Hanford Communities

Fall 2015 Newsletter

Richland • Kennewick • Pasco • Franklin County • Benton County • Port of Benton

Volume 21 www.ci.richland.wa.us/richland/hanford Edition 3

In This Issue

This Page

Inside

Speakers' Bureau

If you would like to have a member of the Hanford Communities Speakers' Bureau address your organization, please call (509) 942-7348.

HFD Battles Fires Onsite and Off

The Hanford Fire Department (HFD) is an all-hazards emergency response agency that provides emergency incident management, fire suppression, fire prevention and fire safety education, emergency rescue, emergency medical service, hazardous materials response, respiratory protection equipment maintenance and service, and maintenance and testing of the site's fire detection and suppression systems.

Washington wildfires have claimed several lives and countless acres this season, and the Hanford Site has not been immune. More than 70 HFD personnel have responded to 12 fires on or adjacent to Hanford, with 14,160 acres burned. Additionally, HFD has deployed multiple senior-ranking fire officers to the largest of the wildfires in north-central Washington to serve as part of the Incident Command staff.

"We are always watchful for fires because of the potential risk for release of radioactive material," said Stacy Charboneau, U.S. Department of Energy Richland Operations Office (DOE-RL) Manager, who discussed the current situation with the Hanford Communities Governing Board in July. "We have a seasoned, well-equipped group of firefighters."

The Hanford Fire Department is ever vigilant in battling wildland fires, onsite and in the region.

The HFD has cooperative aid agreements with the U.S. Fish and Wildlife Service, which manages the Saddle Mountain National Wildlife Refuge as well as the Hanford Reach, and with the U.S. Department of Defense's Yakima Training Center should additional support be needed. The HFD also has mutual aid agreements with a number of cities in the region, including Richland, Kennewick, Pasco, Prosser, Grandview, Sunnyside, Walla Walla, and College Place, and with fire districts in rural Benton, Franklin, Grant, Yakima, and Walla Walla counties. These partners can offer staff and equipment as needed. HFD often provides mutual aid assistance to these local communities to augment their emergency response capability as the need arises.

The causes of the fires at Hanford this season were varied: one was associated with a bird flying into a power line; five resulted from lightning strikes; and two of the remaining three are suspected to have been caused by vehicles. The largest fire, which burned 14,000 acres, was on the Saddle Mountain National Wildlife Refuge. In addition, the HFD responded to 13 mutual aid requests for wildland fire suppression.

Extreme drought conditions and higher than normal temperatures across the Northwest combined to increase potential for wildland fires this season. The fire season itself started earlier than normal, in late June, and remained high through September. In addition, the burnable grasses and plants on the Hanford Site grew thicker and dried out sooner. Increased numbers of tumbleweeds in particular can serve as fuel for wildfires, amplifying intensity and resistance to control. The Hanford Communities prepared an Issue Briefing on Hanford Emergency Response, which can be viewed at http://youtu.be/wrVkuUWAyQ0. ■

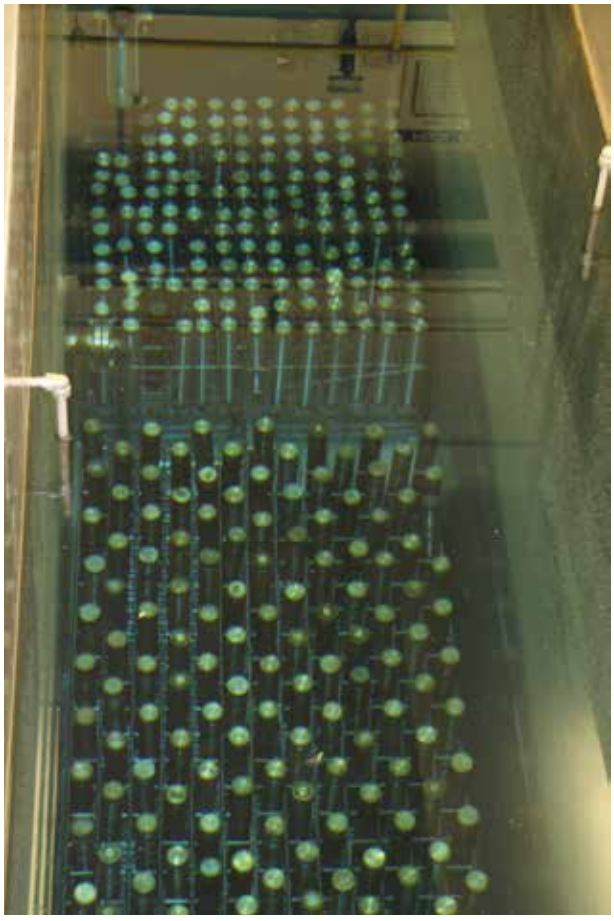
Meetings

November 4-5
Hanford Advisory Board Meeting
8:30am to 5:30pm
Red Lion Hotel, Richland

Contact Kristen Skopeck
(509) 376-5803

DOE Considers Future of Cesium and Strontium Capsules

DOE is considering options for continuing to store more than 1,900 capsules containing cesium and strontium from Hanford's production era.



More than 1,900 cesium and strontium capsules wait in the Waste Encapsulation and Storage Facility for final storage.

Cesium and strontium were byproducts of plutonium production and were part of waste stored in Hanford's underground tanks. Radiation from the cesium and strontium raised the temperature of the waste inside some of the tanks significantly. In the 1970s, site contractors removed much of the cesium and strontium from the waste in the tanks and placed the materials in double-walled, stainless steel capsules. The capsules were welded shut, leak-tested, and then stored in water-filled basins in the Waste Encapsulation and Storage Facility (WESF), next to B Plant in central Hanford.

The 1,936 capsules currently in WESF contain approximately 100 million curies of radioactivity (including cesium, strontium, and their daughter products). While none of the capsules have breached, the basins in which they are housed are potentially degrading. In addition, the earthquake and subsequent tsunami at Fukushima has made DOE look more closely at a number of facilities, including WESF. Nuclear facilities are designed against a rigorous set of potential risks, called the design basis. The Fukushima incident led a number of agencies, including DOE, to consider additional risks.

"The capsules in WESF are safe if there is no earthquake beyond the design basis for the Hanford Site," Stacy Charboneau, DOE-RL Manager, told the Hanford Communities Governing Board in July. "A catastrophic earthquake could cause degradation in the facility and a rupture in the water-filled basins, resulting in a possible release of radiation. It's an extremely remote possibility, but it needs to be considered."

One approach to resolving this issue would be to acquire storage casks similar to those used by the commercial nuclear industry for the dry storage of spent nuclear fuel. The capsules would need to be packaged and carefully placed in the cask and would need to remain in storage until a disposal pathway for the capsules is available. In the meantime, to ensure continued safe operations of the storage facility and support transferring the capsules out of the WESF and into dry storage, contractors are replacing an exhaust ventilation system and stabilizing legacy contamination. ■

Hanford Infrastructure Needs Growing

Cleanup remains the priority at Hanford, but aging infrastructure is starting to demand more attention.

"From the 1990s to 2009, the Hanford Site infrastructure was in 'run-to-failure mode,'" noted Stacy Charboneau, DOE-RL Manager. "Since then, the Mission Support Alliance (MSA) has focused on positioning the site infrastructure for the future."

MSA recently completed assessment surveys on key infrastructure systems and discovered several areas for improvement.

Electrical systems are inadequate to meet projected needs. Hanford holds approximately 200 miles of power lines and 6,000 power poles, 2,800 of which need to be replaced because of coil failures that can cause fires. The electrical load will triple when the Waste Treatment Plant begins operations.

Water and sewer systems are antiquated and failing at increasing rates. Most systems at Hanford were built between the 1940s and the 1960s. More than 95 miles of pipes are buried under the site, and Hanford uses 800 million gallons of water annually. When old water lines are replaced, the water pressure increases within the system, causing breaks in other locations. An increase in funding in fiscal year (FY) 2015 has allowed focused attention on preventative and corrective maintenance on both water and sewer systems. Hanford will need to continue this focus and receive increased funding in FY2016 to complete the backlog of corrective maintenance and upgrades necessary to these facilities to provide consistent and reliable services.

Roads are deteriorating under heavy use. More than 5,700 passenger vehicles drive onto the Hanford Site each day, with an additional 500 heavy-haul truck trips. Of the 350 lane miles of paved road, 39 miles are considered in poor condition, and 183 are considered to be in only fair condition.

Information technology has rapidly changed over the past several years. At Hanford many upgrades have been implemented, but numerous projects still are necessary to ensure the reliability of the site-wide system. Legacy applications continue to need updates, and improvements are needed to keep up with constantly evolving cybersecurity threats.

MSA's infrastructure alignment plan estimates the cost of improving infrastructure needed to support cleanup activities. In FY2015, $12 million was spent. In FY2016, the proposed budget contains $20 million. Work is being integrated with cleanup activities. The increased investment should allow for necessary maintenance and lower the chances of infrastructure failure. ■

WSU Tri-Cities to Manage Hanford's Artifacts and Archives

Photos like this are some of the items WSU Tri-Cities will be managing for Hanford.

DOE-RL is partnering with Washington State University Tri-Cities (WSU-TC) to manage Hanford's collection of artifacts and archive materials.

"This collection contains Hanford's most significant and unique objects from the Manhattan Project and Cold War era," said Colleen French in a press release announcing the partnership. As the National Park Program Manager for DOE-RL, French is responsible for the collection. "Hanford's collaboration with WSU-TC will ensure expert care of the collection and make it available to the community, students, researchers, and the visiting public. As we look ahead to the Manhattan Project National Historical Park, WSU-TC will be an educational partner with unique capabilities and expertise."

WSU-TC will provide professional curatorial services to inventory and track the collection, clean and stabilize objects, and make portions of the collection available for public display and loans to other qualified museums. The branch campus will also provide professional archivist services to identify and interpret historical items for researchers, institutions, and the public as well as provide a repository for the collection that complies with federal requirements for temperature, humidity control, security, fire protection, and lighting.

The collection has more than 1,600 objects, including hand-painted signs, office furniture, first-of-their-kind equipment developed for Hanford's plutonium production work, control room panels, and personal objects from the 1943-1945 Hanford Construction Camp. The collection also contains more than 3,000 photographs from the Manhattan Project and Cold War years at the Hanford Site. ■

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Hanford Communities

Spring/Summer 2015
Newsletter

Richland • Kennewick • Pasco • Franklin County • Benton County • Port of Benton

Volume 21 www.ci.richland.wa.us/richland/hanford Edition 2

In This Issue

This Page

Inside

Speakers' Bureau

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EPA Moves Toward Approval of In-Trench Macroencapsulation at ERDF

On April 2, 2015, the U.S. Environmental Protection Agency (EPA) approved moving forward with the process to allow the use of in-trench macroencapsulation at the Environmental Restoration Disposal Facility (ERDF) at Hanford. The Hanford Advisory Board sent advice to the EPA last November supporting the change in protocol.

ERDF will soon be able to treat more wastes within the disposal trenches (upper part of the picture) using macroencapsulation rather than having to treat outside the trenches (smaller lower area of picture), saving time and helping to prevent radiological exposures to workers and the environment.

"Worker safety during the performance of work to achieve environmental cleanup at Hanford is a core value of the Hanford Advisory Board," said chair Steve Hudson in the letter forwarding the Board's advice. "The Board encourages and applauds every effort the U.S. Department of Energy (DOE) makes to reduce industrial hazards and radiological exposure in the workplace for workers performing cleanup."

Currently, ERDF utilizes macroencapsulation for a limited set of waste, treating material at the surface and outside of the facility before placing it into ERDF trenches for disposal. The at-surface protocol requires handling by crane manipulation multiple times before the waste is placed in an ERDF trench. This protocol results in an increased risk of industrial accidents and the potential for an airborne release. Most importantly, the time that workers must be relatively close to the waste results in an otherwise avoidable radiological exposure. Treating the waste in an ERDF trench, on the other hand, will reduce worker radiological exposure and potential environmental release by limiting the number of times waste must be handled.

"The Board supports a common sense, streamlined approach to reducing both worker risk and the potential for airborne releases while achieving the goals of remediation," said the advice. "However, this approach should be limited to well-defined wastes for a specified period of time and not be a precedent for avoiding regulated facilities for treating equipment."

EPA Region 10 is proceeding with a waiver of applicable and relevant requirements to allow DOE to change the treatment protocol, citing a justification of reducing risk to human health and the environment. The supporting information and proposed plan will be available for public comment, followed by an amendment to the Record of Decision for ERDF. ■

Meetings

June 10-11
Hanford Advisory Board Meeting
8:30am to 5:30pm
Richland Red Lion

Contact Kristen Skopeck
(509) 376-5803

September 9-10
Hanford Advisory Board Meeting
8:30am to 5:30pm
Pasco Red Lion

Contact Kristen Skopeck
(509) 376-5803

DOE Approves First Phase of Plan to Address Chemical Vapor Exposure Concerns

DOE has approved the first phase of a plan to address recent chemical vapor exposure concerns at Hanford's tank farms.

In February 2015, DOE's Office of River Protection (ORP) directed contractor Washington River Protection Solutions (WRPS) to implement the first phase of a plan to address recent chemical vapor exposure concerns and further improve worker safety. WRPS operates Hanford's tank farms that hold millions of gallons of radioactive and chemical waste. Over the last year, workers at the tank farms have expressed concerns about possible exposures to chemical vapors.

WRPS developed the plan in response to recommendations by an expert panel in the *Hanford Tank Vapor Assessment Report*, released last October. The report outlines 10 overarching recommendations—encompassing 47 specific recommendations—to help reduce potential worker exposure to chemical vapors.

"We are continuously improving the worker protection program at Hanford's tank farms," said WRPS President and CEO Dave Olson in the press release accompanying the plan. "Using the recommendations from the report, we developed specific actions we plan to implement in a sustained, multi-year, two-phased effort to further protect workers from potential exposure to chemical vapors."

Actions include improving sampling and detection technology, expanding sampling and characterization of the gases inside the top of the tanks, increasing real-time monitoring, and evaluating and deploying new abatement technologies. Some recommendations have already been implemented—including use of personal respiratory protective gear—and several others are underway.

In addition, actions outside the scope of the plan should, over time, significantly reduce the need for workers to enter the tank farms. Recent examples include installing wireless systems and completing a central control room to monitor the tanks around the clock. Other efforts will improve tank farm ventilation with additional exhausters and extension of exhaust stacks.

A WRPS project team will lead implementation of the plan. Depending

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River Corridor Cleanup Sees Significant Progress

Cleanup in Hanford's river corridor, which stretches along the Columbia River from Vernita Bridge to the 300 Area north of Richland, has made significant progress in recent years. Of the 578 facilities once active in the river corridor, less than 80 remain to be removed. Likewise, 88% of the 1,329 waste sites in the area have been remediated. More than 17 million tons of waste have been disposed of in the ERDF. Waste water facilities have treated 8 billion gallons, removing 3.5 tons of contaminants.

In the D and N Reactor areas as well as the C-7 Waste Site, recontouring and revegetation are returning the land to a more natural look. H and F Reactor areas will also soon be recontoured and revegetated.

Some of the more challenging work has also been completed at the K Reactor area. Workers moved 2,300 tons of spent fuel from the K Reactor area to the Central Plateau and consolidated 35 cubic yards of radioactive sludge in engineered containers currently being stored in the 100 K West Basin. Those will be removed by the end of 2019.

Technology has played a large part in the cleanup. Pump and treat facilities in the D Reactor area are lowering the chromium concentrations in the groundwater, which had been the highest at Hanford. What had started at 1,500 parts per billion (15 times the drinking water standard of 100 ppb) has been reduced to 300 ppb, further shrinking the contaminant plume away from the river. In addition, air injection at the N Reactor area is supporting treatment of petroleum in the deep vadose zone.

"The department is pleased with the progress overall," said Nina Menard of the Washington Department of Ecology at a recent meeting of the Hanford Advisory Board's River and Plateau Committee. "We remain committed to protecting the river." ■

DOE's Office of River Protection Assumes Management of Effluent Treatment Facilities

On March 30, 2015, DOE contractor CH2M HILL Plateau Remediation Company transferred operation of the Effluent Treatment Facility (ETF), the Liquid Effluent Retention Facility (LERF), and the Treated Effluent Disposal Facility (TEDF) in central Hanford to WRPS to better align with mission needs. At the same time, DOE's Richland Office transferred management of the facilities to the ORP. All three facilities will now support the 242-A Evaporator, which reduces liquid wastes from the double-shell tanks, and, when operational, the Waste Treatment Plant (WTP). Transferring the facilities is another step toward preparing for operations at the WTP.

The ETF has been in operation for 20 years, treating water contaminated with low levels of radioactive and chemical waste primarily from the 242-A Evaporator, LERF, groundwater treatment systems, waste disposal operations, and Hanford's K Basins. Once the waste water has been treated, it is stored until tests confirm the liquid is acceptable for discharge at the state-approved land disposal site. The ETF can treat up to 28 million gallons of waste water each year.

The TEDF accepts treated non-radioactive, non-hazardous effluent collected via pump stations located in central Hanford. Treated effluent received at TEDF is discharged to two state-approved infiltration basins. ■

DOE Approves First Phase of Plan, continued

on information gathered during the first phase of work, WRPS and DOE will review second-phase actions, costs, and schedules and revise them to incorporate lessons learned. ORP established an expert panel to provide independent assurance that actions identified in the plan are effective in protecting workers from potential exposures. The panel includes members of the Tank Vapors Assessment Team as well as experts in industrial hygiene/worker protection, vapor flow, engineering, technology, meteorology, medical care, regulatory process, and health physics. ■

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Winter 2015
Newsletter

Richland • Kennewick • Pasco • Franklin County • Benton County • Port of Benton

Volume 21 www.ci.richland.wa.us/richland/hanford Edition 1

In This Issue

This Page

Inside

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Congress Approves Manhattan Project National Park

On December 12, Congress approved the Manhattan Project National Park. The process of creating the park had its beginning in 2004 when Congress directed the Department of Interior to "conduct a study on the preservation and interpretation of historic sites of the Manhattan Project for potential inclusion in the National Park System." The three communities considered were the Tri-Cities, Los Alamos (New Mexico), and Oak Ridge (Tennessee). The preliminary recommendation of the study suggested that only Los Alamos be part of the park. When members of the National Park Service (NPS) held public meetings in all three communities, they were "overwhelmed by public input" to include all three sites. The U.S. Department of Energy (USDOE) also supported the inclusion of all three and committed to be responsible for facility safety and security.

The final study concluded that "the NPS should have the overall responsibility for interpretation and education at the three sites and will provide technical assistance to resource preservation efforts. NPS staff will be assigned to each of the sites." It went on to state that USDOE "will continue to have total responsibility for operations, maintenance, and historic preservation of historic Manhattan Project properties now under their jurisdiction and will maintain total liability for any environmental hazards related to those properties."

This is the third year that legislation has been introduced in Congress to authorize formation of the Manhattan Project National Park. Elected officials and community leaders in all three communities have worked together to advance the bill. Letters have been written; trips have been made to Washington D.C. to meet with members of Congress and their staff members. The communities have hosted national meetings, in partnership with the Energy Communities Alliance, in all three areas to learn about the shared history of Hanford, Los Alamos, and Oak Ridge. The effort has also been supported by three national organizations that worked hard to make the park a reality. The Atomic Heritage Foundation hosted countless conference calls over the years so that everyone stayed informed and involved. The National Trust for Historic Preservation and the National Parks Conservation Association have staff in Washington D.C. and provided tremendous support on Capitol Hill. They also reached out to their members across the country to write letters and encourage editorial support from many newspapers.

Now begins the next phase of the process, starting with a Cooperative Management Agreement between the Department of Interior and USDOE and plans about how the two diverse agencies will work together. Our communities have the opportunity to plan how to market historical tourism opportunities. This park will be a great economic benefit to our region as we welcome visitors from around the world to Hanford to learn about the amazing accomplishments of the region's residents, work that brought World War II to an end. Stay tuned – we will keep you informed about progress! ■

Meetings

January 7

Public Meeting on Class 3 Modifications to the Hanford Facility Dangerous Waste Permit for the Waste Encapsulation and Storage Facility

5:30pm
Richland, Richland Public Library

Contact Washington State Department of Ecology
(509) 372-7950

February 4-5

Hanford Advisory Board Meeting

8:30am to 5:30pm
Richland, Red Lion

Contact Kim Ballinger
(509) 376-6332

April 8-9

Hanford Advisory Board Meeting

8:30am to 5:30pm
Location TBD

Contact Kim Ballinger
(509) 376-6332

Last August, crews demolished building 270-Z, which once housed administrative offices at PFP. The building is one of eight removed in 2014 to make room for a zone in which debris and heavy equipment will be staged during the demolition of PFP itself.

PFP Sees Further Progress Inside and Out

The landscape surrounding the Plutonium Finishing Plant (PFP) looks different today than it did a year ago. During the summer, crews from USDOE contractor CH2M HILL Plateau Remediation Contractor (CH2M HILL) removed or demolished eight buildings that once supported operations at the PFP. PFP produced nearly two-thirds of the country's plutonium through the late 1980s.

Workers removed the buildings to create a large demolition zone surrounding the plant's main buildings. The zone will allow the staging and operation of heavy equipment during final facility demolition, scheduled to begin in 2016. Since 2008, USDOE and its contractors have demolished or removed 63 of the 81 buildings that once supported PFP operations.

Several structures make up the PFP, the largest of which is the facility where plutonium was processed into hockey puck-sized "buttons" for use in nuclear weapons. In November, workers removed the last of 192 of the total 238 glove boxes in that facility from the ventilation system. The ventilation system pulled contaminants from inside the glove boxes and filtered those contaminants out, keeping the workers safe. Removing a glove box from ventilation is the last step in making that glove box safe for dispositioning.

Work to disconnect the final 14 glove boxes from ventilation continues elsewhere at PFP. Overall, the facility is about 75% ready for demolition.

Hazardous and Historic Work Underway at PFP

Work is now underway to clean up and prepare for demolition one of the most hazardous rooms at the Hanford Site. Workers commonly refer to the room as the "McCluskey Room," after worker Harold McCluskey. He was injured in 1976 when a vessel inside a glove box burst and exposed him to both chemical and radioactive material. McCluskey, who was 64 at the time, lived for 11 more years and died from causes not related to the accident. The McCluskey Room, located at PFP, was used to recover americium – a highly radioactive plutonium byproduct – during the Cold War.

Since their first entry in September, crews with CH2M HILL have improved ventilation and airflow to better protect them from airborne contamination in the room. Workers are dismantling large pieces of processing equipment, including glove boxes and tanks.

"Over the next year, workers will make multiple entries to clean out processing equipment and get the McCluskey Room ready for demolition along with the rest of the plant," said Tom Teynor, Federal Project Director for the USDOE. "The time and effort workers put into finding the right equipment and training will ensure they are as prepared as possible to remain safe during the cleanup."

Workers are using specially designed suits for the first time at Hanford. The suits offer better protection from surface contamination and chemicals, improved communication, and a dual-purpose air system that provides purified air for breathing and cool air throughout the suit. The system keeps the worker cooler, allowing them to work safer and for longer periods of time.

"The employees helped choose the equipment, trained on the equipment, and gave us feedback on its performance in training," said Mike Swartz, CH2M HILL's vice president for the PFP Closure Project. "Their input was the key to being able to enter the room safely as we start this challenging cleanup project." ■

PFP workers recommended the use of respirators and suits never before used at Hanford after seeing them during a visit to Idaho's Advanced Mixed Waste Treatment Facility. Workers also used a mock-up of the McCluskey Room for training before starting actual work.

Local Businesses Secure $423 Million in Hanford Subcontracts in FY14

USDOE contractors continue to award a significant portion of their work at the Hanford Site to others. Under the purview of the USDOE's Richland Operations Office and Office of River Protection, Hanford contractors work diligently to subcontract a large amount of work to local businesses and small businesses, representing 77% of the total available for subcontracting in FY14.

During that year, Hanford prime contractors awarded $546 million in subcontracting work, with $423 million awarded to local businesses, $469 million awarded to businesses in Washington, and $378 million awarded to small businesses. These contractors include those under the direction of the Richland Operations Office:

- Central Plateau contractor, **CH2M HILL Plateau Remediation Company**
- Mission Support contractor, **Mission Support Alliance**
- River Corridor contractor, **Washington Hanford Closure**

and those under the direction of the Office of River Protection:

- Waste Treatment and Immobilization Plant contractor, **Bechtel National, Inc.**
- Tank Operations contractor, **Washington River Protection Solutions.**

USDOE and Hanford contractors remain committed to helping local and small businesses grow and positioning them for future success. ■

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