Hanford Communities

Fall 2018 Newsletter

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

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Speakers' Bureau

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

As part of the ROD for the 100-D/H Area, DOE plans to expand and optimize its groundwater pump and treatment systems like this one along the Columbia River.

Record of Decision Published on Operable Units in 100-D and 100-H Areas

In July 2018, the U.S. Department of Energy (DOE) published the record of decision (ROD) for the 100-D/H Area. This area is the northernmost of six areas that comprise the River Corridor, the former reactor operations and fuel fabrication sites adjacent to the Columbia River.

Of the more than 250 individual waste sites in the area, 150 were determined to have no remaining contaminants at concentrations greater than cleanup standards for unlimited use/unrestricted exposure and protection of groundwater and surface water. DOE plans no further action at these sites.

Of the remaining sites, 104 are authorized for removal, possible treatment, and disposal of contaminated soil. Of these 104 waste sites, 99 have already been remediated and are awaiting final confirmation that the completed work meets cleanup targets. The remaining 5 waste sites will have contaminated soil and debris that exceed soil cleanup levels protective of human health removed as deep as 15 feet below ground surface. Soil at any depth with contamination exceeding cleanup levels protective of groundwater and surface water will be excavated and transported to the Environmental Restoration Disposal Facility. Once the sites have been remediated, workers will backfill them with clean material, contour them, and establish native vegetation.

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Meetings

December 5 and 6
Hanford Advisory Board Meeting
8:30am to 5:30pm
Red Lion Hotel, Richland
Contact Kristen Holmes
(509) 376-5803

February 13 and 14
Hanford Advisory Board Meeting
8:30am to 5:30pm
Location TBD
Contact Kristen Holmes
(509) 376-5803

WTP Transitions First Five Buildings From Construction to Commissioning

In April 2018, the Waste Treatment and Immobilization Plant (WTP) reached a landmark when workers began transferring five buildings from the construction phase to the commissioning phase. While dozens of systems have been turned over from construction to startup across the project, the handover of these facilities marks the first transfer of entire buildings for commissioning.

"This reinforces the progress being made at the WTP and progress toward successfully demonstrating hot commissioning by 2022," said Brian Reilly, WTP project director for Bechtel National, Inc.

As engineers and construction crews finish all, or specific portions of, plant systems, the systems are transferred to the startup phase, where they are verified and tested as complete and in safe working order. After the startup phase, systems undergo a commissioning phase to ensure they are calibrated and ready to support future plant operations.

Construction, startup, and testing phases are now complete for five major support buildings:

- Water Treatment Building
- Main Site Electrical Switchgear Building
- Balance-of-Facilities (BOF) Electrical Switchgear Building
- Fire Water Pump House
- Non-Radioactive Liquid Waste Disposal System.

"In terms of momentum for the project, this is a step change in our capability to complete utility infrastructure startup and testing," explained Rick Holmes, WTP site director and Waste Treatment Completion Company general manager. "We now have permanent plant electricity and water."

BOF contains a total of 56 systems, including an electrical power distribution system, backup power, water purification, compressed air, steam, communication and control, and fire water systems. Of the 56 systems, 26 have successfully completed startup and testing and have transitioned over to the commissioning phase, 21 are in the startup phase, and 9 are nearing construction turnover to startup.

"During our biweekly site visits, we are seeing scaffolding disappear as construction finishes," said Suzanne Dahl, Dangerous Waste Permit Manager, Washington State Department of Ecology. "We are seeing red tags on equipment replaced with green tags as startup proceeds and seeing plant management take ownership as WTP facilities move toward operations." ■

WTP workers have transitioned five buildings, such as the Non-Radioactive Liquid Waste Disposal System, from construction to commissioning.

Contractor Collaborates with College on WTP Training Lab

Chemists are developing processes for analyzing Hanford tank waste before it's turned into glass inside the WTP.

The work is happening inside a 3,300-square-foot laboratory at Columbia Basin College (CBC). WTP contractor Bechtel National, Inc., set up the lab at the college so chemists and other specialists can train with the same equipment for the WTP Analytical Laboratory in support of DOE's plans to begin treating tank waste through its Direct Feed Low-Activity Waste vitrification approach.

"We are really in the phase where we are now starting that transition to operations, as so many people have worked for so long to enable us to achieve," said Brian Vance, DOE Office of River Protection Manager. "This laboratory is another major step in the direction of moving from a focus on construction to operations."

While chemists develop the methods, processes, and procedures inside the college laboratory, work crews perform facility systems startup and testing at the Analytical Laboratory. During the WTP's cold commissioning phase, a waste-like simulant will run through the Low-Activity Waste (LAW) facility. Then a hot commissioning phase will begin, turning LAW into sturdy glass.

"We are in the early hiring and training phases for the laboratory technical staff that will eventually be transferred from the CBC lab to the WTP's large Analytical Laboratory," said Brian Reilly, a Bechtel senior vice president and director for the WTP Project. "Through our work here at CBC, we are preparing the future workforce for the plant's cold and hot commissioning phases."

As a part of the training for DOE's plans to treat tank waste through its Direct Feed Low-Activity Waste vitrification approach, chemists and other specialists use specialized equipment inside a 3,300-square-foot laboratory at CBC.

"It's great that our campus can be a community resource for companies that are training the next generation of Hanford's workforce," said Dr. Rebekah Woods, CBC President.

The key function of the WTP's Analytical Laboratory is to confirm that all glass produced by the LAW Facility meets regulatory requirements and standards. The Direct Feed Low-Activity Waste approach is expected to allow treatment of low-level waste to begin by a court-ordered milestone date of 2023. ■

Record of Decision Published on Operable Units in 100-D and 100-H Areas, Continued

The 100-HR-3 groundwater operable unit is contaminated with chromium, strontium-90, and nitrate. To remediate the chromium, DOE will expand and optimize its groundwater pump and treatment systems, adding new wells and variable pumping rates over the course of 12 years. DOE will address strontium-90 and nitrate through monitored natural attenuation, a process that degrades certain chemicals and radionuclides while being monitored to ensure safety. Nitrate cleanup levels will be met in approximately 6 years, and strontium-90 cleanup levels will be met in approximately 44 years.

DOE will protect other waste sites with institutional controls such as signage and procedures that prevent inadvertent exposure to contamination in soil or groundwater until the date beyond which radiation is expected to be degraded to safe levels. One waste site in the 100-DR-1 operable unit includes a maternal bat colony. To prevent disturbing the colony, DOE will cap the waste pipeline and apply institutional controls on the area indefinitely.

The Washington State Department of Ecology concurs with the selected remedies and will serve as the lead regulatory agency for the sites. DOE will specify the sequence and timing of the remedial actions in a work plan submitted to the Department of Ecology for approval within 6 months. ■

Hanford Communities Director Shares Insights, Concerns with NAS

In March and April 2018, Hanford Communities Director Pam Larsen had the opportunity to represent area insights and concerns about the site to the National Academy of Sciences (NAS).

The March testimony in Richland provided input to the NAS study of supplemental treatment of Hanford low-activity tank waste. While Larsen recognized that supplemental technologies to improve throughput and deal with specific waste streams may be needed, she cautioned that grouting and burial onsite had been studied previously and were found to lack protection against movement of contamination. Any new grout formulation would need to meet State of Washington requirements to be considered "good as glass."

In addition, she shared how new approaches must be carefully analyzed, which takes time and funding away from other cleanup priorities. Finally, on behalf of the mayor of Richland, she shared a report by the Energy Communities Alliance, *The Politics of Cleanup*, which pinpoints a central element of DOE's successes: members from the affected community partnering with DOE, Congress, and federal and state regulators to achieve a timely and protective cleanup.

The April testimony revolved around the NAS assessment of science and technology needs for the DOE Environmental Cleanup Program. Larsen drew NAS attention to the 2014 report by the Secretary of Energy's Task Force on Technology Development for Environmental Management, which discussed the benefits of using technology to reduce costs, speed cleanup, and improve safety. She also shared various approaches, not all successful, that have been tried over the years to match technology development efforts with cleanup site needs.

She emphasized that technology and innovation will be crucial to ensuring that Hanford cleanup objectives are met in a timely manner which protects workers and the environment. She suggested that DOE Site Offices be given dedicated technology development funds to provide flexibility in pursuing innovations. She also urged attention to technology that can characterize soil and vadose zone contamination, monitor contamination in those areas, and address impacts of comingled contaminants. ■

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Spring/Summer 2018 Newsletter

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Sludge Removal to Start at K West Basin

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After months of planning and training, workers will start removal of the sludge in the K West Basin in June.

"With the facility only 400 yards from the Columbia River, moving the sludge away from the river is a high priority," said Mark French, U.S. Department of Energy (DOE) Richland Operations Office Project Director.

The aging basin originally operated from 1955 to 1971 and was reactivated to store N Reactor fuel for later shipment to the Plutonium Uranium Extraction (PUREX) Plant.

Workers will soon start removing sludge—fuel corrosion particles, fuel rod and metal fragments, and environmental debris like sand and rocks—from the K West Basin along the Columbia River.

When PUREX shutdown, more than 2,100 metric tons of fuel remained in the basins. The spent fuel has been removed and packaged for shipment offsite. Sludge from the nearby K East Basin was transferred to Engineered Containers in the K West Basin in 2007. Between 2006 and 2010, workers vacuumed sludge in the K West Basin into Engineered Containers. Today, approximately 35 cubic yards of sludge are stored underwater in six containers.

The sludge is considered transuranic waste. It is a complex mixture of radionuclides from corroded N Reactor fuel; corrosion products such as iron, aluminum, and uranium; environmental particulates like sand and rocks; and basin operations debris including concrete and paint flakes. The wide range of densities—from material two times heavier than lead to airy silt—make it difficult to process. Other challenges include the possibility of hydrogen gas generation and potential radiation dose, both of which require all removal to be done remotely to safeguard workers.

To meet these challenges, CH2M Plateau Remediation Company (CHPRC) developed the Engineered Container Retrieval and Transfer System, a first-of-its-kind technology. A tractor trailer brings an empty container into the adjacent K Annex, a new Category 2 nuclear facility. A mine slurry pump adapted to underwater work pumps sludge from the basin to the annex through shielded lines to protect workers and the environment. When filled, the container is transported 12 miles to T Plant in the Central Plateau. The T Plant canyon has been modified to store the containers in specially built cells.

The effort passed pre-operational acceptance testing in October 2017, verifying that removal equipment would work as planned. April saw the completion of the readiness review. The Tri-Party Agreement (TPA) milestone called for removal to start by September 30, so the work is ahead of schedule. DOE expects the work to be completed in time to meet the TPA milestone of December 31, 2019. Storage in T Plant is considered an interim measure. The TPA requires that DOE have a plan for removal to permanent storage by 2022.

The Hanford Communities filmed an issue briefing on the project on April 27. Check the Hanford Communities website and your local channels for airtimes beginning in late June. ■

Meetings

June 6 and 7
Hanford Advisory Board Meeting
8:30am to 5:30pm
Red Lion Hotel, Richland
Contact Mark Heeter
(509) 373-1970

September 5 and 6
Hanford Advisory Board Meeting
8:30am to 5:30pm
Seattle area
Contact Mark Heeter
(509) 373-1970

At Mock Up Facility, Workers Train to Remove Contamination Under 324 Building

Workers are training in a full-scale mockup of the 324 Building to prepare for soil removal beneath the B Cell.

Some of the highest radioactivity at Hanford today is found in soil under the 324 Building, one of the last facilities remaining in the 300 Area north of Richland. Workers are now training to continue remediation work in the area at a special mock up facility nearby.

Only 300 yards from the Columbia River, Building 324 served as a research and development facility, where employees conducted studies on highly radioactive materials. The contaminated soil was discovered during demolition preparations in 2010. The soil contamination came from a spill in the late 1980s inside B Cell, one of the building's hot cells, which were heavily contaminated from years of experiments. Workers have completed cleaning out most of the facility, including the adjacent C Cell.

DOE contractor CHPRC is responsible for the safe and compliant management of the facility and for eventual demolition. The plan is to remotely excavate the highly radioactive soil beneath the B Cell, likely to a depth of 6 to 8 feet below the building, which does not reach groundwater. Models show that the radiation levels of the contamination, mostly from cesium and strontium, at that depth should be low enough to conduct open air excavation after the building has been demolished. The building currently protects the environment from the spread of contamination.

In preparation for soil removal, CHPRC created a mock up of the facility. The weather-protected enclosure measures 80 feet by 100 feet and includes a B Cell and airlock replica. A mock-up such as this improves safety because it allows work in an environment free of chemical and radiological hazards. It is also more efficient because troubleshooting can be performed in a non-contaminated setting to aid in developing solutions to issues that may develop during operations. Workers are currently testing equipment, developing procedures and processes, training, and preparing for contingencies.

To safely remove the soil, CHPRC plans to use remotely operated equipment to excavate debris and grout, cut through the steel liner at the bottom of the cell, and remove the six-inch-thick concrete floor. Highly contaminated material will be placed in an adjacent hot cell within the building and grouted in place. Less contaminated soil will be packaged for shipment to Hanford's Environmental Restoration Disposal Facility. ■

Community leaders joined with contractors and DOE representatives to open the Hanford Workforce Engagement Center.

Workers Help Workers at Hanford's New Workforce Engagement Center

Early May 2018 saw the opening of the Hanford Workforce Engagement Center. The purpose of the center is to help current and former Hanford employees and their families with questions or concerns about occupational health issues.

One of the center's unique features is that it is staffed by trained and knowledgeable Hanford employees who understand the challenges of navigating through the various programs related to occupational health. These staff members serve as liaisons for those seeking assistance. They offer education, help identify options, and lay the groundwork to solve problems.

The center is a collaboration among DOE, Hanford Site contractors, the Hanford Atomic Metals Trade Council, and the Central Washington Building and Construction Trades Council. The staff can help workers or their dependents obtain information on a variety of programs, including the following:

- State of Washington's Workers' Compensation Program
- DOE's third-party administration for the Hanford Workers' Compensation Program
- Energy Employees Occupational Illness Compensation Program
- Former workers medical screening program
- Beryllium sensitization or chronic beryllium disease
- Specific programs offered by some Hanford contractors.

"I'm pleased that DOE has coordinated with Hanford contractors and the unions to open the Hanford Workforce Engagement Center, a first-of-its-kind facility, which will help Hanford workers and their beneficiaries understand options for compensation and care," said Doug Shoop, manager, DOE Richland Operations Office.

The center is open Monday through Friday, 6:00 am to 4:30 pm, at 309 Bradley Boulevard, Suite 120, in Richland. For more information visit www.hanford.gov/hwec. To make an appointment, call 509-376-HWEC.

Speakers at the celebration of the new center included Assistant Secretary of Energy for Environmental Management Anne White, members of Washington's Congressional delegation, Hanford workers, and other leaders. ■

Hanford Budget Sees Successes

The FY18 budget for Hanford came in higher than expected, but FY19 and FY20 funding may require support from community leaders and the Congressional delegation to keep it at levels needed for cleanup.

FY18 final appropriations came in at $7.1 billion for the Office of Environmental Management, with more than $2.51 billion across the Office of River Protection and the Richland Operations Office, adding $203 million for Hanford cleanup activities over the original proposed budget. Money was specifically provided to clean up waste below the 324 Building (see second article in this edition), clean up and deactivate the K West facility (see first article in this edition), reduce risks at legacy waste sites, further work at the Waste Treatment Plant, and complete demolition at the Plutonium Finishing Plant under new corrective actions that protect workers and the environment. It also provides funding for the Workforce Engagement Center (see third article in this edition).

On February 12, 2018, the President released his FY19 budget request, which lays out a total of $30.6 billion for DOE. The Office of Environmental Management, which oversees Hanford cleanup, would receive $6.6 billion under the proposal, $328 million over FY17 enacted levels.

A community meeting was recently held to ask for input from the public on the FY20 budget request being developed by DOE.

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Speakers' Bureau

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First Low-Level Tank Waste Shipped for Disposal

On December 14, 2017, for the first time, the U.S. Department of Energy's (DOE) Office of River Protection (ORP) coordinated a shipment of treated, stabilized tank waste off the Hanford Site to a commercial facility in Texas for disposal as low-level waste.

The historic effort, part of the Test Bed Initiative, was the culmination of 18 months of work by several Hanford and commercial contractors. The work stemmed from a 2016 evaluation by DOE that concluded tank waste test samples could be pretreated by filtration and ion exchange then stabilized by commercial contractors and disposed as low-level waste offsite.

A worker supervises packaging of the first low-level tank waste to be treated and shipped for disposal off the Hanford Site.

"This action is consistent with DOE's approach of looking for new and innovative ways to perform its cleanup mission while being protective of human health and the environment and to serve as a good steward of taxpayer resources," ORP Test Bed Project Manager Kaylin Burnett said.

DOE contractor Washington River Protection Solutions (WRPS) removed the waste from the tanks several years ago as part of the normal tank characterization program. The tank samples were stored in the site's 222-S Laboratory following analysis. For the Test Bed Initiative, workers filtered the waste to remove solids and processed it to remove certain radionuclides as much as practical. They then sent the waste to Richland's Perma-Fix Northwest, a radioactive and mixed waste treatment facility adjacent to the Hanford Site. There, it was treated, stabilized, characterized to verify that it met regulatory requirements, and packaged in a U.S. Department of Transportation-approved container for shipment. The final shipment contained treated, stabilized waste and all secondary waste associated with the processing, and was sent from Perma-Fix to the Waste Control Specialists Federal Waste Disposal Facility in Andrews, Texas.

"A lot of people came together in a concerted effort to do something that has, quite frankly, never been done before," said Kris Colosi, WRPS project manager. "Our environmental team worked hand in hand with our folks at the lab and commercial industry to make this come together."

The effort resulted in gaining critical performance data on an ion-exchange resin considered for use in tank waste pretreatment

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Meetings

March 7 and 8

Hanford Advisory Board Meeting

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

Contact Kristen Holmes
(509) 376-5803

618-10 Burial Ground Waste Removal Completed

November 30, 2017 marked the completion of waste removal activities at the 618-10 Burial Ground, what was once one of the nation's most contaminated waste sites. Over the course of 8 years, workers with DOE-Richland Operations Office contractor CH2M HILL Plateau Remediation Company (CHPRC) retrieved 2,201 55-gallon drums, miscellaneous debris, and 94 Vertical Pipe Units that were buried more than 20 feet below ground. In total, workers removed more than 512,000 tons of contaminated soil and waste debris, transporting it to Hanford's engineered, low-level waste landfill, the Environmental Restoration Disposal Facility.

Recent sampling results from the 618-10 Burial Ground and two nearby waste sites confirmed the 8 years of cleanup work was successful. "This waste site is located not far from the northern city limits of Richland and has been a high priority for the Hanford Communities," stated Executive Director Pam Larsen. "We congratulate DOE and the contractor employees who designed and implemented a plan to retrieve hazardous waste material and put it in safe storage."

"This announcement is one more step in the progress we are making to clean up the legacy of plutonium production along the Columbia River at Hanford," said Doug Shoop, manager of the DOE Richland Operations Office. "I'm proud of the workers for safely completing this very complex and high-hazard work, which contributes to the protection of people living in this region and the environment."

The 7.5-acre burial ground, which is located about 4 miles northwest of the 300 Area and a few hundred yards from Hanford's main highway, received highly radioactive waste from Hanford laboratories and fuel development facilities in the 1950s and 1960s. Poor recordkeeping at the time meant many of the waste types were unknown, requiring additional sampling, worker training, and the development of new waste retrieval methods to safely remove the material.

"Faced with the challenge of remediating one of Hanford's most radioactive burial grounds, our team of workers always focused on safety and implemented new technologies that are now being shared with other projects across the nation," said Tammy Hobbes, CH2M vice president of the 618-10 Project.

Workers have been backfilling the former waste site and are expected to complete backfill in March 2018. Workers are cultivating seeds from native plants found in the area so they can restore the site to a more natural state. ■

Hanford Sees Leadership Changes

In the last few months, the Hanford Site has seen key positions transition to new leadership. In October 2017, Brian Vance became the director of ORP. Vance has more than 30 years of leadership experience while serving in key roles with Westinghouse and AREVA. He also served as a career submarine officer in Department of Defense acquisition programs and the Navy nuclear propulsion program. He most recently held the position of Director of the 300-296 Remote Soil Excavation Project for Hanford cleanup contractor CHPRC.

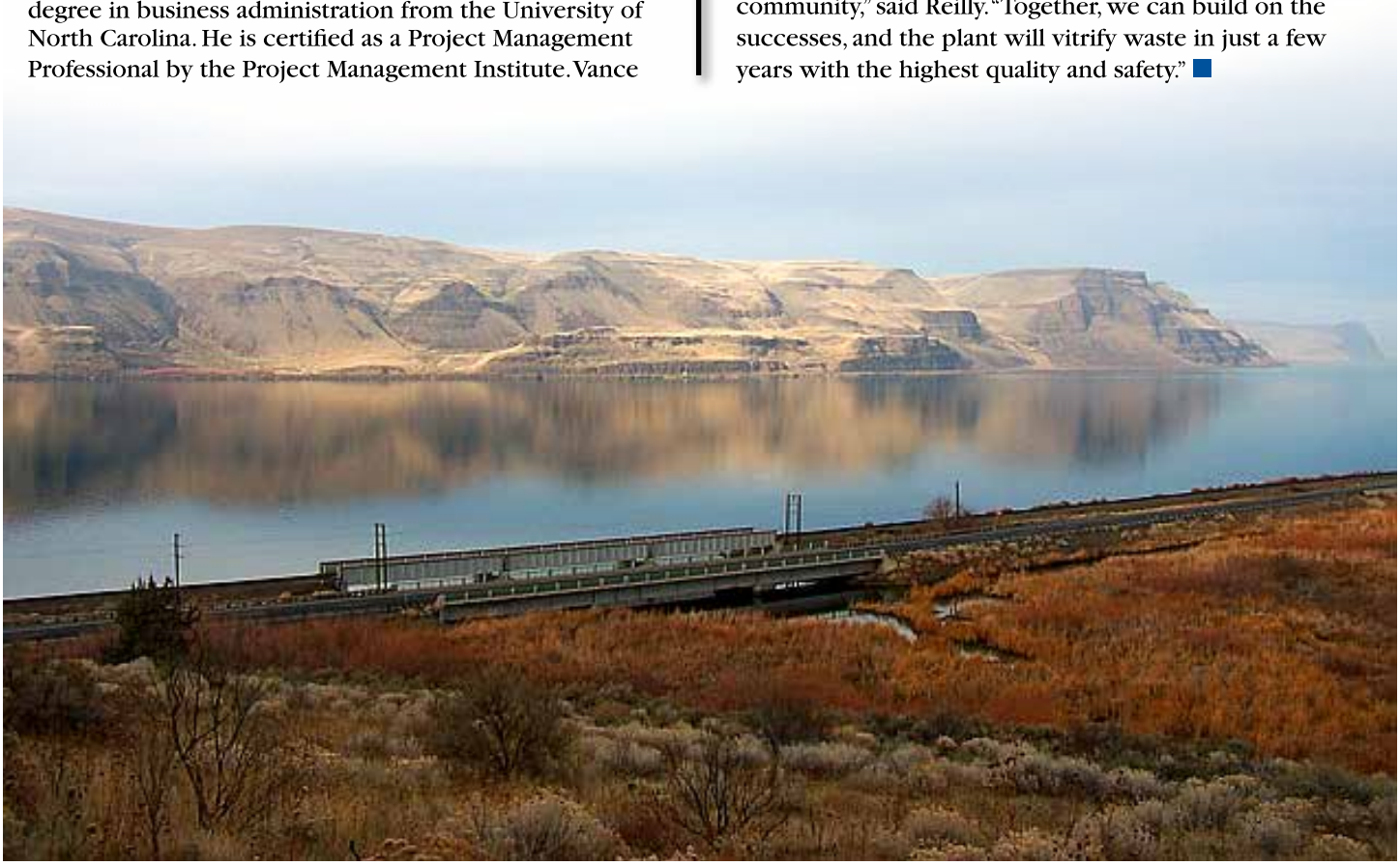
"I know he will be able to leverage his skills and expertise to assist ORP in maintaining the strong momentum now underway to address the Hanford tank waste mission and continue making progress on the Waste Treatment and Immobilization Plant," said Jim Owendoff, acting Assistant Secretary of DOE's Office of Environmental Management.

"I am honored and excited to be chosen to lead ORP at this important time to continue its successful work to tackle one of the largest environmental challenges at Hanford—radioactive tank waste," Vance said.

Vance has a Bachelor of Science degree in meteorology from Pennsylvania State University and a Master's degree in business administration from the University of North Carolina. He is certified as a Project Management Professional by the Project Management Institute. Vance replaces Ben Harp, who had served as acting manager since late September 2017. Harp returned to his position as ORP Deputy Manager.

More recently, in December 2017, Bechtel Senior Vice President Brian Reilly was named the new project director for the Waste Treatment and Immobilization Plant. Reilly has more than 35 years of experience in nuclear construction, including supervision and project management roles at several nuclear power plants such as Turkey Point, Byron, and Indian Point. For the last 3 years, he's led the design and construction project for the National Nuclear Security Administration's Uranium Processing Facility in Oak Ridge, Tennessee. He holds a Bachelor's degree in civil engineering from Rutgers University. He replaces Peggy McCullough, who will move to Bechtel's operational headquarters in Reston, Virginia, to lead the company's Nuclear, Security, and Operations business line.

"I'm eager to work with the employees, stakeholders, and community," said Reilly. "Together, we can build on the successes, and the plant will vitrify waste in just a few years with the highest quality and safety." ■



First Low-Level Tank Waste Shipped for Disposal, continued

systems for the removal of key radionuclides and generated waste characterization data that may assist in developing and evaluating future secondary waste or low-activity waste treatment options.

Hanford Communities chairman Bob Thompson commented, "We were pleased to learn about the success of the Test Bed Initiative to treat and package tank waste and send it offsite for disposal. We encourage DOE to explore other opportunities to reduce mission costs and schedules for cleanup of the Hanford Site."

According to the DOE, this study does not impact or imply a change to DOE's initial planned treatment option to vitrify low-activity waste. ORP and WRPS worked with the Washington Department of Ecology during the course of the treatability study. ■

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