START

0020129

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

MAR 25 1992

DISTRIBUTION

HANFORD SITE ENVIRONMENTAL REPORT FOR CALENDAR YEAR 1990 (PNL-7930), RICHLAND, WASHINGTON, MARCH 1992

Enclosed is a copy of the Environmental Report for 1990 for the U. S. Department of Energy (DOE) Hanford Site. The purpose of the report is to present summary environmental data. This data characterizes site environmental management performance and confirms the success of the continuing efforts to achieve compliance with environmental standards and requirements. Significant environmental programs and results are also highlighted. The 1990 report experienced a significant delay in publication because needed analytical data was late due to delays in obtaining new analytical laboratory support for the environmental monitoring program.

Also enclosed is an addendum summarizing significant changes to our compliance status, current issues and actions, and conformance to environmental permit requirements for the period January 1, 1991 through January 1, 1992. We prepared this addendum to the 1990 report while the 1991 report is in preparation.

This report is prepared and published annually for distribution to local, state, and federal government agencies; Congress; the public; and the news media. The report was prepared for DOE by Pacific Northwest Laboratory.

If you have any questions or desire additional information, please contact Mr. R. F. Brich of the Technical Support Division at (509) 376-9031.

Sincerely,

John D. Wagoner
Manager

TSD:RFB

Enclosures:
1. Hanford Site Environmental Report for 1990
2. Compliance Summary for 1991

THIS PAGE INTENTIONALLY
LEFT BLANK

ENVIRONMENTAL COMPLIANCE SUMMARY
U.S. DEPARTMENT OF ENERGY'S HANFORD SITE
1991

This summary updates the Hanford Site environmental compliance status and environmental issues and actions for the period January 1 through December 31, 1991. The summary is in the same format as in the *Hanford Site Environmental Report for Calendar Year 1990*: 1) compliance status, and 2) current issues and actions.

1. COMPLIANCE STATUS

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT

Expedited Response Actions

January 1, 1991 through April 1, 1991

Three expedited response actions announced and initiated in 1990 were progressing well in the first three months of 1991. The expedited response actions -- called interim response actions in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulations -- are being conducted at the three sites to stop the spread of contamination.

The 618-9 Burial Ground action in the 300 Area involves the removal of buried drums of hexone. Field investigations and excavation began in February 1991. By the end of March, approximately 60 drums had been uncovered. Liquids were found in about 20 of the drums, with hexone suspected in several of these. The liquids have been drained from the drums and stored, awaiting sample analysis. Work will continue to uncover any remaining drums and to remove any liquids.

Several disposal trenches in the 300 Area contain contaminated soils that are being addressed. These trenches are still being used for disposal of liquids. The engineering evaluation/cost analysis to conduct the work was completed and submitted to Washington State Department of Ecology (Ecology) and U.S. Environmental Protection Agency (EPA) in March. Pending initial regulatory approval, the proposed action will go through a 30-day public review and comment period prior to final approval and initiation of activities.

Three sites in the 200-West Area were earlier used for disposal of carbon tetrachloride to the ground. About 1,000 metric tons were disposed of. A vapor extraction process will be used to remove any residual carbon tetrachloride from the vadose zones of the sites. During March 1991 a functional test of the process was started using several existing wells. The removal will continue through the summer.

April 1, 1991 through December 31, 1991

The 618-9 Burial Ground excavation has been completed. The final report for the response action was issued October 1991, and has been issued for public comment and review. Waste that was generated as a result of the response action is being dispositioned.

The response action of excavating and consolidating the contaminated soil on the 316-5 Process Trenches has been completed. Data that was collected during the activity is being validated. Work on the final report is ongoing.

The treatability test for the vapor extraction system for removing the carbon tetrachloride from the vadose zones is complete. The engineering evaluation/cost analysis (EE/CA) document was finalized and issued for public comment in September 1991.

RESOURCE CONSERVATION AND RECOVERY ACT

Enforcement Actions

January 1, 1991 through December 31, 1991

No enforcement actions resulted from inspections conducted by Ecology at treatment, storage, and disposal facilities on the Hanford Site from January 1, 1991, through December 31, 1991. All corrective actions from earlier enforcement actions have been completed.

Resource Conservation and Recovery Act Part A Interim Status

On December 10, 1990, Ecology issued a Notice of Noncompliance to U.S. Department of Energy, Richland Field Office (RL) regarding the return of 68 drums of packaged waste to the generating site, the 183-H Solar Evaporation Basins. Ecology requested the drums be returned to the Central Waste Complex by December 25, 1990. Because of inclement weather, an extension of the return date was requested by RL and agreed to by Ecology.

The drums were returned to the Central Waste Complex by January 25, 1991. The inspection, repackaging and shipping of the 68 drums was completed without any safety related incidents.

Hanford Part B Permit

January 1, 1991 through April 1, 1991

Meetings were held in February and March 1991 among RL, Ecology, and EPA Region-10 to discuss the content and schedule for issuance of the Hanford Site Part B Permit. A large number of issues (23 at last count) have been defined. Discussion is focused on specific issues to facilitate their resolution and issue papers will be used to document concurrence when issues are brought to final resolution. Several issues were informally resolved during these initial meetings. The permit for at least the first unit is now expected to be issued by early 1992.

April 1, 1991 through December 31, 1991

Issue resolution meetings between RL, Ecology, and EPA continued through July, 1991. Of 38 issues raised, 27 were resolved at least in principle, and 11 remained unresolved. The remaining 11 issues were elevated to the project manager level for resolution. Three project manager meetings resulted in no further progress on resolving the remaining issues. A Part B permit application for the Hanford Site Facility was submitted to the regulators for review in October 1991, identifying the RL position on all remaining unresolved issues. As of the end of December 1991, no comments had been received on this submittal.

Resource Conservation and Recovery Act Closure and Cleanup Standards

January 1, 1991 through April 1, 1991

Ecology has asserted that cleanup and closure activities undertaken at Hanford Site Resource Conservation and Recovery Act (RCRA) Part A Interim Status units planned for direct closure must be accomplished to background levels. The RL disagrees with Ecology's position. Some relief from Ecology's established position may take place as a result of the state of Washington enacting a new law entitled the "Model Toxics Control Act." This Act provides for cleanup levels at remediation sites to be established using health-based standards.

Because the Act just became effective, the implication this may have on RCRA (State Dangerous Waste) treatment, storage, or disposal (TSD) closures has not yet been fully determined but may serve as a basis for a consistent standard to be utilized by Ecology in RCRA closures.

April 1, 1991 through December 31, 1991

Ecology continues to assert that cleanup and closure activities undertaken at the Hanford Site RCRA Interim Status units planned for direct closure must be accomplished to background levels. The RL disagrees with Ecology's position. Some relief from Ecology's established position may take place as a result of Ecology's nuclear and mixed waste policy on soil cleanup standards for closure. The draft policy allows for cleanup levels for closures to be established using health-based standards. However, the health-based standards evaluated in the draft policy result in levels that are below the site background. These extremely low cleanup standards are the result of arbitrarily choosing health-based standards based on multiples of groundwater standards.

Resource Conservation and Recovery Act Groundwater Monitoring

Quarterly RCRA groundwater sampling was discontinued at the Hanford Site in May 1990 due to cancellation by Pacific Northwest Laboratory (PNL) of their analytical services contract with U.S. Testing. A special one-time sampling activity was conducted at selected wells during February and March 1991. This was a limited, one-time sampling effort to obtain groundwater data during the period of extended negotiation of the replacement analytical services contract. In an April 1991 letter to RL, Ecology requested that full-scale RCRA monitoring activities be reinitiated within 45 days. Ecology noted that failure to comply would trigger "other administrative alternatives" to ensure compliance with state and federal hazardous waste regulations.

Fifty groundwater monitoring wells were constructed at seven RCRA TSD facilities in 1991. This met the Hanford Federal Facility Agreement and Consent Order (HFFACO) milestone M-24-00.

Full-scale RCRA groundwater monitoring activities resumed on June 6, 1991. All data received from the analytical laboratory through November 18 were compiled into the RCRA groundwater quarterly report for the period July through September 1991.

In June, PNL signed an interim contract with International Technologies (IT) Corporation for analyzing groundwater samples. In October, PNL approved a final contract that specified DataChem Laboratories of Salt Lake City to perform Hazardous analyses. All data reported in the July through September RCRA groundwater quarterly report were from analyses under the interim contract with IT Corporation.

Although full-scale sampling has resumed, timely receipt of analytical results continues to be a problem. For example, we received results for only 51 percent of the samples collected in June, July, August, and September by November 18, 1991. According to the contract, 100 percent of the analyses should have been reported. Improvements are anticipated from the laboratories under the final contract.

CLEAN AIR ACT

Prevention of Significant Deterioration

January 1, 1991 through April 1, 1991

The nitrogen oxide emissions from the Hanford Site chemical processing facilities (Plutonium-Uranium Reduction Extraction (PUREX) and UO3 Plant) are permitted under the Prevention of Significant Deterioration (PSD) program within the Clean Air Act (CAA). Through April 1, 1991, there were no PSD permit violations.

April 1, 1991 through December 31, 1991

There were no PSD permit violations during the period April 1, 1991, through December 31, 1991. There have been no PSD permit violations since August 1988. With cessation of all cladding removal and fuel dissolution at the PUREX facility in 1989, nitrogen oxide emissions from that facility essentially ceased prior to 1991. The UO_3 facility did not operate during 1991; therefore, negligible emissions were produced.

Title III of the 1990 Clean Air Act Amendments (CAAA) added Section 112(b)(6). This section excludes the hazardous pollutants listed in Section 112(b)(1) from provisions of the PSD program. The exemption of hazardous pollutants from PSD requirements included radionuclides. On June 3, 1991, DOE-RL forwarded a letter requesting confirmation that the Washington State PSD regulations observe the exemption. The DOE-RL letter also requested withdrawal of four PSD applications which had been submitted previously and were under review by the State. Those applications had been necessitated by state requirements for PSD permitting of new or modified sources providing any increase in radionuclide emissions. On July 1, 1991, the State responded with written confirmation of the CAAA exclusion, and approved withdrawal of the four PSD applications.

Compliance with the Revised 40 CFR 61 Emission Measurement Requirements

January 1, 1991 through April 1, 1991

New CAA requirements for radioactive emissions were issued December 15, 1989, under 40 CFR 61, Subpart H. The Hanford Site presently achieves the protective requirements of the standard, but there are significant reporting and monitoring requirements that may need to be upgraded. A formal request for a two-year extension of the Subpart H requirements was transmitted by DOE-RL to EPA's Region-10 office in May 1990. The Hanford Site expects to gain approval of existing radioactive air emissions measurement systems within the time frame of the extension. During a March 18, 1991, meeting between RL and representatives from EPA Region-10, it was indicated that the Hanford Site strategy is a viable alternative.

April 1, 1991 through December 31, 1991

On May 7, 1991, the DOE-RL forwarded descriptions of its primary air emission measurement systems and a formal request for approval of those systems as an alternative method of compliance to the new EPA criteria as provided in the revised regulations. On June 3, 1991, EPA Region 10 provided a letter to RL in response to the request which formally extended the compliance deadline for emission monitoring and test procedures to December 15, 1991. As one condition of the extension, EPA called for further detailed information supporting the request for approval of existing measurement systems. The information was to cover stack emissions assessments, filter testing data, details concerning quality assurance relative to emissions measurements, and some description of how emissions from diffuse sources onsite are estimated. EPA also required, by October 31, 1991, a plan to design, purchase, install and test fully compliant monitoring equipment.

On December 18, 1991, RL provided a considerable portion of the information to the EPA. The remaining information, including the detailed comparison of existing measurement systems with the EPA criteria, was scheduled for submittal by March 5, 1992.

As of December 31, 1991, no agreements for extension of the compliance deadline have been negotiated, though RL and Region 10 have agreed there is a need for such a compliance agreement. Since RL did not provide all information requested by the EPA by the December 15, 1991, compliance extension deadline, the EPA intends to issue a formal request for information under Section 114 of the CAA. That section allows the administrator to request sufficient information to determine the compliance status of a facility.

During the period of response to the request for information, the details of a formal federal facilities compliance agreement (FFCA) would be finalized between RL and EPA. The EPA has suggested use of the format used by its Region 4 to address the same compliance issues in a FFCA with the Savannah River Site (SRS). RL supports use of the more brief format used for its earlier FFCA with Region 10 to address PCB storage compliance under the Toxic Substances Control Act (TSCA).

CLEAN WATER ACT

The National Pollutant Discharge Elimination System

January 1, 1991 through April 1, 1991

The National Pollutant Discharge Elimination System (NPDES) Permit expired in 1985. A renewal application was submitted to EPA Region-10 at that time. A request to amend the renewal was submitted in December 1988. In December 1990 the EPA requested additional information on the current flow rates and feed streams of the eight permitted outfalls. Only four of the 100 Area permitted outfalls are currently active -- 003 and 004 in the 100-K Area and 009 and N-Springs in the 100-N Area. In preparing a response to the request an evaluation of the needs and permit conditions in light of the anticipated future status of N Reactor is being done. This includes evaluating the feasibility of routing all feed streams at 100-N to the 009 outfall and securing the other outfalls (005, 006, 007, and 008) so that they cannot receive any discharges.

Problems have been experienced in measuring the flow at Outfall 003 in the 100-K Area. The discharge at this outfall is the 181-KE inlet screen backwash. The current monthly flow at the outfall is in the range of 5,000 to 20,000 gallons compared to a permit limit of more than 4,000,000 gallons a month. With the low flows, rust from the associated piping accumulates in the meters. The design of the system is being evaluated and changes will be made to alleviate the problem. Monthly cleaning of the flow meters will be performed until the system modifications have been completed.

April 1, 1991 through December 31, 1991

Conditions resulting from dry lay-up operations at N-reactor have affected the sampling and recording procedures associated with the Hanford Site's NPDES permit. Primarily there are reduced flows at the N-reactor outfalls, and in some cases no flow at all. Notations of the situation are being made on the monthly Discharge Monitoring Reports which are submitted to the EPA.

An excursion and two other conditions were reported to the EPA in June. There was a pH permit limit exceedance at outfall 009. The pH was measured at 9.2 which exceeded the permit limit of 9.0. The cause of the exceedance was thought to be inlet water with a high pH. Action was taken to isolate the inlet water from the outfall. Additionally in June, it was reported that the outfall 004 Total Suspended Solids (TSS) analysis was not performed within the 7-day regulatory sample holding time. Procedures were reviewed with operations personnel. The last condition reported in June was the delay in reporting quarterly sampling results normally reported in April for N-Springs. Sampling of N-Springs was performed at the wrong test well, therefore a new sample and analysis had to be performed.

Permit modification discussions were held with the Region X Water Permit Writer regarding new wastewater treatment facilities planned for the 300 Area. These new facilities include a treatment facility for process wastewater, as well as filter backwash wastewater.

2. CURRENT ISSUES AND ACTIONS

Hanford Federal Facility Agreement and Consent Order

January 1, 1991 through April 1, 1991

For CY 1991 a total of 38 milestones have been identified in the Action Plan. All 3 milestones scheduled through March 1991 have been completed on or ahead of schedule.

The Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) requires the preparation of individual work plans for conducting remedial investigation and feasibility study work on the 78 designated operable units. The work is being actively conducted at selected operable units on the site in accordance with the schedules stipulated in the Tri-Party Agreement Action Plan. To date, 17 individual work plans have been drafted. Thirteen of these, of which four have been approved, have been submitted to the regulators on schedule per the Action Plan. Four others are currently being drafted for submittal.

The annual update to the Tri-Party Agreement has been deferred temporarily. The representatives for the DOE, EPA, and Ecology have determined that an update would be impractical at this time because several milestones may need to be reorganized for technical and practical reasons. When drafted, the update will be made available for public comment.

The RL prepared change request packages for those major and interim milestones that merit reconsideration and revision. The changes were transmitted to Ecology and EPA Region-10 on February 6, 1991. The submitted packages contained changes to 26 milestones or 16 percent of the currently scheduled milestones. Due to waste tank safety issues, a change request has been submitted to change the milestone for single-shell tank interim stabilization from nine tanks to four tanks. Other major proposed changes would delay Grout Treatment Facility operation for nineteen months, delay start of pretreatment operations of B Plant for four-years, and delay operation of the Hanford Waste Vitrification Plant for two-years. Ecology and EPA Region 10 denied as submitted eight delays related to cleanup. The two regulatory agencies have agreed to continue negotiations on the major issues for denial of the eight packages, with a goal of reaching agreement by May 15, 1991. Dispute resolution will be initiated on the agreed to extended date, if agreement is not reached between all three parties. The change package will be made available for public comment subsequent to negotiation of the package.

The liquid effluent study (WHC-EP-0342) which was agreed to as part of the Tri-Party Agreement negotiation, was transmitted to EPA Region-10 and Ecology in the third quarter of 1990. The EPA and Ecology reviewed the liquid effluent study documents and provided comments on February 20, 1991, and April 4, 1991, respectively. The N Reactor effluent stream was identified as one of seven high priority streams at the Hanford Site. The EPA regards this effluent as the most environmentally significant continuing release at the Hanford Site. EBASCO Services, Inc. has been contracted to report on alternative containment methods for the radioactive groundwater plume which was created by the N Reactor effluent.

April 1, 1991 through December 31, 1991

A total of 136 milestones have been completed to date.

On February 6, 1991, DOE submitted nine change request packages for several major and interim milestones contained in the Tri-Party Agreement. On April 8, 1991, EPA and Ecology denied eight of the submitted change packages, conditionally accepted one, and deferred action on another (the tenth change package had been submitted before February 6, 1991). Public meetings were held on April 16 and 17 to discuss the denials and status of the change packages. Intense negotiations were entered into in May 1991 to reach acceptable agreement between the three parties on the changes. On May 15, 1991, tentative agreement was reached by the three parties regarding the proposed changes to the Tri-Party Agreement. The tentatively agreed

changes were submitted to the public for a comment period from May 22 to July 5, 1991, with public meetings held on June 17, 18, 19, and 20, 1991, to discuss the changes.

The EPA, Ecology, and DOE, after consideration of public comments received, approved the change packages on September 9, 1991.

Below is a summary of the approved changes by major milestone:

- Milestone M-01-00 has been delayed 27 months from September 1994 to December 1996

- New milestones and due dates will be established for Milestone M-02-00 in January 1992

- Interim Milestone M-03-01, "Initiate Hanford Waste Vitrification Plant (HWVP) construction," has been delayed 9 months, while Milestone M-03-00, "Initiate Hanford Waste Vitrification Plant operations," has not been changed at this time

- Adjustments to the number of tanks to be stabilized under the interim milestones supporting Major Milestone M-05-00 were approved (from 9 in 1991 to 4; from 9 in 1993 to 11; from 9 in 1994 to 8, and from 5 in 1995 to 10). The major milestone date of September 1995 to complete the interim stabilization of all but the two high-heat tanks was not changed

- Adjustments were made to Interim Milestones M-10-04 (extend due date from December 1990 to September 1991) and M-10-06 (reduction from 24 samples to 20 samples). Interim Milestone M-10-05 was redefined to cover the preparation of an integrated waste sampling plan. No changes were made to the September 1998 Major Milestone M-10-00

- M-12-00 scope has been changed to 15 work plans and the due date for M-13-00 has been revised to calendar year (CY) 1993. Additionally, the interim milestones under M-12-00 have been revised to require rescoped work plans reflecting revised past practice strategy. Four new major milestones have been added (M-27-00, M-28-00, M-29-00, and M-30-00) requiring aggregate area management study reports, soils and groundwater background determinations, the Hanford Site risk assessment methodology, and integrated general investigations and studies for the 100 Areas. Under these new major milestones are 23 new supporting interim milestones

- Three new interim milestones have been added to Major Milestone M-17-00 requiring the development of sampling and analysis plans, implementation of interim operating restrictions on facility effluents, and submittal of a methodology for assessing the impact of liquid discharges

- M-20-21 (submittal of a permit application for B Plant) is revised to require the establishment of a due date for submittal of a permit application or a closure plan. The new date will be established by January 1992

- Interim Milestone M-24-07 and Major Milestone M-24-00 (for CY 1990 only) were extended 280 days making them due October 7, 1991

- A newly established milestone (M-31-00) requires the construction of up to four new double-shell tanks with interim milestones requiring the completion of conceptual design (M-31-01) and establishment of additional milestones (M-31-02) by September 1992.

Milestone M-05-03, "Interim stabilize an additional 4 single-shell tanks," due on September 30, 1991, has yet to be completed. Progress on stabilizing the tanks was halted by the DOE-Headquarters on August 28, 1991, in order to resolve the issue of potentially adding liquid to "watch list" [Public Law 101-510, Section 3137 (Wyden Amendment)] tanks. A change request submitted on September 9, 1991 by the DOE was denied on October 2, 1991, by Ecology and on October 3, 1991, by the EPA as the request was considered not timely and not justified. On October 7, 1991, the DOE invoked "dispute resolution" as provided by the Tri-Party Agreement. On December 17, 1991, DOE reiterated the difficulties in its ability to meet future M-05 milestones. DOE withdrew the change package and terminated dispute resolution but, indicated that a new change request would be submitted to the EPA and Ecology when better information is available to determine impacts to future M-05 milestones. The Secretary of Energy, James Watkins, has determined that no safer alternative to stabilizing these four single-shell tanks exists and has authorized the resumption of stabilization pumping activities. Five single-shell tanks are in the process of being stabilized at this time. Four of these five tanks will be used to satisfy the requirements of milestone M-05-03 when the process is complete.

A complete renegotiation of milestone M-17-00 was completed in October 1991. The resulting change package will modify the existing Tri-Party Agreement major Milestone M-17-00 and the interim milestones M-17-02, M-17-04, M-17-08, M-17-09, M-17-10, M-17-11, M-17-12, and M-17-13. As a result of the negotiations 86 new interim milestones and 1 new major milestone will be added to the Tri-Party Agreement dealing with liquid effluents. This change package will undergo public review along with the Annual Update and be approved after resolution of any comments.

As required by Amendment 2, negotiations occurred from May 1991 through September 1991. These negotiations resulted in an agreement (i.e., Consent Order) between RL and Ecology for obtaining state permits for liquid effluents at the Hanford Site. The actions and schedules put forth in the agreement for obtaining state permits will be consistent with the interim Tri-Party Agreement milestones. The permit, in addition, will address those deliverables specifically required for compliance with the State permitting program (i.e., engineering reports, etc.), a schedule for permit submittals, and a schedule for identification and disposition of miscellaneous liquid effluent streams.

The 1992 annual update to the Tri-Party Agreement has been prepared and will undergo public comment during the period of March and April 1992. The annual update to the Tri-Party Agreement was delayed this year in order to incorporate the new M-17-00 milestones, which were negotiated during the period from June through October 1991.

Milestone M-14-00, "Complete construction and initiate operations of a low-level mixed waste laboratory," was included in the Agreement to ensure that projected analytical needs at the Hanford Site would be met. Subsequent to the signing of the Tri-Party Agreement, the DOE determined that analytical needs at the Hanford Site would be better satisfied through the use of commercial laboratory facilities. Activities associated with the laboratory project were halted while an evaluation was conducted to determine whether new laboratory capabilities were still necessary if commercial laboratories performed the bulk of the low-level mixed waste sample analyses. The results of that evaluation determined that additional capabilities were necessary to analyze process control samples and to perform quality control checks on the analyses conducted by commercial laboratories.

The DOE currently has several small contracts in place with commercial laboratories. These laboratories will continue to be used pending the placement of multiyear, multimillion dollar contracts for long-term laboratory services. The DOE also is working closely with the laboratories currently being used to expedite the sample turnaround times. A change package was submitted to Ecology and EPA in November 1991 to redefine the major milestone; the change package was denied and is currently in dispute resolution.

HANFORD TIGER TEAM REPORT

On January 31, 1991, RL submitted the draft of the Hanford Site Preliminary Action Plan to U.S. Department of Energy-Headquarters (DOE-HQ). Comments were subsequently received from DOE-HQ reviewers. The RL and the Hanford Site contractors have responded to those comments. As of March 31, 1991, resolution had been achieved on 95 percent of all comments received.

The Hanford Readiness Task Force, composed of RL and site contractor personnel, submitted a revised Hanford Site Preliminary Action Plan on April 10, 1991.

Anticipating formal approval of the plan, the Westinghouse Hanford Company (Westinghouse Hanford) in conjunction with RL, initiated actions in accordance with the plan and the priority levels assigned to each action. Progress has been carefully tracked on closeout and interim milestones. Delinquent actions have been carefully analyzed to assure no environmental or safety impact. Currently, 584 actions out of 766 have been completed by Westinghouse Hanford and are awaiting closure by DOE-HQ. The draft plan was formally approved in December 1991 and will be issued as a final document in March 1992.

GENERAL ACCOUNTING OFFICE AUDIT OF GROUNDWATER AND SOIL MONITORING

January 1, 1991 through April 1, 1991

The General Accounting Office (GAO) has initiated an audit of groundwater and soil monitoring at the Hanford Site. Meetings with RL and site contractors occurred in February and March 1991. The GAO is reviewing environmental monitoring at the Hanford Site at the request of Senator John Glenn of Ohio. The GAO will be conducting this review over several months and will be meeting with all site contractors and the state of Washington. The scope of the audit appears unconstrained at this time.

April 1, 1991 through December 31, 1991

The GAO is continuing the audit of groundwater and soil monitoring at the Hanford Site. The GAO has regrouped and has additional questions in the area of well management and vadose zone monitoring. The GAO has requested a copy of the charter for well management that was prepared as part of two Tiger Team findings (GW/BMPF-4 00-01 and GW/CF-3 00-01). The GAO also has requested a copy of the vadose zone monitoring plan that uses the spectral gamma logging system. Information on these two subjects was provided to the GAO.

HANFORD WASTE VITRIFICATION PLANT CONSTRUCTION DELAY

January 1, 1991 through April 1, 1991

The HWVP budget has been substantially reduced for FY 1991 and FY 1992. This is due to potential problems associated with the pretreatment process development and the resulting lack of capability to provide a continuous feed stream to the HWVP. A vitrification systems risk assessment is being performed to indicate where the disposal program may be vulnerable.

It has been determined that the current pretreatment schedule would not support a continuous feed to the HWVP causing a possible two-year outage between processing of the first and second waste types. Because of the need for technology development for the pretreatment of the second and remaining feeds, it may be in the best interest of DOE to delay the start of construction of the HWVP. This is a major change to the Tri-Party Agreement Action Plan which is currently under review and negotiation with Ecology and EPA.

April 1, 1991 through December 31, 1991

Review of the draft findings from the vitrification systems risk assessment and the resultant negotiations between the DOE, the Ecology, and the EPA resulted in the recognition that the entire program for the remediation of the Hanford Site tank wastes needed to be redefined. These negotiations negated the need for the projected two-year delay and subsequent budget reductions for FY 1991 and FY 1992.

The redefinition of this program resulted in a re-establishment of the programmatic baseline for the project. As a result of the redefinition, the start of construction on the plant was delayed by nine (9) months but the start of operations remained at the scheduled baseline date (December 1999). The definitive design, approximately 35% complete, is scheduled for completion in June 1994.

HANFORD SITE WASTE MINIMIZATION PROGRAM

January 1, 1991 through December 31, 1991

New Federal and State laws, in addition to new DOE-HQ requirements, have imposed some significant new waste minimization program requirements. These include the Federal Pollution Prevention Act of 1990 and Washington State House Bill 2390, Hazardous Waste Facility Plans. Requirements for the Hanford Site program now include: DOE-required Waste Reduction Report due March 31, 1991; DOE required Hanford Site and contractor specific Waste Minimization Plan update due May 9, 1991; DOE-required update of the site-wide and specific Part B Permits; EPA Biennial Waste Minimization Report due March 1, 1992; EPA Source Reduction and Recycling Report attached to the Superfund Amendment and Reauthorization Act of 1986 (SARA) 313 Report due July 1, 1992; Washington State Facility Hazardous Waste Plan due September 1, 1992 and an annual summary of activities to minimize waste due each September 1 thereafter, and DOE-required Process Waste Assessment Plans.

Waste minimization and pollution prevention program plans were updated for the Hanford Site and each of the contractors in May and August 1991 respectively. Progress is on schedule for the completion of the EPA Biennial Waste Minimization Report which is due March 1, 1992, and the DOE Waste Reduction report which is due March 31, 1992, and the Source Reduction and Recycling Report due July 1, 1992. Additional funding is currently being requested to support completion of the Facility Hazardous Waste Plan required by Washington State House Bill 2390 by September 1, 1992. This state-required plan will require an evaluation similar to process waste assessments for each hazardous waste generating or hazardous material using process on the Hanford Site. The emphasis on process waste assessments will be made to meet this state requirement.

In addition, a newly issued Presidential Order 12780 requires recycling programs at federal facilities and programs to purchase recycled products. Methods to implement this Order are currently being investigated through Westinghouse Hanford Procurement.

HANFORD SITE WASTE SAFETY ISSUES

January 1, 1991 through April 1, 1991

Concerns have been raised about the potential of a ferrocyanide explosion and hydrogen gas accumulation in the Hanford Site waste tanks. One issue is that under certain conditions of chemical concentration, moisture, and temperature, ferrocyanide and nitrates in the single-shell tanks could release heat and potentially become explosive. The other issue is that flammable hydrogen gases may be trapped beneath the crust in five double-shell tanks and 18 single-shell tanks. One tank in particular, 101-SY (a double-shell tank), shows the largest accumulation of trapped gases. The DOE and external oversight groups have concluded there is no imminent danger to the public from either situation.

Public Law 101-510, Section 3137, Safety Measures for Waste Tanks at the Hanford Nuclear Reservation (Wyden Amendment) enacted November 5, 1990, identifies three actions the Secretary of Energy shall accomplish relating to the waste tanks.

1. Identification and Monitoring of Potentially Hazardous Waste Tanks on the Hanford Site - due within 90 days after the enactment date. RL provided input to DOE-HQ on January 8, 1991.

2. Action Plan to Respond to Excessive Temperature or Pressure or a Release from Potentially Hazardous Waste Tanks on the Hanford Site - due within 120 days after the enactment date. RL provided input to DOE-HQ on February 25, 1991.

3. Report on Action Taken to Promote Hanford Tank Farm Safety - due within six months after the enactment date. The report was sent to DOE-HQ on March 26, 1991.

April 1, 1991 through December 31, 1991

Westinghouse Hanford has formed a Waste Tank Safety, Operations and Remediation Division that has the responsibility to identify any hazards associated with the waste tanks and implement the necessary actions to mitigate or remediate those hazards. Westinghouse Hanford is also developing additional instrumentation to add to the hydrogen and the ferrocyanide tanks and ultimately to the organic tanks on an as needed basis. This instrumentation includes multifunctional instrument trees (temperature pressure and gas sampling). Infrared scanning, and gamma and neutron scanning for the ferrocyanide containing tanks is also under development. Dome space gas sampling to verify that explosive gas concentrations are below the lower flammability limits is being performed.

Information obtained from core samples, real time video pictures and monitoring of Tank 241-SY-101 as well as information from detailed studies on the mechanism of flammable gas formation and retention performed at Georgia Institute of Technology, PNL and Argonne National Laboratories has given Westinghouse Hanford sufficient insight into the behavior of Tank 101-SY that we are developing detailed mitigation strategies for that tank. Work is being initiated to characterize the other flammable gas tanks to determine the severity of the hazard.

Progress, resulting from synthetic waste studies (e.g., no radiocesium or other radionuclides) that duplicates the flowsheets that generated ferrocyanide wastes has increased our understanding of the risk from the ferrocyanide containing tanks. This understanding has been captured in a "position paper" on FeCN that is presently undergoing DOE-HQ peer review. First, the energetics of flow sheet material made by the U-Plant process, which accounts for 80% of our inventory, appear to be sufficiently low that even for dry waste heated above 250°C, propagation is not observed.

Secondly, the remaining materials produced by the in-farm flow sheets, appear to be inert in the presence of 20-40% water, a condition that appears to exist even in salt-well pumped tanks.

Work is just being initiated on assessing the risk from organic containing tanks. Many of the observations made in 101-SY (where ethylenediametetraacetic acid (EDTA) and N-(hydroxyethyl)-ethylenediaminetriacetic acid (HEDTA) provide the initial fuel) and for ferrocyanide containing tanks should carry over into the organic work. The initial tasks in the organic program is to validate the watch list criterion of 3% total organic carbon (dry weight) relative the diverse nature of organic chemicals, used on site, that may have been added to the tanks.

STATE WASTE DISCHARGE PERMITS

January 1, 1991 through April 1, 1991

RL has been authorized by DOE-HQ to apply for permits to comply with Washington State requirements for regulating effluent streams discharging to the soil column. RL is currently preparing to enter into negotiations with Ecology with the intent of achieving a compliance agreement.

April 1, 1991 through December 31, 1991

A compliance order was signed with Ecology on December 23, 1991. The compliance order establishes a schedule for complying with state permitting requirements for liquid waste discharges to underground waters of the state. This consent order subjects the Hanford Site liquid waste effluents to regulatory milestones which include submission of engineering reports, design reports, permit applications, sampling and analysis plans, construction schedules, impact assessments and interim operating restrictions.

RADIOACTIVE PCB WASTE MANAGEMENT

January 1, 1991 through April 1, 1991

Acceptance of all radioactively contaminated waste with greater than or equal to 50 ppm PCBs ceased until a compliance agreement is reached with the regulatory agencies. A strategy and compliance plan for the management of this waste is currently being developed by Westinghouse Hanford. A thermal treatment system for treatment of radioactively contaminated PCBs is currently being examined.

April 1, 1991 through December 31, 1991

Per DOE-RL request, radioactively contaminated PCB wastes (greater than or equal to 50 ppm) are being received from approved offsite DOE activities for storage in the Hanford Central Waste Complex. This activity is being conducted concurrent with the development of a compliance agreement between RL and the Environmental Protection Agency, Region Ten for the storage of the waste.

A draft compliance strategy for disposal of radiologically contaminated PCB waste is being prepared for submittal to DOE-RL.

242-A EVAPORATOR STATUS

January 1, 1991 through April 1, 1991

The 242-A Evaporator remains in standby status pending construction of four liquid effluent retention facilities. Planned use of the first of the four retention facilities is scheduled for the second half of CY 1991.

The 242-A Evaporator is used to reduce the volume of liquid wastes that are placed in storage in the double-shell tanks. The retention facilities will be used for the temporary storage of liquid condensate from the 242-A Evaporator until the liquid effluent treatment facility is complete. The treatment facility is being designed and constructed in the 200-East Area to remove listed chemical constituents from the 242-A Evaporator process condensate.

April 1, 1991 through December 31, 1991

Planned use of the first of three retention facilities is scheduled for the second half of CY 1992. The PUREX shutdown eliminates the need for one retention facility. The delays are due to technical issues plus DOE authorization for supplemental funding for capital project authorization.

SUBMARINE REACTOR COMPARTMENTS

As of April 1, 1991, RL has received 16 submarine reactor compartments for disposal in the Hanford Site Low-Level Burial Grounds. During the month of March, two compartments were received. They were the ex-USS GLENARD P. LIPSCOMB (SSN 685) and the ex-USS JAMES MONROE (SSN 622). Up to four additional compartments are expected later this year.

The trench containing Navy submarine reactor compartments requires additional action to be taken to attain compliance with the Toxic Substances Control Act due to the presence of PCBs. RL and EPA signed a compliance agreement in March 1990 which identified the actions necessary to achieve compliance.

Due to the presence of lead used for shielding in the submarine reactor compartments, they are regulated by the Washington State as dangerous wastes. An exemption from the dangerous waste landfill liner and leachate collection system requirements was prepared. The exemption request was sent to Ecology and EPA on July 24, 1990, for approval. Because there also may be as much as 230 gallons of residual liquid in the disposal packages, Ecology has stated that a revision to the exemption request must be submitted.

UNITED STATES TESTING COMPANY, INC., SUSPENSION

Previously, the United States Testing Company, Inc. (UST) performed all radiochemical analyses contained in the Environmental Report with the exception of the penetrating radiation measurements which were conducted by PNL, and the nonradiological surface water quality analyses conducted by the U.S. Geological Survey. PNL terminated their subcontract for Hanford Site analytical services with UST on June 1, 1990.

For some of the analytical services required by PNL contracts, contracts have been placed with Los Alamos National Laboratory and TMA/NorCal Laboratories and an interim contract has been awarded to the IT Richland laboratory. IT has purchased the UST facilities in Richland. Westinghouse Hanford currently has a contract in place with the Martin Marietta Energy Systems K-25 laboratory in Oak Ridge, Tennessee.

The PNL is responsible for replacement of the UST contract. A request for proposals for permanent (three to five years) replacement has been published and proposals are currently being evaluated. The permanent contract is scheduled to be awarded in late July 1991.

April 1, 1991 through December 31, 1991

Four separate long-term analytical contracts were signed in late September and October as follows:

Bioassay - IT

Surface Environmental Radiochemistry - IT

Radiochemistry in Ground Water and Solids - IT

Hazardous Chemistry (Ground Water and Solids) - DataChem Laboratories, Salt Lake City

STATE OF OREGON SURVEY

As part of the DOE plan to clean up the Hanford Site, transuranic wastes will be shipped to a repository near Carlsbad, New Mexico, over a period of approximately 20 years. In order to gauge public opinion regarding this transport plan, 402 adults living in the four Oregon counties along the Interstate 84 corridor planned for the transport route, and 604 adults living elsewhere in Oregon were surveyed between June 23 and July 15, 1990.

The survey was conducted for the Oregon Department of Energy. The survey was administered by telephone to a randomly selected set of households. Within each household selected, the available household member over 18-years-of-age with the most recent birthday was interviewed. Survey results were reported in early February to the Oregon Hanford Waste Board and Hanford Advisory Committee. The Board is Oregon's policy forum for the Hanford Site issues that impact the state. The Advisory Committee is the Board's liaison to citizens and local governments.

More than half (56 percent) of those surveyed believe nuclear weapons waste transport poses a greater risk than continuing to store the waste at the Hanford Site. About one-fifth (18 percent) believe the risk is the same. Key findings of the analysis include:

- Most Oregonians worry about the effects of nuclear waste transport, but more than half believe the job can be done safely.
- Of those who live along a likely transport route in Eastern Oregon, 80 percent fear that radioactive waste transport might harm public health and safety. Statewide, 64 percent agree. More than two out of three Oregonians (69 percent) believe hazardous material transport mishaps will happen.
- Respondents tended to rate the hazards of nuclear waste transport on a par with transport of toxic chemicals and explosives on Oregon highways.
- Respondents were far more likely to see more harmful consequences than benefits as a result of the transport program.

The DOE's task now is to provide accurate, timely, and credible information about safe transport. This would assist Oregonians in making informed judgments about the Hanford Site transuranic transport.