

Portsmouth, Paducah Project Leaps Past Shipment Milestone, Delivering Economic Benefit to U.S.

The company that operates DOE’s depleted uranium hexafluoride (DUF6) conversion facilities marked a milestone in September when it shipped the one millionth gallon of hydrofluoric acid.

Babcock & Wilcox Conversion Services (BWCS) continues to deliver more of the acid to Solvay Fluorides for industrial use through a contract with DOE. Sales of the solution return revenues to DOE and provide an economic benefit to the agency and American taxpayers.

The acid is a product of the conversion of DUF6 to a more stable form for ultimate disposal. DOE constructed two plants to convert the nation’s inventory of DUF6, a residual product of the nation’s uranium enrichment programs at the gaseous diffusion plants in Paducah, Ky. and Portsmouth, Ohio. More than half of the one million gallons were shipped from the conversion facility in Portsmouth, and the remainder came from Paducah.

BWCS recently announced the operation of all seven conversion lines at both plants for the first time. The plants have been in startup mode and partial conversion

operations since they began ramping up in fiscal year 2012. DOE’s strategy is to bring the plants to full potential throughput in the year ahead. The Paducah and Portsmouth sites together have more than 780,000 metric tons of DUF6 to convert.

“Ultimately, we will be shipping several million gallons of hydrofluoric acid a year and generating millions in long-term revenues,” said Jack Zimmerman, the DOE project manager at the Portsmouth/Paducah Project Office. “This income will result in substantial reductions in disposition costs for the hydrofluoric acid and allows us to recycle an important industrial product at the same time we clean up the nation’s legacy of uranium enrichment.”

George E. Dials, BWCS president and



Pictured here are railcars carrying tanks of hydrofluoric acid for shipment from the Portsmouth site to Solvay Fluorides for industrial use.

project manager, said: “We are delighted that we’re at a stage where the numbers are starting to add up and there is a real return on investment to the American taxpayer. With all seven lines operating, we expect to have the plants operating at optimal capacity within the next fiscal year.”

The plants were designed to operate for 25 years or more to convert the extensive inventory.

New Steam Plant Replaces Outdated Coal-fired System at Portsmouth

As work moves toward cleaning up the former uranium enrichment facilities at the Department of Energy (DOE) Portsmouth Site in Piketon, plans are under way to decontaminate and decommission (D&D) the antiquated coal-fired steam plant at the Site. Two steam boilers were installed

in September 2012 as part of the new X-690 Natural Gas-fired Steam Plant. The new natural gas based boilers are more efficient, create less pollutants and are more appropriately sized than the old coal-fired system.

“The new natural gas steam plant will

reduce greenhouse emissions and provide ongoing steam to support the anticipated decontamination and decommissioning project at the former uranium enrichment facilities,” DOE Site Director Dr. Vincent Adams said. “By October, the new boilers will be providing heat for all Fluor-B&W Portsmouth facilities.”

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WEDNESDAY FEATURED SITE

Building Removal Accelerates at Paducah Site



A crew removes cement-asbestos siding, left, from the 10-story portion of the Metals Plant.



Workers package siding, above, so that it can be transported to the Paducah Site's industrial landfill.

Work is in high gear at the Department of Energy's (DOE) Paducah Site to demolish a 65,000-square-foot facility called the C-340 Metals Plant, where uranium metal was made during the Cold War.

Demolition efforts accelerated in mid-November with cleanup contractor LATA Environmental Services of Kentucky having removed more than 2,000 panels of cement-asbestos siding from the Metals Plant complex. The 2,000 panels represented 86 percent of the siding removed and more than 82 tons of waste disposed. Siding removal began Aug. 22.

Demolition began Sept. 26 with portions of the complex where siding had been removed, while removal crews moved to other parts of the building. The single-story north and south annexes, covering about 13,000 square feet, have been demolished. About 600 tons of demolition debris from those buildings was size reduced, packaged and placed in the site's industrial landfill.

Heavy equipment operators are now focusing on the three major sections of the complex. Two- and four-story sections of the building are being torn down, followed by a 10-story section that is about the same height as the U.S. Bank Building in downtown Paducah. The Metals Plant footprint is about one-third of the size of the average Walmart SuperCenter.

LATA Kentucky is three months ahead of the DOE baseline schedule. The Metals Plant building is scheduled to be reduced to slab by January 2013.

The Metals Plant is the first major uranium

processing facility to undergo full-scale demolition at the site.

Located on the east side of the site, the facility operated from 1956 until the mid-1980s. Besides producing uranium metal, the Metals Plant converted depleted uranium hexafluoride (UF6) into uranium tetrafluoride (UF4), known as green salt. Green salt was used in other manufacturing processes.

Accelerated cleanup under the American Recovery and Reinvestment Act allowed for removal of more than 100,000 cubic feet of systems waste, enough to fill roughly 200 dump trucks. The Metals Plant was declared demolition-ready in early August 2011, avoiding \$2.5 million in inflationary costs by being cleaned up five years ahead of schedule.

Wearing protective equipment, workers manually removed siding panels that were roughly 12 feet long by and weighed as much as 170 pounds. Heavy equipment lowered the panels to the ground.

Use of protective equipment and hand removal of the siding were among several controls specified in a work plan approved by DOE and regulatory agencies to prevent releasing asbestos from the siding during demolition. Other controls included allowing only those directly involved in removal to enter the work zone; monitoring the air in worker breathing zones and on the perimeter of the work zone; applying fixative to the siding; and spraying mist in the demolition area.

All work is being done in accordance with applicable state and federal regulations.



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Fukushima Two Years Later

Nearly two years have passed since Japan's earthquakes and tsunamis set off wastelands and nuclear disasters. Wastelands to be known singularly as Fukushima.

International cooperation has led to new models in advancing safety and design in nuclear energy, while lessons learned have flowed in all directions, not only helping Japan recover, but generating new knowledge and processes that benefit the international community involved.

Japan and the nations, companies and laboratories working alongside it have learned that there is no magic bullet promising success, but instead a long-term process of learning, adapting and learning again. Sharing of knowledge has been important in creating a process in which each step forward is built on the progress of the step preceding it, rather than on repetition.

In three of the four sessions on progress in recovery and remediation, panelists working with Japanese companies and institutions made it clear that while much has been accomplished, the process of recovery, remediation, D&D will take decades. Two years of work is merely a start, defining some of the problems and recognizing that others are yet to be discovered.

A very long road lies ahead. While some of the problems and processes have been defined, others are yet to be discovered. Emphasis was repeatedly made on not solving one problem and creating others . . . decontaminating with water, for example, without contaminating soil . . . not using systems and technology that will cause more long-term harm than short-term good.

A measured and measurable approach is called for in a situation where rapid response is desired. Nearly 350,000 evacuees have yet to be relocated to the evacuation zone. Japan is obviously and rightly in a major push for progress because its people are impacted on a daily basis.

Not everyone is waiting. Some residents and communities have undertaken their own remediation. One school cleared a contaminated area by scraping the soil and burying it in its parking lot, from which it

will later have to be retrieved. Water used for cleaning will require later decon.

Houses are a priority so that people can get back to their lives. More than one million structures have already been cleaned.

One issue unresolved is the decontamination of forests, which make up a large part of the area surrounding the reactors. How do you clean a leaf without hurting the forest? Leveling the area is an undesirable option.

The enormous volume of waste is currently a problem but will become an even larger problem. Design is underway for three extensive interim storage sites where waste can be held for up to 30 years. Long-term disposal awaits research and problem-solving. Waste volumes are so large that will be required before permanent disposal.

Other conclusions:

The sharing of implementation processes, regulatory frameworks, and stakeholder communications processes has been as productive and useful as the sharing of technology, which dominated the early stages of recovery.

Ongoing dialogue and sharing is becoming routine and is generating new methods of collecting data and providing access to it.

What Japan and the international nuclear community is learning are ways to make nuclear energy safer for workers and the public. Technology is improving rapidly, to the benefit of all involved.

The Japanese are looking for ways to incorporate what others are bringing them and making it their own.

Intensive contamination involves 104 municipalities and an area of 1300 sq.kilometers. The most extreme contamination covers a 500-sq.-mile area where there is total evacuation and where protective clothing is required for entry.

Ground contamination appears to be largely immobile and shallow, but equipment cannot remove just a few centimeters of soil. Large quantities of the removed soil are actually clean, and "Clean" remains to be defined.

Politics will be particularly important in determining Japan's nuclear future. Japan was a nuclear energy superpower before Fukushima, with 30 percent of its energy from nuclear. Shortly following the disaster, efforts appeared to force reduction of nuclear. Recent elections have empowered parties supporting nuclear development. Japan gets 80 percent of its energy offshore.

市町村名	福島市		二本松市		伊達市	
除染計画	5/21 策定済		10/1 策定済		8/10 策定済	
除染作業状況	実施 計画	進捗率 (実績/計画)	実施 計画	進捗率 (実績/計画)	実施 計画	進捗率 (実績/計画)
公共施設(施設数)	532 666 679	78 %	74 79 82	90 %	199 252 380	52 %
住宅(戸)	3734 20806 20806	18 %	1399 4358 5002	28 %	1317 2877 6228	21 %

Information Board at the Decontamination Information Center in Fukushima City

Whiteboard with recovery data: an example of stakeholder communications at D&D Plaza, Fukushima City

B&W mPower Receives Award for SMR Technology



The B&W mPower reactor program moved a step closer to deployment with a recent announcement of the signing of a contract to prepare and support Nuclear Regulatory Commission review of Construction Permit Application for a B&W mPower reactor small modular reactor nuclear plant at the Tennessee Valley Authority's Clinch River site near Oak Ridge, Tennessee.

The contract formalizes the first steps toward deployment at the Clinch River site as contemplated in TVA's May 2011 Letter of Intent to B&W

for the project. It also marks the first definitive milestone in the U.S. Department of Energy's (DOE) recently initiated SMR Licensing Technical Support Program for commercial demonstration of SMRs by 2022.

The DOE selected B&W mPower in November 2012 as the recipient of the Program's competitively bid cost-share funding grant, in which \$452 million was made available to support the development and deployment of SMR technology. Work at the Clinch River site will begin once B&W mPower and the DOE sign a cooperative agreement, which will determine the amount of grant funds awarded to the B&W mPower program.

The B&W mPower reactor is an advanced integral pressurized water reactor designed to generate 180 MW of electricity. The reactor features a four-year operating cycle without the need for refueling,

and is designed to produce clean, zero-emission operations. The design features underground containment and passive safety systems. Generating capacity can be added in 180 MW increments to match the needs of utilities.

The Babcock & Wilcox Company subsidiary Babcock & Wilcox mPower, Inc. is leading the development, licensing and delivery of B&W mPower reactor projects.



Research Revealing New Information About Technetium Behavior

There's still much to learn about how technetium behaves during vitrification, but recent U.S. Department of Energy-funded research led by Pacific Northwest National Laboratory is validating at least one existing theory about the radionuclide's behavior—while setting the stage for new discoveries.

Technetium is long-lived (a half-life of 213,000 years). It doesn't adsorb well onto the surface of minerals, meaning it can migrate into the ground at nearly the same velocity as groundwater, making it a significant environmental concern at Hanford and other sites.

The research is part of an effort to develop an improved approach for managing technetium, which is present in the Hanford Site's high level waste slurries. Plans call for the waste to be vitrified at the DOE Waste Treatment and Immobilization Plant (WTP), now under construction at Hanford. The vitrification process uses

high heat to incorporate contaminants into a glass waste form for long-term storage.

"Our main research objective," according to PNNL's Dong-Sang Kim, "is to determine how we can increase the retention of technetium in the glass during the vitrification process. Retention in glass historically has been low—on the order of 40 percent. We want to know why, and how that percentage can be increased, so that as much technetium as possible can be incorporated in the glass." There are additional questions about what fraction of technetium is lost to the off-gas and processing system as the radionuclide is incorporated into glass, and how the chemistry of technetium affects that interaction.

Kim notes the research team examined solubility—or technetium's ability to dissolve into molten glass during vitrification—as one of the challenges to retention. "Our data now confirm a

commonly-held theory that solubility does not limit how much technetium goes into glass," Kim explains, "and in coming to this understanding, we've learned other things about the behavior of technetium, including that salt formation on the surface of the melt during vitrification could be one of the factors responsible for low retention." These findings and others were reported in the October 26, 2012, edition of *Environmental Science and Technology*.

The PNNL-led effort, which includes colleagues from Lawrence Berkeley National Laboratory and the DOE-WTP Project Office Engineering Division, did not use technetium in initial experiments, relying instead on rhenium, a nonradioactive surrogate. More recent experiments have employed technetium, and results from those inquiries will be available in the near future.

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“The new natural gas steam plant will reduce greenhouse emissions and provide ongoing steam to support the anticipated decontamination and decommissioning project at the former uranium enrichment facilities,” DOE Site Director Dr. Vincent Adams said. “By October, the new boilers will be providing heat for all Fluor-B&W Portsmouth facilities.”

The DOE is preparing for the anticipated D&D of more than 400 buildings and systems used in the former gaseous diffusion plant following a half-century history of uranium enrichment for the nation’s defense and the nuclear power industry.

The purpose of the X-690 project is to build a right-sized efficient steam plant with the capacity to meet the site’s heating needs for now and in the future. The X-690 replaced the X-600 coal-fired steam plant that served the facilities for nearly 60 years. The old plant has three coal-fired boilers (manufactured in 1953) designed to produce more than four times the needed steam to heat the plant’s facilities. Due to the plant’s age, escalating maintenance costs, reliability issues and pending enactment of more stringent environmental regulations, the original coal-fired steam plant would not be able to continue to efficiently meet site demands.

The DOE prime contractor for cleanup work is Fluor-B&W Portsmouth. Crews from Geiger Brothers Construction, a local sub-contracted firm, and Fluor-B&W Portsmouth project management prepared for the installation by installing infrastructure and rerouting steam lines to support the new system. Installation of the boilers was completed in early September, and the facility became operational in the fall 2012.

“An integrated project team including Department of Energy personnel and local firms worked together to make this project

a success,” Adams said. “The successful conclusion of this project assures that we are implementing cleaner, more efficient energy options as we prepare to move forward with cleanup activities here at the site.”

In addition to other facilities, the DOE Portsmouth Site in Piketon includes the Portsmouth Gaseous Diffusion Plant that provided uranium enrichment services for the Department of Defense and the nuclear power industry for more than 50 years. The plant moved to cold shutdown status in 2004 and the DOE is working with contractors to prepare a plan for decontamination and decommissioning of the former enrichment facilities.

The X-690 Steam Plant at the DOE Portsmouth Site in Piketon was installed in September 2012. The new natural gas based boilers are more efficient, create fewer pollutants and are more appropriately sized than the former coal-fired system.

The X-600 Steam Plant provided steam heat for many buildings in the former Portsmouth Gaseous Diffusion Plant at the DOE Portsmouth Site in Piketon for more than 60 years.

Used Nuclear Fuel and HLW

Uncertainty about the future of geological disposal in the US and the increase in new nuclear power plants worldwide have sharpened the need to consider interim and retrievable storage and disposal options for dealing with UNF/SNF and HLW. William Boyle, Director of DOE’s Office of Used Fuel Disposition R&D shared on Tuesday that many studies are being conducted to look at transportation, storage and disposal. One such report, which has not been released yet, looks at shipping stranded fuel from shutdown sites to a consolidated interim storage facility. Boyle said that key to any action is community involvement. Interactions must be held with potential host communities to discuss what a consolidated facility would bring to the area. The DOE is also evaluating the Blue Ribbon Commission’s recommendation for development of a near term plan for taking the borehole disposal concept to the point of demonstration.

NRC’s James Rubenstone discussed the Technical Basis they developed for

extended storage and transportation that looks at degradation processes, predictive models and monitoring and inspecting. He also outlined the Waste Confidence Rule schedule, saying that the final EIS, Final Waste Confidence Decision, and Final Waste Confidence Rule are due for completion by August 2014.

According to Graham Fairhall, Chief Science and Technology officer at the National Nuclear Lab in the UK, Finland and Sweden have secured plans for a repository and are expected to announce locations soon. Fairhall said that it is mandated in Europe that by 2015, all countries must have plans in place for HLW storage. There’s somewhat of a “checkered past” in getting host communities to step forward and agree to locate a storage and/or disposal facility in their community.

Gary Lanthrum of NAC International focused on shipment of hazardous substances through communities and

addressing the perception of risk. He shared a study from the National Academies which reports that communities are ten times more likely to have fatalities in shipping accidents from transport of chlorine than nuclear waste. In evaluating risk, there are victims, heroes and villains. These central roles help define trust and confidence in government and safety. While public trust in the federal government regarding nuclear waste policy is only about 20% positive, public trust in first responders is very high (over 80%). This trust could be leveraged by having first responders help to further testing on cask shipping and accident response.

When asked what can be done without legislation on HLW storage, Boyle said that Research and Development activities need continued appropriations. The Nuclear Waste Policy Act says that construction cannot occur until a license is complete, but a great deal of work goes into getting to that point and can be accomplished now.

Tank Waste Retrieval Continues at Hanford

Three Single-Shell Tanks Emptied at Hanford C Farm in 2012



A crane and rigging worker prepares to lift equipment into position near C-104, one of three underground waste storage tanks emptied this year at Hanford.

Work continues at Hanford tank farms with waste retrieval activities now under way in Tank C-101, a single-shell tank containing about 88,000 gallons of waste. It's the most recent in a flurry of activity over the past 12 months, as tank farm workers completed retrieval activities in a record three single-shell tanks in 2012: C-104, C-108 and C-109.

"The completion of retrieval activities in three tanks last year marks a historic achievement at Hanford tank farms," said Tom Fletcher, Assistant Manager for the Tank Farms Project at the Department of

Energy Office of River Protection (DOE-ORP).

In September, DOE-ORP and prime contractor, Washington River Protection Solutions (WRPS), celebrated completion of C-109, the tenth tank emptied to date. Video taken inside the 530,000-gallon-capacity tank shows a large percentage of the tank bottom is now visible. In August, C-104 was declared empty, and retrieval activities in C-108 were completed last March.

In all, crews removed waste from six different underground tanks in 2012, completing retrieval activities in three tanks and removing the bulk of the material from another two. And, for the first time in Hanford history, workers removed waste solids from three different tanks simultaneously.

The tanks require multiple technologies to mobilize the hard-to-remove waste and push it to a pump for removal. Workers deployed various sluicing tools using waste from nearby receiving tanks to remove the bulk of the tank waste before turning to a two-step chemical soak process to help dissolve and loosen the hardened waste at the bottom of the tank.



Standing near a pipe providing access to the tank below, workers initiate a water soak aimed at loosening hard-to-remove-waste from the bottom of C-109.



C Farm June 2012: ORP has successfully removed waste from a tenth storage tank at Hanford. Located in C Farm, C-109 is one of 16 underground tanks ranging in capacity from 55,000 to 530,000 gallons.

NRC to Hold Public Meeting to Discuss Changes

The US Nuclear Regulatory Commission (NRC) will conduct a public meeting on Friday, March 1, 2013, immediately following the annual WM2013 Conference to discuss potential changes to the Agency's low-level radioactive waste (LLRW) manifest guidance in NUREG/BR-0402, Revision 2, "Instructions for Completing NRC's Uniform Low-Level Radioactive Waste Manifest."

The staff is proposing to revise this

guidance document to address improved reporting guidance for several hard to detect radionuclides which potentially drive the groundwater dose at LLW disposal facilities. Comments received will be incorporated into a draft document that will be issued for public comment.

All are welcome to attend, including waste generators, processors, disposal facility operators, States, LLW Compacts, advocacy groups and members of the

public. Although this workshop is not a part of the WM2013, it is being held the day after the conference ends to facilitate attendance and participation by members of the waste industry who utilize the waste shipping manifest regularly.

The session will be held in the Sheraton Phoenix Downtown Hotel located at 340 North Third Street. Registration is from 7:30 am – 8:00 am. The session is scheduled to run until 5:00 pm.

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Wildfire Helps Accelerate TRU Waste Disposal

In June of 2011, the largest wildfire in New Mexico's history swept across 150,000 acres of land in Las Conchas. It raged on the perimeter of LANL Technical Area-54, where thousands of TRU waste drums were stored above ground. New Mexico's Governor Susana Martinez responded to the disaster and called upon the US DOE/NNSA and the New Mexico Environment Department to reprioritize disposal of the highest risk, above ground TRU wastes. New Mexico Environmental Department Secretary David Martin said that Governor Martinez soon realized the bulk of the above ground TRU waste at LANL had been stored there for many years, and wondered...why?

The Framework Agreement was put into place between state, federal and contractor organizations to set milestones for TRU waste removal and shipment to WIPP and reprioritized activities based on risk.

The Framework's primary objectives are to accelerate TRU waste removal and to ensure ground and surface water protection. Milestones are reviewed quarterly, and an annual evaluation of the overall plan assures that activities are prioritized based on risk and any new information. Regulatory relationships have been strengthened and a strong partnership has been formed among all parties as a result. The "core team" consists of the New Mexico Environmental Department, DOE EM HQ, DOE National Nuclear Security Agency, Los Alamos Field Office, and Los Alamos National Security, LLC.

The 3706 Campaign states that 3,706 above ground TRU waste will be sent to WIPP by June 30, 2014 and new-generation waste will be sent to WIPP by December 31, 2014. The Carlsbad Field Office Manager Joe Franco shared that advancements in technology and priority shipping

resources have enabled deadlines to be met. Specifically, the High Energy RTR, a type of x-ray for drums allow handlers to see through the containers without having to take them apart. In addition, advancements in packaging and use of production modeling improved operations at the Los Alamos National Lab, said Dan Cox, Deputy Associate Director.

Ralph Phelps with the New Mexico Citizens Advisory Board echoed the success of the Framework Agreement in allowing a strong partnership to be forged among the parties. David Nickless of DOE NNSA Los Alamos Field office shared that even the activist community has responded positively to the changes and has been supportive of the plan. The partnerships that were formed not only triggered unprecedented cleanup progress, but also enabled partnership and advocacy from all parties for budget needs.

DOE Future Site Vision

It wasn't a trip in an automated flying car (think Jetsons!) but it was an expansive view of where the DOE complex will be and how it will get there. And where else but at the WMS will you hear the future vision for DOE sites compared to the sculpting of David? Like Michelangelo, is DOE taking pieces of the site away (think decommissioning) to "sculpt" a piece of art - the future site vision?

Throughout the discussion, three themes emerged: Partnership, Technology, and Sustainability. Underlying these themes was the acknowledgement that successful completion of the Environmental Management mission work is foundational. The future is clearly dependent upon the current and future successes.

Partnership is certainly not a new concept in the EM program. The organization at large has worked diligently to build strong partnerships with stakeholders, regulators, community representatives, and among the sites and labs. But emerging in the future vision dialogue is the recognition of the need to build strong partnerships with industry. Public - Private partnerships will

play a lead role as sites move to the future.

Technology will get us where we want to be, and will be the key to the future missions and uses of the site. Advances in remediation technologies and strategies will assure the sustainability of the cleanup effort. Testing and demonstration of the technologies needed to support decisions on future repositories or advanced reactors may hold new mission opportunities for the sites currently undergoing cleanup.

Sustainability enters the Environmental Management lexicon with a laser-like focus. A sustainable approach is critical to completing the cleanup, and the future uses of the sites all hinge on sustainability. Whether concerning actions taken today, or planning for the future, the panelists recognized the need for balance across the sustainability pillars of environment, economy, and society.

The future vision of the DOE complex will likely continue in this Socratic dialogue, to explore complex ideas, to open up issues and problems, to uncover assumptions, and eventually to achieve the vision.

Manager Skills Training Workshop Held on Sunday

This half-day workshop provided a condensed, but intense, training on management, project management, safety and risks. Topics covered included managing projects for successful outcome, tools of the trade, nuclear safety culture, and managing risks.

Dr. Jas Devgun served as the primary instructor for the workshop. He was assisted by the guest lecturers Robert Zelmer from AECL, Maria Lindberg from Studsvik and Stuart Walker from EPA. The afternoon of the workshop was especially engaging, where personal experiences from various projects were discussed. Nobody left the workshop before completion, in fact, many continued with questions and one-on-one discussion even afterwards!

Participants received a certificate of attendance and a complete set of workshop notes.



Wednesday & Thursday Panels and Workshops

Wednesday AM

Panel Session 65

US DOE Procurement and Contracting

This panel will look at how US DOE and NNSA have integrated project management principles into the overall procurement process. Room 102 B 8:30 AM.

Panel Session 66

Procurement and Contracting with US DOE Prime Contractors

This panel will focus on small business procurement and contracting opportunities. The US DOE encourages prime contractors to obtain goods and services from small businesses. Room 102 B after Session 65.

Panel Session 67

IAEA Special Session on the Management of Disused Sealed Sources

This panel will discuss national strategies for sustainable and end of life management of DSRS and an assessment of options for long term management. Room 103 AB 8:30 AM.

Panel Session 68

Regulatory Challenges and Innovations Related to US DOE Sites

This panel of US State regulators will focus on key challenges and examples of applied innovations in regulatory approaches which have Room 104 AB 8:30 AM.

Panel Session 69

Wednesday US DOE Featured Site: West Valley, New York

This panel will focus on the challenges and successes in decommissioning the West Valley site HLW. Room 104 AB 10:15 AM.

Panel Session 70

International Deep Repository Progress

This panel will address the current status, recent progress and future plans of deep geologic repository programs. Room 105 B 8:30 AM.

Wednesday PM

Panel Session 81

UK/USA Partnering Across the Pond

Representatives for US DOE and UK NDA will present the overall accomplishments to date and discuss future direction of the Bilateral Agreement. Room 102 B 1:30 PM

Panel Session 82

Contract Transition: Initiating the Final Contract to Achieve the Dounreay Interim End State

This panel will focus on the implementation of the contract to achieve Interim End State. The contract is the first closure contract awarded by the UK NDA. Panelists will discuss lessons learned and perspectives from affected parties. Room 102 B 3:15 PM

Roundtable Session 84

WM Energy Facilities Contractor Operating Group (EFCOG)

The WM EFCOG Roundtable will focus on a variety of issues of importance to the US DOE waste management operations. Each site will provide a briefing on lessons learned. Room 106 at 1:30 PM.

Panel Session 85

Worldwide Regulatory Challenges of Radioactive Legacy Sites: IAEA Working Forum (Part 1 of 2)

This panel provides an opportunity to share information about activities within the IAEA International Working forum programs specific to nuclear and uranium legacy sites. Room 105 B 1:30 PM.

Panel Session 86

Worldwide Regulatory Challenges of Radioactive Legacy Sites: IAEA Working Forum (Part 2 of 2)

This panel addresses abnormal situations at legacy sites as they raise many questions about safety and security, environmental and human health protection. Room 105 B after Session 85.

Panel Session 87

Characterization and Survey for Decommissioning and WM

This panel will focus on updates of characterization and survey protocols, methods, approaches and technical developments in support of decommissioning and waste management. Room 103 AB at 1:30 PM.

Panel Session 88

Wednesday Featured Sites: US DOE EM Lexington, KY Office (Portsmouth, OH and Paducah, KY Sites)

This panel will focus on the developments and successes of the US DOE Portsmouth and Paducah sites which are managed by the US DOE Lexington, KY office. Room 103 AB at 3:15 PM.

Panel Session 98

Legal Lessons for Small Contractors

This panel will focus on legal issues related to small business federal contractors and will use case studies, keen insight and humor to acquaint you with teaming, joint ventures and bonding assistance. Room 106 C at 3:20 PM.

Thursday AM

Panel Session 101

Waste –Incidental-to-Reprocessing (WIR) Lessons Learned EFCOG Workshop

This workshop will explore the regulatory processes reviews, roles, approvals and interactions for disposal for tank closure of using the WIR portion of DOE O 435.1. Room 102 B 8:30 AM.

Panel Session 102

The Future of Consent-Based SNF/HLW Disposal Siting and Discussion of the Alternatives

This panel will discuss the elements and challenges of consent-based siting and the alternatives as they relate specifically to disposal of SNF and HLW. Room 105 B at 8:30 AM.

Panel Session 103

Recent Developments and Trends in Integrated Risk Assessment Methods, Tools and Decision Analysis Support

This panel will have presentations from the US and Non-US communities on: 1) New approaches for performance assessment, multi-media risk assessments, and multi-attribute decision analysis in support of remedy selection and closure projects. Room 103 AB 8:30 AM.

Panel Session 117

Waste-Incidental-to-Reprocessing and NDAA S 3116 Lessons Learned – EFCOG Workshop

This workshop will focus on identification of the overall key “Lessons Learned” from the experience of the four US DOE sites involved in the management of HLW. Room 102 B at 1:30 PM.

Panel Session 118

The Blue Ribbon Commission on America’s Nuclear Future Report – One Year Later, US and International Developments

The Blue Ribbon Commission on America’s Nuclear Future conducted a comprehensive review of policies for managing the back end of the nuclear fuel cycle and need a report. DOE has responded with its own plans and this workshop will provide a forum to discuss America’s path forward. Room 101 C at 1:30 PM

Friday March 1, 2013

The USNRC Public Meeting on potential Changes to NRC’s Uniform Low-Level Radioactive Waste Manifest Guidance in NUREG/BR-0402

Sheraton Phoenix Downtown Hotel
Room Phoenix – A 8:00 AM

Attribution Identified as Issue by LLW Disposal Panel

The Andrews Texas site is up and running and received its first waste shipment in April of 2012. Full scale operations began in July, according to Daniel Burns of Waste Control Specialists (WCS). The disposal site is uniquely designed and can accommodate waste from many sources and waste requiring complex or complicated treatments. WCS believes that an open discussion with generators on how they create their wastes and sharing the knowledge of steps required in the final processing will lead to efficiencies in how to best match up their methods with disposal requirements.

License amendment 14, which authorized operations, was signed in April of 2012, and several additional amendments are in the works. WCS wanted to be sure they had capacity to take care of Texas' and Vermont's waste first, but also looked ahead 45 years at capacity requirements. Additional capacity will be added to handle the rest of the nation's waste for specific waste streams. Currently, curies are limited, with 220,000 curies allowed in 2012 and 120,000 curies for 2013, but work is being done to increase those limits. Because this has to be done legislatively, it takes time, Burns added.

New services this year include conditioning to get rid of free liquids and void filling. Other services offered are treatment and processing of MLLW, size and volume reductions, and sorting and segregation.

Dan Shrum, of EnergySolutions, gave an update of the Clive, Utah disposal site. Their Safety Culture Initiative resulted in over 3.5 million hours worked before having a lost time injury in 2012. EnergySolutions has over 25 years experience in treatment and disposal of LLW. The Clive site has TSCA/RCRA and SNM exemptions which are concentration based limits-

Shrum described the services offered by EnergySolutions at Clive to include: bulk waste disposal, a containerized waste facility, large component disposal and mixed waste treatment. Waste treatments offered include: microencapsulation, stabilization, mercury amalgamation and thermal desorption.

Michael Benjamin, also of EnergySolutions, gave an update on the 235 acre Barnwell site, which is owned by the State of South Carolina. Barnwell is undergoing closure, with Phase I expected to be complete this year. Some of the performance objectives that have yet to be signed off by DHEC are the minimization of monitoring requirements and the total effective dose equivalent of 25 mrem/year.

Nuclear Power Plant LLW Disposal Issues Panel identified "attribution" of waste sources as an issue when thermal treatment processes are utilized. New reporting requirements and a letter written by the Utah Department of Regulatory Control seek to clarify the original source of waste being processed and disposed. The thermally processed waste is often attributed to the processor instead of who sent it to the processor, thus making it difficult to see which State the waste came from originally. Compact Commissions want to be sure that waste generated within their regions are properly being disposed within that region and not being exported to other compact regions unless specified in agreements. Problems arise from different reporting requirements from different states, disposal facilities and federal entities.

Tom Magette, of Price Waterhouse Coopers and an audience attendee, believes this is really not a safety related issue. A simple solution would be to utilize existing forums for all parties to agree on what is important, what data are to be collected and how it is to be reported.

Bringing Nature Back

At US DOE sites across the complex, cleanup work is being completed at an unprecedented pace. During the course of remediation of hazardous or contaminated waste sites, large areas of land are stripped of their native vegetation, dug out to remove all contaminants, then backfilled. These actions put the "finishing touches" on any cleanup action. Revegetation activities include drill seeding, using no-till drill and imprint seeders, and planting of numerous species of site-specific native seed. Following seeding, virgin wood fiber mulch and a guar-based tackifier is applied over the top of the seed to help protect it from predation and the elements. Bringing the area back to a natural or native vegetation state is both an art and a science.

Small businesses are primary contractors to do this work. This work requires not only a high degree of knowledge in native species and vegetation, it also is carefully sequenced and planned and does not come at the expense of safety. At Hanford, WildLands, Inc., has worked on many of these sites. "Since we were working on Department of Energy property, all WildLands' personnel were required to meet in-depth employee training and certification requirements, including Hanford General Employee Training (HGET), background checks, Field Supervisor Certification, Crew Leader Certification, in-depth safety training and operator certification for each piece of equipment, RAD worker 1 and 2," according to Eric McCrea, WildLands, Inc. President.

As sites are revegetated and brought back to their "native" state, more and more lands are being looked at for potential reuse.



Exhibit Hall Best Giveaways

This year the Exhibit Hall has a record number of exhibitors and lots of give-aways, so make your way down to the Lower Level before they're gone. The Insight Editors have found a number of exciting give-aways that deserves honorable mention.

Beautiful red maple leaf totes, lunch bags that double as wine holders (OK, we may have used our imagination) and stress reducing hockey pucks can be found at the **Canada Booth #100**.

SAIC in booth #118 has solar calculators and lens cleaners.

Most Challenging!

Test your skills for a Snicker's bar; if you can lift it with the manipulator, it's yours! **INUKTON Booth #123**.

Booth #401, **Pentek, Inc.** is holding a drawing on Wednesday for a 50" RCA Flat screen TV. Be sure to put your business card in the bowl.

WAGSTAFF Booth #403, has hats, t-shirts, good chocolate, and Corey... ask him about dates!

Most Useful!

Premiere Tech has WD-40 pens at Booth #419.

Auto owners delight – **RSB Logistic** has tire pressure gauges, they are also holding a drawing for a Kindle, drop off your card at Booth #324.

Scientists get your periodic table pens and interchangeable markers at **Ceradyne, Inc.** at Booth #421.

Bling Bling!

Get your very shiny pens and hand charging flashlights at **Reef Industries Booth #422**.

Booth #434 has really nice carry bags courtesy of PEC.

MATOM Booth #439 has large coffee mugs and screwdrivers that are also pens!

Booth #517 **Attention IT** has phone holders and nail files, plus a \$100 Visa Gift Card drawing on Wednesday.

Most Needed!

Tetra Tech Booth #622 has USB port car chargers.

EnergySolutions, Booth #701 is holding a drawing for a mini iPad on Wednesday.

NUCON International Booth #710 has calculators.

Booth #817, **Cabrera Services** is holding a drawing for a putter.

Booth #931 **E2 Consulting** has mini tape measures and luggage tags.

Our Favorite!

Dufrane Nuclear Shielding Booth #1133 has the best t-shirts that read "Solar's all right but Nuke's Do it All Night!"



DOE's Future Vision

It wasn't a trip in an automated flying car (think Jetsons!) but it was an expansive view of where the DOE complex will be and how it will get there. And, where else but at the WMS will you hear the future vision for DOE sites compared to the sculpting of David? Like Michelangelo, is DOE taking pieces of the site away (think decommissioning) to "sculpt" a piece of art - the future site vision?

Throughout the discussion, three themes emerged: Partnership, Technology, and Sustainability. Underlying these themes was the acknowledgement that successful completion of the Environmental Management mission work is foundational. The future is clearly dependent upon the current and future successes.

Partnership is certainly not a new concept in the EM program. The organization at large has worked diligently to build strong partnerships with stakeholders, regulators, community representatives, and among the sites and labs. But emerging in the future vision dialogue is the recognition of the need to build strong partnerships with industry. Public - Private partnerships will play a lead role as sites move to the future.

Technology will get us where we want to be, and will be the key to the future missions and uses of the site. Advances in remediation technologies and strategies will assure the sustainability of the cleanup effort. Testing and demonstration of the technologies needed to support decisions on future repositories or advanced reactors may hold new mission opportunities for the sites currently undergoing cleanup.

Sustainability enters the Environmental Management lexicon with a laser-like focus. A sustainable approach is critical to completing the cleanup, and the future uses of the sites all hinge on sustainability. Whether concerning actions taken today, or planning for the future, the panelists recognized the need for balance across the sustainability pillars of environment, economy, and society.

Some very new concepts were also presented to keep the discussion lively, even as the 5:00 p.m. hour approached! Should DOE create branded "Mega Sites" to promote the possible future uses and entice targeted industries to the area? Should DOE develop a means for valuing our natural capital assets to assure we arrive at a clear determination of what the highest and best use of our assets should be? Should we be talking about our materials in inventory as an asset, instead of a liability?

The future vision of the DOE complex will likely continue in this Socratic dialogue, to explore complex ideas, to open up issues and problems, to uncover assumptions, and eventually to achieve the vision.



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Roy G. Post Foundation Scholarships

These scholarships are awarded in memory of Dr. Roy G. Post. The Roy G. Post Foundation is a 501c3 tax-deductible foundation dedicated to education in the safe management of nuclear materials.

The 2012-2013 scholarship recipients are:

Graduate Awards - \$5,000



Chad Durrant,
Pennsylvania State
University



Shanna Estes,
Clemson University



Ivan Fast,
RWTH Aachen
University, Germany



Roger Kapsimalis,
University of Texas
at Austin



Leslie Kerby,
University of Idaho



Benjamin Lindley,
University of
Cambridge



Matthew Over,
UC Berkeley



Hayata Shinmura,
Graduate School of
Engineering,
Tohoku University,
Japan

Undergraduate Awards - \$2,500



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Paul Rose, Jr.,
Georgia Institute of
Technology



David Zwick,
Georgia Institute of
Technology

WM SYMPOSIA AND JAMES A. GLASGOW SCHOLARSHIP

Given in recognition of the contributions of James Glasgow, Esq., in support of WMS, to assist a second or third-year law student who demonstrates a meaningful interest in environmental law.



Brian J. Tedder and Jacob M. Kavkewitz

The 2013 James A. Glasgow Scholarship recipients are:

Jacob M. Kavkewitz will graduate this spring with his JD degree from the University of Arizona. He has been the senior articles editor for the Arizona Journal of Environmental Law & Policy. He graduated from the University of Tennessee – Knoxville with a BS degree in Business Administration (December 2008).

Brian J. Tedder recently added an Environmental Law Certificate to his work at the University of Arizona, allowing him to explore all facets of environmental law at the Rogers College of Law and other academic departments. Outside the classroom, he is the senior onlinemanaging editor for the Arizona Journal of Environmental Law & Policy, where he supervises second-year writers as they produce short published works on timely environmental topics.

Best Oral Presentations

At each conference, WMS recognizes the two best oral presentations/papers. The American Nuclear Society (ANS) and the American Society of Mechanical Engineers (ASME) presents awards for the Best Presentations/Papers:

The “Best Oral Presentations Awards” from last year’s WM2012 Conference are:

ANS Award – Best Oral Presentation/Paper

“Technical and Policy Challenges in Deep Vadose Zone Remediation of Metals and Radionuclides”. Presented by Dawn Wellman, Kirk Cantrell, Mark Freshley, Michael Truex, Pacific Northwest National Laboratory; Evan Dresel, Future Farming Systems Research Division (USA). Session 76, Abstract 12025.

ASME Award – Best Oral Presentation/Paper

“Impact Analyses and Tests of Metal Cask Considering Aircraft Engine Crash”. Presented by Sanghoon Lee, Woo-Seok Choi, Ki-Young Kim, Ki Seog Seo, Korea Atomic Energy Research Institute (Korea). Session 37, Abstract 12308. (Session Lead Organizer: Olaf Oldiges).

Best Poster Presentations

The “Best Poster Awards” from last year’s WM2012 Conference are:

ANS Award – Best Poster Presentation and Paper

“Surface Decontamination Using Laser Ablation Process”. Fabrice Moggia, Xavier Lecardonnell, Frederique Damerval, AREVA (France). Abstract 12032; from Track 6 – D&D

ASME Award – Best Poster Presentation and Paper

“Transport of Organic Compounds in Old Salvage Yard, Oak Ridge, TN”. Siamak Malek-Mohammadi, Georgio Tachiev, David Roelant, Florida International

University; Kent Bostick, Anamary Daniel, Pro2Serve (USA). Abstract 12089; from Track 7 – ER

WMS/ASME Sarge Ozker Award

Named in honor of M. Sacid (Sarge) Ozker. Established in 1980, this award is bestowed for distinguished service and eminent achievement in the commercialization of nuclear power/energy with particular emphasis in the field of radioactive waste management. It is presented by the Nuclear Engineering Division - Radwaste Systems Operating Committee of ASME and WM Symposia.

The 2013 Sarge Ozker Award recipient is **Virgil R. Autry, State of South Carolina, Retiree.**

WMS Wendell D. Weart Lifetime Achievement Award

The WMS Lifetime Achievement Award recognizes the long-term commitment of the recipient to solving major nuclear waste challenges, which may include education, research, public policy, or implementation of solutions for managing nuclear wastes, and whose actions have contributed to the resolution of significant nuclear waste management issues.



The 2013 WMS Lifetime Achievement Award,

Sponsored by Sandia National Laboratories, is presented to **Jack McElroy, Consultant** Jack has been a Director of the WM Symposia since 1997. He is currently the chairman of the WMS Grant Committee and has served as the president and chairman previously. He is a fellow with the American Nuclear

Society and WM Symposia and received his BSc, Chemical Engineering from Gonzaga University in Spokane, WA.



Program Advisory Committee Award

is presented to **Lance Mezga, Oak Ridge National Laboratory** Lance has been a Director of the WM Symposia since 2008. He is currently a member of the Program Advisory Committee (PAC) and has served as a member of the WMS Executive Committee. He will also be awarded a Fellow designation with WM

Symposia this year. He received his BSc and MSc, Geology from Kent State University in Kent, OH. In his career with ORNL, he has served as the Waste Management Group Leader and as the Chairman of the Oak Ridge DOE Environmental Management Site Specific Advisory Board.

WMS Fellow Award

WMS established the honor of WMS Fellow in 2011 to recognize volunteers for distinguished contributions to the advancement of radioactive waste and radioactive material management. Elevation to the status of WMS Fellow is attained through peer recognition and confirmation by the WMS Board of Directors.

The 2013 Fellow Award Recipients are:

- Gary Benda, Bartlett Services, Inc.
- Ned Bibler, Consultant
- Erich Evered, Jacobs
- William T. Gregory III, Vinculum Marketing
- Lawrence Harmon, Project Enhancement Corp.
- Paul Macbeth, US DOE
- Lance Mezga, Oak Ridge National Laboratory
- Jim Voss, Predicus, LLC

Emerging Issues that Challenge Traditional Contractor Roles

If you wanted some down-to-earth discussion about ways to overcome current challenges and emerging issues, Session 34 was the place to be. This panel, which included Martin Schneider from the Weapons Complex Monitor, as well as representatives from US and UK sites, lead the dialog by sharing the challenges they face at their sites. A recurring theme was the need to prioritize what gets the dollars, especially as the industry faces sequestration. Another prevalent commonality was “right-sizing.” Maintaining cost-effective infrastructure that will sustain necessary operations was noted as an ongoing challenge as active foot prints shrink, but operations continue.

Questions from the audience stimulated discussion among the panelists as they shared their various, and often differing perspectives. Questions ranged from the increased role of small businesses, to advice for our incoming Secretary of Energy and the effectiveness of partnerships, particularly with DOE.

Though no definitive solutions were reached, it was obvious that everyone agreed that partnership, alignment and prioritization underpinned by strong leadership would go a long way in this dynamic and uncertain environment.

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— EDITORS —

Linda Lehman
Consultant

Mike Berriochao
Professional Communications Services

Joy Shoemake
Jacobs Engineering

— CONTRIBUTING EDITORS —

Nan Kilkeary
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CH2M HILL's scope at the **East Tennessee Technology Park** Project includes the demolition of K-25 - where we made excellent progress and 15,000 loads of demolition debris. At the **Hanford Plateau Remediation** Project we completed the construction and commissioned the 200W Groundwater Treatment Facility, the only non-administrative Leed Gold Certified in the DOE-EM complex.

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