

# River and Plateau Committee Update on 340 Building Vault Contamination

*River Corridor  
Closure Project*

**Tom Teynor**

*Deputy Federal Project Director,  
River Corridor*

**Don McBride**

*Washington Closure Hanford*

June 11, 2013



U.S. Department of Energy  
Richland Operations Office

# Agenda

- 300 Area Update
- 340 Vault Excavation
- 340 Vault Contamination
- Soil Sampling
- Non-Intrusive Sampling Below 340 Vault
- Location and Size of Contamination
- Path Forward

# 300 Area Update

- Significant cleanup progress continues at the 300 Area
- Demolition of the 326 research facility and 3760 Building will begin in late June
- Significant challenges remain, including the 340 Vault, 309 Test Reactor and the 324 Building



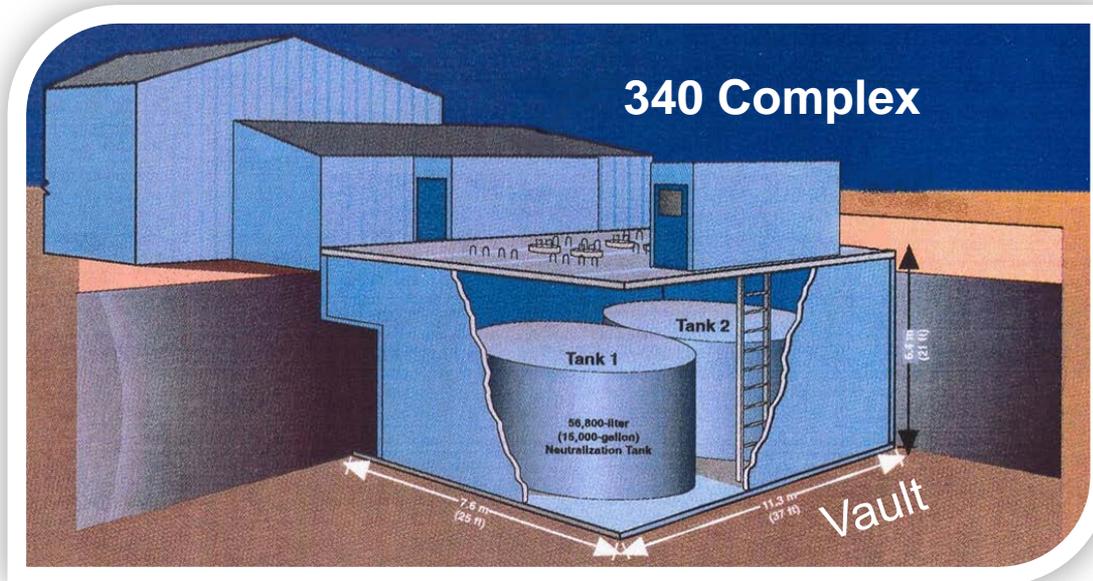
*One Team for Safe, Visible Cleanup of the River Corridor*

# History

- The 340 Complex, also called the Waste Neutralization Facility, was constructed in 1953 and remaining above-ground structures were demolished in 2011
- The two tanks located in the vault were fed by the radioactive liquid waste system, or RLWS, an underground piping network used to transport waste. Radioactive waste would then be transported by rail car to the 200 Area tank facilities, and non-radioactive waste was disposed in the nearby trenches.
- Tank overflows and piping system failures are known to have occurred during facility operations



# What is the 340 Vault?



- The 340 Vault, located below-grade, contained two 15,000-gallon stainless steel tanks used to retain highly contaminated waste from several laboratories, fuel fabrication facilities and test reactors
- The two tanks and the bottom of the vault have been grouted in preparation for disposal
- The vault is 41 feet long, 29-feet wide and 25-feet high. The lift weight is approximately 1,100 tons and a transport weight of 1,538 tons

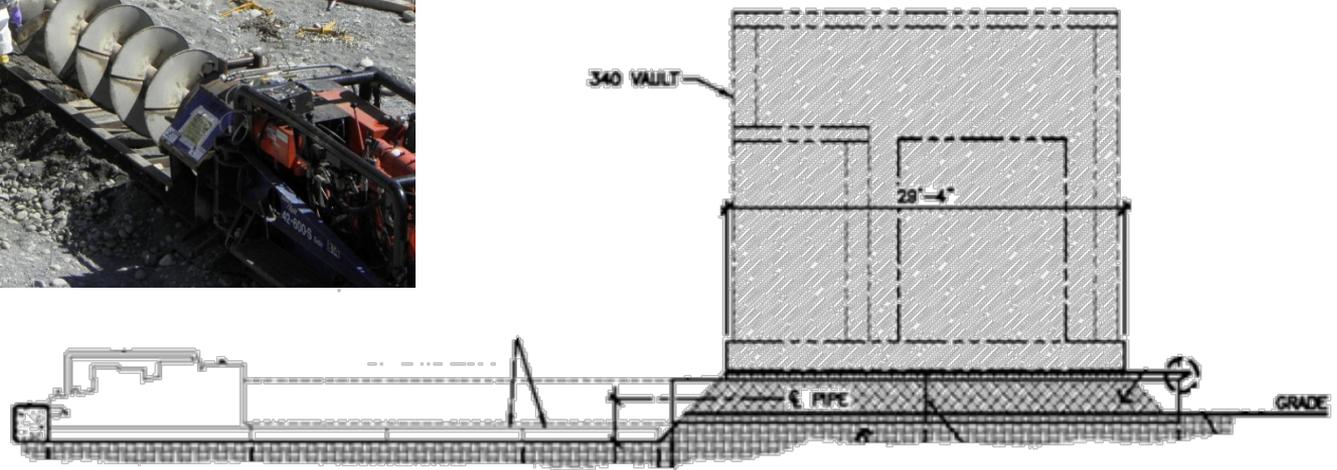
# 340 Vault Excavation



- WCH completed excavation of the vault and haul road in August 2012
- Approximately 54,000 tons of soil were removed during this process and shipped to ERDF

# 340 Vault Contamination

- Workers were installing the final segment of four steel-walled pipes called “casings” which are being used for temporary support of the vault in preparation for the lifting process, when higher levels of contaminated soil were discovered
- Utilizing lessons learned from 324 Building B-Cell contamination, radiation readings were immediately detected and work was safely stopped



# Soil Sampling

- Work related to the preparation of the vault for shipment was delayed after contamination was discovered under the vault
- WCH then re-focused work on sampling and probing the area under the vault, near the vault sump
- Seven soil samples were taken along both sides of the casings and sent to laboratories for analysis



*One Team for Safe, Visible Cleanup of the River Corridor*

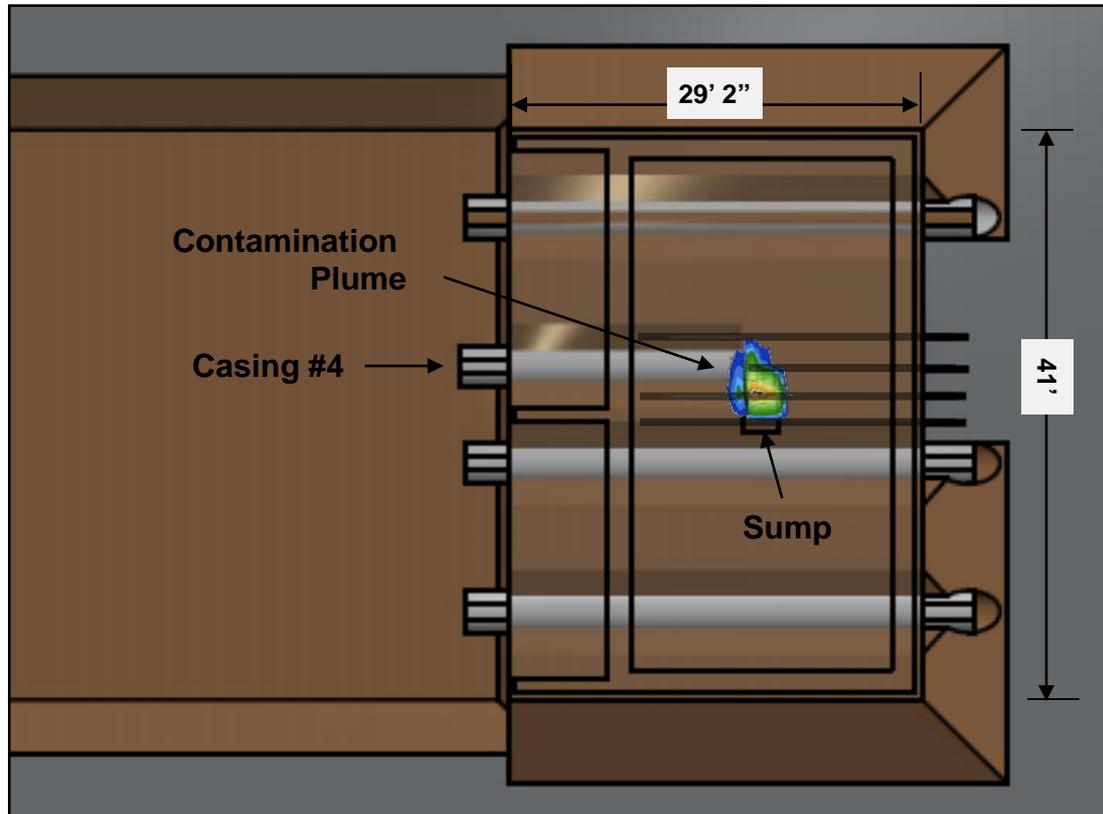
# Non-Intrusive Sampling Below 340 Vault



- WCH used a hydraulic push unit to place close-end tubes underneath the vault, including:
  - 4 horizontal tubes
  - 3 angled tubes
- Radiation detectors were used inside the tubes to measure the extent and depth of the contamination



# Location and Size of Contamination



Contour map of radiation field in relation to the vault sump based on probe and casings readings (scale is approximate)

- Peak dose rate 17.5 R/hr at center of the plume
- Angled probes show less than 1 mR/hr at 5 feet below the peak
- Highest recorded ground water elevation is approx. 10 ft. below the vault

*One Team for Safe, Visible Cleanup of the River Corridor*

# Path Forward

- Revision of the Final Hazard Categorization (FHC) for the 340 Complex has been submitted to DOE
- Upon approval, WCH will resume excavation of the contamination underneath the vault using:
  - Auger and casing configuration and/or
  - Remote excavator that was planned for soil removal in between the casings before the discovery of the contamination
- The vault is scheduled for shipment to ERDF in the fall

