
*Project Hanford Management Contract
FY 1998 Annual Report*



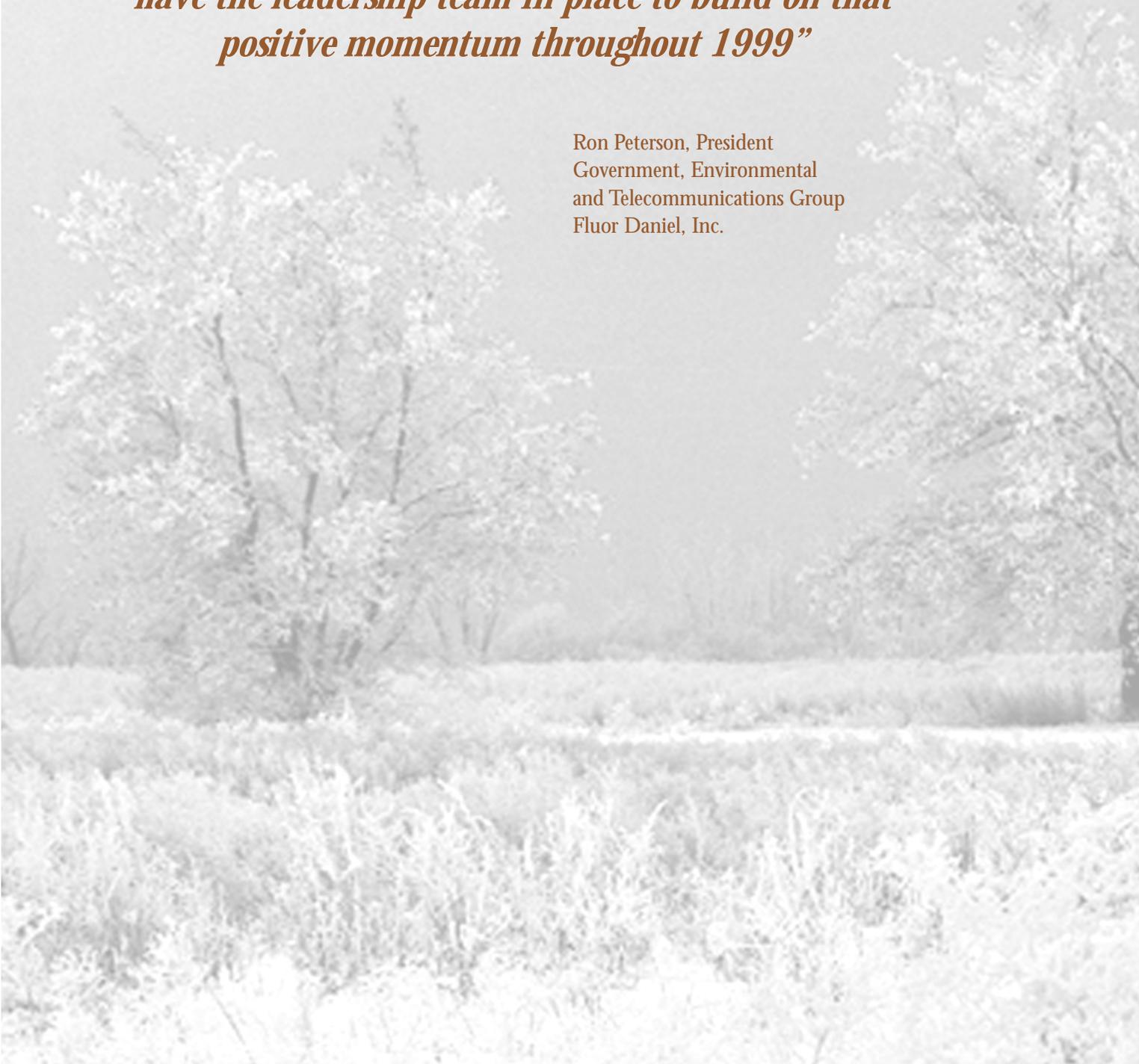
Fluor Daniel Hanford, Inc.



U.S. Department of Energy

“Hanford employees made tremendous progress in 1998. I’m proud of their results. And, I’m confident that we have the leadership team in place to build on that positive momentum throughout 1999”

Ron Peterson, President
Government, Environmental
and Telecommunications Group
Fluor Daniel, Inc.



I am proud to offer this record of the fiscal year 1998 accomplishments of the Project Hanford Team. While we got off to a slow start, our performance and results improved over the year. We kept our word. We made good on our promise to deliver steady and measurable progress on Hanford's mission – to safely clean up and manage the Site's legacy waste and to develop and apply the science and technology with which to achieve it. Not only did we get results, we did it safely, cost effectively, and on time. And, I am proud to credit our achievements to the talented and dedicated employees who are the heart of the Project Hanford Team.

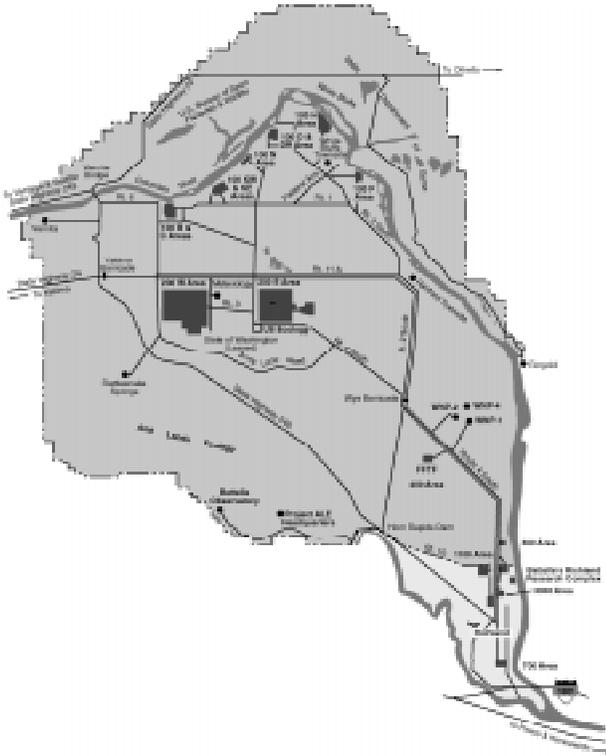
We are committed to results. Aggressive quality improvements will drive positive momentum throughout fiscal year 1999 to meet the challenges of this enormous cleanup project. I know from experience that a focus on quality improvement will allow us to raise our performance to a new standard of excellence at Hanford that our clients expect – and we will take pride in delivering.

Ron Hanson
President and Chief Executive Officer
Fluor Daniel Hanford, Inc.



Ron Hanson

Introduction



Just two years ago, the U.S. Department of Energy (DOE) boldly created the Project Hanford Management Contract (PHMC), a new innovative contract structure for managing the Hanford Site. With Fluor Daniel Hanford, Inc. (FDH), as the primary contractor, DOE underscored its vision for safe, timely, and cost-effective implementation of its mission to safely clean up and manage the site's legacy wastes and to develop and deploy science and technology.

Through the creation of the PHMC, the powers and strengths of FDH and its major subcontractors were focused sharply on the Hanford challenges.

The PHMC Team led by FDH comprises DynCorp Tri-Cities Services, Inc., and five major subcontractors:

- B&W Hanford Company
- DE&S Hanford, Inc.
- Lockheed Martin Hanford Corporation
- Numatec Hanford Corporation
- Waste Management Federal Services of Hanford, Inc.

Approximately 5,000 employees were employed by the PHMC Team as of FY 1998 yearend, and approximately 1,900 people were employed within the supporting Enterprise Companies. Under FDH leadership, each subcontractor has primary responsibility for a specific project or area, and together, they function as a team creating and providing support and expertise to one another. This synergy has enabled many successes in FY 1998 and promises many more in the future. The PHMC Team will continue to be focused on reducing risks, reducing mortgage costs, resolving safety issues and making more land available for non-Hanford uses.

The PHMC Team recently completed its second full year of managing the Hanford Site. While there have been successes, some issues also have been identified through Performance Evaluation Plans, executive sponsor meetings and reports, Performance Agreements, Facility Evaluation Board reports, alignment sessions and Client Performance Reviews during FY 1998. The U.S. Department of Energy, Richland Operations Office (RL), requested that the PHMC Team compile a summary of all of this documented feedback. This FY 1998 Annual Report is such a summary. The report is presented as an overview and is organized to reflect the broad integration strengths of the PHMC Team and its results-oriented focus on safety, projects, and good community relations.

Top 10 Accomplishments for FY 1998

- ✓ Continued strong safety performance through increased employee involvement, labor partnership, and a focused effort on Integrated Safety Management System implementation. Sustained emphasis on worker safety resulted in a 50% reduction in injury rates and 32% reduction in the collective radiation dose in the last two years.
 - ✓ Achieved \$190 million in cost savings toward the FY 1998 Hanford Site life-cycle cost baseline savings goal of \$205 million.
 - ✓ Completed deactivation work inside B Plant four years ahead of schedule, saving the taxpayers \$100 million and reducing mortgage costs from \$20 million per year to \$750,000.
 - ✓ Developed and implemented a Five-Year Strategic Plan for Infrastructure Optimization, which is tracking toward a \$70 million savings. Following the plan, the 1100 Area and the southern connection of the Hanford railroad were transferred to the Port of Benton. Vacating portions of the 1171 Building enabled establishment of a new commercial locomotive repair business.
 - ✓ Started the Waste Receiving and Processing (WRAP) Facility operations, establishing Hanford's capability to prepare transuranic waste for offsite shipment and long-term storage.
 - ✓ Pumped wastes from three single-shell tanks and completed construction and achieved readiness on AZ/AY Tank Farm Ventilation Project, Cross-Site Transfer Line, and Tank 241-C-106 sluicing equipment upgrade.
 - ✓ Achieved progress on the Spent Nuclear Fuel (SNF) Project with completion of the Cold Vacuum Drying Facility structure, Canister Storage Building Facility systems, and 200 Area Interim Storage Pads; installation of fuel retrieval hardware at the K West Basin; completion of all laboratory characterization of N Reactor fuel; and early delivery of the first-of-a-kind SNF shipping casks.
 - ✓ Completed a Critical Self-Assessment and closed all associated corrective actions.
 - ✓ Completed construction of the Volpentest Hazardous Materials Management and Emergency Response (HAMMER) Training Center and successfully transitioned to an operating facility, safely and cost effectively.
 - ✓ Pioneered the application of the Atomic Energy Act to lease underutilized equipment and facilities for economic development purposes.
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Safe Work Performance



The Project Hanford Management Contract (PHMC) Team brought new corporate commitment, experience, and energy to the Hanford workforce's positive safety momentum. PHMC contractors are committed to worker health and safety as part of the culture. Hanford workers are now poised to achieve safety excellence. The Integrated Safety Management System (ISMS) provides the focus to achieve a safe and productive work environment.

Integrated Safety Management System

Implementation of the PHMC ISMS is key to establishing a single, defined safety management system that integrates Environment, Safety and Health requirements into the work planning and execution process to produce a safe and productive work environment. The work necessary to incorporate Environment, Safety and Health requirements into work processes began with the Enhanced Work Planning initiative, which was folded into the ISMS implementation process.

“RL and Senior Contractor Management are committed to safe, quality performance; RL is counting on the ISMS to deliver this increased performance for the site.”

John Wagoner, Manager, RL, ISMS Lessons Learned Conference, Keynote Speech.

Key ISMS accomplishments in FY 1998 were:

- An ISMS implementation plan was issued by each member of the PHMC Team.
- Each member of the PHMC Team performed a gap analysis to the ISMS requirements.
- The first of two Phases of ISMS verification was completed on Fluor Daniel Hanford, Inc. (FDH), K Basins, and the Tank Waste Remediation System.
- The Automated Job Hazard Analysis (AJHA) tool was developed and implemented at the Spent Nuclear Fuel Project.



A team approach to work planning and employee involvement are key to an improved work performance.

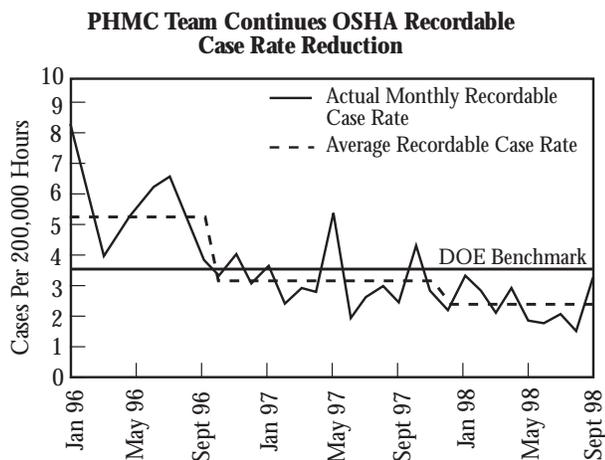
AJHA is the “cornerstone” of the ISMS at the field activity level and represents the PHMC Team standard for conducting hazard analysis on projects. The AJHA supports hazard analysis completion in a manner that is fully integrated with the work management process while promoting worker involvement. The AJHA satisfies the ISMS expectations and principles to facilitate teamwork; provides early involvement by workers and Environment, Safety and Health personnel; and institutionalizes communication. The AJHA is being implemented at:

- Plutonium Finishing Plant
- Spent Nuclear Fuel Project
- Tank Waste Remediation System
- Waste Encapsulation and Storage Facility.

AJHA implementation in all projects will be a major focus in FY 1999.

Improved Safety Performance

The emphasis placed on worker safety has resulted in substantial decreases in the number of injuries, severity of injuries, and lost work-day cases. After improving the Occupational Safety and Health Administration (OSHA) recordable rate to 3.1 cases per 200,000 hours in FY 1997, the rate further declined in FY 1998 to 2.5 cases, well below the U.S. Department of Energy (DOE) benchmark and the site’s pre-PHMC rate. This continuous improvement in the occupational injury and illness rates is directly attributed to corrective measures on five occupations that account for 46% of the workplace injuries.



Beryllium Prevention Program

Recent health studies conducted at various DOE sites have demonstrated that relatively minor exposures to beryllium can result in chronic beryllium disease. The PHMC Team took a leadership role in the development and implementation of the Chronic Beryllium Disease Prevention Program, coordinating a sitewide effort and partnering with other Hanford contractors and the workforce to integrate the site’s approach to complying with DOE Secretarial Notice 440.1. This integration effort resulted in:

- The sitewide implementation of an integrated technical program
- Identification of workers at risk
- Facility identification and characterization of former beryllium operations
- Establishment of a beryllium medical monitoring program for potentially exposed workers
- A communication process for workers and the public.

Safety Culture Improvements

The PHMC Team was recognized by the DOE, Richland Operations Office (RL), for its emphasis on successful worker involvement and safety culture improvement activities in FY 1998. Significant accomplishments included:

- **Increase HAMTC Involvement in Safety.** The PHMC Team expanded both worker involvement and partnering with the Hanford Atomic Metal Trades Council (HAMTC) by identifying Union Safety Representatives within FDH and the major subcontractor companies. The HAMTC safety representatives promote open communication and feedback between employees and management on safety concerns, policy, and safety improvements. This partnership resulted in better communications to employees and an immediate response to safety concerns.



- **Voluntary Protection Program.** Three PHMC Team members have completed and two have submitted applications for recognition under the DOE Voluntary Protection Program. This effort represents a commitment to safety excellence that will have a positive effect on the Hanford safety culture. In cooperation with RL Safety, a streamlined review process is being developed to expedite moving the applications forward.



- **Path to Zero Accidents.** The PHMC Presidents' Zero Accident Council (PZAC) successfully launched a video-based awareness campaign entitled "Employee Involvement: The Path to Zero Accidents." This campaign is the most substantive effort taken to consistently communicate the importance of the individual's "Stop Work" responsibility and PHMC Worker's Bill of Rights to the workforce. Safety meetings led by senior managers were held with PHMC employees to discuss these topics and hear safety concerns.



- **Employee Health Advocate.** The PHMC Team created Employee Health Advocates to ensure that management and medical staffs are attentive to PHMC employees' medical concerns from workplace injuries and exposures. The Advocates acted as a resource to the attending physicians for information about site operations to help in treating patients. The Advocates' role has been viewed by employees and labor as a demonstration of the PHMC Team's concern for employees.

Chemical Management System

In cooperation with other Hanford contractors, the PHMC Team established a single repository for the inventory of chemicals stored within PHMC-managed facilities or operations. The Chemical Management System (CMS) consists of technical support service components that are needed to support onsite chemical management activities. These components include acquisition, use, storage, transportation, and final disposition of chemicals. In addition, the CMS provides access to chemical hazard information found on material safety data sheets and supports preparation of regulatory reports. The CMS is a tool to control

inventory of chemicals, reduce purchasing costs by taking advantage of bulk buying, and reduce disposal costs through inventory reduction and chemical reuse.

Nuclear Criticality Safety Program

During the first half of 1998, RL requested that DOE-Headquarters (DOE-HQ) conduct a review of the Nuclear Criticality Safety (NCS) Program at the Plutonium Finishing Plant (PFP) as a part of the overall evaluation of readiness for restart. The results of the DOE review raised concern with the NCS Program at PFP and with the sitewide program. The PHMC Team undertook its own review during the summer of 1998. While concluding that there was no immediate danger of an unplanned criticality at Hanford, the PHMC Team took immediate steps to strengthen nuclear criticality safety PHMC-wide. Key actions include focusing additional resources on the NCS program, revising NCS procedures in early FY 1999, and improving field oversight.

Emergency Preparedness

The PHMC Team demonstrated that emergency preparedness program improvements were effectively implemented at Hanford. This was evident from drills and exercises, response to actual incidents and a detailed assessment conducted by the DOE-HQ.

- **Plutonium Reclamation Facility (PRF) Incident Corrective Action Implementation.** An integrated, sitewide plan of action and a project management structure were developed and implemented to significantly improve core emergency response functions (incident command, drills and exercises, procedures, and documentation), medical response and radiological response to emergencies. This project actively engaged and effectively partnered with all site contractors, RL, the State of Washington, and local counties to implement comprehensive solutions to deficiencies.
- **Facility Vulnerability Assessment.** The PHMC Team successfully performed a vulnerability evaluation of PHMC facilities in response to the PRF incident and related initiatives from the Secretary of Energy. The evaluation covered the full assessment of vulnerabilities at all facilities. Many deficiencies uncovered during the assess

ments were addressed immediately. Favorable comments have been received from DOE-HQ on the PHMC Team process and management plan.



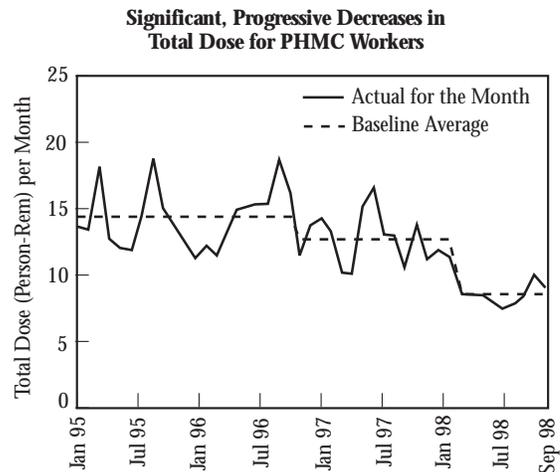
Realistic Drills Test the PHMC Teams' Readiness for Emergency Events.

- **Improved Emergency Response.** In January 1998, the PHMC Team responded to a declared emergency in the 300 Area involving a vial of picric acid. The response to this event was timely, and the Incident Command Center functioned in an effective, integrated manner. The offsite agencies lauded the timely notification and response to this event.
- **DOE-HQ Assessment.** In June 1998, the DOE-HQ Office of Oversight conducted an emergency exercise evaluation of the emergency management program. This report concluded that the site and its contractors are implementing a fundamentally sound and effective emergency management program, including correcting issues identified from the May 1997 PRF incident.

Radiological Controls Improvement Program

Key to the radiological dose reduction was the tracking and trending of PHMC Team performance as related to radiological improvement initiatives. PHMC members from each project collectively worked cross-cutting site issues to completion with an emphasis on obtaining improvements. Improvements were made in the As-Low-As-Reasonably-Achievable implementation area through increased use of engineering controls and modification of radiological work practices. The collective dose to the Hanford workforce has been reduced more than 32% in the last two years.

The Radiological Control Program grades assigned by the Facility Evaluation Board (FEB) have shown significant improvement. The FEB evaluations reflect substantial improvements in the facility ownership, worker safety, and implementation of radiological control improvement initiatives.



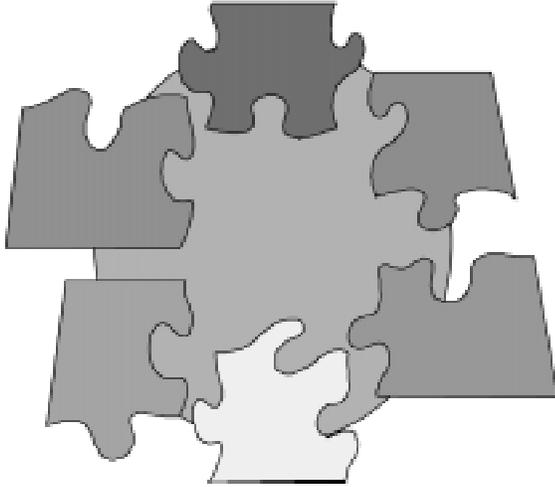
Oversight and Assessment of Safety Performance

The PHMC Team established the FEB to provide facility managers and PHMC senior managers with well-documented facility strengths and weaknesses that align performance to approved standards. During FY 1998, the FEB grades assigned to facilities continued to show improvement. All 10 functional areas showed improvement over the FY 1997 ratings, with Worker Safety and Health receiving the highest FEB score. The continuous improvement in the facility scores and functional area ratings demonstrates noteworthy progress by the PHMC Team on effective cleanup and management of Hanford's legacy wastes while protecting workers, the public and the environment.

"The Fluor Daniel Hanford FEB has obtained a high level of credibility with DOE and the Defense Nuclear Facilities Safety Board."

John Wagoner, Manager, RL, Keynote Speech, ISMS Lessons Learned Conference, New Orleans, Louisiana, October 1998.

Integration



The Project Hanford Management Contract (PHMC) Team's integration efforts are focused on providing the kind of effective leadership that enables the major projects to be successful and meet contractual commitments. Results in FY 1998 were concentrated in four major areas that aligned with the critical success factors in the U.S. Department of Energy (DOE), Richland Operations Office (RL), Strategic Plan. The PHMC Team demonstrated significant progress in each of the four areas of focus:

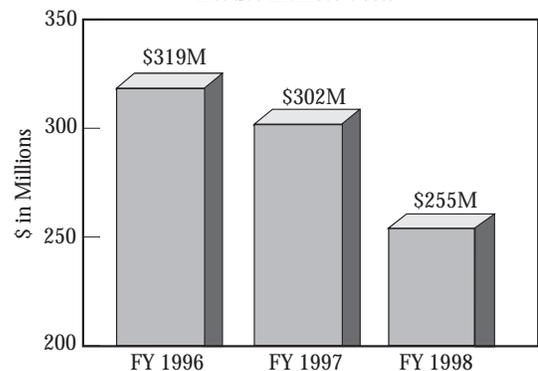
- Manage Hanford to achieve progress (financially and managerially in control)
- Optimize the infrastructure
- Align cross-cutting services with project needs
- Strengthen partnerships for progress.

Management of Hanford to Achieve Progress

It is critical that Hanford be financially and managerially in control. One of the key elements for achieving such control was the on-schedule rollout of the Hanford Data Integrator (HANDI) 2000 Phase 1 Business Management System. This aggressive restructuring of the finance, purchasing, inventory, chemical management, payroll, and human resources business segments completes the first phase of a major business process improvement.

Reduction of indirect costs was a key initiative to preserve funding for direct cleanup work. The PHMC Team aggressively continued to reduce indirect costs in FY 1998 from \$302 million to \$255 million. This was accomplished through good fiscal management and rightsizing initiatives. A rigorous joint PHMC/RL accounting practice change control process ensured that costs were not just shifted to direct as part of the cost-cutting efforts.

The PHMC Team Continues to Reduce Indirect Costs



Baseline data traceability and consistency were demonstrated in significant baseline documents, including the *Hanford Site Environmental Management Specification*, multi-year work plans, project baseline summaries, the *Hanford Site Technical Database*, and *Integrated Site Baseline*. PHMC-wide deployment of a commercially available planning and scheduling system (PrimaVera P3™) played a major role in integration of the baseline elements. In addition, the number of procedures has been reduced from 1,500 to approximately 600, streamlining the baseline management processes.

Technical integration was enhanced through Site Integration Group meetings and the Technical Issues Management List. These and other systems engineering activities continue to be recognized within the PHMC Team and by the Defense Nuclear Facilities Safety Board as effective integration tools. Standard commercial approaches to risk identification, risk management, and contingency planning to reduce risk were applied in the Spent Nuclear Fuel replanning effort and the development of Tank Waste Remediation System Single-Shell Tank Saltwell Pumping Draft Plan.

The PHMC Team implemented a standard configuration management approach across the projects, including the application of standard engineering drawing controls and an Engineering Change Notice process.

Efforts are progressing smoothly to have all year 2000 (Y2K)-compliant renovations and validations complete by March 31, 1999, well ahead of the new millennium. The Year 2000 Project completed assessment of all software applications, infrastructure elements, and equipment sets in order to determine the extent of potential Y2K-compliant problems and identify corrective actions. Renovation was completed on 152 of 166 software applications, 24 of 26 infrastructure elements and 5 of 6 equipment sets.

One of the financial management challenges faced by the PHMC Team was to achieve a step-function improvement in time-recording practices. Compliance with time-recording procedures, as verified by audit, improved from 60% to a sustained level of more than 90% during FY 1998.

Infrastructure Optimization

A five-year Strategic Plan for Infrastructure Optimization was developed to define the PHMC plan to address one of the primary contract objectives. This plan identified \$60 million savings over a five-year period. The results through FY 1998 are tracking toward a \$70 million savings over the five-year period. The plan has been endorsed by RL and the Hanford Atomic Metal Trades Council (HAMTC) and will be updated annually.



John Wagoner “hands over” the site’s 1100 Area to Robert Larson of the Port of Benton.

The transfer of the 1100 Area and the southern connection of the Hanford Railroad to the Port of Benton and shutdown of the Hanford Railroad were major accomplishments in FY 1998. In mid-year, an additional challenge to vacate portions of the 1171 Fleet Maintenance Building to accommodate a new commercial locomotive business was met.

The PHMC Team also provided integrated support to RL and the Energy Saving Performance Contract (ESPC) on installations of steam boiler annexes in the 200 and 300 Areas. This ESPC effort was recognized by DOE Headquarters (DOE-HQ) as a 1998 Federal Energy and Water Management Award winner. The main steam powerhouses were safely shut down and transitioned to inactive status within cost and schedule after the ESPC work was completed.



The historic 284-E Powerhouse was shut down.

Other examples of successes in infrastructure optimization included maximizing use of office space by achieving occupancy rates greater than 90% in DOE-owned space, relocating the Hanford Fire Department administrative facility to avoid \$2.4 million in costs, shutting down 17 facilities, and vacating 46,000 square feet of general-purpose space.

The indirect savings achieved by improving infrastructure management during the first two years of the PHMC helped RL's-Site Infrastructure Division earn an Al Gore "Hammer" award from DOE-HQ for cost reduction initiatives.



The Hanford Site Infrastructure Division receives "Hammer" award.

Cross-cutting Services Aligned with Project Needs

A number of cross-cutting functions provide enabling services to PHMC projects. A project-oriented application of these functions ensures that the services are cost effective and meet project needs. Service levels are now being driven by project needs.

Information Resource Management (IRM) provides the communication systems vital to the integration effort. IRM service levels consistently met or exceeded the FY 1998 Service Level Agreements, supplying reliable computing, records management, and telecommunications infrastructure. The network availability has consistently exceeded 99%. Conversion to Desktop98 brings the PHMC Team to a common desktop environment for more seamless interfaces. The PHMC Team developed a first-of-a-kind, three-

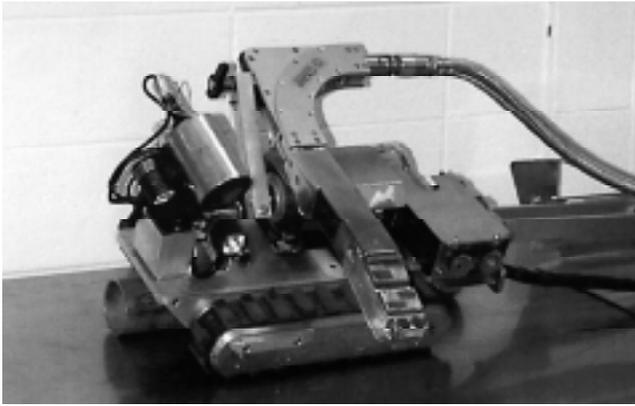


year IRM Strategic Plan that established three essential goals: to support the projects as a mission partner, to provide cost-competitive information services and supporting infrastructure, and to improve the IRM management processes. This strategic approach is providing a framework to ensure information technology is linked to and supports the projects and the overall site mission.

IRM discipline is being achieved through the Data Systems Review Board, which conducted a comprehensive review of all non-mission essential PHMC and RL systems. The Board's charter was to simplify the IRM environment by identifying redundant and obsolete systems to be removed. Standards for software, hardware, and e-mail retention were established and posted on the Hanford Intranet.

The PHMC major and Enterprise Company (ENCO) subcontracts were evaluated on re-bid or extension criteria, based on performance and support to key RL objectives. Contract extensions were negotiated and authorized. Contracts are being tailored to better align with Project performance requirements. Changes in exclusivity were made to the ENCOs, and the Security and Safeguards contract is being re-bid to eliminate the ENCO provisions. In addition, the first protégé was selected under the Mentor-Protégé Program designed to share knowledge and mentor companies to strengthen their positions in the marketplace.

In a collaborative effort with RL, Pacific Northwest National Laboratory, and Bechtel Hanford, Inc., the PHMC Team developed, published, and implemented a technology needs identification process for the Hanford Site. The new process placed an increased emphasis on scrutiny of baseline documentation (e.g., multi-year work plans) to identify technology needs. A process was developed to obtain project buy-in based on cost savings estimates derived from technology deployments. Benefits of this process include methods to formally document the estimated cost savings and tie savings to specific projects.



Remote Ultrasonic Tank Inspection System was developed to verify the integrity of high-level waste tank inner-shell bottoms.

Pollution prevention was again active across the projects. Our prevention actions have saved \$14.5 million and achieved waste reductions of over 5700 metric tons of sanitary waste, 95 metric tons of hazardous waste, 1600 cubic meters of low-level waste, and 2.5 million cubic meters of mixed low-level waste. These waste reductions avoid future waste management costs, providing funding for actual cleanup.

Partnerships for Progress

Partnerships with local and regional entities expanded with the transition of the Volpentest Hazardous Materials Management and Emergency Response (HAMMER) Center from its temporary facility to the 120-acre site. Volpentest HAMMER successfully established more than 20 Work-for-Others and User Facility Agreements with federal, state, and local government agencies and private entities. The resulting revenue reduced DOE's cost of operating the Volpentest HAMMER Center.

Labor-management partnerships were strengthened as HAMTC leadership was integrated into PHMC safety and decision-making processes. Weekly meetings were held to collectively address and resolve issues in the workplace. Additionally, new infrastructure optimization opportunities with potential union impact were discussed early in the planning process. Worker involvement in safety increased with appointments of HAMTC members to the Health and Safety organizations within the PHMC Team. The Hanford Guard Union's three-year agreement was ratified and the Hanford Site Stabilization Agreement was extended for another year, providing for stable labor relations.

In conjunction with RL, the PHMC Team collaborated with stakeholders and regulators in developing and reviewing baselines as they were prepared. As a result, the regulators and stakeholders accepted the FY 2000 Integrated Priority List developed in FY 1998.

The management-employee partnership continued with sitewide implementation of the 8-9's work schedule, creation of a new choice-oriented benefits plan, and implementation of the Personal Time Bank policy, which encourages employees to take a more active role in managing time off from work. The PHMC Team developed a long-range employee transition strategy, and a PHMC Worker Transition Coordinator was named. This individual already has established a partnership with Columbia Basin College to provide a process for promoting and marketing the skills of the Hanford worker.

In summary, the PHMC Team demonstrated leadership as an integrator in FY 1998 by:

- Solidifying financial and managerial control
- Optimizing the infrastructure
- Reducing indirect costs to free funding for actual cleanup
- Strengthening partnerships with stakeholders, regulators, and employees.

The Team also aligned cross-cutting service to better enable project work. The systems and processes implemented in FY 1998 provide a solid foundation for further improvements when combined with the Quality Improvement Initiative that will be implemented in FY 1999.

Projects Overview

In reference to the deactivation of B Plant four years ahead of schedule, U.S. Energy Secretary Bill Richardson, said, "You're helping the complex get the job done and demonstrate that DOE is capable of doing some very good things."

The Project Hanford Management Contract (PHMC) Team's four major projects achieved substantial physical progress while developing realistic and achievable technical, cost, and schedule baselines in FY 1998. The PHMC Team's major projects—Facility Stabilization, Spent Nuclear Fuel (SNF), Tank Waste Remediation System (TWRS), and Waste Management—face some of the world's most complex technical challenges in finding solutions for the treatment, disposal, or permanent storage of 60% of the nation's high-level nuclear waste. This waste is the legacy of disposal practices used during 50 years of plutonium production for national defense.

The projects are focused on five primary objectives, which directly support the *Hanford Strategic Plan*:

- Reduce urgent risks and protect the Columbia River
- Reinforce a strong safety culture
- Make real progress on cleanup
- Cut costs, including mortgage reduction
- Improve operational performance

To reduce risks and protect the river, SNF processes were streamlined and materials prepared so that substantial movement of contaminated radioactive materials away from the Columbia River can begin in November 2000. A highlight of this preparation was the agreement reached on this date between the U.S. Department of Energy (DOE), Richland Operations Office (RL) and the U.S. Environmental Protection Agency.

With the PHMC Team's strong safety culture, the projects were able to reduce the recordable and lost-workday case rate by more than 50% compared with the number of pre-PHMC cases. The projects also have embraced the Integrated Safety Management System (ISMS) and are currently on schedule with its implementation.

Cleanup progress was achieved by the near completion of several facilities critical to movement of spent nuclear fuel. Also, pumping of waste from single-shell tanks to double-shell tanks was resumed, B Plant was deactivated, and operations were started at the Waste Receiving and Processing (WRAP) Facility.



Installation of a pump to remove waste from single-shell tank SX-106.



Senator Patty Murray, Secretary Bill Richardson, Hanford Manager John Wagoner, and Deputy Manager Lloyd Piper at the B Plant deactivation ceremonies.

Taxpayers realized a \$100 million savings by the accelerated deactivation of B Plant. This deactivation will continue to save taxpayers money through reduced surveillance and maintenance costs (\$750,000 annually versus \$20 million before deactivation). Each project also aggressively challenged and improved ongoing practices.

To improve operational performance, project management used the Facility Evaluation Board (FEB) as a tool to assess facility performance in the key areas of facility organization and administration, maintenance, operations, engineering, occupational safety and health, radiological control, environmental programs, quality assurance, training, emergency preparedness, and, if appropriate, criticality safety. The results from the FEB have been a catalyst for the Quality Improvement Plan initiatives. This PHMC-led initiative provided a focus on regulatory compliance. In addition, project support was key to the successful deployment of the new Finance and Supply Management System that uses commercial best practices and is Y2K compliant.

Some project-by-project highlights, which support the objectives of the *Hanford Strategic Plan*, follow.

Reduce Urgent Risks and Protect the Columbia River

The **Facility Stabilization Project** deactivated the B Plant, thus eliminating the risk associated with a former nuclear operating facility. Work continued

toward cleanout of the six million curies of radioactive material still remaining in the 324/327 Buildings for transport and safe storage on the Central Plateau away from the Columbia River. At the Plutonium Finishing Plant (PFP), extensive revision of training procedures, work process improvement, and detailed criticality safety reviews were conducted to prepare for resuming plutonium stabilization.

The removal, stabilization, and packaging of 2100 metric tons of degrading spent fuel is scheduled to start in November 2000 and will require first-of-a-kind processing equipment and facilities. The **SNF Project** made substantial progress on constructing two major facilities, the Canister Storage Building and the Cold Vacuum Drying Facility. The Project also tested and began installation of other key pieces of the infrastructure such as the fuel retrieval system and the cask loading system.

The **TWRS Project** reduced the risk associated with the single-shell tanks by pumping three and developing a plan to pump the remaining single-shell tanks. TWRS supported the characterization of the groundwater/vadose zone beneath the tanks, finalized preparations to transfer radioactive sludges from World War II-era single-shell Tank 241-C-106 to a safer double-shell tank, and recommended that 18 tanks containing organic wastes be removed from the Congressional Watch List.

The **Waste Management Project** started operations at the WRAP Facility, which provides a pathway for shipment of transuranic wastes out of Washington State for permanent disposal. As part of the WRAP startup effort, in-depth contractor and DOE operational readiness reviews were completed and received approval of the first Category 2, DOE Order 5480.23 Final Safety Analysis Report, at Hanford. To further protect the Columbia River, the Waste Management Project also processed 82 million gallons of industrial wastewater through the 300 Area Treated Effluent Disposal Facility (TEDF), treated more than 30 million gallons of waste water at the 200 Area Effluent Treatment Facility (ETF), and disposed of 274 million gallons of treated wastewater through the 200 Area facility.

Reinforce a Strong Safety Culture

The **Facility Stabilization Project's** emphasis on safety during B Plant deactivation was indicative of the effort to redesign work processes that greatly reduced personnel contamination incidences. Those processes were featured in the July edition of *Nuclear News*. PFP staff significantly improved Emergency Preparedness by conducting more frequent emergency drills with a significantly higher degree of management involvement.

The **SNF Project** applied standard commercial practices in risk identification, risk management, and contingency planning in support of the SNF Project replanning effort and the initiatives established to improve project control. The SNF Team also made substantial organizational changes to improve the project leadership and to capitalize the need for process improvements. To date, improvements have been made in the preparation of nuclear safety documentation, safety management, subcontract management, project controls, work planning, and quality assurance.

The **TWRS Project** successfully completed its PHMC Phase 1 verification for implementation of the ISMS. TWRS achieved the significant goal of one million work hours without a lost-time accident. TWRS also implemented a DOE-approved Safety Authorization Basis that reduces risks associated with operations by clarifying technical and operational limits and upgraded tank safety through installation of hydrogen monitoring systems and lightning protection.

The **Waste Management Project** achieved one million work hours without a lost-time accident, and reduced their Occupational Safety and Health Administration (OSHA) recordable rate by more than 50%. Waste Management also completed an ISMS Facility Gap Analysis and improved its emergency preparedness program.



New Route 3 sign warns motorists about cranes and enhances safety awareness.

Make Real Progress on Cleanup

In addition to its progress at B Plant, the **Facility Stabilization Project** decoupled the Waste Encapsulation and Storage Facility (WESF) from B Plant, resumed movement of fissile material in the PFP laboratories and vaults, made significant progress in the cleanout of 324 Building B Cell, and completed Phase II closure actions and Phase III characterization work for the Waste Acid Treatment System (WATS). More than 50% of the waste container inventory in the 327 Hot Cell was shipped, and more than 80% of the suspect legacy waste containers were either dispositioned or moved. Several support systems, including an emergency ion exchange system and a waste receiver system, were constructed to support the transition of WESF into an independent nuclear material storage facility.



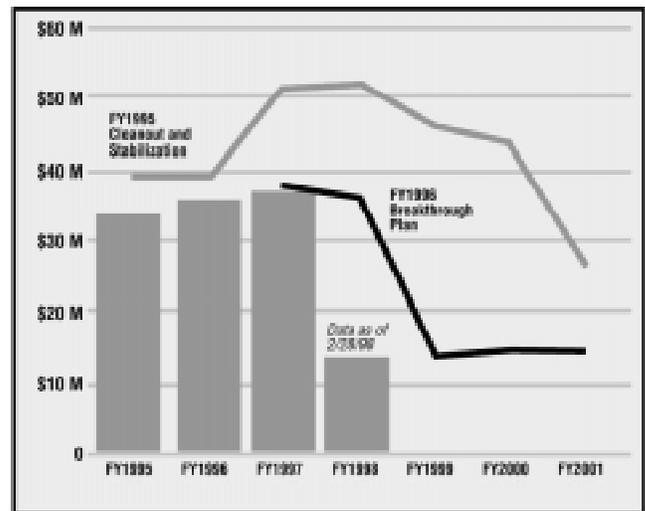
Decoupling systems shared between WESF and B Plant to allow B Plant deactivation to stay on schedule.

The **SNF Project** made real progress on several projects in the face of significant problems, including unresolved technical issues. The Canister Storage Building was constructed, and the facility systems entered the pre-operational testing phase. The Cold Vacuum Drying structure was completed; and the first processing skid, which will dry and stabilize the fuel, was delivered and successfully tested. This will provide the operational feedback to finalize the design and fabrication of the final units. Fuel retrieval hardware was installed and tested in the 300 Area prior to installation at the K Basins. All five first-of-a-kind shipping casks were delivered ahead of schedule. Laboratory characterization of N Reactor fuel was completed except for one set of tests, thereby reducing the risk of design changes.

The **TWRS Project** replaced several aging infrastructure components, including the cross-site transfer system with a compliant, double-contained line; the sluicing system for single-shell Tank 241-C-106; and completed construction of tank farm ventilation upgrades. The project also received DOE validation for projects to construct and upgrade interim storage for vitrified wastes. The tank dome loading issues were resolved. All FY 1998 core samples were completed one month early, and operating techniques for core sampling were improved to permit higher than expected waste sample recovery while maintaining compliance with a narrow operating envelope. The TWRS program logic was reviewed by the Defense Nuclear Facilities Safety Board (DNFSB) as fundamental to sound systems engineering management.

In addition to processing a large volume of treated effluent, the **Waste Management Project** also disposed of seven naval reactors, rail cars in support of the rail system shutdown, and 170,000 cubic feet of low-level wastes in the Low-Level Waste Burial Ground (LLBG). The number of waste shipments increased by 40% (1,100 outbound and 600 inbound). And, more than 9,700 environmental samples were analyzed at the Waste Sampling and Characterization Facility (WSCF); also more than 23 analytical-equivalent units were completed at the 222-S Laboratory for the Tank Characterization Project.

Cut Costs, Including Mortgage Reduction



Breakthrough plan results in step-function cost reduction for facility cleanout and stabilization.

The **Facility Stabilization Project** completed the deactivation of the B Plant \$100 million under the original budget. There will also be a nearly \$20 million annual savings starting in FY 1999 from reduced maintenance and operations. The Hanford Site also continued receiving the \$34 million per year benefit from the FY 1997 deactivation of the Plutonium-Uranium Extraction (PUREX) Facility.

The **SNF Project** identified more than \$22 million in cost savings by establishing a technical basis for eliminating a second drying process step.

The **TWRS Project** achieved more than \$13 million in cost savings through characterization efficiencies in sampling and field activities and project management and design efficiencies in construction projects.

The **Waste Management Project** achieved programmatic savings of \$7 million and indirect savings of \$2.7 million. Cost efficiencies were used to fund \$5.7 million of previously unfunded work. Waste Management has now lowered the 300 TEDF treatment cost from 6 cents per gallon (FY 1995) to 3.5 cents per gallon (FY 1998) thus reducing low-level waste disposal costs by 40%.

Improve Operational Performance

The **Facility Stabilization Project** initiated reengineering, projectization, and systems engineering activities to begin the transformation of PFP from a largely operational orientation to a project orientation. A project approach is better suited to manage accelerated, efficient stabilization/disposition of the nuclear material inventory and deactivation of the former processing facilities. A management teaming concept, "Quartet," which was used effectively for PUREX and B Plant deactivation, was implemented to improve client-contractor communications and instill the shared responsibility for commitments and accomplishments within the projects. Internal and external communications were improved with a focus on progress and successes.

The **SNF Project** took strong steps to correct technical and programmatic problems and is now positioned for reliable performance. Specific action included the formation of an integrated project team, sharing the best talent from Fluor Daniel Hanford, Inc., and DE&S Hanford, Inc. The SNF Project implemented improved processes for project management and control, technical management, and nuclear safety documentation preparation. A substantial effort was put into the development of a defensible planning base

that withstood the scrutiny of intensive DOE-Headquarters, RL, regulatory, and DNFSB review.

The **TWRS Project** completed multiple radiological controls improvement initiatives, improved the qualification/training process for operators and improved the maintenance rework rate. TWRS also established an authorization basis library and document distribution system, and improved the process for conducting operational readiness reviews and the technical environmental foundation for work. Construction upgrades in the East Area tank farms to support private contract waste feed delivery also were initiated.

The **Waste Management Project** improved all FEB ratings and received the first FEB rating of 1 (excellent) for the safety program at the 300 Area TEDE. Waste Management implemented a program to ensure that all comprehensive management assessments are scheduled, tracked, and completed. The project also established an Enhanced Work Planning process that significantly increased the number of completed maintenance tasks. Waste Management increased the level of field verification and acceptance of waste to reduce rework and shipping costs, and commenced implementation of a PHMC-wide Chemical Management System.



Newly constructed equipment to sluice waste out of Hanford's hottest single-shell underground waste storage tank (241-C-106)

In summary, FY 1998 was a pivotal year for the PHMC Team in aligning with its client. The Team took ownership and control of the projects by establishing integrated project management teams and implementing process improvements. Where needed, technical solutions were developed and implemented. Although there were several significant accomplishments, much work remains. The PHMC Team is prepared to aggressively move forward to resolve Hanford's many complex, technical challenges.



A nuclear process operator checks the integrity of a capsule in the WESF storage pool. The capsules contain approximately 150 million curies of radioactivity.