



# HANFORD WASTE MANAGEMENT PROJECT

## FY 1998 ACCOMPLISHMENTS

*WRAPping up our  
Team's Successes*



Richland Operations Office

FLUOR DANIEL HANFORD, INC.



Waste Management Federal  
Services of Hanford, Inc.





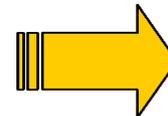
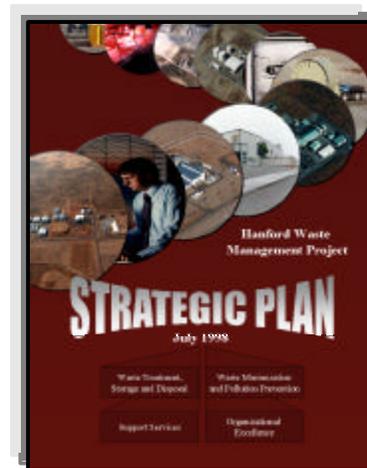
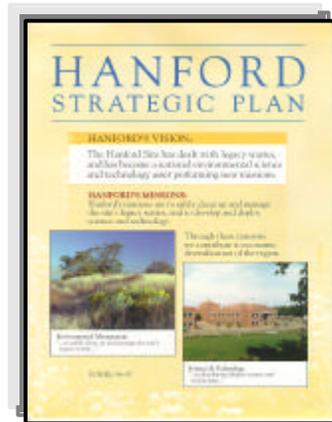
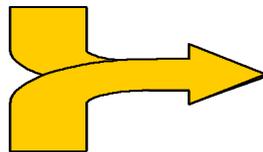
In FY 1998, we prepared a plan for the future, met our commitments, and reduced costs, while making real progress

## *Significant Achievements*

- **Issued the Hanford Waste Management Project Strategic Plan**
- **WMH surpassed 1 million work hours without a lost time injury**
- **Achieved all key milestones**
- **WRAP, Hanford's first major solid waste processing plant, received startup authorization from DOE in September 1998. WRAP provides the pathway for shipment of transuranic waste out of the state for disposal**
- **Placed Solid Waste Acceptance on our internet web site**
- **Received a National Award for Pollution Prevention**
- **WMH played key role in the Complex-wide EM Integration effort to accelerate cleanup and reduce cost**
- **Improved FEB scores over previous assessments, and the Hanford Site's first FEB # 1 rating was given to the safety program at 300 TEDF**
- **Project cost efficiencies funded \$5.7M of previously unfunded work scope and accelerated \$1.8M from FY 1999**



*We have a plan for managing the Project through completion of Hanford Site cleanup*



**Hanford Site  
Cleanup Complete  
in 2046**

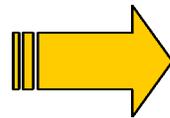
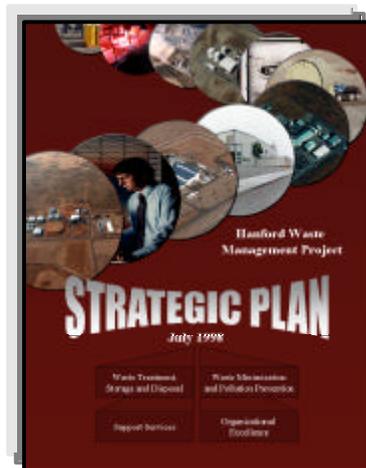
Goals

Objectives

Strategies



# *Our Strategic Goals*



- Safe and Expeditious Disposal of Waste
- Waste Minimization and Pollution Prevention
- Responsive and Cost-Effective Support Services
- Organizational Excellence



- **Safe and Expeditious Disposal of Waste**

## **OBJECTIVES**

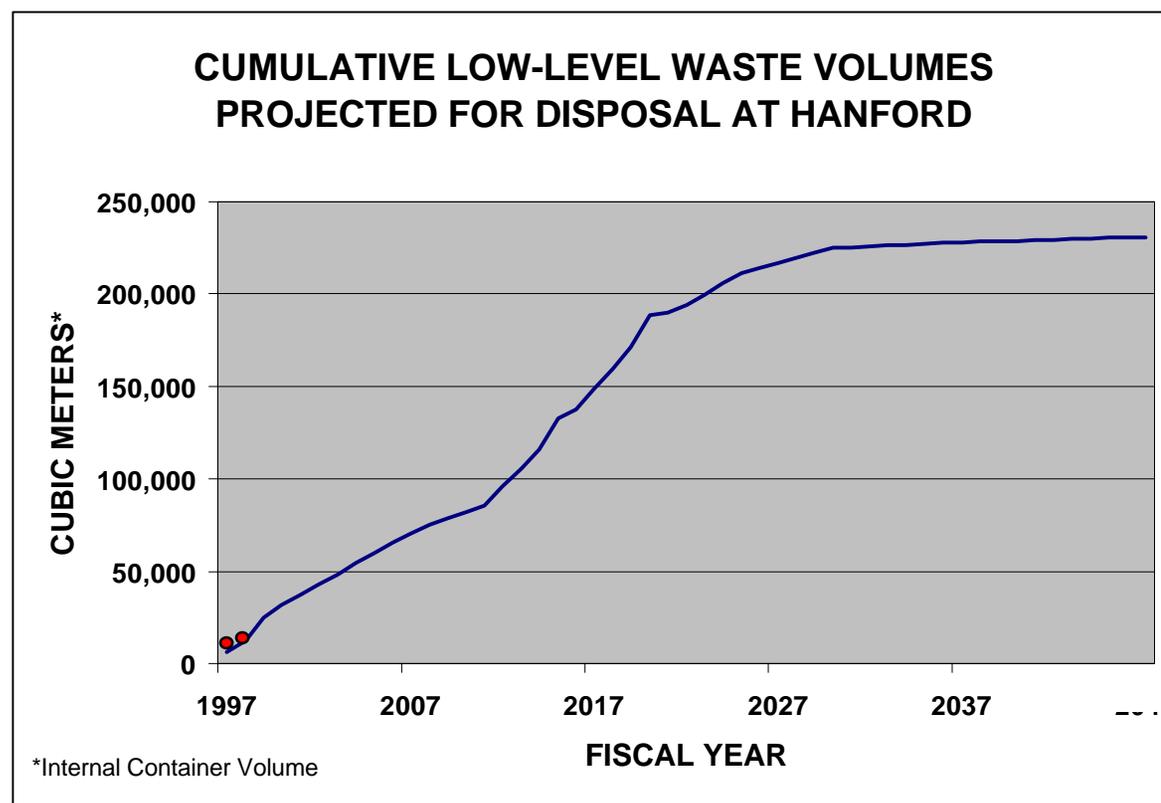
- 1. Dispose of low-level solid waste*
- 2. Store, treat, and dispose of mixed low-level wastes*
- 3. Prepare transuranic waste for shipment to WIPP*
- 4. Provide decontamination services*
- 5. Provide liquid effluent storage, treatment, and disposal services*



## *Dispose of Low-Level Solid Waste*

### Strategies

1. Provide approved storage, treatment, and final disposal for waste produced by generators
2. Perform TSD functions cost-effectively
3. Provide Hanford Site waste disposal for other DOE sites and Federal agencies
4. Implement a commercial approach for generator services



## Low-Level Waste Disposal



- Disposed of a wide variety of LLW (170,000 ft<sup>3</sup> or 4,900 m<sup>3</sup>) in the LLBG supporting Hanford Site and DOE complex cleanup missions



- Supported BWHC facility deactivation (324/327, B Plant) reducing site mortgage and meeting key commitments



## Low-Level Waste Disposal

- Disposed of seven naval reactor compartments



- Supported DynCorp rail system shutdown by rail car disposal, reducing site infrastructure and mortgage costs

Safe and Expeditious Disposal of Waste

## Low-Level Waste Disposal



- **Saved the government \$200K with bulk disposal of Rocketdyne waste**

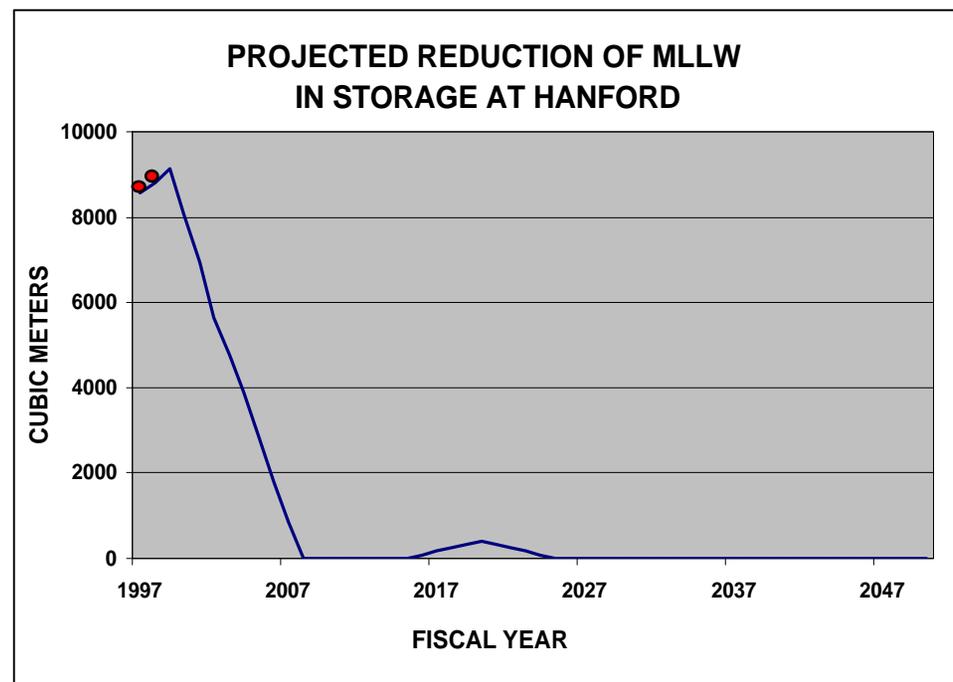
**Safe and Expeditious Disposal of Waste**



# *Store, Treat, and Dispose of Mixed Low-Level Wastes*

## Strategies

1. Eliminate the stored backlog in CWC by FY 2008
2. Perform TSD functions cost effectively
3. Maximize the use of 2706-T capabilities and local companies with unique capabilities for decontamination and treatment
4. Process and dispose of waste from other DOE sites and authorized Federal agencies
5. Develop a project management plan for RH-MLLW by June 1999 (TPA milestone M-91 requirement)





## Mixed Low-Level Waste Treatment, Storage and Disposal



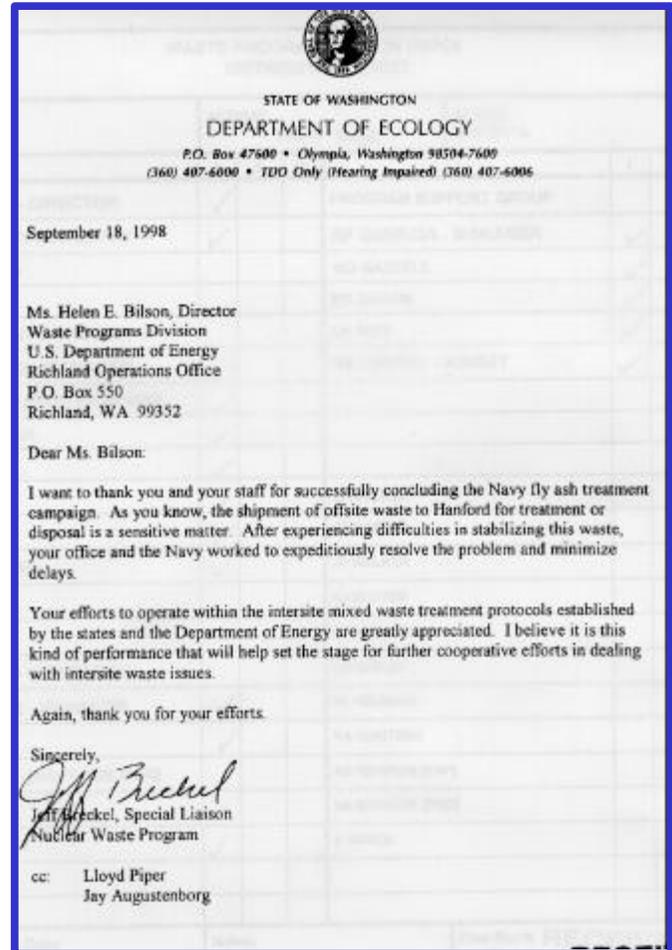
- **Received a wide variety of MLLW drums (17,000 ft<sup>3</sup> or 470 m<sup>3</sup>) for storage in the CWC**
- **Coordinated the incineration of 3,000 gallons (11 m<sup>3</sup>) of B Plant waste (TBP) at DSSI in support of facility deactivation**



# Mixed Low-Level Waste Treatment, Storage and Disposal



• Completed treatment of Bettis Ash





## Mixed Low-Level Waste Treatment, Storage and Disposal

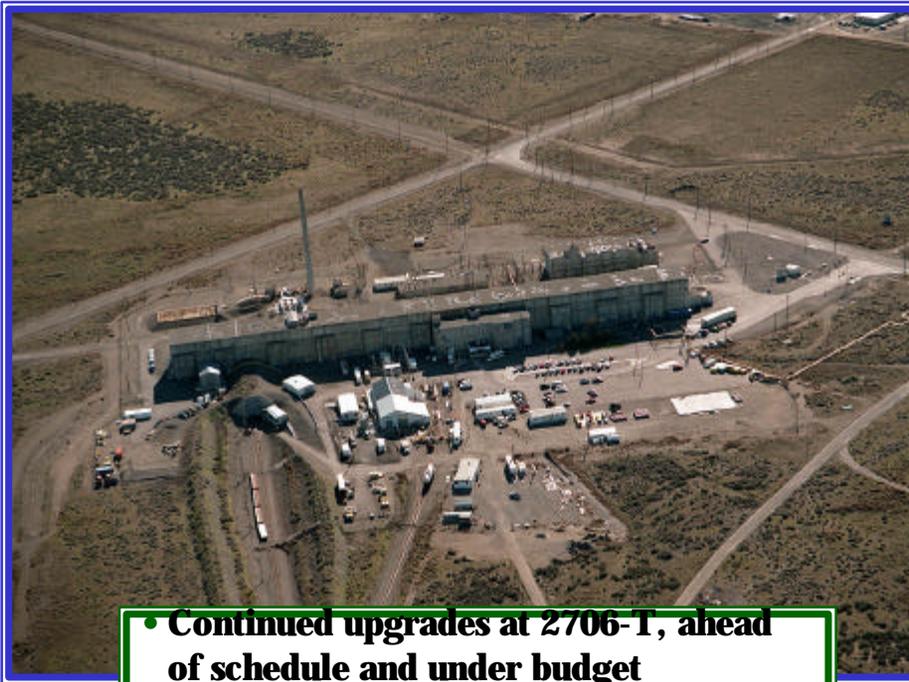


- **Over-packed 1,820 drums of 183-H waste, assuring continued safe and compliant storage**

**Safe and Expeditious Disposal of Waste**



## T Plant Complex Decontamination and Treatment Services



- Continued upgrades at 2706-T, ahead of schedule and under budget
- Removed sodium inventory from T Plant reducing management costs and risks



- Surveyed or decontaminated over 2,300 kg of lead bricks for release reducing waste generation



# *Prepare Transuranic Waste for Shipment to WIPP*

## Strategies

1. Centralize Hanford management of TRUW; meet requirements of the WIPP waste acceptance criteria
2. Retrieve and process TRUW for shipment to WIPP
3. Support processing and certification needs from the rest of the DOE complex
4. Perform retrieval of degrading drums and boxes to the maximum extent possible by manual excavation

**Transuranic Waste Key Dates**

	1998	1999	2000	2001	2002	2003	2004	2005
Waste Certification Plan Issued	9/98 ▲							
Initiate WRAP Processing	12/98 ▲							
Obtain WIPP Certification		4/99 ▲						
Initiate WIPP Shipment		5/99 ▲						
Submit PMP for M-91			6/00 ▲					
Initiate M-91 Processing								9/05 ▲

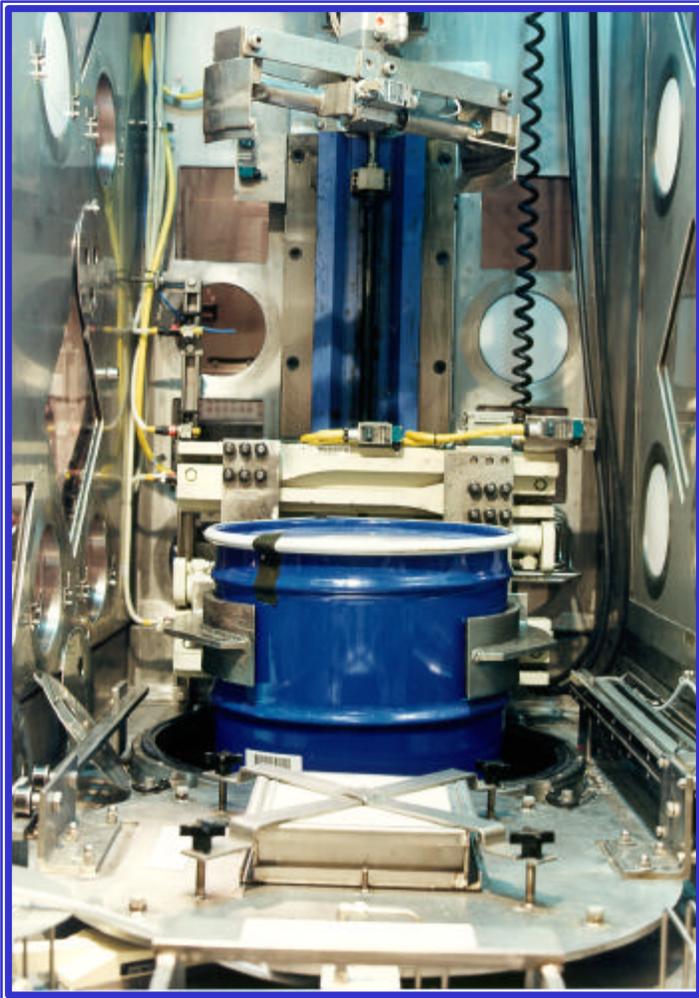
## Transuranic Waste Treatment and Shipment to WIPP



- **Received approval of the first Hanford FSAR for a Category 2 nuclear facility under DOE 5480.23**
- **Completed the PHMC and DOE Operational Readiness Reviews and initiated operations at WRAP**



## Transuranic Waste Treatment and Shipment to WIPP



- **Established the Hanford Site TRU program office**
- **Issued the Hanford Site TRU waste certification plan. Carlsbad Area Office praised the quality of the document**

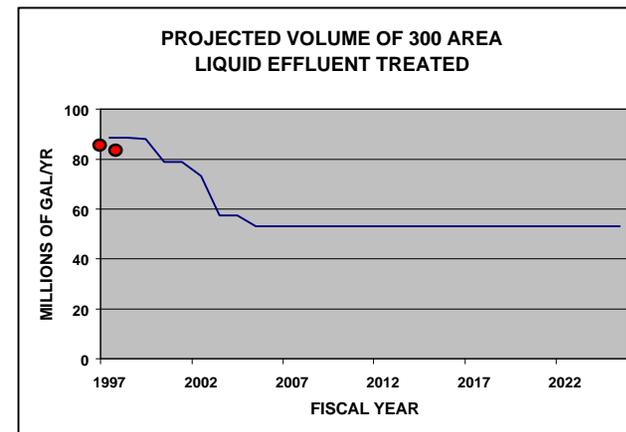
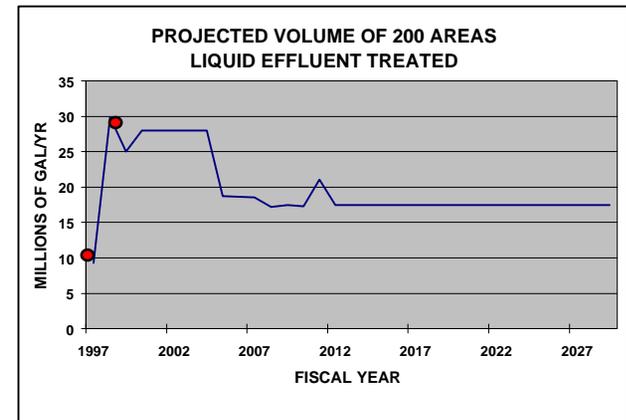
**Safe and Expeditious Disposal of Waste**



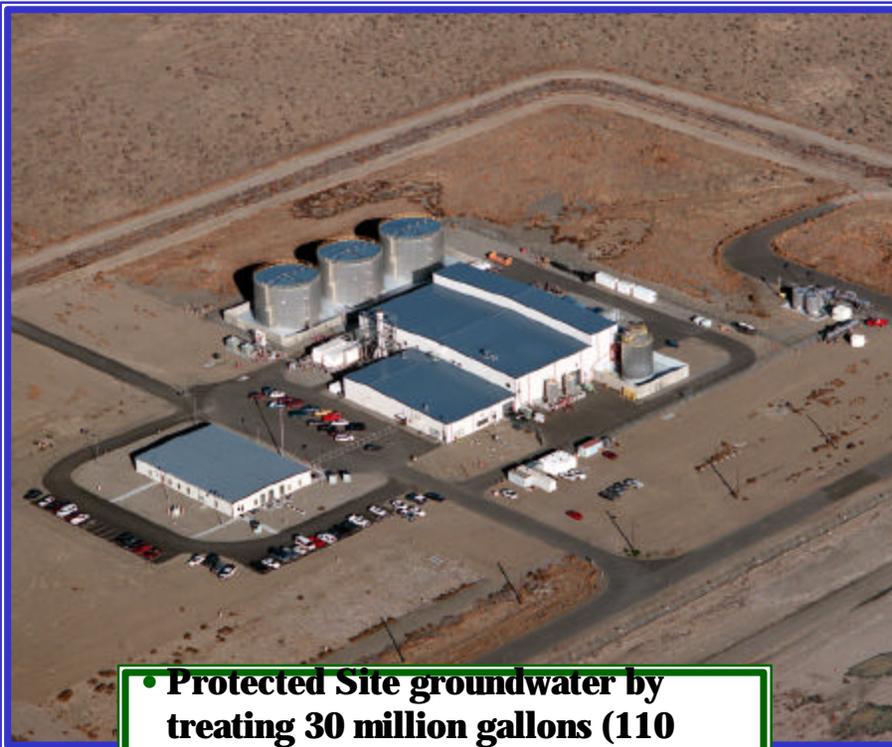
# *Provide Liquid Effluent Storage, Treatment, and Disposal Services*

## Strategies

1. Treat and dispose of liquids produced by Hanford Site cleanup projects
2. Process waste from other DOE sites and Federal agencies as directed by DOE
3. Perform TSD functions cost effectively



## Liquid Effluents Treatment, Storage and Disposal



- Protected Site groundwater by treating 30 million gallons (110 million liters) of radioactive/hazardous wastewater at 200 ETF



- Received 1.1 million gallons (4.2 million liters or 206 tankers) of ERC N-Basin water at LERF, supporting ERC key commitment dates

## Liquid Effluents Treatment, Storage and Disposal

- **Successfully tested the new packaged boiler system at the 242-A Evaporator**



## Liquid Effluents Treatment, Storage and Disposal



- Protected the Columbia River by treating 82 million gallons (310 million liters) of industrial wastewater at 300 TEDF

## Liquid Effluents Treatment, Storage and Disposal

- Disposed of 270 million gallons (1 billion liters) of unregulated wastewater through the 200 TEDF





- **Waste Minimization and Pollution Prevention**

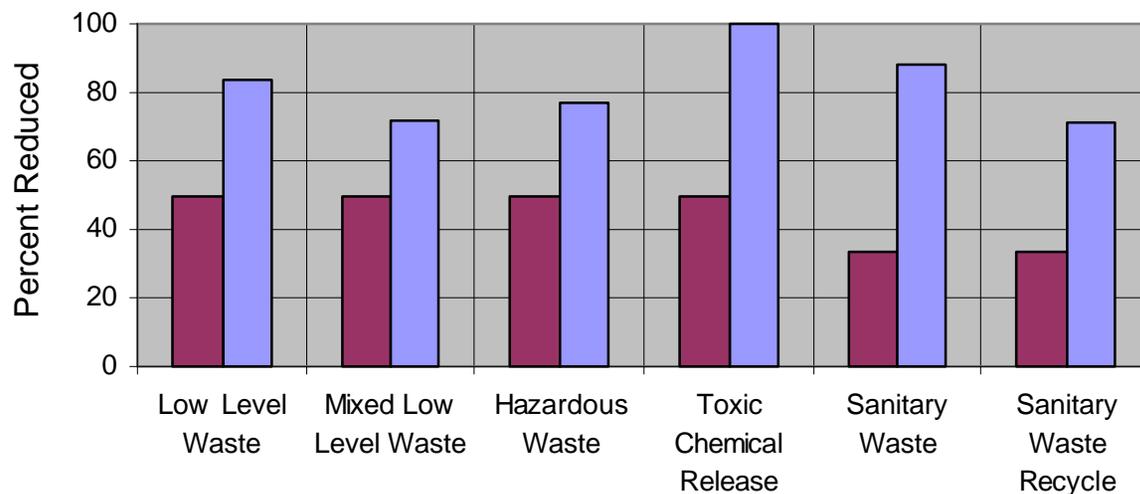
## **OBJECTIVES**

- 1. Comply with Federal, state and DOE requirements for pollution prevention/waste minimization waste reduction and resource/energy conservation*
- 2. Prevent pollution, minimize waste, and conserve energy and resources*



## Waste Minimization and Pollution Prevention

Secretary of Energy Pollution Prevention Goals



■ DOE Goal for 12/31/99

■ Actuals thru FY 1998

**• Exceeded DOE Pollution Prevention waste reduction and recycling goals**

- Managed funding and project oversight of 33 (18 new) P2 ROI Projects with an estimated cost savings of \$43M.**
- Implemented four WMH ROI projects with estimated cost savings of \$2.4M**
- Coordinated the successful RL - hosted DOE P2 National Conference while saving \$200K in conference costs**



## Waste Minimization and Pollution Prevention



- Received the DOE P2 National Award for “Public Outreach and Partnership” for work with local businesses



- Hosted the Hanford Site “Absorbent Olympics” for identifying new and improved absorbents



- **Responsive and Cost-Effective Support Services**

## **OBJECTIVES**

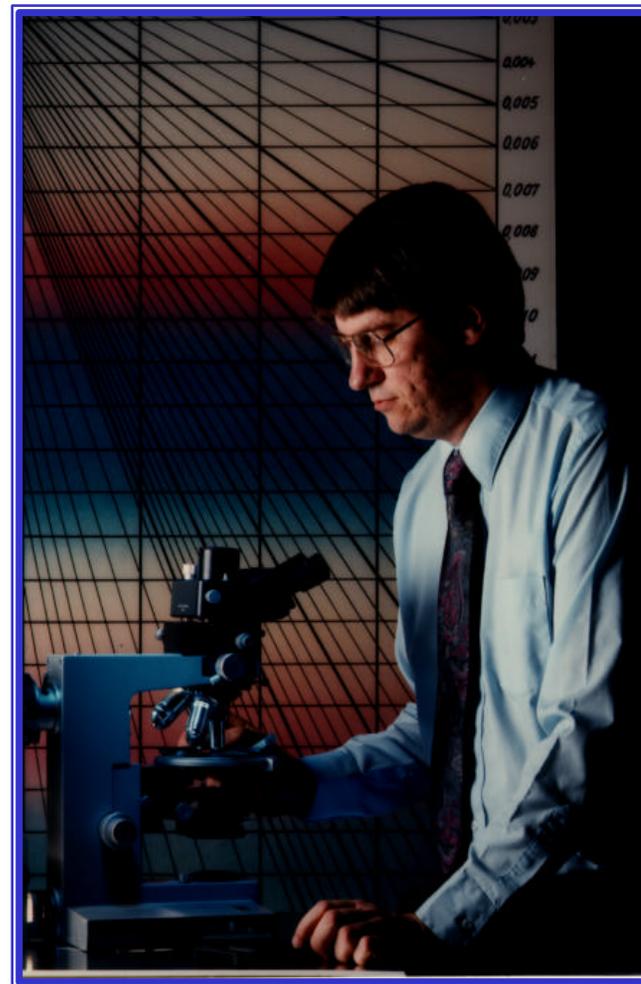
- 1. Provide responsive and cost-effective analytical services*
- 2. Provide responsive and cost-effective waste generator services*
- 3. Provide responsive and cost-effective transportation and packaging services*
- 4. Provide responsive and cost-effective environmental services*



# *Provide Responsive and Cost-Effective Analytical Services*

## Strategies

1. Manage and integrate Hanford analytical, field support, process development services and contracted services
2. Operate 222-S and Waste Sampling and Characterization Facility (WSCF) and other laboratories (as assigned) as a system
3. Broaden the 222-S and WSCF customer base





## Analytical Services Support to Hanford Programs



- **Completed more than 23 AEU's at 222-S for the TWRS characterization program**
- **Conducted initial dissolution tests on simulated K Basin sludge to evaluate disposal options**



## Analytical Services Support to Hanford Programs



- Analyzed over 9,700 environmental samples at WSCF while receiving highly positive responses to customer surveys



- Received “Project of the Year” award by the local chapter of the Project Management Institute for Project W-087



## *Provide Responsive and Cost-Effective Waste Generator Services*

### Strategies

1. Coordinate all solid and liquid waste management functions for Project Hanford Management contractors
2. Perform similar services for other Hanford contractors and offsite generators
3. Combine and consolidate similar operations





## Waste Generator Services

- Supported disposition of waste from on-site and off-site generators using commercial approaches

Ames Laboratory Argonne National Laboratory - East Battelle Columbus Laboratories Bettis Atomic Power Laboratory Brookhaven National Laboratory Fermi National Accelerator Laboratory General Atomics KAPL - Kesselring KAPL - Windsor Knolls Atomic Power Laboratory Lawrence Berkeley Laboratory Massachusetts Institute of Technology National Renewable Energy Laboratory Paducah Gaseous Diffusion Laboratory Pearl Harbor Naval Shipyard Pittsburgh Energy Technology Center Portsmouth Gaseous Diffusion Plant Puget Sound Naval Shipyard Rocketdyne Princeton Plasma Physics Laboratory Rocky Flats Plant Stanford Linear Accelerator Center University of California - Davis University of California - Los Angeles University of Utah



# Waste Generator Services

**Hanford Site Solid Waste Acceptance Program**

The Hanford Site operates waste management units to manage the various types of radioactive waste onsite and from elsewhere in the U.S. Department of Energy complex. The solid waste acceptance program ensures that waste sent to these waste management units complies with all environmental, safety, and operational requirements.

This web site describes the Hanford Site program for acceptance of radioactive waste. Information available includes:

- **What's New?** - new information on this web site.
- **Acceptance Criteria** - the technical requirements for acceptance of waste on the Hanford site are described in the Hanford Site Solid Waste Acceptance Criteria (HNF-EP-0063, latest revision).
- **Acceptance Process** - describes how customers can obtain approval to ship radioactive waste to the Hanford Site. There is information on waste stream approval, shipment approval, funding, waste receipt quality assurance program, and information for potential new customers.
- **Tools** - We are developing a variety of tools to make shipping waste easier. You will find electronic forms, lists of approved products, storage/disposal rates, waste specification records, and other useful information here.
- **Hanford Points-of-Contact** - If you need to talk to someone concerning waste management, you can find the right person here.

We maintain an electronic mail list for users who would like to be notified of significant changes to the solid waste acceptance program. To have your name added to the mailing list, send e-mail to [waste\\_acceptance\\_criteria-WMH@rl.gov](mailto:waste_acceptance_criteria-WMH@rl.gov). Please include your name, title or position, company or agency, and your email address.

[Hanford Home Page](#)

For questions or comments, please send e-mail to [Waste\\_Acceptance\\_Criteria-WMH@rl.gov](mailto:Waste_Acceptance_Criteria-WMH@rl.gov)  
URL: <http://www.hanford.gov/wastemgt/waco/index.htm>  
Posted: July 20, 1998

**Waste Management Federal Services of Hanford, Inc.**  
Waste Management Federal Services of Hanford, Inc. operates Hanford's waste management program under contract to Fluor Daniel Hanford, Inc. for the Department of Energy - Richland Operations Office.

- **Converted Annual Dangerous Waste Report for electronic submittal**
- **Revised the Solid Waste Acceptance Criteria and placed on our internet web site**
- **Implemented Liquid Waste Acceptance Criteria**



## Waste Generator Services



- **Supported 324/327 clean-out (e.g. RH-TRUW in concrete and lead lined drums) meeting key milestone dates and reducing inventory near Richland and the Columbia River**



# *Provide Responsive and Cost-Effective Transportation and Packaging Services*

## Strategies

1. Contract transportation and packaging services to streamline operations and integrate resources with Waste Generator Services to achieve improved operational efficiency and cost effectiveness
2. Upgrade Site packaging systems for transport of radioactive and hazardous wastes
3. Standardize designs for the waste containers, implement local fabrication, and reduce costs of new containers





## Transportation and Packaging Services (WMNW)

- **Obtained approval for use of the PAS-1 Cask (e.g., for BNFL privatization sample shipments)**
- **Completed significant upgrades to onsite SARPs (on schedule & budget)**
- **Supported B&W clean-out of the 300 Area hot cells and Cs-137 capsules: completed Special Form testing of the Type-W overpack**
- **Executed over 1100 outbound and 600 inbound shipments of wastes (40% increase over recent years)**
- **Provided expanded onsite training program on RCRA/WDOE and DOT Transportation Safety**



- **Supported DOE/DOT 7A testing of M-100 waste box for DOE Complex**

use



## Environmental Services

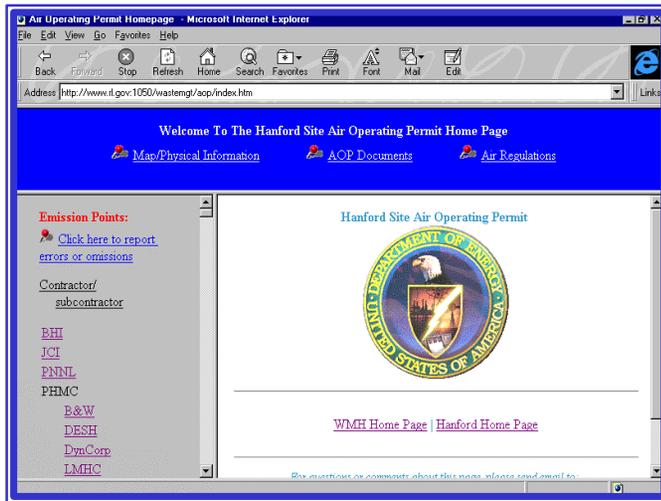


- **Completed all deliverables on time for the Hanford Site Environmental & Effluent Monitoring Program**

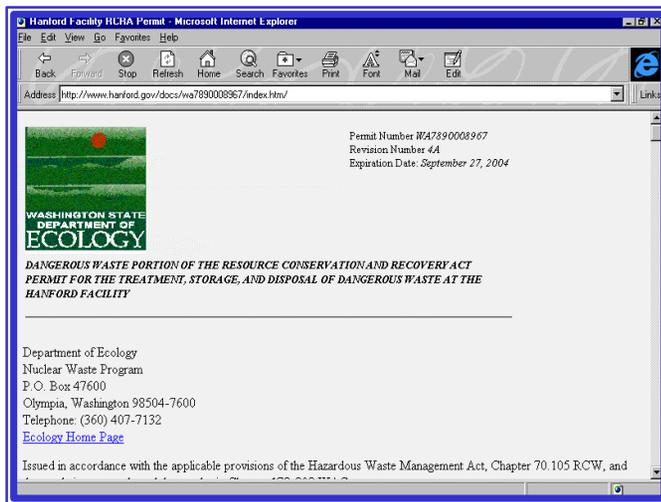
- **Provided expert and innovative compliance services to assist WMH facilities and other customers achieve or maintain regulatory compliance**
- **Incorporated NEPA documentation into Hanford Facility maintenance procedures, resulting in a cost savings of approximately \$250K**



## Environmental Services



- **Developed an Air Operating Permit homepage and commitment tracking system to facilitate compliance with the permit**



- **Developed and updated the RCRA permit web site to disseminate current permitting information and facilitate compliance with the RCRA permit**



## Environmental Services (WMNW)



- **Provided maintenance on 600 groundwater wells and supported 1700 sampling trips in support of PNNL and ERC Groundwater Program**



- **WMNW was assigned technical management of the newly formed Integrated Soil, Vegetation and Animal Control Program under DynCorp**



## Environmental Services (WMNW)

- **Provided herbicide treatment for 7,000 acres on the Hanford Site and responded to over 500 calls for nuisance animal control**



- **Provided field management and operations for the drilling and sampling of the first new vadose zone characterization boring in the SX Tank Farm for LMHC**



## • **Organizational Excellence**

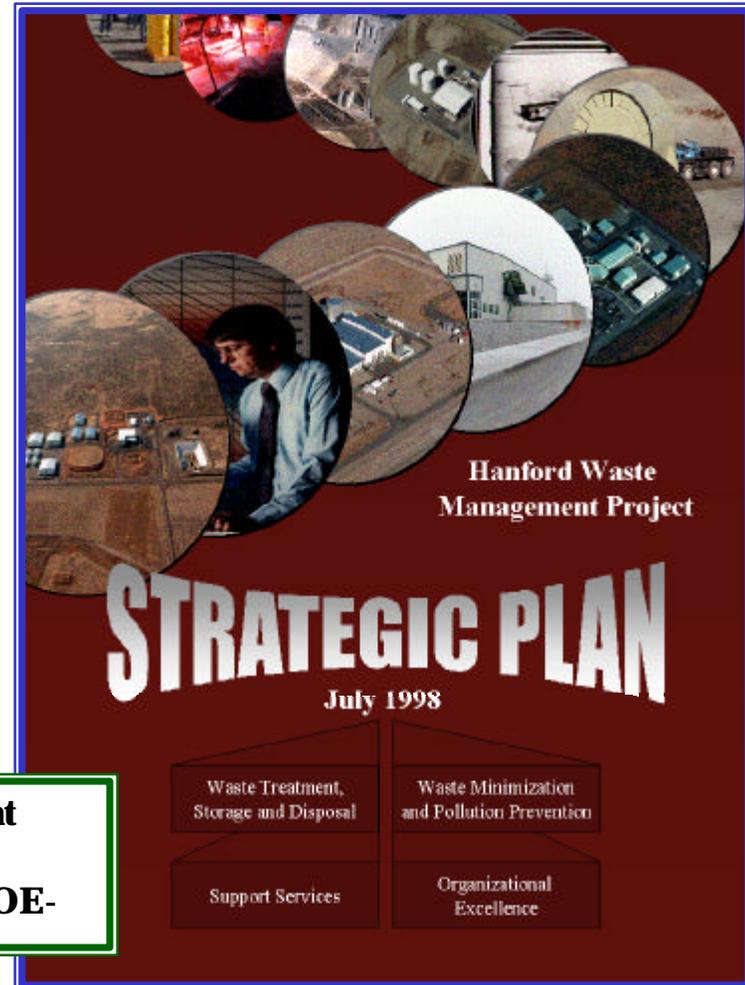
### **OBJECTIVES**

- 1. Utilize efficient and effective management systems*
- 2. Reduce costs of Project operations and services*
- 3. Improve operations and delivery of services*
- 4. Support local diversification opportunities*
- 5. Ensure the safety and health of our work force and the public*
- 6. Measure and evaluate performance to continuously improve project management*

## Applied Effective Management Systems

- **Supported DOE-RL Privatization of Tank Waste**
- **Consolidated internal waste management services (e.g. engineering, maintenance, 242-A/200 ETF) improving efficiency of operations**
- **Provided Technology Insertion Points in the FY 1999 Multi-Year Work Plan**
- **Automated collection of data for forecasting the needs for Waste Management services**

- **Issued Hanford Waste Management Project Strategic Plan. The Plan supports both the DOE-HQ and DOE-RL Strategic Plans**





## Reduced Costs



- **Ceased routine receipt of radioactive liquid waste at the 340 Waste Handling Facility**

- **Cost efficiencies funded \$5.7M of previously unfunded work scope**
- **Accelerated \$1.8M of FY 1999 work scope into FY 1998**
- **Lowered 300 TEDF treatment cost from 6 cents per gallon in 1995 to 3.5 cents in 1998**
- **Reduced LLW Disposal Costs**





## Improved Operations and Delivery of Services



- Completed initial Hanford Site generator maps, including the first Site workout with the major Projects
- The goal is to improve forecasts and identify more efficient management strategies



## Supported Diversification of the Local Economy

- **Continued disposal of hazardous waste via commercial suppliers**
- **WMNW has achieved significant success pursuing non-Hanford contracts:**
  - **Government work at INEEL, SRS and AL**
  - **Commercial work with ChemNuclear, BNFL and NAC International**



- **Continued effort toward treatment of mixed low-level waste via local commercial suppliers**



## Improved the Safety and Health of the Work Force

- **WMH completed one million hours without a lost time injury. WRAP, WSCF, and 300 TEDF have never had a lost-time injury**
- **Completed implementation plan for ISMS**
- **Implemented a Focus on Safety initiative in each of the WM Projects**



- **Implemented a Zero Accident Council using workers to identify and resolve issues**

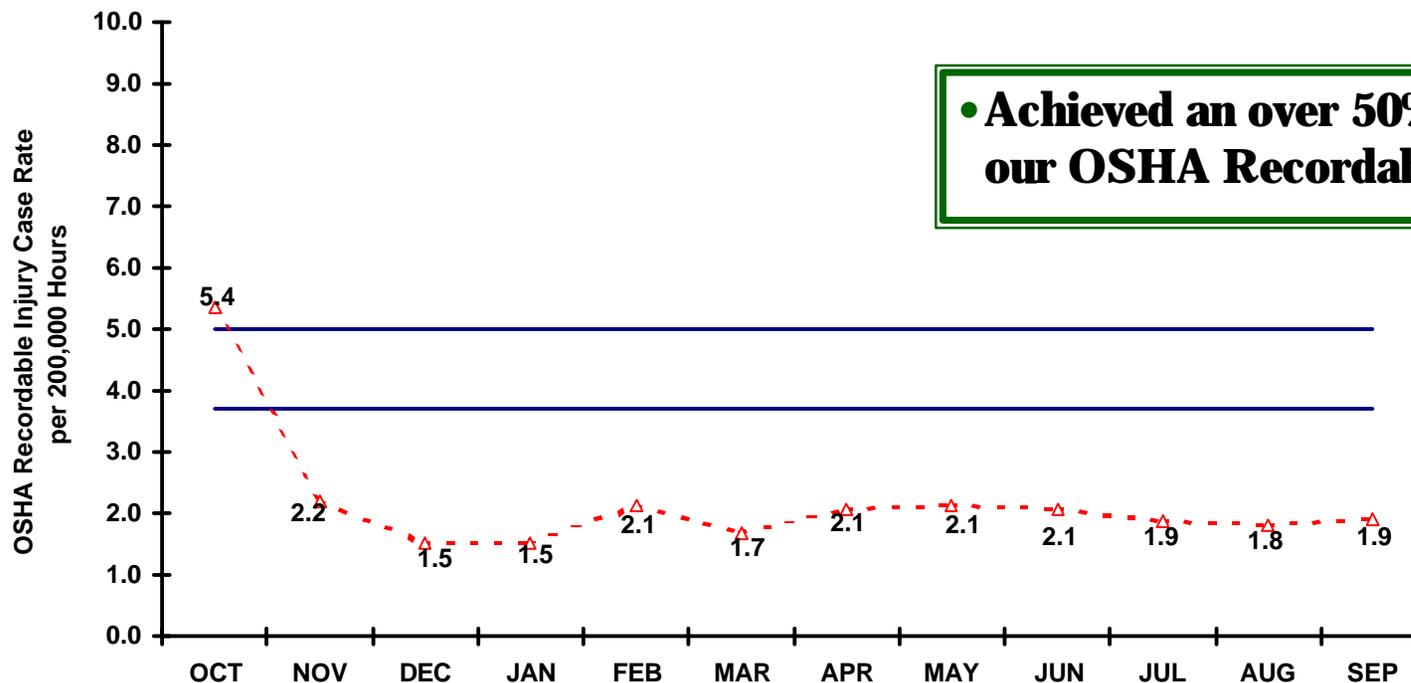


## Improved the Safety and Health of the Work Force

### FY 1998 OSHA Recordable Injury Case Rate

< 3.7 = Excellent

3.7 - 5.0 = Satisfactory



• **Achieved an over 50% reduction in our OSHA Recordable Injury Rate**



## Improved the Safety and Health of the Work Force



- **Proactive approach to identification and correction of hazards**





## Performance Measurement and Evaluation

- **All projects improved their FEB scores over their previous assessments, and the Hanford Site's first FEB # 1 rating was given to the safety program at 300 LEF**
- **Achieved all key milestones**
- **Dramatic improvements were driven by the management assessment program, which coupled with the use of the Site wide Deficiency Tracking System (DTS), were acknowledged to be Hanford Site standards**



# ***FY 1998 PERFORMANCE HIGHLIGHTS*** ***Hanford Waste Management Project***

## **Improved safety performance**

- 4 WMH surpassed 1 million work hours without a lost time injury
- 4 Reduced OSHA Recordable injury rate 50%

## **More work for less money**

- 4 Project cost efficiencies funded \$5.7M of previously unfunded work scope
- 4 Accelerated \$1.8M of FY 1999 work scope into FY 1998
- 4 Lowered 300 TEDF treatment cost from 6 cents per gallon in 1995 to 3.5 cents in 1998
- 4 Played key role in the Complex-wide EM Integration effort to reduce national waste management costs

## **Building for the future**

- 4 Startup of WRAP provides the pathway for shipment of transuranic waste out of the state for disposal
- 4 Developed the Hanford Waste Management Project Strategic Plan



For all of these reasons. . .

**The Hanford Waste Management Project  
performance continues to be  
"Excellent"**

