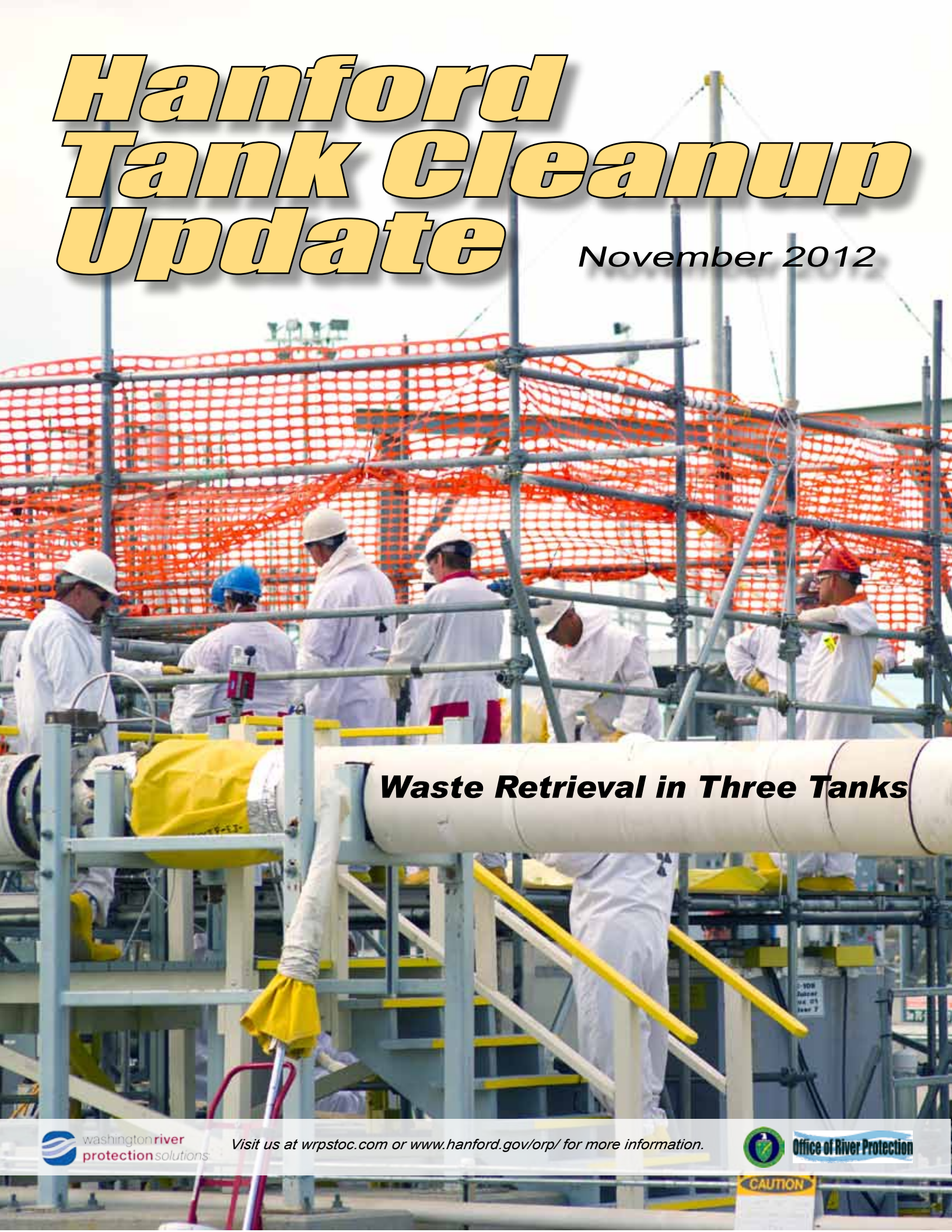


# *Hanford Tank Cleanup Update*

November 2012



**Waste Retrieval in Three Tanks**

## Waste discovered leaking from inner shell of double-shell tank AY-102

### No indication of waste leaking outside of tank

Laboratory analysis of samples of materials discovered in the annulus between the inner and outer shell of tank AY-102 has confirmed that a small amount of high-level radioactive waste has leaked from the primary tank. AY-102 is the first of Hanford's 28 double-shell tanks to leak from its primary tank.

The annulus is the 30-inch wide air space between the inner steel wall of the double-shell tank and the outer steel shell. The outer shell is surrounded with steel-reinforced concrete and the tank is buried underground.

Analysis of the samples taken from two areas within the annulus of tank AY-102 show the material is consistent with the waste inside the tank. No material has been found outside of the annulus, and there is no indication of radioactive contamination in the leak detection pit outside the double-shell tank.

Visual inspections are being performed weekly of the waste in the annulus, and the liquid level inside the primary tank continues to be monitored.

The DOE Office of River Protection has been briefing the Washington State Departments of Ecology and Health on tank AY-102 since the material was discovered in early August. The agencies are working together to determine the path forward for dealing with the situation.

Visual inspections on six other tanks with similar construction and operating histories will be performed over the next several months. Those tanks are located in the AY, AZ and SY tank farms.

Tank AY-102 is the oldest of Hanford's double-shell tanks and has been in operation for more than 40 years. It contains about 850,000 gallons of high-level waste from the past production of plutonium for nuclear weapons.



Radioactive waste is seeping from the inner shell of double-shell tank AY-102. This photo shows waste that has leaked from the primary tank into the annulus – the 30-inch wide gap between the inner and outer steel shell of the tank. There is no indication that waste has leaked outside the secondary shell of the tank.

# Waste retrieval completed in three single-shell tanks



Washington River Protection Solutions (WRPS) has completed hard-heel waste retrieval in three of Hanford's aging single-shell tanks this year and finished bulk retrieval in a fourth. The waste retrieval work is being done in the C Farm. WRPS is committed to emptying all 16 of the C Farm tanks by the end of 2014.

## C-108

Workers finished retrieving waste from tank C-108 earlier this year using chemical dissolution and a caustic soaking process to help remove the water-soluble salts from the tank. Before that, a modified sluicing system was used to retrieve the bulk of the waste from C-108. The Washington State Department of Ecology is reviewing the data to determine if the tank meets its criteria to be declared empty.



## C-104

Crews finished retrieving waste in July from tank C-104. Retrieval was completed eight months ahead of schedule and nearly \$3 million under budget. C-104 held 259,000 gallons of waste, the second highest volume of the 16 single-shell tanks in Hanford's C Farm.

Operators used modified sluicing to remove the majority of the waste. Sodium hydroxide was added to the tank to break down and soften the stubborn, stuck-on material at the bottom of the tank.



## C-109

Tank C-109 became the third C-Farm tank emptied this year. An engineering evaluation shows the waste volume in C-109 is below the regulatory requirement of 360 cubic feet of waste remaining in the tank. Video of the 530,000-gallon-capacity tank shows a large percentage of the tank bottom is now visible.

Earlier this year, crews began a two-step chemical soak process to dissolve the hardened remaining waste, first by performing a water soak and then adding sodium hydroxide to the tank to loosen and break down the stuck-on waste at the bottom of the tank—the same process successfully used in C-104 and C-108.

## C-107

WRPS completed bulk retrieval of waste in tank C-107 in July. Operators have used the Mobile Arm Retrieval System (MARS) to remove more than 200,000 gallons of waste from the tank and transfer it to a double-shell tank. MARS has operated efficiently and effectively, taking a little more than three months to remove nearly 80 percent of the tank's waste.

**MARS** is a remotely operated robotic arm that uses high-pressure liquid to break up the waste 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 delay retrieval efforts. The MARS was designed to provide multiple technologies in a single unit, eliminating the need for WRPS to deploy a separate technology in order to continue hard-heel waste retrieval. Now that bulk retrieval is complete, the focus turns to retrieving the roughly 50,000 gallons of waste that remain.



## WRPS employees make history Achieve 5 million hours without a lost-workday

Washington River Protection Solutions (WRPS) employees have amassed an unprecedented safety record; surpassing 5 million hours without a lost-workday injury. This record was achieved on Sept. 9, more than 15 months after the last WRPS lost-workday injury.

“Our team has worked an amazing 517 days since its last day-away-from-work injury case, a feat unprecedented in the history of Hanford’s tank farms,” says WRPS President and Project Manager Mike Johnson.



WRPS has more than 1,400 employees, many who work outside in the heat of the summer and the cold and snow of the winter, who operate Hanford’s tank farms – one of the most challenging radioactive waste projects in the nation. Despite these challenges, employees continue to meet or exceed all performance objectives and accomplish WRPS’ mission with a safety record that is among the best in the DOE Environmental Management complex.

## Radioactive waste transfer process accelerated

The time it takes to transfer high-level radioactive waste to double-shell tanks has been cut in half and the cost reduced by 50 percent.

“It used to take us 45 work days to get procedures ready to do a waste transfer,” says Waste Transfer Manager Steve Ringo. “By eliminating extraneous details and equipment from our planning for every transfer procedure, the transfer team streamlined the waste-transfer planning process, cutting the time needed for procedure writing from 45 days to 14 working days.”

The first waste transfer using the new system occurred July 23. The team completed 10 waste transfers between July 23 and Sept. 5, including three transfers in one week, saving as much as \$70,000 per transfer.



Portable hose-in-hose transfer lines are used to move radioactive waste to double-shell storage tanks.

## New engineering laboratory dedicated at Washington State University Tri-Cities

Washington State University Tri-Cities’ newest building, a \$3 million engineering laboratory, was recently dedicated by EnergySolutions.

The EnergySolutions Engineering Laboratory initially will be used to continue testing of waste mixing systems used in the Waste Treatment Plant’s (WTP) Pretreatment facility to resolve technical issues. EnergySolutions, which has a subcontract for the research, constructed the building with a high bay to carry out large-scale mixing testing in a 14-foot diameter tank.

EnergySolutions, a partner with Washington River Protection Solutions (WRPS) on the Tank Operations Contract, built and paid for the laboratory and then donated it to WSU Tri-Cities. EnergySolutions will lease the laboratory back for a nominal fee through June 2013 and then at market rates while it conducts the WTP mixing research. When that work is completed, the laboratory will be available for WSU’s use, which plans to use it to give students hands-on science and engineering experience.

The building has a 10,000-square-foot-high bay that is up to 52-foot high and 3,000 square feet of office space. A skylight will allow the WTP pulse jet mixing system being tested to be lowered through the roof and placed inside the mixing tank.

The WTP research will address questions about whether radioactive waste will remain well-mixed in vessels inside the Pretreatment facility. Work on the Pretreatment and High-Level Waste Vitrification facilities have been slowed until mixing and other technical issues are addressed.



## Small businesses benefit from WRPS subcontracts

Washington River Protection Solutions (WRPS) awarded nearly \$130 million in subcontracts to 196 companies in fiscal year 2012, with more than half of that total going to benefit small businesses. In all, WRPS spent more than \$67 million with small businesses.

“We are committed to helping local small businesses succeed,” said WRPS Small Business Manager Tess Klatt. “Many of our most valuable partners are small business owners who provide the resources we need to successfully accomplish our mission.”

Nearly \$69 million was spent regionally with companies in Washington, Oregon and Idaho last year with more than 61 percent—or \$42 million—spent with small businesses.

Since October 2008, WRPS has awarded more than \$678 million in subcontracts—almost \$417 million of that total with small businesses. This represents more than 61 percent of total procurement spending, exceeding the company goal by more than two percent.

## WRPS partners with Chamber of Commerce to offer small business grants

Washington River Protection Solutions (WRPS) and the Tri-City Regional Chamber of Commerce teamed up on grants to 43 local small businesses. The grants, made possible by a \$30,000 donation from WRPS, provide companies with up to \$1,000 each to help them obtain essential software or equipment, train workers or build a website.

The Small Business Incentive Program was created last year. This year there was a 50 percent increase in the number of applicants.

To be eligible, a company must have been an established small business in Benton or Franklin County with an employee base of fewer than 30 full-time workers and a member of the Tri-City Regional Chamber of Commerce.



*Procurement Specialist Melissa Garrard accepted a community award from Tri-City Regional Chamber of Commerce President and CEO Lori Mattson on behalf of WRPS.*

## WRPS-sponsored CREHST exhibit leads to best attendance in six years

A summer exhibit at the Columbia River Exhibition of History, Science & Technology (CREHST) was, by all accounts, a screaming success. The museum featured a three-month exhibit called NOISE!, an interactive, hands-on and ears-on exhibit that took a playful look at the physics of sound.

Made possible by a \$15,000 grant from Washington River Protection Solutions, NOISE! had the best admission numbers since 2006. CREHST saw a 13 percent increase in attendance over last year.



## WRPS recognized for supporting Columbia Basin College

Washington River Protection Solutions (WRPS) received a statewide honor for its support of Columbia Basin College from the Washington Trustees Association of Community and Technical Colleges, comprised of all 150 trustees of the 30 two-year college districts in Washington state.

The organization selected WRPS as one of two 2012 Community Partners of the Year, which recognizes a business, company, agency or organization for donating time and/or resources in support of the community and technical college mission.

The Columbia Basin College trustees praised the company's partnership, stating “the continued support, dedication commitment and expertise...are nothing short of incredible.”

Since October 2008, WRPS has contributed \$400,000 to the college. Most recently, WRPS provided \$65,000 to expand and support a worker retraining program. A majority of the financial support has gone to developing and supporting a revitalized nuclear waste technology program through college and student scholarships.