

# HANFORD FORWARD

CELEBRATING THE HISTORY OF HANFORD

75<sup>th</sup>

ANNIVERSARY



**SPRING 2018 ISSUE**

QUARTERLY PUBLICATION COVERING  
HANFORD CLEANUP NEWS & PROGRESS



# ABOUT HANFORD



**RICHLAND OPERATIONS OFFICE**  
United States Department of Energy

The Richland Operations Office is responsible for cleanup of much of Hanford’s waste, including preparing to remove radioactive “sludge” away from the Columbia River, disposing of contaminated soil and solid waste, and treating groundwater, while providing occupational medical services and maintaining site infrastructure for the future.



CH2M HILL Plateau Remediation Company (CHPRC) is the prime contractor for the safe, environmental cleanup of the Central Plateau. CHPRC’s responsibilities include waste retrieval and fuels management, groundwater remediation and demolition of facilities and canyons, and closure of the Plutonium Finishing Plant.



HPMC Occupational Medical Services provides occupational medical services to the Department of Energy and to Hanford employees.



Mission Support Alliance (MSA) is responsible for integrated infrastructure services for the Hanford cleanup mission, including roads and transportation services, electrical and water services, facility maintenance, emergency response (fire and patrol) services, network and software engineering as well as environmental compliance and clean energy solutions.



**OFFICE OF RIVER PROTECTION**  
United States Department of Energy

The Office of River Protection is responsible for the retrieval, treatment, and disposal of Hanford's tank waste in a safe, efficient manner. The River Protection Project is the largest and most complex environmental remediation project in the nation.



Bechtel National Inc. is responsible for designing, building and commissioning the world’s largest radioactive and chemical waste treatment plant. When completed, the plant will be used to solidify waste stored in 177 aging underground tanks using a process called vitrification.



Washington River Protection Solutions is responsible for storing and retrieving the approximately 56 million gallons of radioactive and chemical waste stored in Hanford's tanks.



Wastren Advantage, Inc. is the prime contractor responsible for managing the 222-S Laboratory.

TABLE OF CONTENTS

IN THIS

ISSUE

SITEWIDE

04 Celebrating Hanford's 75<sup>th</sup> Anniversary



TANKS

06 Hanford Tank Waste Shipped Offsite For Treatment, Disposal

TANKS

07 Hanford Contractor Explores Virtual Reality to Support Cleanup



TANKS

08 New Office of River Protection Manager Brian Vance Shares Cleanup Progress Vision

TANKS

10 Waste Retrieval Complete in Tank C-105



SITEWIDE

11 Energy Undersecretary for Science Visits Hanford Site



TANKS

12 Waste Treatment Plant Utilities in "Startup" Phase

CENTRAL PLATEAU

14



The 200 West Pump & Treat Facility is Leading the Way in Groundwater Cleanup

SITEWIDE

16 Hanford Volunteers Partner with Community Organization to Pave the Way for Local Veterans



TANKS

17 Hanford Contractor Receives Prestigious Project Management Awards

SITEWIDE

18 HPMC Occupational Medical Services Earns National Achievement Recognition in Two Programs



TANKS

19 Bechtel Names New Director for Vit Plant





CELEBRATING THE HISTORY OF HANFORD

**75<sup>th</sup>**

ANNIVERSARY

January 2018 marked the 75<sup>th</sup> anniversary of Hanford's selection by Lieutenant General Leslie Groves, director of the Manhattan Project, as a plutonium production site. From its early days as a part of the war effort to the cleanup mission today, Hanford has maintained a culture of innovation, ground-breaking technological advancements, and solutions to complex problems. The ideas and technology born at Hanford have had far-reaching benefits across the community and the nation. This timeline gives a brief history of those innovations and how many of them have served as shining examples for cleanup sites around the world.



**2004**

D Reactor is cocooned.  
Spent nuclear fuel is removed from K Basins.

Waste is pumped from single-shell to double-shell tanks; C-106 is the first single-shell tank declared closed.



**2003**

F Reactor is cocooned.



**2002**

DR Reactor is cocooned.



**2001**

Construction begins on the Waste Treatment Plant.



**1998**

C Reactor is cocooned.



**1997**

HAMMER opens to provide hands-on, realistic training for Hanford workers.



**2005**

H Reactor is cocooned.



**2008**

B Reactor is declared a National Historic Landmark.



**2009**

American Recovery and Reinvestment Act accelerates cleanup progress.



**2011**

200 West Groundwater Treatment Facility is completed.



**2012**

F Reactor area field cleanup is completed.



**2015**

ERDF had received over 17 million tons of waste from cleanup since opening in 1996.



**1943**

Colonel Leslie R. Groves, director of the Manhattan Project, officially endorses the Hanford Site as a plutonium production site.



**1944**

B Reactor begins plutonium production.



**1959**

Construction begins on the N Reactor, the last of nine reactors built to produce plutonium at Hanford.



**1963**

President John F. Kennedy visits the Hanford Site to commemorate the start of plutonium production operations at the N Reactor as well as break ground for the power-generating component of the facility.



**1988**

The N reactor, the final operational reactor, is shut down.



**1989**

Hanford's plutonium production mission ceases; the mission changes to cleanup.



**1997**

Waste Receiving and Processing Facility opens – Hanford's first major solid waste processing facility.



**1996**

The Environmental Restoration Disposal Facility (ERDF) is built to accept low-level radioactive, hazardous, and mixed wastes that are generated during cleanup activities.



**1995**

Groundbreaking for the Volpentest HAMMER Federal Training Center.



**1993**

The Hanford Advisory Board is established. Board members provide advice and recommendations to the Tri-Party agencies on selected major policy issues.



**1990**

Cleanup of contaminated soil and groundwater in the River Corridor begins.



**1989**

The Tri-Party Agreement between the Department of Energy, the US Environmental Protection Agency and the State of Washington is reached. The agreement establishes hundreds of milestones to bring the Hanford Site into compliance with federal and state environmental regulations.



**2015**

The B Reactor is dedicated as a part of the Manhattan Project National Historical Park.



**2016**

ERDF celebrates 20 years of supporting cleanup.



Workers begin demolishing the last four major facilities at the Plutonium Finishing Plant.



**2017**

Treated more than 2.2 billion gallons of groundwater and removed more than 145,000 pounds of contamination.



HAMMER celebrates 20 years of training Hanford workers.

**2018**

**75<sup>th</sup>**  
ANNIVERSARY  
OF THE  
HANFORD  
SITE



## HANFORD TANK WASTE SHIPPED OFFSITE FOR TREATMENT, DISPOSAL

*Workers at Hanford's 222-S Laboratory load a container with tank waste for shipment to Perma-Fix Northwest for treatment and stabilization. The stabilized waste was then sent to a Texas disposal facility.*

**For the first time, the Department of Energy (DOE) Office of River Protection and Washington River Protection Solutions (WRPS) worked together to treat and ship Hanford Site tank waste offsite to a commercial facility for disposal as low-level waste.**

The tank farms team recently coordinated shipment of approximately 3 gallons of treated, stabilized waste from Perma-Fix Northwest in Richland, Wash., to the Waste Control Specialists Federal Waste Disposal Facility in Andrews, Texas.

Before its trip to Texas, the waste was pretreated at Hanford's 222-S Laboratory, which specializes in analyzing nuclear waste samples. The samples were decanted, filtered to remove solids, and processed to remove key radionuclides to the maximum extent practical. Workers then sent the waste to Perma-Fix for the next stage. Perma-Fix treated, stabilized and characterized the waste to verify that it met regulatory requirements. They then packaged it in a U.S. Department of Transportation-approved container for shipment.

The shipment was in accordance with a 2016 evaluation that concluded test samples of treated, low-level waste from six Hanford storage tanks can be managed and disposed of as low-level waste.

"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," DOE Test Bed Project Manager Kaylin Burnett said. "This study does not impact or imply a change to DOE's initial planned treatment option to vitrify low-activity waste."

DOE worked closely with WRPS to pretreat the waste and prepare it for its journey south.

"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 throughout the process. It has truly been a team effort more than 18 months in the making to get us to this point."

The study obtained performance data on an ion-exchange resin considered for use in tank waste pretreatment systems to remove key radionuclides. It also generated waste characterization data that may assist in future secondary waste or low-activity waste treatment options. DOE and WRPS worked with the Washington State Department of Ecology during the treatability study. \*



## HANFORD CONTRACTOR EXPLORES VIRTUAL REALITY TO SUPPORT CLEANUP

*Lee McGregor, Washington River Protection Solutions, uses a virtual reality headset as part of a training exercise. The computer screen in the background displays the images he sees in the headset*

**Virtual reality (VR) is becoming more real and less virtual at one of the Department of Energy's Office of River Protection contractors.**

The computer-generated technology that immerses users in a simulated environment made its debut at Washington River Protection Solutions (WRPS), the Hanford tank operations contractor, as part of a training session in late 2017.

"We're doing a lot of things with the VR technology," said Lloyd Keith, the WRPS Human Performance Improvement manager. "It's an opportunity to enhance familiarity with P&IDs [piping and instrumentation diagrams] by looking at a real system and, at the same time, explore the possibilities of the software to use in the field...to maybe avoid having to do entrances, avoid dose, avoid exposure."

Keith added, "We're always trying to keep the training activities fresh and trying to keep new things coming in for people to use to learn in different ways."

Participants in the training session used a VR headset in an exercise that involved finding a problem hidden somewhere within a maze of piping physically located several miles away from the training location.

Simple head and eye movements enabled the trainees to visually navigate through the piping setup as if they were walking through the facility. By focusing on specific icons placed within the three-dimensional (3-D) image, users could

jump to a different location or open additional details, such as a piping system drawing.

"Everything is just like you're there," Keith said, referring to the participants' experience. "We can send one person into a work area, take some pictures, and you can weave them together to make this 3-D environment."

**"EVERYBODY LEARNS DIFFERENTLY. THESE ACTIVITIES ARE REALLY ABOUT MAKING YOU FEEL, BECAUSE IF YOU FEEL, YOU WILL NEVER FORGET."**

*— Lloyd Keith, WRPS Human Performance Improvement manager*

The interactive images can be saved and posted on an intranet website for viewing without a VR headset.

Lee McGregor was one of nine trainees in a group made up of craft workers, managers and a safety representative. As a first-time user, McGregor found the experience quite realistic.

"When you're sitting in the chair, it's like you're there. You almost want to start walking," he said. \*



# NEW OFFICE OF RIVER PROTECTION MANAGER BRIAN VANCE SHARES CLEANUP PROGRESS VISION

In a newsletter Q&A, Brian Vance describes his first six weeks at the helm of DOE's Office of River Protection, lays out challenges facing the workforce and discusses opportunities for near-term success.

## You've been manager of the Office of River Protection (ORP), which oversees some of the most complex work in Department of Energy (DOE), for about six weeks now. What have been your initial impressions?

It's been a busy six weeks, although I'm learning that's pretty much the pace of work at ORP. We have a very talented and capable team, and I've been working with them to get up to speed on our tank farms, Waste Treatment and Immobilization Plant (WTP) projects, at the technical level as well as the historic and strategic levels going forward.

ORP is poised to achieve some very important progress milestones, and I'm excited to be here as we achieve these. We have a team of people who come to work every day focused on how we are going to start treating waste, and that's a great attitude. As I've walked down work in the field, I've been impressed by the state of the progress that's already been made as well as the work that is under way in the tank farms as well as at WTP. I think many of our external stakeholders who do not visit the site regularly would be surprised to see how much work has actually been completed and how close we really are to treating waste.

## What do you see as the main challenges facing ORP? How does your background help prepare you to tackle these challenges?

ORP is entering a crucial phase of its mission—we will start making glass in a few years. At the tank farms, we need to be able to provide waste feed to the WTP when it becomes operational, and right now we are looking at the best options to make that happen via our Low-Activity Waste Pretreatment System (LAWPS) and possibly a demonstration treatment alternative.

At the WTP, we need to shift our mindset from designing and building to start up and commissioning the facilities needed to begin low-activity waste (LAW) treatment. That's a big change in the mindset of an established workforce, many of whom have been on the project for more than a decade. It's a different mindset as you move into startup and commissioning. That's one of the things I can offer the team given my experience as a submarine officer. I participated in a couple of transitions during my career on ships coming out of, and going into, shipyard maintenance periods where mindset was critical to success. Beyond my operational time as a submarine force acquisition professional, I was responsible for the development and delivery of key shipboard systems, and the transformation process to the operators was an area of focus every day.

During my time beyond the Navy, I gained additional insights from observing the transitions that were taking place at sites as new plant projects progressed toward startup and commissioning, as well as through my previous work at Hanford, as the project manager for the 300-296 work.

**You've arrived at ORP at a key point in the Hanford WTP Project — one of DOE's largest efforts. What is your view of the project, and what is needed now to keep it on track for successful completion?**

We have a talented team, focused on achieving direct feed of low-activity waste (DFLAW) by the end of 2021. For a long time, the team has been focused on the design and construction necessary to achieve that approach. We're at a point on the WTP project where we should be looking at how we can best complete what we have designed, not how we can change things. As we bring systems and facilities on line we need to shift our engineering efforts to the field. We also have to enhance our strong, collaborative relationships with regulators, Tribal Nations, stakeholders and Congress. That means we need to work transparently and cooperatively, and stay connected as the pace of operations accelerates to maintain appropriate engagement and support going forward.

**With retrieval activities wrapping up at the C tank farm, what are the next planned efforts at the Hanford tank farms?**

We are preparing to begin tank waste retrievals at the A/AX farm, with much of the necessary retrieval infrastructure already in place. Our tank integrity programs are critical. We have to remain vigilant, stay engaged, and actively oversee the tank conditions to prevent any further contamination to the environment, ensure that the tank farms are safely and effectively maintained and that we are ready to support tank waste treatment when the WTP is ready.

**Where do you see opportunities for near-term success at ORP? What do you hope to achieve during your tenure as manager?**

I'm joining the ORP team at a momentous point in its history. Thanks to leadership before me, we have several opportunities for near-term success. At WTP, we will complete construction of the LAW Facility and nearly all of the balance of facilities. We will continue our startup and commissioning of systems and facilities needed to operate the LAW Facility. Having recently completed field work on the last C farm tank, we could soon be closing the first Hanford tank farm; we are looking at options that could allow us to treat and dispose of some tank waste that may be transuranic.

During my tenure I want to strengthen our relationships with the regulators, Tribal Nations, Congress, stakeholders and the workforce. We won't succeed in our mission if we don't have strong, collaborative relationships. We also have to continue working collaboratively with the Richland Operations Office (RL). Hanford is one site with two environmental management offices, each of which has appropriately managed its work relatively independently under separate priority lists. We will all benefit from achieving an understanding of cleanup priorities from a site perspective, with input from the regulators, Tribal Nations and stakeholders. ORP and RL have already started discussions about developing a Hanford Site Integrated Priority List, and I expect this is something we will implement during my tenure.

Finally, the most important contribution that I can make is to build on the strong team and organizational culture already in place and strengthen and enhance the teamwork that we'll need when we complete the transition to operations. Starting up the WTP is not a future activity for someone else, it is near term and it will be this team. Our ability to deliver the objective that many have worked so hard to achieve is exciting and I'm glad to be here. ✨



# WASTE RETRIEVAL COMPLETE IN TANK C-105

◀ *An extended reach sluicing system is installed in Hanford's underground Tank C-105 to restart work to empty the tank of the 30,375 gallons of radioactive waste.*

**The Department of Energy (DOE) and Washington River Protection Solutions (WRPS) completed waste retrieval in tank C-105.**

Workers safely removed approximately 120,000 gallons of radioactive and chemical waste from the 530,000-gallon-capacity tank, with about 4,800 gallons remaining.

“One of the keys to realizing a successful project, especially those as complex as we face in the tank farms, is working together,” said Mark Lindholm, WRPS president and project manager. “I can’t stress enough how impressed I am with the teamwork our employees have demonstrated over the years.

“While the retrievals team leads the charge, it relies heavily on many other of our talented organizations for support. And, of course, safe and efficient retrieval operations would not have been possible without our highly skilled craft, who regularly conducted their work in the most challenging and hazardous conditions inside the farm.”

Now that retrieval operations are essentially complete, WRPS will use an in-tank video camera to visually inspect the tank interior. The inspection will enable them to determine a final waste volume, and complete post-retrieval waste sampling.

C-105 is the last of the C farm's 16 single-shell tanks to be retrieved. Reports documenting retrieval activities will be prepared to formally document successful compliance with Consent Decree and Tri-Party Agreement milestones, and WRPS will work with DOE and the Washington State Department of Ecology to determine the next steps. \*



# Energy Undersecretary for Science Visits Hanford Site

◀ Undersecretary Paul Dabbar (center) and Chief of Staff Kristen Ellis (right) being briefed by Office of River Protection Assistant Manager for the Waste Treatment Plant Bill Hamel at the Waste Treatment Plant Analytical Laboratory.

**Department of Energy (DOE) Undersecretary for Science Paul Dabbar spent his first working days of 2018 at the Hanford Site, where he emphasized the importance of safety as he talked with DOE officials, toured cleanup projects and met with labor groups and others in the community.**

In a reorganization announced in December, Dabbar took charge of the DOE's environmental and legacy management missions, in addition to being the principal advisor on fundamental energy research, energy technologies and science. He also directly manages the majority of the Department's national laboratories and facilities.

"I was certainly aware of the complexity of Hanford cleanup, but visiting the site and talking to the people directly involved has confirmed the numerous challenges associated with cleaning up legacy waste from the plutonium production era," Dabbar said. "The workers here are highly-skilled and dedicated to making progress, but I've emphasized that progress can't happen at the sake of safety. Whether demolishing a building at the Plutonium Finishing Plant or constructing a building needed to treat Hanford's tank waste, every detail has to be planned with the thought of protecting workers, the public and the environment, while getting the job done."

Undersecretary Dabbar visited three training facilities where workers practice using equipment safely in a non-hazardous environment before they conduct cleanup work under hazardous conditions. He also received project updates at the 324 building, and the Plutonium Finishing Plant, Plutonium Uranium Extraction (PUREX) tunnels, Waste Treatment and Immobilization Plant (WTP) and C Tank Farm.

Wearing protective clothing, Dabbar entered the 324 building's airlock, where workers are removing radioactive debris to enable easier access to the contaminated hot cells once used for research and fabricating fuel rods. The soil under one hot cell is so contaminated that conventional excavation methods can't be

used. Workers will use remote-operated equipment to excavate through the floor to reach the underlying soil.

"The 324 building, Plutonium Finishing Plant, and PUREX tunnels all demonstrated the importance of completing the cleanup of legacy waste and facilities at Hanford safely and effectively," Dabbar said. "While a great deal of visible progress has clearly been made by the workers at Hanford, we must remain focused on completing the remaining tasks."

At C Tank Farm, Dabbar talked with the staff about worker safety protections, the challenges of retrieving tank waste, and the next steps toward closing Hanford's first tank farm. Retrieval work was completed at the farm in late 2017.



*Paul Dabbar dons protective clothing before entering the airlock of the 324 building located near the Columbia River.*

Dabbar also discussed the status of WTP construction and transition to startup, commenting "I was encouraged by the progress at the plant and how many of the systems and facilities needed to begin low-activity tank waste treatment are ready for startup."

Dabbar previously served on the department's Environmental Management Advisory Board, which provides the Assistant Secretary of Environmental Management with information, advice, and recommendations on issues affecting the DOE program, including Hanford cleanup. \*



Workers at Hanford's Waste Treatment and Immobilization Plant continue the startup and testing phase for the plant's Balance of Facilities infrastructure. This comprises about 20 utility-related facilities supplying electricity, water, air, and steam and providing communication and control systems to support future radioactive waste vitrification operations.

# Waste Treatment Plant Utilities in "Startup" Phase

About 20% of plant utility support systems complete testing phase

What has been described as the utility backbone of Hanford's Waste Treatment and Immobilization Plant (WTP) is being activated to support low-activity tank waste vitrification, which could begin as soon as 2022. As part of this early preparation, the WTP workforce completed the startup and testing phase for about 20 percent of the utility systems needed to support future operations.

"We're making strong, early progress in starting up, testing, and preparing the industrial utility services that will support WTP," said Kim Irwin, Bechtel National, Inc., project manager for WTP. "As engineers and construction crews finish portions of the utilities, they transfer those systems to the startup phase where we verify they are complete, tested, and in safe working order."

To prepare the 65-acre site for eventual operations, the Department of Energy's (DOE) Office of River Protection and Bechtel are coordinating a concurrent construction, startup, and commissioning approach

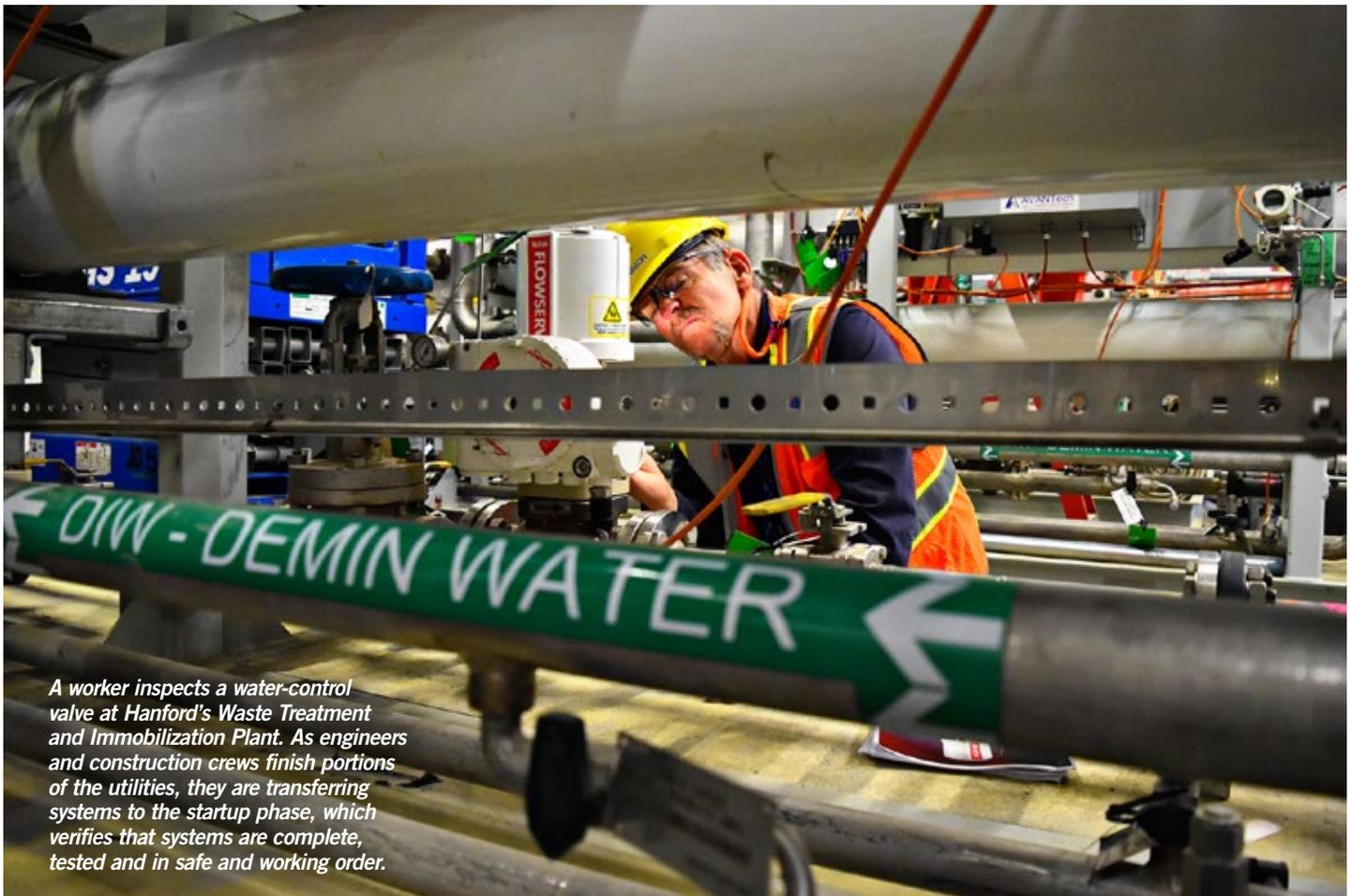
**"THERE IS GREAT BENEFIT TO HAVING AN INTEGRATED CONSTRUCTION, STARTUP AND COMMISSIONING TEAM."**

– *Felice Presti, BNI Area Project Manager for WTP's Balance of Facilities*

with the goal of safely treating the Hanford Site's low-activity radioactive tank waste.

This work is progressing on the extensive array of process support infrastructure that makes up the plant's Balance of Facilities (BOF). The BOF comprises 56 systems, including an electrical power distribution system and backup power, along with water purification, compressed air, steam, communication and control and fire water systems housed in 20 support buildings.

"As systems and subsystems are completed, a rigorous 'construction to startup turnover' of walk-downs, physical inspections and documentation takes place over several weeks," said Bill Hamel, WTP Federal Project Director for DOE. "This ensures we know which systems are complete, energized, pressurized and going through the startup and testing mode while construction continues in other areas of the plant."



*A worker inspects a water-control valve at Hanford's Waste Treatment and Immobilization Plant. As engineers and construction crews finish portions of the utilities, they are transferring systems to the startup phase, which verifies that systems are complete, tested and in safe and working order.*

After the startup phase, systems undergo a commissioning phase to ensure they are calibrated and ready to support future plant operations. All WTP facilities, including the Low-Activity Waste (LAW) Facility and the Analytical Laboratory (LAB), will undergo the startup and commissioning process being conducted for the less complicated BOF systems.

Felice Presti, the Bechtel Area project manager for WTP's Balance of Facilities said, "During the startup phase, we intentionally test the systems, trying to catch issues. When we find a problem, we work together to fix it to make sure everything works safely and as designed."

The WTP Project is working to begin treating Hanford's low-activity tank waste as soon as 2022 through DOE's Direct Feed Low-Activity Waste (DFLAW) approach. WTP construction crews are completing LAW Facility construction, making minor modifications to LAB systems that will support DFLAW operations, and finishing the remaining BOF support systems. Once completed, these systems will transition into the startup phase to support DFLAW. ✱



*A startup electrician safely opens a utility systems control panel at Hanford's Waste Treatment and Immobilization Plant. Workers are transferring utility systems from the construction phase to the startup phase.*



◀ Aerial photo of the 200 West Pump and Treat Facility on the Hanford Site.

# The 200 West Pump and Treat Facility is Leading the Way in Groundwater Cleanup

During more than 30 years of plutonium production on the Hanford Site, approximately 475 billion gallons of contaminated liquids were discharged directly into the soil. The waste generated by years of production made its way hundreds of feet beneath the earth's surface into the groundwater.

The U.S. Department of Energy (DOE) and contractor CH2M HILL Plateau Remediation Company (CHPRC) are making great strides in treating contaminated groundwater across the Hanford Site by operating six pump-and-treat facilities. The 200 West Pump-and-Treat Facility is the largest groundwater treatment facility at Hanford and one of the largest in the DOE complex.

“The 200 West Pump and Treat Facility is the site’s workhorse. It’s tackling contamination on the center of the site, preventing it from moving toward the Columbia River,”

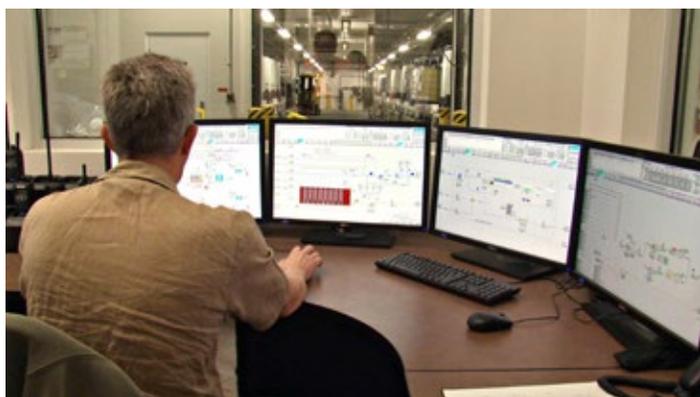
said John Rendall, vice president of CHPRC’s Soil and Groundwater Remediation Project.

The pump-and-treat facility, which began operations in 2012, is located on the Central Plateau and treats more than a dozen radioactive and chemical contaminants, including uranium, carbon tetrachloride, and technetium-99.

The facility is currently tackling a five-square-mile plume of groundwater contamination on the Central Plateau. Plumes are areas of contaminated groundwater.



*Workers at the 200 West Pump and Treat Facility performing resin change-out work. Resin is used to treat contaminated groundwater and is replaced periodically.*



*An operator monitors computer data at the 200 West Pump and Treat Facility. Hanford’s pump-and-treat systems can be accessed electronically to check how the systems are running and detect any potential problems.*



*Process equipment in the 200 West Pump and Treat Facility’s Biological Treatment System are used to treat contaminated groundwater.*

Plumes act like very slow moving underground rivers, and some are inching their way toward the Columbia River, a vital resource for drinking water, agriculture and recreation. The pump-and-treat systems work by extracting contaminated groundwater from beneath the surface via a network of wells.

The groundwater is introduced into the pump-and-treat facility, treated, then injected back into the aquifer. Over time, as treatment continues, contamination levels go down.

“Treating Hanford groundwater is extremely important because of the site’s location relative to the Columbia River and salmon spawning areas,” said Mike Cline, project director for DOE. “Every day, our workers are dedicated to protecting the river.”

Each year since startup of operations, the 200 West Pump and Treat Facility increased its treatment volume. In its first year, it treated 150 million gallons. In 2016, the facility treated more than 803 million gallons. Since it began operating in 2012, the facility has treated over 2.7 billion gallons of

contaminated groundwater, removing hundreds of thousands of pounds of contaminants from the environment.

A large portion of the facility’s success rests on the knowledge and ingenuity of the workforce. The treatment facility is larger than three football fields and requires considerable maintenance to keep it running at maximum efficiency. Over the years, workers have found ways to build on maintenance activities to decrease downtime. They also have come up with innovative ways to upgrade and modify equipment to help the facility run more efficiently and treat more groundwater.

Groundwater sampling data show contaminant concentrations in samples taken from most monitoring wells are declining. DOE expects this facility to run for more than 20 years. \*

**“WITHOUT OUR WORKFORCE’S KNOWLEDGE AND DEDICATION TO THE MISSION, THIS FACILITY WOULDN’T BE WHERE IT IS AT NOW.”**

**– John Rendall, vice president of CH2M HILL Plateau Remediation Company Soil & Groundwater Remediation Project**



# HANFORD VOLUNTEERS PARTNER WITH COMMUNITY ORGANIZATION TO PAVE THE WAY FOR LOCAL VETERANS

About 20 Washington River Protection Solutions (WRPS) volunteers came together recently to help a disabled veteran and former Hanford employee.

Volunteers joined Rebuilding Mid-Columbia, a local non-profit organization that provides housing repair services to low-income homeowners in need. Volunteers worked to level ground, lay paver stones, install new storm doors and sliding doors, replace flooring, and repair a baseboard heater. Many of the volunteers said they hoped the repairs will make a much-needed difference in ensuring the home is safer and more comfortable this winter.

"I'm really glad that I had the opportunity to participate in an event like this. It was a lot of work, but I can see what a big difference we've been able to make in just a day," said WRPS Health Physics Technician Eva Klos. "It makes me feel good to know that I work for a company that values giving back and that so many people came out to help."

WRPS volunteers made this event a success by donating not only their time, but their tools, transportation and construction expertise as well.

"I know the homeowners so appreciate all the work done by WRPS volunteers. These improvements will have such a positive impact on their lives," said Rebuilding Mid-Columbia representative Crystal Carter. "We are so happy to partner with WRPS for this event." ❁



*The AY-102 Recovery Project was named the international Project of the Year by the Project Management Institute (PMI) at its Oct. 28 Global Conference. From left, Caterina La Tona, vice chair of the PMI Board of Directors, Sebastien Guillot, AY-102 Recovery Project manager, Doug Greenwell, WRPS Retrieval manager, and Mark Dickson, chairman of the PMI board.*

# HANFORD CONTRACTOR RECEIVES PRESTIGIOUS PROJECT MANAGEMENT AWARDS

**Washington River Protection Solutions (WRPS) received the Project Management Institute's (PMI) 2017 Project of the Year award for its work removing radioactive waste from an underground storage tank at the Hanford Site in Washington State. The award was announced at the PMI Global Conference in Chicago, in October.**

The international award was given to the Hanford Double-Shell Tank AY-102 Recovery Project, in which workers removed more than 725,000 gallons of nuclear waste from a failed storage tank, meeting a critical settlement agreement between the U.S. Department of Energy (DOE), the Washington State Department of Ecology and WRPS.

“Our work at Hanford is difficult and hazardous, making it imperative that safety is at the forefront of everything we do,” said Mark Lindholm, WRPS president and project manager. “Our union workers are highly trained, highly skilled and dedicated to completing the job safely. It’s fitting and deserving that their work, supported by our skilled engineers; project managers, safety, RadCon [radiological control] and industrial hygiene staff, is being recognized with this prestigious award.”

PMI’s Project of the Year recognizes large, complex projects costing in excess of \$100 million and demonstrating superior performance of project management practices, superior organizational results and positive impacts on society.

The other finalists for the PMI Project of the Year award were DeBeers’ Gahcho Kue diamond mine in Canada’s Northwest Territories and Sound Transit’s University of Washington Light Rail Extension in Seattle.

In addition, WRPS’ AP Farm Exhauster Upgrade Project received a PMI Award for Project Excellence, one of only two given in the North American region.

## AY-102 RECOVERY PROJECT

AY-102, the first of 28 double-shell tanks built at Hanford, went into operation in 1970, was taken out of service in 2012

after a small amount of waste leaked from the inner tank into the annulus, the gap between the inner and outer tank shells. The waste was contained between the shells, and there is no indication that it leaked into the environment.

Waste removal began in March 2016, with two sluicers spraying high-pressure liquid to mobilize the waste and pump it from the tank. Workers removed more than 98 percent of the tank’s original waste volume by the end of April.

The work team then replaced the standard sluicers with four extended-reach sluicers mounted on extendable booms. The extended-reach sluicers enabled operators to maneuver around 22 large vertical pipes, called air-lift circulators, built into the tank to help cool the waste. Retrieval resumed in December and was completed Feb. 15, 2017.

Preparing for retrieval required more than two years and infrastructure upgrades. It also required significant planning to help protect workers against potential exposure to chemical vapors and other hazards.

## AP FARM EXHAUSTER UPGRADE PROJECT

When the decision was made a few years ago to make the AP farm the staging point for all tank waste being transferred to the Waste Treatment and Immobilization Plant for vitrification, the AP Farm Ventilation Upgrades Project was established to design, fabricate and install a new ventilation system for the eight AP tanks. The project progressed from an installation concept in 2014 to a fully operable system by Sept. 29, 2016, preparing the AP farm for its pivotal role in receiving, staging and transferring millions of gallons of high-level radioactive waste. \*



# HPMC Occupational Medical Services Earns National Achievement Recognition in Two Programs

## American Heart Association Recognizes HPMC Occupational Medical Services for Workplace Health Achievement

The American Heart Association announced the 2017 results of the Workplace Health Achievement Index (Index) in September and HPMC Occupational Medical Services (OMS) achieved a Silver level recognition. They were recognized for taking significant steps to build a culture of health in the workplace. HPMC is one of only 18 companies nationwide to earn Silver level recognition in 2017.



The Workplace Health Achievement Index scores companies on seven organizational best practices: leadership, engagement, programs, policies and environment, partnerships, communications, and reporting outcomes; along with the objective, unbiased assessment of overall workplace health using aggregate data from My Life Check® or an equivalent source. HPMC used the aggregate data from the annual WellSuite Personal Wellness Profile health risk appraisal to help demonstrate their achievement.

HPMC's worksite health promotion efforts focus not only on the Hanford workforce they support, they strive to model supportive health culture internally as well. One of the most effective and simple strategies for improving health culture and productivity is using "walking" meetings for one-on-one and small group discussions. Walking meetings, or meetings on the move, provide many benefits. The fresh air and exercise improves circulation and delivers oxygen to the brain and muscles. This improves creativity and problem solving and benefits overall health. It exercises the mind and body and gets employees out of the chair. Removing the barrier of a table or desk also creates a new perspective during discussion that can result in fresh ideas and solutions. Walking side-by-side encourages teamwork and collaboration that can sometimes be harder to achieve in a traditional meeting.



*Jill Harvill, Occupational Health & Wellness Program Manager and Paul Boehning, Performance Assurance, Health Information & Information Technology Manager*

More than 800 companies completed the Index assessment this year and, of those companies, 67 percent received either Gold, Silver, or Bronze recognition. Participating companies receive benchmarking reports, which allow them to identify potential areas of improvement so they can advance their annual performance and recognition.

## Accreditation Association for Ambulatory Healthcare, Inc.



HPMC OMS received a three-year term of accreditation from the Accreditation Association for Ambulatory Health Care, Inc. (AAAHC). For over 35 years, AAAHC has been the leader in accrediting ambulatory care organizations, and the AAAHC Certificate of Accreditation is widely recognized as a symbol of quality.

Achieving accreditation by AAAHC reflects confidence that HPMC has met the rigorous standards of a nationally-recognized third party, and will continue to demonstrate throughout the accreditation term the attributes of an accreditable organization. The effort necessary for an organization to be accredited is substantial and compliance with those standards implies a commitment to continual self-evaluation and improvement.

"This is an important milestone in the continuing growth and success for us," says Paul Boehning, Performance Assurance, Health Information, and Informational Technology Manager. "Pursuing accreditation shows commitment to providing the highest quality care and service to patients and the same high quality in business practices." \*

# BECHTEL NAMES NEW DIRECTOR FOR VIT PLANT



**Brian Reilly, a senior vice president with Bechtel, began serving as the project director for the Waste Treatment and Immobilization Plant (WTP), or the Hanford Vit Plant, on December 22, 2017.**

Reilly has more than 35 years' experience in nuclear construction. Reilly will guide completion, startup, and commissioning of WTP's first phase: the seven-story, sports arena-sized Low Activity Waste Facility and its associated support facilities.

Reilly succeeds Peggy McCullough, who will now lead Bechtel's Nuclear, Security, and Operations business line.

"Brian's decades of experience in construction and startup of commercial and government nuclear projects will be a great asset at WTP as the project continues its crucial next phase," said Barbara Rusinko, president of Bechtel's government services and nuclear power global business unit. "Starting up a radioactive waste treatment facility is a multi-year, rigorous, deliberate process. Peggy has positioned the WTP project well for this transition, and our goal is to turn over a fully functioning Low-Activity Waste Facility to the Department of Energy by 2022."

Since 2014, Reilly has led the \$6.5 billion design and construction project for the National Nuclear Security Administration's Uranium Processing Facility (UPF) in Oak Ridge, Tennessee. The UPF will replace aging national security facilities that process enriched uranium for nuclear defense and U.S. Naval propulsion. Under Reilly's leadership, UPF has achieved 90 percent design completion and is poised to start construction of its nuclear facility next year.

"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." \*

**"BRIAN'S DECADES OF EXPERIENCE IN CONSTRUCTION AND STARTUP OF COMMERCIAL AND GOVERNMENT NUCLEAR PROJECTS WILL BE A GREAT ASSET TO WTP."**

*– Barbara Rusinko, president of Bechtel's government services and nuclear power global business unit*