

# UPDATE

# C-Farm Closure

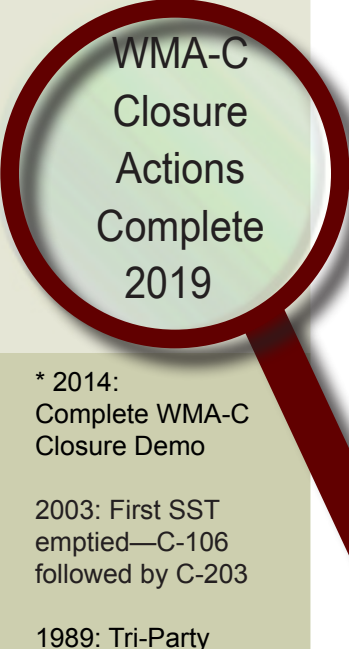
## Hanford Waste Management Area C (WMA-C)

### \* Dates revised in the Proposed Settlement:

\* 2043: Complete closure of all SSTs

\* 2040: Complete retrieval of waste from all SSTs

\* 2019: Waste Treatment Plant (WTP) begins treating waste



WMA-C  
Closure  
Actions  
Complete  
2019

\* 2014: Complete WMA-C Closure Demo

2003: First SST emptied—C-106 followed by C-203

1989: Tri-Party Agreement signed

1968: DSTs begin receiving waste from SSTs

1961: First recorded SST leak confirmed

1944: T-Farm tanks begin receiving waste

1943: First SST completed

## RETRIEVAL STARTS AT SINGLE-SHELL TANK C-104

Work to retrieve waste from single-shell tank (SST) C-104 began on January 8, 2010. The starting waste volume was 259,000 gallons. Waste volume retrieved so far is about 18,000 gallons. The waste is being transferred to double-shell tank (DST) AN-101, over a distance of about 1,600 feet, through an above-ground hose-in-hose transfer line.

Also, liquid waste from the CR Vault sump is being transferred to C-104 through a hose-in-sleeve (clear) transfer line. It will be retrieved from C-104 to the same DST.



## STATUS OF OTHER C-FARM ACTIVITIES

**C-107:** The Mobile Arm Retrieval System, or MARS (see reverse for more info), will be used at this tank.

**C-108:** Hard-to-remove ‘heel’ waste retrieval operations are planned for next fall. The estimated remaining waste volume is 6,800 gallons (908 ft<sup>3</sup>). Retrieval was initiated on this tank in December 2006. The last retrieval operations took place in April 2007.

After modified sluicing ended in 2009, tank waste residuals from C-108 were sampled for closure analytes and physical testing to meet data quality objectives. Testing indicates water and strong caustic additions will be very effective at dissolving the remaining waste. Results of the testing indicate that the hard-to-remove heel could be retrieved to about 680 gallons (90 ft<sup>3</sup>) under ideal conditions.

**C-109:** No further waste retrieval operations are planned at this time. The estimated waste volume remaining is 8,600 gallons (1,150 ft<sup>3</sup>). Retrieval of C-109 started in July 2008.

**C-110:** About 17,200 gallons (2,300 ft<sup>3</sup>) of waste remain in C-110. The last retrieval activity took place in April 2009. No further retrieval activity is scheduled at this time.

**C-111:** Work is underway on equipment procurement and construction in preparation for tank waste retrieval. Retrieval operations are scheduled to start in August 2010.

## SST RETRIEVAL & UPCOMING TECHNOLOGIES

MARS is a technology that's new to Hanford. It has an extendable arm that will be able to reach the hard-to-get areas in the SSTs.

Design, procurement, and initial testing of MARS is complete. The full-size MARS technology was installed at the Cold Test Facility to train workers with simulated waste. Workers successfully tested mast installation, telescoping arm performance, 360° rotation, and practiced breaking up three different waste mediums, as well as washing the waste to a pump.

Ecology will continue to follow the equipment upgrades and further testing. Such testing includes the evaluation of cutting a 48-inch diameter hole in the top of the tank to allow insertion of the MARS mast. MARS is scheduled for use in SST C-107 in Fiscal Year 2011.

MARS was originally designed for the International Space Station where it is used for remote station work.

Garnet schist



### HOT TOPIC!

To use the MARS, a hole must be cut through the top of a tank. The existing risers are not wide enough to accommodate the MARS.

Contractors are evaluating whether a diamond wire saw or garnet water laser will work better for cutting the larger riser opening.

Garnet is very hard and abrasive material. It will drop into the tanks during cutting, potentially causing serious impact to DST and WTP systems.

### The Question of Horizontal Drilling...

Stakeholders often note that horizontal drilling is used in other industries and ask if it could be used to characterize waste or clean under the tank farms.

Contractors recently tested horizontal drilling in 100-D Area—where 'cobble' may be the size of a basketball—with disappointing results.

An angled borehole installation was conducted several years ago under a tank farm with success.

The question remains unanswered...

## SOIL & GROUNDWATER

**Vadose zone sampling** was conducted at site F (near building C-801 chemical drain). Near-surface samples were taken, as well as specific deep vadose zone samples. In addition to the four required samples, two samples were taken in "drier" areas due to the nature of potential releases from the chemical drain.

Recent pushes were conducted at site L2 (northwest of C-104) and site R (west of C-301 catch tank). The gamma logs and moisture plots were reviewed, and selected sampling depths and rationale were documented.

**Groundwater** around the tank farms is monitored periodically (semi-annually or quarterly) to detect any new releases and to monitor for any changes in releases that have reached groundwater.

Groundwater remediation efforts are underway at the Hanford Site but are not yet being conducted under tank farms.

## PERMITTING FOR TANK FARM CLOSURE ACTIVITIES

Ecology is drafting the Tier 1 SST System Closure Plan for issuance with the Hanford Facility Dangerous Waste Permit. Discussions and workshops are occurring between Ecology and the Permittees to define the WMA-C Closure Plan application. It will be submitted in accordance with the Tri-Party Agreement (TPA). WMA-C will be the first WMA Tier 2 closure plan to be submitted by the US Department of Energy and issued by Ecology.

Due to the size and localized nature of contamination, the closure process for the SST System will be conducted through a series of closure and corrective actions implemented at specific locations. The closure process will consist of a phased approach, addressing each area of contamination within the SST system as required by the TPA and the Hanford Facility Dangerous Waste Permit.