Manager Idaho Cleanup Project, US DOE-Idaho Operations Office*
2. **Danny Nichols**, *President and Project Manager, Idaho Treatment Group*
3. **Jim Malmo**, *Assistant Manager Waste Disposition, US DOE-Idaho Operations Office*
4. **Dave Haar**, *Waste Programs Manager, Idaho Treatment Group*
5. **Tom Dieter**, *President and CEO, CH2M-WG Idaho*

Panelists Part 2:

1. **Ken Whitham**, *Assistant Manager Facilities and Material Disposition, US DOE-Idaho Operations Office*
2. **Hoss Brown**, *Vice President, CH2M-WG Idaho*
3. **Jim Malmo**, *Assistant Manager Waste Disposition, US DOE-Idaho Operations Office*
4. **Jim Floerke**, *Vice President, CH2M-WG Idaho*
5. **Erin Bognar**, *Vice President, Project Planning and Integration, CH2M-WG Idaho*

About 60 people attended this panel session which focused on the cleanup mission and progress at the Department of Energy's Idaho site. Jim Cooper opened the session with an overview of environmental cleanup at the Idaho site followed by cleanup highlights from various subject matter experts. A question and answer session followed formal presentations. Question topics included dry storage capacity for spent nuclear fuel and schedule projections for the Integrated Waste Treatment Unit.

Summary of Presentations

Jim Cooper provided a brief history of the Idaho National Laboratory site including its 890-square-mile footprint and origins as the National Reactor Testing Station. The INL was home to 52 first-of-a-kind nuclear test reactors. Over the years, the site was contaminated by World War II / Cold War conventional weapons, government-owned research reactors, spent nuclear fuel reprocessing, laboratory research, and other defense missions. In 1989, the site was added to the EPA's National Priorities List of Superfund Sites due to past releases to the underlying Snake River Plain Aquifer. The DOE also entered into legally binding cleanup agreements with the State of Idaho and EPA. Cooper provided the history and cleanup mission for the site's six major focus areas. He then introduced the two principals responsible for delivering cleanup at the Idaho Site – Tom Dieter, President and CEO of CH2M-WG Idaho and Danny Nichols, President and Project Manager for the Idaho Treatment Group.

Danny Nichols discussed the employee safety record at the Advanced Mixed Waste Treatment Project (AMWTP), logging more than 14 million hours worked without a lost-time injury. To date, the Idaho Treatment Group has shipped 48,000 cubic meters of transuranic waste to the Waste Isolation Pilot Plant (WIPP), the largest shipper of contact-handled transuranic waste in

the DOE complex. AMWTP is on track to meet the Settlement Agreement milestone to have 65,000 cubic meters of TRU waste shipped out of Idaho by 2015 but no later than 2018. Nichols described new improvement initiatives either put in place or planned, including a drill and drain treatment process for 4,700 drums of sludge waste and using the facility's supercompactor to treat liquids and aerosol cans. AMWTP plans to continue to receive, treat, and ship waste from as many as 15 waste generators. For the current fiscal year (FY13), 375 shipments are planned. For FY14, the shipments will increase to 650.

Jim Malmo and Dave Haar described the unique processing capabilities at the AMWTP as the facility repackages and ships 65,000 cubic meters of transuranic waste to the WIPP for permanent disposal. Malmo discussed the AMWTP's waste inventory in addition to waste placement over the years. Haar provided an overview of the project's waste treatment process including characterization, treatment, and shipping processes. In addition to WIPP, some waste from the facility is shipped to Utah and Nevada based on the wastes' activity. AMWTP has received, validated, treated and shipped waste from 15 sites (~600m^3); the facility's Record of Decision allows for more than 8,700m^3 to be shipped to AMWTP from sites in the DOE Complex.

Tom Dieter provided highlights from the Idaho Cleanup Project (ICP) I. He noted the project's stellar safety record – reducing recordable injuries by 70 percent since CH2M-WG Idaho (CWI) assumed the main cleanup contract in 2005. He said CWI delivered its ICP-I work scope $520 million under budget. Dieter shared a video featuring worker interviews and highlighting seven years of cleanup. DOE extended CWI's contract in 2012 for an additional three years. Dieter provided an overview of ICP-II including scope and challenges. Under the extension, CWI is treating 900,000 gallons of liquid, sodium-bearing waste; closing the Tank Farm; dispositioning 6,000 drums of transuranic waste sludge; exhuming buried transuranic and mixed waste from a 1950s area landfill and shipping that waste to the WIPP; shipping remote-handled transuranic waste to WIPP; and managing spent nuclear fuel.

Ken Whitham and Hoss Brown discussed the changing landscape at the Idaho site brought about by the decontamination, decommissioning and demolition (D&D) of more than 200 buildings and structures over the seven years of ICP-I. Whitham provided an overview of the project's D&D scope including the challenges and types of facilities tackled by ICP D&D crews. Facilities included 1950s-era reactors, hot shops and cells, buried waste retrieval structures and various other buildings and systems. Brown highlighted some key strategies that enabled project success. Safety led the way with a total recordable average of 1.3 (seven year average) – one third of the national construction average and no personnel uptakes. Crew blending to enhance mentoring as well as management presence in the field contributed to project performance. Regulator and stakeholder partnerships, the engineering evaluation/cost analysis process, and early determination of final disposal pathways defined CWI's regulatory approach. A proven technical approach, worker focus, and numerous innovations helped achieve completion one year ahead of schedule and $312 million of savings to the taxpayer.

Jim Malmo and Hoss Brown chronicled the history of the infamous transuranic waste disposal cell known as Pit 9 and the approach that was used to ultimately remediate the pit significantly ahead of schedule and under budget. Several challenges were noted with remediating Pit 9, including the pyrophoric nature of some of the waste, drum degradation, and subsidence of a

waste treatment enclosure. Despite these challenges, personnel made more than 7,500 entries into radiological/contaminated areas without an uptake and there were no recordable injuries. Innovations and continuous process improvements aided project success including a procedure to address pyrophoric events resulting in little production impact, application of Integrated Safety Management System (ISMS) principles, consolidation of all key project functions at the job site, and use of existing concrete foundation and firewater line. The Pit 9 waste retrieval enclosure is now being used to treat 6,000 drums of transuranic waste sludge. Repurposing the facility saved taxpayers millions of dollars over constructing a new Resource Conservation and Recovery Act building.

Ken Whitham provided an overview of the spent nuclear fuel facilities and missions at the Idaho site. Whitham discussed the Atoms for Peace Program, which provided nuclear fuel and technology to peaceful nations and committed to accept the spent fuel from these nations when reactors were closed or missions changed. Under Atoms for Peace, DOE is the organization tasked with the responsibility for the collection, safekeeping, and eventual disposition of U.S. origin spent nuclear fuel, and the Idaho site is the designated temporary repository for TRIGA® fuels - Training, Research, Isotopes, General Atomics. TRIGA® fuel is used in over 60 American and international research reactors at universities and institutes around the world. The Idaho site receives 1-5 shipments of foreign research and domestic research reactor fuels each year.

Jim Floerke described the process for collection and safekeeping of TRIGA® spent nuclear fuel at Idaho. Researchers travel to reactor sites, inspect the fuel, develop shipping documentation, work with several agencies and entities prior to the shipments, develop a fuel packaging strategy, and execute a fuel receipt approach. Once received in Idaho, the fuel is interim-stored at the CPP-603 facility until it and all fuel will be removed from the state in 2035 in compliance with the Idaho Settlement Agreement. Floerke ended the presentation with a video that captured a complete fuel evolution – from receipt to storage.

In *Looking Forward: The Next Phase of Cleanup at Idaho*, **Ken Whitham and Erin Bognar** shared both near-term (ICP-II) and post 2015 activities planned for the Idaho site. Whitham noted that partnering between DOE and CWI had been the foundation for success in ICP-I; DOE and CWI renewed that commitment to foster an environment of trust, collaboration and open communication at a partnering workshop prior to the start of ICP-II. Bognar provided an overview of ICP-II scope including

- Processing of ~900,000 gallons of sodium-bearing waste stored in underground stainless tanks
- Rinsing tanks and process residual waste
- Cleaning and closure of four remaining 300,000 gallon tanks (RCRA)
- Receipt and shipping Training, Research Isotopes, General Atomics (TRIGA) fuel
- Receipt and storage of Advanced Test Reactor fuel
- Shipping 746 m^3 of remote-handled transuranic waste
- Treatment and disposal of 171 containers of uranium-233 waste
- Treatment and repackaging of 6,000 AMWTP sludge drums

- Exhumation of 0.46 acres

Whitham concluded the session with DOE's Environmental Management mission post-2015. DOE and its cleanup contractors will continue to reduce environmental liabilities and fulfill obligations to the people and state of Idaho through activities such as completion of buried waste exhumation (2.12 acres), RCRA closure of tank farm facilities, and design and construct a calcine treatment facility. These activities pave the way for future nuclear energy missions at the Idaho National Laboratory.