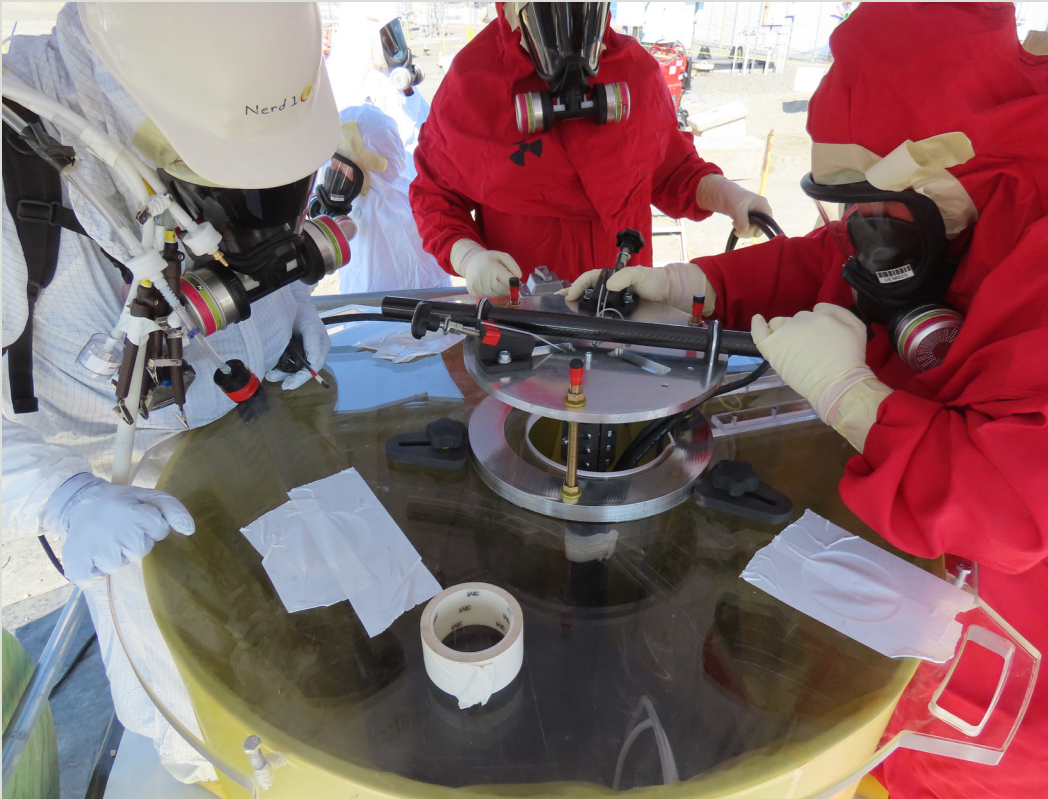


# SOLUTIONS

A weekly publication of highlights and progress of the Hanford Tank Operations Contractor, Washington River Protection Solutions, Issue 584, Aug. 10, 2021

## All clear



*Workers use an angle grinder to remove an obstruction in a tank riser, allowing for a new pump to be installed in Pit AW-02E.*

### Project team deploys innovative tool to install Evaporator feed pump

Last week, the Tank Farm Projects (TFP) team successfully installed a new pump and jumpers in Pit AW-02E of Tank AW-102, the feeder tank for the 242-A Evaporator. The new pump and jumpers will support future Evaporator campaigns used to create more storage space in the double-shell tank (DST) system.

While pump replacements are never easy, last week's installation presented the team with a unique set of challenges, due in part to the fact that Pit AW-02E houses the larger-than-normal, Evaporator feed pump. To overcome the installation challenges, the team

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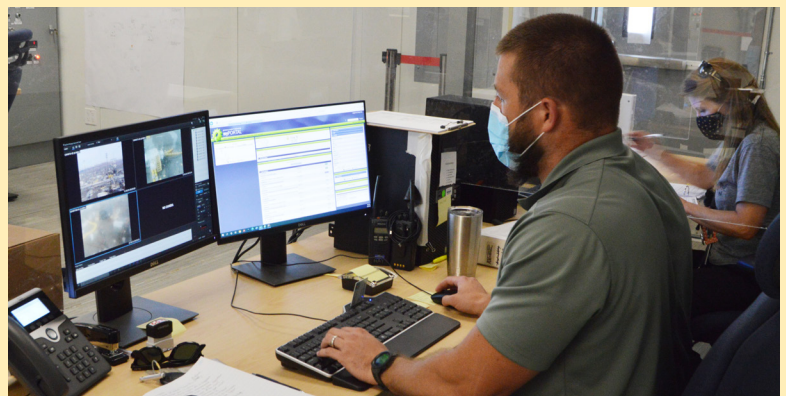
## Up and running

### Waste retrieval operations begin at Tank AX-103

It's no secret that tank waste retrieval can be a marathon. Still, a strong start to the months-long campaign can be critical to its success.

Last weekend, after more than a year of preparations that included removing legacy equipment and installing an enormous amount of infrastructure, the WRPS Retrievals team began retrieval operations at Tank AX-103. Operators pumped approximately 9,100 gallons of radioactive and chemical waste to double-shell tank AZ-102 for safe storage.

*Continued on page 3...*



*Operators in a control trailer near AX Farm remotely operate the extended-reach sluicing system to move waste from Single-Shell Tank AX-103 to Double-Shell Tank AZ-102 for continued safe storage.*

...continued from page 1.

relied heavily upon experience to identify obstacles and adapted innovative solutions using resourcefulness, design expertise and out-of-the-box thinking.

To ensure installation went off as smoothly as possible, the TFP team drew on lessons learned from previous pump jobs. One of these was to assess the actual size and condition of the riser prior to installing the pump. This was accomplished by building and installing a test-fit gauge designed to mimic the maximum size of the pump prior to installation of the pump itself.

The test gauge paid off. Interferences during installation of the test gauge indicated restrictions on the inside of the riser that would have prevented the pump from being completely lowered into place. If this had been the case, the lower end of the pump would have been submerged in several feet of waste before discovering this issue. A camera inspection confirmed the interference and identified it as a protruding weld joint around the entire inner circumference of the pipe that was not ground down during construction of AW-102.

To address the problem, the Tank Farm Projects Tooling and Innovation team hit the whiteboard. The chosen solution was to develop a remotely operable array of angle grinders. The team also had to devise and develop the support equipment and strategy necessary for safely installing, operating and removing the



*Workers use a crane to install the new feeder pump in Pit AW-02E. The feeder pump will support future Evaporator campaigns.*

grinder tool, all while protecting workers during use.

In just three weeks, the team took the idea from the conception phase through the processes of design, material procurement, procedural paperwork, work package updates, fabrication, testing, proof of concept demonstration, crew training and field execution.

"I believe this is far and away the fastest we've ever gone from whiteboard sketch to field execution with a special

tool of this complexity," said Peter Griffin, Project Engineer.

To implement their innovative solution in record time, the team tapped numerous rapid manufacturing techniques, including 3D scanning and selective laser sintering (or "3D printing"). After deploying the 15-foot-long grinder assembly, the field crew then removed the top hat and work platform to allow for pump and jumper installation, which the team pulled off seamlessly with no rework required.

"It took a lot of people and a lot of coordination to make this happen safely and successfully on the initial deployment," said Dustin May, Project Manager. "From the material coordinators expediting parts to get on site, to the millwrights assembling the tool, and the NCOs, pipefitters, HPTs, and IHTs working together to install, use, and remove the tool safely, it was a team effort all around."

"From Joel Farias, the Lead NCO and Greg Cook our Camera Operator to Nick Muir and Levi Zorch, the pipefitters who ran the grinder, it was exciting to see the whole crew's involvement working together to pull this off quickly and safely," said Doug Kennedy, the project's Lead Engineer.

Next, the team will complete the final steps of the replacement project, consisting of installing the in-pit heater, pit cover plate, valve actuators, and performing leak checks.

## Powerful, personal COVID-19 reminder



*WRPS Safety Specialist Mike Powers shares his powerful and personal perspective of COVID-19.*

HPMC OMS has an informational briefing on the Moderna vaccine available here: [COVID-19 Resources and Updates](#). For additional questions, please reach out to your company [COVID-19 POC](#) and visit the [Washington State DOH COVID-19 Vaccine webpage](#).

Thank you for your continued efforts to prevent the spread of the COVID-19 virus, while safely advancing the important cleanup mission at Hanford. We will continue to keep you informed as information becomes available.



Tank AX-103's pre-retrieval starting waste volume was estimated to be 112,300 gallons. The retrieval system features three extended-reach sluicing cannons to mobilize the waste with high-pressure water to a centralized transfer pump.

"We had a couple of blips that we had to work out, but, overall, the retrieval equipment and exhausters performed very well," said Peggy Hamilton, WRPS Retrieval and Closure manager. "In addition to the Retrieval Ops and Construction teams, I'd like to recognize Engineering, Maintenance and our many

support organizations. Their efforts have greatly contributed to the successful beginning of another tank retrieval project essential to Hanford's risk-reduction mission."

As expected, the safety controls and comprehensive chemical vapor protection plan are proving to be effective. Exhauster stack emissions were within anticipated values during active retrieval and area-monitoring results were less than industrial hygiene action levels. Based on the data, work has transitioned to full-face air-purifying respirators and

allowance to perform 24/7 retrieval operations if needed.

Retrieval operations in Tank AX-103 are scheduled to take nine months to complete, depending on retrieval efficiencies and the amount of "hard heel" material in the bottom of the tank.

Tank AX-103 is the third of four tanks in AX Farm to have its waste retrieved. WRPS has already retrieved waste from tanks AX-102 and AX-104 – both tanks are in the technical review process. Retrieval of the last tank, AX-101, is scheduled to begin next year.

Click below to check out this week's video highlighting some of WRPS' recent accomplishments.



**Progress Report**  
**7/17/2021 - 8/6/2021**

# Interns map out futures and tank farms safety

A group of students from Florida International University (FIU) will have quite a story to tell when asked to share what they did this summer.

Jeff Natividad is participating in a summer internship with Hanford tank operations contractor Washington River Protection Solutions as part of a unique [fellowship program](#) between the [Department of Energy Office of Environmental Management](#) (DOE-EM) and FIU.

The Science and Technology Workforce Development Program is designed to develop, train, and mentor a pool of minority scientists and engineers as the next generation of leaders for the DOE.

“The tasks we’re given during our time here allow me to apply what I learned in the classroom,” said Natividad, who also took part in the internship program at WRPS last year.

He and fellow FIU students Thi Tran and Joel Adams have spent their time at Hanford programming a robot called The Canary. The robot can travel through suspected contaminated areas to provide three-dimensional maps of radiological readings.

“We worked on refreshing its robot operating system, then added two more on-board computers to support additional sensors, redesigned the power system, and added three cameras,” Natividad said. “We also integrated the GPS and a new network system. It’s been a busy summer.”

Students taking part in the Fellowship focus on one of four major research areas, including tanks and high-level waste; deactivation and decommissioning; soil and groundwater; and artificial intelligence/ machine learning and information technology.

“The partnership with the Fellowship program allows us to tap into top talent with relative experience and education in the waste management sector,” said Alex Pappas, who serves as a mentor for the students at WRPS. “Our frequent interaction allows us to create mutually beneficial graduate programs and theses that build our knowledge depth and prepare the next generation of technical leaders for the Hanford Site.”



*During a recent road closure, Florida International University students (left to right) Jeff Natividad, Joel Adams and Thi Tran test a radiation mapping robot outside of U Farm.*

Since 2007, more than 190 FIU students have participated in the Fellowship program, many of them are the first generation in their family to attend college.



*(Left to right) Interns Thi Tran, Jeff Natividad, and Joel Adams met with Nicole Nelson-Jean, DOE Associate Principal Deputy Assistant Secretary for the Office of Environmental Management (right) when she visited the Hanford Site in June.*

“This gives them the opportunity to participate in research that a lot of undergrads don’t get the chance to do, and the program also provides an opportunity for Masters and Ph.D. students to develop their theses and dissertation research respectively,” said Dr. Leonel Lagos, principal investigator for the DOE/ FIU cooperative agreement and director of research at FIU’s Applied Research Center. “They come out of the program better-prepared, and with a better understanding of the industry.”

Lagos said most of the undergraduates and graduate students (Masters and Ph.Ds) have job offers waiting for them when they complete the program, and many begin careers with the DOE, its contractors, or private STEM-related industry.

“We appreciate the support of DOE and the Office of Environmental Management,” Lagos added. “These students have a competitive edge because of the connection they make with the scientists and engineers in the field, and we couldn’t run this program without the support of the DOE and contractors like WRPS.”

# TIEP annual meeting

*Karthik Subramanian, WRPS Chief Engineer, gives the welcoming remarks at the Tank Integrity Expert Panel annual meeting. Due to COVID precautions, this is the second year the meeting was held virtually. The panel is made up of independent experts from a variety of private and government organizations, including national laboratories. The members provide advice and recommendations on existing and emerging tank integrity issues in support of the tank farm mission. The TIEP has been in place for many years and has guided the robust and dynamic tank integrity program.*



## Implementation of 10-digit dialing requirement

The Hanford Site will transition to 10-digit dialing on Sept. 1 to align with the Federal Communications Commission order, Implementation of the National Suicide Hotline Improvement Act of 2018. This order ensures nationwide access to the National Suicide Prevention Lifeline, 988, launching next year. The FCC requires implementation of 10-digit dialing by Oct. 24, 2021. The Hanford Site will transition to 10-digit dialing prior to the deadline to allow ample time to troubleshoot any issues and to avoid potential interference with fiscal year-end activities for the Hanford workforce.

### What does this mean?

- Users will need to dial 10-digits [area code + 7-digit number] for local calls both on and off the Hanford Site
- Long distance dialing will not change, users will still dial [1+ area code + 7-digit number]
- Calling 911 from a site phone will not change. However, calling Hanford 911 services from a cell phone or off-site phone would need to include the area code first – (509) 373-0911

Please note: This may require changes to procedures, signage, phone lists, HGET, websites, and Hanford Site systems that have telephone numbers listed.

If you have questions or comments, please contact the Mission Service Desk at (509) 376-1234.





## Back to school sustainability tips

As summer draws to a close, it is time to think about preparing our kids to go back to school. This school year, once again, brings many new challenges, as the Delta variant of the COVID-19 virus flares up and continues to stir up uncertainties on whether school will remain virtual or if our children will attend in person. Many of us may have financial burdens resulting from the COVID-19 Pandemic. Here are some tips on how to make the back to school process more sustainable and budget friendly.

### Get new school clothes second hand

Kids outgrow their clothing very quickly, buying clothes every fall wastes money and creates waste. One option is to organize a clothing swap with family, friends, or neighbors. Also, consider purchasing clothing from flea markets, consignment shops and thrift stores. [Click here for a link](#) to Yelp's 10 best thrift stores in the Tri-Cities.

### Inventory your supplies before buying more

Take an inventory of school supplies you have that can be used again, then make a list of what you need to buy before going shopping to avoid redundant purchasing

### Choose non-toxic and eco-friendly school supplies where possible

Choose backpacks made of recycled products or natural canvas and binders that are labeled PVC-free. Most retailers carry eco-friendly versions school supplies such as recycled pencils, markers, refillable or recycled pens, and 100% recycled, chlorine-free notebooks and printer paper.

### Pack a lunch

Get your kids involved in choosing lunch ingredients, so they will be less likely to waste food. Packing a lunch in a reusable lunch box with a reusable bottle of water reduces the amount of food packaging.

### Clean up the school commute

If you live within a mile of school, walking or biking is a great option for traveling without increasing your carbon footprint.

### Buy used textbooks

Especially for college-aged kids, consider renting textbooks, and buying used or e-books saves trees, conserves energy and water by reducing the number of new books printed. Several websites carry a broad selection of titles available for purchase or rent. Try searching on [Amazon](#), [Chegg](#), or [Powell's](#) for used or rental books.

Please send comments and suggestions for Environmental Green Lights to [WRPSGoingGreen@rl.gov](mailto:WRPSGoingGreen@rl.gov)

## DUTY TO REPORT

WRPS employees have a duty to report allegations of fraud, waste, abuse, misuse, corruption, criminal acts, or mismanagement relating to DOE programs, operations, facilities, contracts, or information technology systems. Please report such concerns to an appropriate authority such as WRPS management, the WRPS Ethics and Compliance Program (373-4122), the WRPS Employee Concerns Program (376-2156), the DOE Employee Concerns Program (376-0000), or the DOE Office of Inspector General (1-800-541-1625).

*Solutions is published by Washington River Protection Solutions Communications & Public Relations. Ideas or suggestions may be submitted to [matthew\\_p\\_buechler@rl.gov](mailto:matthew_p_buechler@rl.gov) or [WRPSadmin@rl.gov](mailto:WRPSadmin@rl.gov).*



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