

An aerial photograph of the Hanford Site, showing a vast, flat landscape with a grid of roads and some industrial structures. In the distance, there are low mountains under a clear blue sky. The text is overlaid on this image.

The Tank Farms at Hanford: An Update of Challenges and Accomplishments

The Hanford Site is the world's largest environmental cleanup project.

CH2M HILL's mission at Hanford is to safely store and manage 53 million gallons of liquid radioactive and hazardous waste stored in 171 underground tanks, with 6 tanks having been retrieved.

Our first-of-a-kind waste retrieval experience is providing essential technical support for closure pathways and other tank-cleanup decisions.

The Problem:

Safety Prevented Work from Getting Done

- Safety Record Worst in the Complex
- Work Stoppage
- Grievances
- Vapors Concerns
 - All Work on SCBA
- GAP Report: Knowing Endangerment
- Enforcement Actions
- DOE Performance Letters
- Inadequate Work Planning
- Poor Company - Worker Relationship



***Only One Tank Retrieved
During 2000-2004: Tank C-106***



Building a Strong Foundation of Safety

	1st Qtr CY 05	2nd Qtr CY 05	3rd Qtr CY 05	4th Qtr CY 05	1st Qtr CY 06	2nd Qtr CY 06	3rd Qtr CY 06	4th CY 06
Total Recordable Case Rate	4.35	4.27	3.78	3.43	2.91	1.72	1.41	1.26
Days Away, Restricted, or Transferred (DART) Case Rate	2.86	3.10	2.82	2.59	1.77	0.62	0.25	0.25
Lost Workday Case Rate	1.25	1.40	1.32	1.36	0.92	0.39	0.25	0.25

12 Month Rolling Average Case Rates
Data as of December 31, 2006

Results Speak for Themselves

Building a Strong Foundation of Safety

What Made the Difference?

- Focused management attention on the importance of safety
 - Notification
 - Management training
 - Housekeeping

SY Farm Wall *BEFORE*



SY Farm Wall *AFTER*



Building a Strong Foundation of Safety

What Made the Difference?

- Employee Involvement
 - Employee Accident Prevention Councils
 - Increased bargaining unit safety representatives from 5 to 7
 - Voluntary Protection Program
 - Two organizations have received STAR status
 - Two organizations are on their way to receiving STAR status
- Programmatic Initiatives
 - ISMS/Work Control
 - Human Performance Improvement
 - Ergonomics



Building a Strong Foundation of Safety

Vapor Resolution

- Vapor control implementation
 - Implemented revised controls during quiescent conditions in October 2006
 - Implemented revised controls during waste retrieval/transfers in December 2006
 - Workers continue to have option of wearing supplied air respirators



Communication and Worker Participation

Define Workscope

Evaluate vapors for non waste-disturbing work

Identify Hazards

Identify all chemicals of potential concern (COPC)



Hazard Control

Tank Farm work performed in supplied air until farm/task characterized

Select controls: engineering, admin, PPE



Perform Work

Feedback

2004

2005

2006

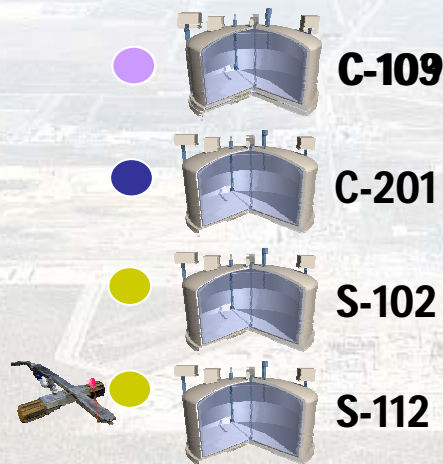
2007

The Results: Work is Getting Done *Safely*

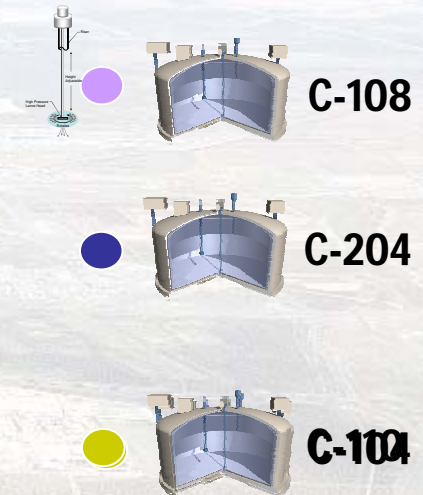
RETRIEVED



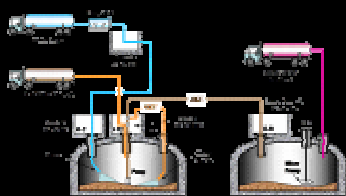
IN PROGRESS



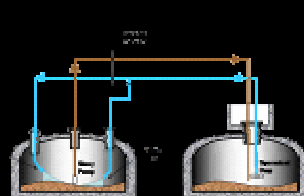
NEXT IN LINE



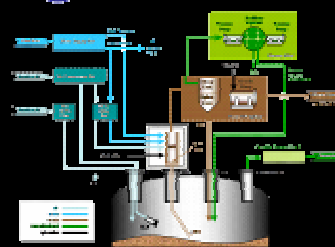
● Acid Dissolution



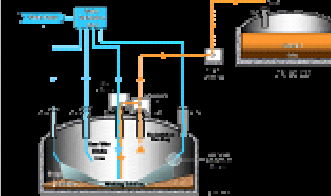
● Modified Sluicing



● Vacuum Retrieval



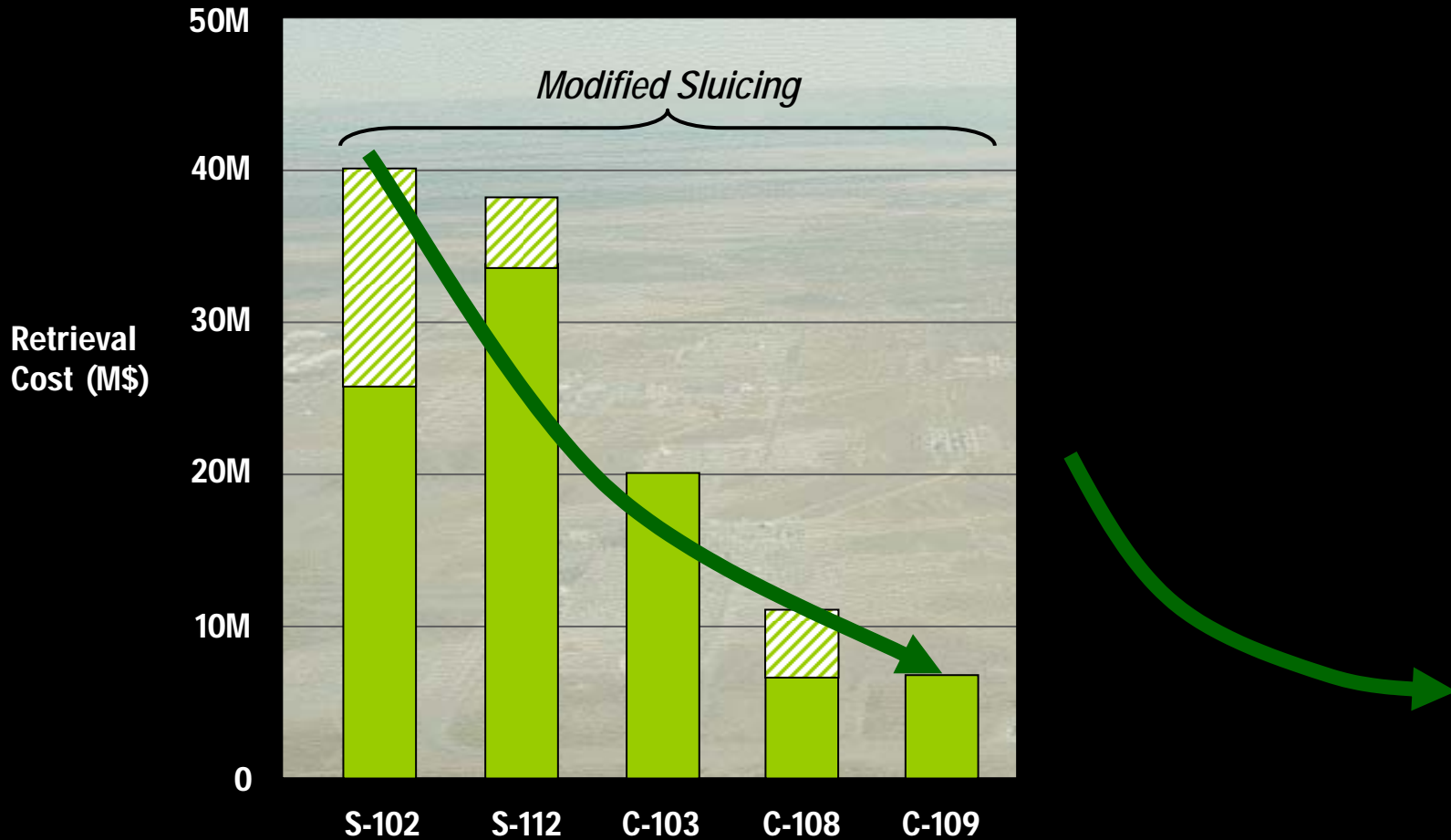
● Saltcake Dissolution



Remote Water Lance (Salt Mantis)
High Pressure Mixer (Rotary V per)



Retrieval Cost By Tank



The Results: Work is Getting Done *Safely*

- 3 million curies of waste transferred to safer tanks
- 1 million gallons of waste cross-site transferred
- 28 double-shell tanks verified safe for waste storage
- 35 pits upgraded
- IDF constructed \$9 million under budget
- 14 miles of new transfer lines
- 6,600 feet of new transfer lines to the WTP installed
- 13 noncompliant cleanout boxes removed
- Over a dozen technologies explored and advanced
- Vadose Zone Characterization



New Technologies



New Technologies



Salt Mantis

New Technologies



New Technologies



Sand Mantis

New Technologies



New Technologies

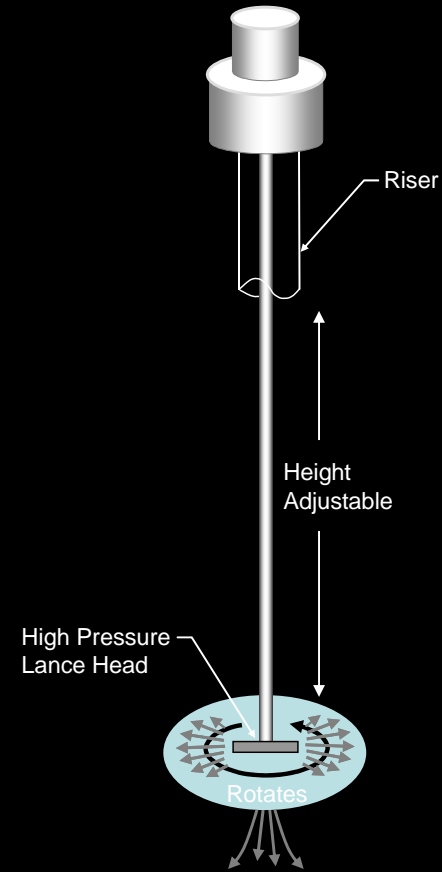


Fold Track

New Technologies



New Technologies



Rotary Viper

New Technologies



New Technologies



Off-Riser Sampler

Bulk Vitrification: Supplemental Treatment Technology

- Conducted two full-scale test melts
- Completed design of Bulk Vitrification Pilot Plant
 - Design was independently reviewed by team of experts
- Integrated waste dryer and melter testing to come



Upcoming Challenges

- Continue to improve safety and performance
- Continue SST retrievals
- Manage DST space integrity and equipment
 - Optimize evaporator runs
- Continue testing new technologies
- Demonstrate Bulk Vitrification tank waste immobilization technology
 - Complete Bulk Vitrification dryer/melter testing