

# ***Hanford Tank Cleanup Update***

*July 2012*

*Waste retrieval  
ramps up*

## A record three tanks at once

# Multiple waste retrievals taking place in C Farm

For the first time ever, waste solids are in the process of being retrieved simultaneously from three underground tanks: C-104, C-107 and C-109.

“Previously, during stabilization activities, we’ve pumped the free liquids out of several tanks at the same time, but this is quite different,” said Single-Shell Tank Retrieval & Closure Manager Kent Smith. “This is the first time we’re actually retrieving solids in multiple tanks at the same time.”

“It’s exciting,” said C Farm Retrieval Manager Dave Saueressig, “but it also needs to be our new business-as-usual. In order to meet the deadlines established by the Consent Decree, we knew we were going to have to pick up the pace of retrievals. Being in three tanks at once not only shows we can do it, we are doing it and doing it safely.”

### C-104

Crews are working to remove the last bit of hard heel waste from C-104. In late June, crews began a four-week recirculation of caustic in the tank after 15,000 gallons of sodium hydroxide were added the previous week to begin dissolution of the remaining hard heel. During the recirculation period, the caustic will react with the waste to create a water-soluble salt. After the reaction is complete, the remaining material will be pumped to a double-shell tank and C-104 will undergo a final rinse.

To date, crews have removed more than 98 percent of the 259,000 gallons of waste C-104 contained when retrieval began in January 2010. The Tri-Party Agreement requires that 99 percent of the waste is removed from the single-shell tanks or certain criteria are met regarding limits of technology.

### C-107

Meanwhile, the Mobile Arm Retrieval System (MARS) marches on in tank C-107, having removed more than 71 percent of the tank’s contents. MARS’ robotic arm is equipped with a built-in cannon which uses recirculated tank waste to break up and mobilize the waste in the tank and sweep it to a pump for removal. Its mobility has allowed operators to quickly and skillfully maneuver around obstacles found in the tank that would normally set back retrieval efforts a number of weeks.

[Click here to watch a video of MARS in operation.](#)

### C-109

A third tank, C-109, is in the middle of a water soak aimed at loosening and breaking down waste solids into a mobile form. Recent sampling shows the hard-to-remove heel is dissolving, and pumping activities are forecast to occur in July or August. It’s estimated that less than 14 percent of the original starting volume of 63,000 gallons remains in the tank.

All this activity is in addition to the completion of retrieval activities earlier this year in tank C-108, which is awaiting review by the Department of Ecology.

“All in all, we’re on pace to have a banner year,” Saueressig said.



## WRPS manager receives 'Top 25' industry honor

WRPS Single-Shell Tank (SST) Retrieval & Closure Manager Kent Smith has been named by Engineering News Record (ENR), a weekly trade magazine covering the construction industry, as one of its Top 25 Newsmakers of 2011 for his involvement with the Mobile Arm Retrieval System (MARS). MARS is a cutting-edge radioactive waste removal tool installed in a Hanford single-shell tank that is being used to retrieve an estimated 253,000 gallons of waste.

Each year since 1964, the editors of ENR have reviewed the stories that have appeared in the magazine during the year and selected individuals for special recognition. Newsmakers are chosen for their outstanding accomplishments, for exceeding what might be expected in their day-to-day duties, for injecting an original idea or new approach that would take the place of traditional practices, or for performing some special service that benefits the industry and the public.

[Read the ENR article highlighting Smith's accomplishments.](#)

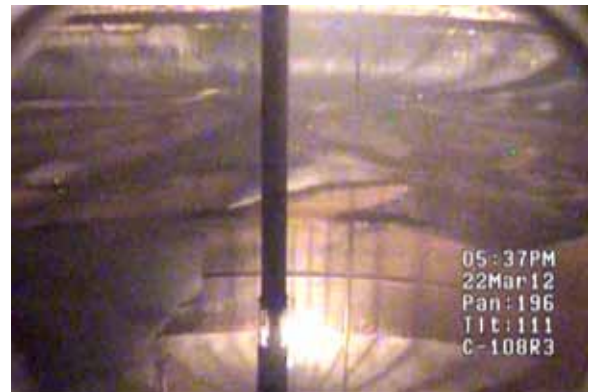


*WRPS SST Retrieval & Closure Manager Kent Smith helped lead the effort to use an innovative robotic waste retrieval system known as MARS at the Hanford tank farms.*

## C-108 waste retrieval complete, awaiting review

Efforts to remove hard heel waste from tank C-108 are now complete. The Department of Energy (DOE) notified the Washington State Department of Ecology so the tank can be classified as having met the completion criteria. If Ecology agrees C-108 meets regulatory standards, it will be the eighth Hanford tank emptied of high-level radioactive waste.

Tank C-108 contained about 73,500 cubic feet of high-level radioactive waste. After several different methods were used to remove the waste from the tank, an estimated 500 cubic feet of waste remains. WRPS is working with Ecology to make sure the regulator's requirements are satisfied and retrieval of C-108 can be declared complete.



*A video still taken inside tank C-108 shows the tank walls and floor, with very little waste remaining.*

## C-112 bulk waste retrieval completed

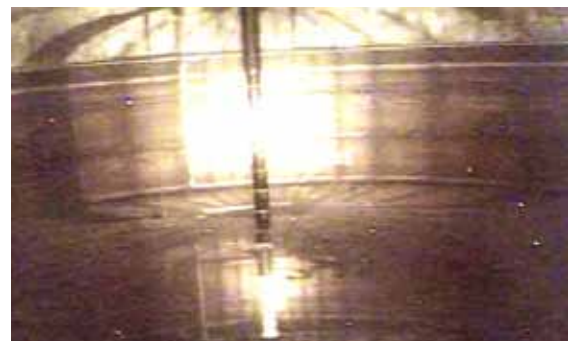
C-112 bulk waste retrieval is complete with more than 67 percent of the starting volume, or 70,400 gallons, removed from the tank in less than four months. Crews will now prepare to remove the hard-heel waste from the tank.

Workers used the Enhanced Reach Sluicing System (ERSS), which fires a stream of liquid onto waste solids at about 100 gallons per minute at a pressure of 100 pounds per square inch, to retrieve waste from C-112. Unlike traditional sluicing methods, this method has a telescoping arm that extends further down into the tank to attack waste. This allowed crews to cut through a difficult hardpan-like layer several inches thick covering the mud-like sludge below.



*Left: An in-tank camera shows what C-112 looked like before retrieval operations began.*

*Right: A view of C-112 after bulk waste retrieval completed.*



## Johnson, Clark take over leadership of WRPS



*Mike Johnson, President and Project Manager*

Mike Johnson has taken over leadership of the WRPS team as president and project manager, with Wyatt Clark as the project operations manager. Between them, Johnson and Clark bring nearly 70 years of nuclear industry experience to the Tank Operations Contract.

Johnson most recently was the executive director of Waste and Effluent Disposition at the Sellafield site in the United Kingdom. He has also held senior management positions at the Idaho Cleanup Project, the Los Alamos National Laboratory and the Savannah River Site. Johnson is a 21-year veteran of the U.S. Navy's nuclear submarine program, retiring as commanding officer of the attack submarine USS Sturgeon.



*Wyatt Clark, Project Operations Manager*

Clark came to Hanford from the Savannah River Site, where he was the Tanks Farms Operations manager. He was responsible for all of the tank farm operations, waste transfers, waste preparation and effluent waste treatment. Clark also served at the chief engineer for Washington Savannah River Company and as project manager for several Savannah River tank farm and waste pretreatment facilities.

## One System project team tackles mission-based solutions



The One System Integrated Project Team, made up of about 200 WRPS and Waste Treatment Plant (WTP) employees, was formed earlier this year to tackle issues associated with the treatment of Hanford's tank waste.

"First and foremost we promote mission-based and risk-based decision-making that optimizes the scope, schedule, cost between the tank farms and WTP," says Ray Skwarek, manager of the One System team. "It's our job to help initiate hot commissioning of the Low Activity Waste and Analytical Laboratory facilities ahead of the Pretreatment facility and provide a template for the eventual transition to a WTP operations contractor."

The One System team has a key role in helping resolve technical issues identified by the Defense Nuclear Facilities Safety Board (DNFSB). A major safety concern identified by the DNFSB is ensuring that the tank farm waste-feed delivery system, along with the Waste Treatment Plant's pulse-jet mixers, can safely mix, sample, and transfer high-level tank waste.

The DNFSB is concerned that fissile material could accumulate at the bottom of WTP vessels, leading to a potential criticality; that an accumulation of solid waste could generate flammable levels of hydrogen, and that accumulated solids will interfere with the waste-level detection system in the Pretreatment facility vessels, leading to loss of control of the pulse jet mixers.

In response, DOE's implementation plan calls for WTP to conduct large-scale waste mixing tests using pulse-jet mixers and for WRPS to perform small-scale tests to define the tank waste mixing, sampling and transfer system performance capabilities. The resulting data will be used to perform a gap analysis comparing the tank farms waste-feed delivery capabilities with the WTP Pretreatment facility's waste-feed receipt system capabilities.



*A scale model mixing tank is one of several pieces of equipment used to test the tank farm waste-delivery system. Tests are designed to ensure the high-level radioactive tank waste can be safely and reliably mixed, sampled and transferred to the Waste Treatment Plant.*

## WRPS donations support civil engineering program expansion at WSU Tri-Cities

A major financial donation by Washington River Protection Solutions (WRPS) is enabling Washington State University Tri-Cities civil engineering students to obtain their degrees locally.

The gift, along with donations from other Hanford contractors, allowed WSU Tri-Cities to hire two Engineering Faculty Fellows; purchase laboratory equipment, and provide scholarships, internships, and hands-on learning experiences to students.

“This is great news for our community and for our economy, as it means we now can grow our own civil engineers — in addition to electrical engineers and mechanical engineers — right here at WSU Tri-Cities,” Chancellor Vicky Carwein said. “The B.S. in civil engineering wouldn’t have happened without the perseverance and support of several people and the generosity of our partners.”

In August 2010, WRPS increased its overall commitment to the campus to \$700,000 with the goal of WSU Tri-Cities becoming a destination campus for science, technology, engineering, and mathematics.



## Regional Chamber of Commerce honors WRPS



The Tri-City Regional Chamber of Commerce recognized Washington River Protection Solutions with its 2011 Impact Award at its annual meeting and awards luncheon. The award was given to WRPS for its “tireless support of the chamber and its mission.” In 2011, WRPS sponsored three new chamber efforts: Meet the Buyer workshops, the Small Business Incentive program and the Women in Business conference.

*Mike Johnson  
with Lori Mattson,  
Tri-City Regional  
Chamber of  
Commerce  
Executive Director*



## Hanford Story video tells tank waste story



More than 56 million gallons of radioactive waste are contained in Hanford’s 177 underground storage tanks, threatening the nearby Columbia River.

The Hanford Story: Tank Waste Cleanup depicts the historic work being accomplished at Hanford’s tank farms. This video details how the DOE Office of River Protection, along with contractors Washington River Protection Solutions and Bechtel, are working together to remove waste from the tanks and send it to the Waste Treatment Plant, where it will be prepared for disposal. [Click here to view the video.](#)

## WRPS employees make history Work 4 million hours without a day-away-from-work injury

WRPS employees have achieved an unprecedented safety record, surpassing 4 million hours without a day-away-from-work injury. The record was achieved on May 30, more than a year after the company's last day-away-from-work injury case.

"Our team has worked an amazing 433 days without losing a day to injury," say Mike Johnson, WRPS president and project manager. "That is unprecedented in tank farm history."

"We have more than 1,400 employees, many who work outside in the cold and snow. We operate the 222-S Laboratory and the 242-A Evaporator – the only operating nuclear facilities at Hanford. We manage the most challenging radioactive waste project in the nation, we continue to meet all our performance objectives and, most important, we accomplish our mission safely."

In the second quarter of fiscal 2012, WRPS employees were the safest among the DOE Environmental Management (DOE-EM) prime contractors with a total recordable injury rate of 0.00. The recordable-injury rate for WRPS now stands at 0.19, compared with the DOE-EM complex average of 0.57 recordable injuries per 200,000 work hours.

## WRPS receives DOE Mentor of the Year award

Washington River Protection Solutions (WRPS) has been awarded a 2011 DOE Small Business Award from the U.S. Department of Energy (DOE) for the company's leadership in mentoring local small businesses. The DOE Mentor of the Year award is given to the federal contractor that demonstrates excellence in meeting the requirements of the Department's Mentor-Protégé program. Through this program, WRPS partnered with local small businesses to create long-lasting relationships, share best practices and lessons learned, and enhance the protégés' ability to successfully compete for federal contracts.



Through the DOE mentor-protégé program, WRPS has provided oversight and coaching to two local small business firms: [Columbia Energy and Environmental Services](#), a small, woman-owned business, and [Total Site Services](#), a small, woman-owned, disadvantaged business.

WRPS is helping these two local small businesses by providing opportunities to grow by leveraging new work opportunities, improving professional and technical capabilities and strengthening relationships with WRPS corporate parents, Hanford and other DOE prime contractors. In addition, WRPS has provided guidance with respect to safety training, technology development and business procedures.



## Where WRPS employees live

