

2.2 Compliance Status



J. P. Duncan

This section summarizes the status of Hanford Site activities with regard to federal environmental protection statutes and associated state and local environmental regulations. Permits required under specific environmental protection regulations are also discussed.

2.2.1 Hanford Federal Facility Agreement and Consent Order

R. D. Morrison

The Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement; Ecology et al. 1989) commits the DOE to achieve compliance with the remedial action provisions of CERCLA and with the treatment, storage, and disposal unit regulations and corrective action provisions of RCRA, including the state's implementing regulations. From 1989 through 2003, a total of 809 milestones have been completed and 282 target dates have been met. During 2003, there were 36 specific cleanup milestones scheduled for completion: 35 were completed on or before their required due dates and 1 was completed beyond its established due date.

2.2.1.1 Tri-Party Agreement Milestones

The Tri-Party Agreement is an agreement for achieving compliance with CERCLA remedial action provisions and with RCRA treatment, storage, and disposal unit regulations and corrective action provisions. The Tri-Party Agreement contains a schedule, using numerous enforceable major and interim milestones, which reflects a concerted goal of achieving full regulatory compliance and remediation.

The following list contains the 2003 milestones completed under the terms of the Tri-Party Agreement:

- **M-015-38A** – Submit 200-CW-1 Gable Mountain Pond/B Pond and Ditch Cooling Water Group Feasibility Study and Proposed Plan/Proposed RCRA Permit Modification.
- **M-015-39A** – Complete chemical sewer group field work through sample collection and analysis.
- **M-015-40B** – Submit Draft A 200-CW-5 U Pond/Z-Ditches Cooling Water Group Remedial Investigation Report including the past-practice waste site in the 200-CS-2 S-Ponds/Ditches Cooling Water Group, 200-CW-4 T-Ponds/Ditches Cooling Water Group, and 200-SC-1 Steam Condensate Group.
- **M-015-47** – Submit a proposed plan to the EPA and/or Washington State Department of Ecology to conduct remedial action(s) for source control at a high-risk waste site(s) which includes an engineering evaluation of an engineered surface barrier.
- **M-016-27C** – Complete 100-HR-3 Phase III, in situ redox manipulation barrier emplacement, planning, well installation, and barrier emplacement.
- **M-016-28A** – Connect well 199-K-126 to the 100-KR-4 pump-and-treat extraction system.
- **M-020-29B** – Submit sodium storage facility and sodium reaction facility closure plan or request for procedural closure to the Washington State Department of Ecology as defined in Agreement Section 6.3.3.
- **M-020-56** – Submit Canister Storage Facility Part B dangerous waste permit application to the Washington State Department of Ecology.



- **M-020-57** – Submit immobilized low-activity tank waste disposal facility certified Part B permit application to the Washington State Department of Ecology.
- **M-023-25C** – Complete the installation of liquid observation wells and begin weekly liquid observation monitoring for four single-shell tanks.
- **M-023-25D** – Complete the installation of liquid observation wells and begin weekly liquid observation monitoring for four additional single-shell tanks.
- **M-023-26** – Submit to the Washington State Department of Ecology, as a primary document, a schedule to perform liquid-level assessments for single-shell tanks 241-AX-151-CT, 241-BY-ITS2 tank 2, 241-AX-IX, 241-BY-ITSH1.
- **M-024-57** – The DOE shall install a minimum of 15 groundwater monitoring wells by December 31, 2003.
- **M-026-01M** – Submit an annual Hanford land disposal restrictions report in accordance with Agreement requirements to cover the period from January 1, 2002 through December 31, 2002.
- **M-043-16** – Start construction for upgrades in the fifth tank farm.
- **M-045-02L** – Submit annual updates to single-shell tanks retrieval sequence document.
- **M-045-03D** – Complete S-112 saltcake waste retrieval technology demonstration design (to include all physical systems including design and operating strategies necessary for leak detection monitoring and mitigation). The design will be considered complete when 90% of the design has been approved for fabrication and/or construction.
- **M-045-05B** – Complete S-102 initial retrieval project design (to include all physical systems including design and operating strategies necessary for leak detection monitoring and mitigation). The design will be considered complete when 90% of the design has been approved for fabrication and/or construction.
- **M-045-05D** – Establish completion date for the second (single-shell) tank initial waste retrieval.
- **M-045-11** – Complete 244-AR vault interim stabilization.
- **M-046-00J** – Complete the double-shell tank space evaluation. A tank volume projection report shall be submitted on an annual basis to the Washington State Department of Ecology and EPA.
- **M-046-01I** – Concurrence of additional tank acquisition and establish new milestones, if required.
- **M-048-02F** – Submit to Washington State Department of Ecology a report assessing technology to develop ultrasonic testing equipment, or an equivalent technology, to assess material thickness and defects of the predicted maximum stress region of the lower knuckle base metal of double-shell tanks.
- **M-048-02G** – Submit to Washington State Department of Ecology a report assessing technology to develop ultrasonic testing equipment, or an equivalent technology, to assess material thickness and defects of the predicted maximum stress region of the lower knuckle base metal of double-shell tanks.
- **M-048-11** – Submit a written report to Washington State Department of Ecology documenting results of ultrasonic testing of the primary tank walls in four double-shell tanks not previously examined.
- **M-062-01F** – Submit an Office of River Protection Project Compliance Report.
- **M-062-01G** – Submit an Office of River Protection Project Compliance Report.
- **M-062-07A** – Initial erection of Low-Activity Waste Vitriification Facility elevation -21 feet structural steel columns, beams and Q Deck at elevation +3.
- **M-081-12** – Initiate Fast Flux Test Facility sodium drain. This milestone will be complete when the drain of the first secondary loop is begun. Completion will be achieved when all the preparatory actions (i.e., procedures written and approved, plant configuration line-up, operator training, facility startup review) have been completed and sodium is being transferred to tank T-44.



- **M-083-20** – Submit facility transition end-point criteria document as a primary document to Washington State Department of Ecology pursuant to Agreement Action Plan Section 8.5.3.
- **M-083-30** – Submit to Washington State Department of Ecology a closure plan as a primary document for the 241-Z waste treatment facility and glovebox HA-20MB.
- **M-091-03A** – Submit revision of the Hanford Site transuranic mixed waste and mixed low-level waste project management plan to Washington State Department of Ecology.
- **M-091-40 (Partial)** – The DOE shall first initiate retrieval at its burial ground 218-W-4C no later than November 15, 2003.
- **M-091-40 (Partial)** – In regard to the carbon tetrachloride vapor plume in the vadose zone in the vicinity of trench 4 in burial ground 218-W-4C, the DOE shall start vapor extraction by November 15, 2003 to reduce carbon tetrachloride vapors.
- **M-093-16** – Complete the DR Reactor interim safe storage.

Milestone completed after its established due date in 2003 under the terms of the Tri-Party Agreement:

- **M-034-28** – Complete removal of spent nuclear fuel equivalent to 1,619 metric tons (1,785 tons) heavy metal from the KW Basin (completed on January 13, 2004, 13 days after its due date of December 31, 2003).

2.2.1.2 Approved Modifications to the Tri-Party Agreement

During 2003, 25 negotiated change requests to the Tri-Party Agreement were approved (Table 2.2.1). These approved change requests may be viewed in their entirety in the Tri-Party Agreement Administrative Record at <http://www2.hanford.gov/arpir/>.

2.2.2 Environmental Management Systems

H. T. Tilden II, G. D. Cummins, and D. M. Yasek

Contractors at the Hanford Site have established integrated environment, safety, and health management systems. These systems, contractually mandated by DOE Order 450.1, are intended to protect the worker, public, and environment by integrating environment, safety, and health into the way work is planned and performed. The international voluntary consensus standard ISO 14001, *Environmental Management Systems – Specifications with Guidance for Use*, and DOE P 450.4, *Safety Management System Policy*, were used during the development of the systems. Basic elements of these systems include environmental policy, planning, implementation, checking and corrective action, and management review.

The DOE has verified the following Hanford Site contractors as having adequately implemented an integrated environmental, safety, and health system: Bechtel Hanford, Inc. (May 2000), CH2M HILL Hanford Group, Inc. (May 2000), Fluor Hanford, Inc. (August 2000), and Pacific Northwest National Laboratory (1998). Efforts continued in 2003 to implement and improve these environmental, safety, and health programs. Pacific Northwest National Laboratory obtained ISO 14001 third-party registration of its Environmental Management System in 2002. The registration certificate can be viewed online at <http://www.pnl.gov/iso14001/registration.htm>. Bechtel Hanford, Inc. is pursuing ISO 14001 registration through either self-certification to the standard or certification by third-party registrars. Since 2002, Bechtel Hanford, Inc. has maintained performance measures and indicators to monitor the health function of their Integrated Safety Management System (BHI-01550).

2.2.3 Chemical Management Systems

M. T. Jansky

The DOE, through its contractors, uses a variety of approaches for chemical management in processes and



Table 2.2.1. Hanford Site Tri-Party Agreement Change Requests Approved During 2003

Change Request	Date Approved	Title
L-03-01	04-07-03	Update EPA Executive Manager/Interagency Management Integration Team member title
M-013-03-01	10-23-03	Modify completion date for Tri-Party Agreement major milestone M-013-00N
M-16-03-01	03-27-03	Complete remediation of the waste sites in the 300-FF-1 Operable Unit to include excavation, verification, and re-grading, including the 618-4 burial ground in accordance with an approved remedial design report/remedial action work plan
M-16-03-02	09-05-03	Modification of Tri-Party Agreement interim milestone M-016-63
M-23-02-02	06-30-03	Modification of Tri-Party Agreement and milestone M-23 to reflect the agreements reached in dispute resolution to proposed Washington State Department of Ecology Change Request Package M-23-02-02
M-26-02-01	04-02-03	Modification of the reporting frequency for the tritium treatment technology report prepared under Tri-Party Agreement interim milestone M-026-05
M-45-02-03	04-22-03	Modification of Tri-Party Agreement requirements regarding retrieval and closure of Hanford Site single-shell tanks. Establishment of single-shell tanks retrieval and closure demonstration projects, associated regulatory (hazardous waste facility closure and post-closure plan and the Hanford Facility RCRA Permit (Permit No. WA7890008967) [site-wide permit]) process documentation requirements, and related double-shell tank space optimization activities.
M-45-02-06	01-30-03	Modification of Tri-Party Agreement milestones M-045-05D and M-45-05F in order to allow necessary time to finalize the M-45-02-03 change request which when finalized completes the requirements of milestones M-045-05D and M-045-05F
M-45-03-01	09-18-03	Modification of Tri-Party Agreement interim milestone M-45-00 series and target due dates pertaining to retrieval and closure activities of Hanford Site single-shell tanks S-112 and S-102
M-45-03-02	03-27-03	Modification of Tri-Party Agreement milestones M-045-05D and M-45-05F in order to allow necessary time to finalize the M-45-02-03 change request which when finalized completes the requirements of milestones M-045-05D and M-045-05F
M-45-03-04	06-30-03	Modification of Tri-Party Agreement requirements regarding leak detection monitoring and mitigation demonstrations, specifically deleting leak detection monitoring and mitigation demonstrations in single-shell tanks S-112 and S-102 and replacing the leak detection monitoring and mitigation demonstration requirements to at least one of the S-105, S-106, and S-103 single-shell tank retrieval and closures
M-45-03-05	10-27-03	Re-align completion dates for Tri-Party Agreement milestones M-45-55, M-45-58, and M-45-60
M-46-03-01	02-26-03	Modification of Tri-Party Agreement milestone M-46-01I in order to allow coordinated review of the need for additional tank storage space, including review of the DOE's single-shell tank retrieval sequence and double-shell tank space evaluation (RPP-8554, Rev. 1)
M-46-03-02	11-18-03	Modification of Tri-Party Agreement milestone M-46-01J to allow the completion of the M-45-00C milestone negotiations and continued review of the DOE's single-shell tank retrieval sequence and double-shell tank space evaluation (RPP-8554, Rev. 2)
M-47-03-01	12-24-03	Modification of Tri-Party Agreement requirements M-47-00, M-47-01, M-47-02, M-47-03, M-47-03A, M-47-04, and M-47-06 to accelerate joint agency decisions and establish the schedule regarding completion of tank waste treatment options
M-62-03-02	12-24-03	Modification of Tri-Party Agreement requirements M-62-00A, M-62-03, M-62-07B, M-62-08, M-62-09, M-62-10, M-62-11, and M-62-12 to accelerate joint agency decisions and schedule the establishment of requirements regarding the completion of tank waste treatment
M-81-02-01	05-21-03	Re-establish milestones and target dates for the shutdown (transition, pursuant to Tri-Party Agreement Section 8) of the Fast Flux Test Facility (milestones M-81-00 series and M-20-29A)
M-90-03-02	12-23-03	Modification of Tri-Party Agreement requirements M-90-10 and M-90-11 to accelerate joint agency decisions and establish the schedule regarding the completion of tank waste treatment options
M-91-02-02	01-02-03	Extend due date of milestone M-091-12A
M-91-03-02	08-11-03	Deletion of milestones M-91-06-T01 and M-91-14-T01
M-91-03-04	08-27-03	Milestone M-91-03 Project Management Plan initial revision due date modification
M-92-02-01	07-21-03	Re-establish Tri-Party Agreement interim milestones M-92-09 and M-92-10 associated with the management and disposition of DOE Hanford Site radioactive sodium as product.



Table 2.2.1. (contd)

Change Request	Date Approved	Title
M-92-03-02	04-01-03	Modify the Tri-Party Agreement interim milestone M-92-05, Inclusion of Hanford Site Cesium and Strontium Treatment and/or Repackaging Parameters in DOE Tank Waste Remediation System Phase II Request for Proposals (Treatment and/or Repackaging of all remaining Cesium and Strontium)
M-94-03-01	09-05-03	Modification of Tri-Party Agreement interim milestone M-094-01
P-10-02-01	03-25-03	Updates to Tri-Party Agreement Action Plan Sections 4.0, 10.0, 14.0, and Appendix E

EPA = U.S. Environmental Protection Agency.
 RCRA = Resource Conservation and Recovery Act.
 Tri-Party Agreement = Hanford Federal Facility Agreement and Consent Order (Ecology et al. 1989).

facilities at the Hanford Site. The contractors developed and documented formal systems for the management of chemicals during 1997. These management systems are applicable to the acquisition, use, storage, transportation, and final disposition of chemicals including hazardous chemicals as defined in the Occupational Safety and Health Administration's Hazard Communication Standard (29 CFR 1910, Subpart Z, Appendices A and B). The chemical management systems have been reviewed periodically and improved as needed. Details on the chemical inventories stored at the Hanford Site may be found in Section 2.5.

2.2.4 Comprehensive Environmental Response, Compensation, and Liability Act

B. L. Vedder

During 1980, CERCLA was enacted to address response, compensation, and liability for past releases or potential releases of hazardous substances, pollutants, and contaminants to the environment. During 1986, CERCLA was extensively amended by the *Superfund Amendments and Reauthorization Act*, which made federal facilities subject to the provisions of CERCLA. The EPA is the lead regulatory agency responsible for oversight of the DOE's implementation of CERCLA. There is significant overlap between the state RCRA corrective action program (Section 2.2.6) and the CERCLA program. Many waste management

units are subject to remediation under both programs. The CERCLA program is implemented via 40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," which establishes procedures for characterization, evaluation, and remediation. The Tri-Party Agreement addresses CERCLA implementation at the Hanford Site and is generally consistent with the national contingency plan process. There are several remediation activities under way at the Hanford Site that are accomplished using the CERCLA process (e.g., remedial investigation in the 200 Areas, cleanup in the 100 and 300 Areas). Specific project activities and accomplishments are described in Sections 2.3.4 and 2.3.12.

2.2.5 Emergency Planning and Community Right-To-Know Act

D. E. Zaloudek

The *Emergency Planning and Community Right-to-Know Act* requires states to establish a state emergency response commission and local emergency planning committees and to develop a process to distribute information on hazardous chemicals present in facilities. These organizations gather information and develop emergency plans for local planning districts. Facilities that produce, use, or store extremely hazardous substances in quantities above threshold planning quantities must identify themselves to the state emergency response commission and local emergency planning committee and periodically provide



information to support the emergency planning process. Facilities must also notify the state emergency response commission and local emergency planning committee immediately after an accidental release of an extremely hazardous substance (40 CFR 355, Appendices A and B) over the reportable quantity. Two annual reports are required by the *Emergency Planning and Community Right-To-Know Act*. The 2003 *Hanford Site Tier Two Emergency and Hazardous Chemical Inventory* (DOE/RL-2004-19) contains information about hazardous chemicals stored at the facility in amounts exceeding minimum threshold levels. The 2003 *Hanford Site Toxic Chemical Release Inventory* (DOE/RL-2004-20) contains information about total annual releases of certain toxic chemicals and associated waste management activities.

For 2003, the Hanford Site issued the reports and notifications required by the *Emergency Planning and Community Right-To-Know Act*. The 2003 *Hanford Site Tier Two Emergency and Hazardous Chemical Inventory* (DOE/RL-2004-19) was provided to Washington State Department of Ecology's Community Right-To-Know Unit; local emergency planning committees for Benton, Franklin, and Grant Counties; and to both the Richland and Hanford Site fire departments. The 2003 *Hanford Site Toxic Chemical Release Inventory* report (DOE/RL-2004-20), which included releases and waste management activities involving lead and ethylene glycol, was provided to the EPA and Washington State Department of Ecology. Table 2.2.2

provides an overview of 2003 reporting under the *Emergency Planning and Community Right-To-Know Act*.

Types, quantities, and locations of hazardous chemicals are tracked through prime contractor-specific chemical management system requirements (Section 2.2.3). Table 2.2.3 summarizes the information reported, listing the 10 hazardous chemicals stored in greatest quantity on the Hanford Site in 2003.

2.2.6 Resource Conservation and Recovery Act

M. J. Hartman

RCRA was enacted during 1976 with the objective of protecting human health and the environment. During 1984, the Hazardous and Solid Waste Amendments re-authorized RCRA and imposed new requirements on the management of hazardous waste. The most important aspect of RCRA is its establishment of "cradle-to-grave" management to track hazardous waste from generator to treatment, storage, and disposal. Washington State Department of Ecology has the authority to enforce RCRA requirements in the state under WAC 173-303. At Hanford, RCRA applies to approximately 70 hazardous waste treatment, storage, or disposal units that have received waste since implementation of the act.

Table 2.2.2. Emergency Planning and Community Right-to-Know Act Compliance Reporting at the Hanford Site During 2003

<u>Sections of the Act</u>	<u>Yes^(a)</u>	<u>No^(a)</u>	<u>Not Required^(a)</u>
302-303: Planning notification	X ^(b)		
304: Extremely hazardous substances release notification			X
311-312: Material safety data sheet/chemical inventory	X		
313: Toxic chemical release inventory reporting	X		

- (a) "Yes" indicates that notifications were provided and/or reports were issued under the applicable provisions. "No" indicates that notifications or reports should have been provided but were not. "Not Required" indicates that no actions were required under the applicable provisions, either because triggering thresholds were not exceeded or no releases occurred.
- (b) These notifications apply to the Hanford Site but were completed prior to 2003.



Table 2.2.3. Average Quantity of Ten Hazardous Chemicals^(a) Stored on the Hanford Site, 2003

<u>Hazardous Chemical</u>	<u>Average Quantity, kg (lb)</u>
Mineral oil	1,700,000 (3,800,000)
Sodium	1,000,000 (2,300,000)
Portland cement	360,000 (794,000)
Diesel fuel (Grades 1 and 2)	360,000 (794,000)
Ethylene glycol	210,000 (460,000)
Fly ash (class F)	180,000 (400,000)
Propane	130,000 (280,000)
Argon (compressed)	97,000 (210,000)
Nitrogen (compressed)	75,000 (170,000)
Sulfuric acid	34,000 (76,000)

(a) Includes chemicals defined as hazardous under the Occupational Safety and Health Act Hazard Communication Standard [29 CFR 1910.1200(c)].

2.2.6.1 Hanford Facility RCRA Permit

S. A. Thompson

The Hanford Facility RCRA Permit (Permit No. WA7890008967) was issued by the Washington State Department of Ecology during September 1994 (Ecology 1994). The permit is the foundation for RCRA permitting on the Hanford Site in accordance with provisions of the Tri-Party Agreement (Ecology et al. 1989). The Hanford Facility RCRA Permit is issued to seven permittees: the DOE Richland Operations Office and DOE Office of River Protection as the owners/operators and to five of their contractors as co-operators. The permit expires September 27, 2004, requiring the permittees to re-apply by March 31, 2004, 180 days before the permit expires, as required by WAC 173-303. This application was submitted.

2.2.6.2 RCRA/Dangerous Waste Permit Applications and Closure Plans

S. A. Thompson

For purposes of RCRA and Washington State dangerous waste regulations (WAC 173-303), the Hanford Site is considered a single facility that encompasses approximately

70 treatment, storage, and disposal units. The Tri-Party Agreement recognized that all of the units could not be issued permits simultaneously, and a schedule was established to submit unit-specific Part B dangerous waste permit applications and closure plans to Washington State Department of Ecology.

During 2003, seventeen Part A, Form 3, revisions were certified and submitted to Washington State Department of Ecology. These include: single-shell tank system, 242-A evaporator, 222-S Laboratory Complex, Waste Receiving and Processing Facility, Central Waste Complex, Immobilized High-Level Waste Interim Storage Unit, Integrated Disposal Facility, 1324-N Surface Impoundment, 1301-N Liquid Waste Disposal Facility, 1325-N Liquid Waste Disposal Facility, 1324-NA Percolation Pond, 200 Area Effluent Treatment Facility (Rev 3A and B), Plutonium-Uranium Extraction (PUREX) Plant Storage Tunnels, and Liquid Effluent Retention Facility (Rev 6A and B) (DOE/RL-88-21). Three Part B permit applications were submitted to Washington State Department of Ecology for the Hanford Facility Dangerous Waste Permit Application, Double-Shell Tank System (DOE/RL-90-39), Hanford Facility Dangerous Waste Permit Application, Immobilized High-Level Waste Interim Storage Unit (DOE/RL-2002-26), and *Hanford Facility Dangerous Waste Permit Application, Integrated Disposal Facility* (DOE/RL-2003-12).

2.2.6.3 RCRA Groundwater Monitoring

M. J. Hartman

RCRA groundwater monitoring is part of the Hanford Site Groundwater Performance Assessment Project (Chapter 6). Table 2.2.4 lists the 24 units (or waste management areas) on the Hanford Site that require groundwater monitoring and notes their monitoring status. An additional planned facility, the Integrated Disposal Facility, will require groundwater monitoring in the future. Groundwater samples were analyzed for a variety of dangerous waste constituents and site-specific constituents as required under RCRA. A summary of groundwater monitoring activities for these sites during 2003 is provided in Chapter 6 and is available in the annual groundwater monitoring report (PNNL-14548).



**Table 2.2.4. Regulated Facilities and Waste Management Areas on the Hanford Site
Requiring Groundwater Monitoring in 2003**

<u>Facility or Waste Management Area</u>	<u>Type of Groundwater Monitoring</u>
RCRA Sites	
1301-N Liquid Waste Disposal Facility	Detection ^(a)
1324-N/NA facilities	Detection ^(a)
1325-N Liquid Waste Disposal Facility	Detection ^(a)
183-H solar evaporation basins	Corrective action ^(b)
216-A-29 ditch	Detection ^(a)
216-B-3 pond	Detection; ^(a) alternative statistical method trial period
216-B-63 trench	Detection ^(a)
216-S-10 pond and ditch	Detection ^(a)
216-U-12 crib	Assessment ^(c)
316-5 process trenches	Compliance ^(c) and corrective action; ^(b) alternative statistical method trial period
Integrated Disposal Facility	Planned detection ^(a) (proposed facility)
Liquid Effluent Retention Facility	Detection ^(a)
Low-Level Waste Management Area 1	Detection ^(a)
Low-Level Waste Management Area 2	Detection ^(a)
Low-Level Waste Management Area 3	Detection ^(a)
Low-Level Waste Management Area 4	Detection ^(a)
Nonradioactive Dangerous Waste Landfill	Detection ^(a)
PUREX Plant cribs ^(d)	Assessment ^(c)
Single-shell tanks WMA A-AX	Detection ^(a)
Single-shell tanks WMA B-BX-BY	Assessment ^(c)
Single-shell tanks WMA C	Detection ^(a)
Single-shell tanks WMA S-SX	Assessment ^(c)
Single-shell tanks WMA T	Assessment ^(c)
Single-shell tanks WMA TX-TY	Assessment ^(c)
Single-shell tanks WMA U	Assessment ^(c)
Other Regulated Units	
200 Area Treated Effluent Retention Facility	Washington State dangerous waste discharge permit
400 Area process ponds	Washington State dangerous waste discharge permit
Solid Waste Landfill	Washington State solid waste handling regulations
State-Approved Land Disposal Site	Washington State dangerous waste discharge permit

(a) Monitored to determine if site has contaminated groundwater.

(b) Monitored during groundwater remediation.

(c) Monitored to evaluate the extent of groundwater contamination from the site.

(d) Plutonium-Uranium Extraction Plant cribs (216-A-10, 216-A-36B, and 216-A-37-1) comprise one waste management area.

RCRA = Resource Conservation and Recovery Act.

WMA = Waste management area.



In 2003, the DOE, Washington State Department of Ecology, and EPA agreed to revise Tri-Party Agreement milestone M-24 to allow prioritization of groundwater drilling for CERCLA and *Atomic Energy Act of 1954* wells along with RCRA wells. During 2003, drillers completed seven new RCRA monitoring wells, nine CERCLA monitoring wells, and two wells for research on chromate bioremediation.

At the end of 2003, 15 RCRA waste management areas were monitored to detect whether they are contaminating groundwater with hazardous constituents. Seven waste management areas were monitored to assess the extent of known contaminants, and two were monitored to determine the progress of corrective action for groundwater contamination. The facilities monitored under RCRA are scheduled for closure under the Hanford Site Part B RCRA Permit except for the liquid effluent retention facility, low-level burial grounds (Low-Level Waste Management Areas 1 to 4), and planned Integrated Disposal Facility, which will receive permits as operating facilities.

Non-RCRA Groundwater Monitoring (Washington Administrative Code Monitoring)

Groundwater monitoring was required for four regulated, non-RCRA waste facilities in 2003 (Table 2.2.4). The 200 Area Treated Effluent Disposal Facility, State-Approved Land Disposal Site, and 400 Area process ponds are monitored under state discharge permits (WAC 173-216). The Solid Waste Landfill is monitored for the requirements of WAC 173-304. These facilities are monitored for waste constituents specified in their permits. The permit for the 400 Area process ponds was recently modified, and groundwater monitoring was no longer required as of October 1, 2003.

2.2.6.4 RCRA Inspections

R. C. Bowman

Hanford Site contractors and the DOE worked to resolve notices of violation and warning letters of non-compliance that were received from Washington State Department of Ecology during 2003. These documents identified conditions that were alleged to be non-compliant with

RCRA requirements. The following items are the RCRA non-compliance documents that were received in 2003:

- **Notice of Non-Compliance for Double-Shell Tank Leak Detection Equipment** – Washington State Department of Ecology issued a Notice of Non-Compliance letter to the DOE Office of River Protection and CH2M HILL Hanford Group, Inc. on February 6, 2003. The notice documented state concerns regarding the inspection and repair of leak detection equipment associated with AY, AZ, and SY double-shell tank farms. Washington State Department of Ecology alleged that leak detection equipment associated with the AY, AZ, and SY Tank Farms had not been inspected or maintained in accordance with applicable Washington Administrative Code or Code of Federal Regulation requirements. This Notice of Non-Compliance identified three alleged violations and one concern. All corrective actions were completed as required.
- **Administrative Order No. 03NWPKW-5494** – Washington State Department of Ecology issued Administrative Order No. 03NWPKW-5494 on April 30, 2003. The Administrative Order required the DOE to comply with Chapter 70.105 of the Revised Code of Washington Hazardous Waste Management Act, Chapter 173-303 of the Washington Administrative Code, and by reference Chapter 40 of the Code of Federal Regulations, as they applied to: (1) the management of “retrievably stored waste” in unlined trenches; (2) transuranic, transuranic mixed waste, and mixed low-level waste currently stored above ground; and (3) similar waste projected to be generated. This Administrative Order was resolved through issuance of a Settlement Agreement (USA and Ecology 2003) that was approved on October 23, 2003.
- **Notice of Non-Compliance Associated with Pacific Northwest National Laboratory Chemical Management Practices** – Washington State Department of Ecology issued a Notice of Non-Compliance letter to the DOE Richland Operations Office and Pacific Northwest National Laboratory on June 17, 2003. This letter documented concerns identified during a hazardous waste inspection conducted on June 3, 2003, in laboratories at the 318, 320, 329,



and 338 Buildings. Washington State Department of Ecology alleged that five 1-gallon plastic jugs containing chemical materials located in room 122 of the 329 Building were not being managed properly. The Notice of Non-Compliance identified one alleged violation and one concern. All corrective actions were completed and accepted by the Washington State Department of Ecology.

- **Notice of Non-Compliance for Inspections at Project W-211 Upgrades**—Washington State Department of Ecology issued a Notice of Non-Compliance letter to the DOE Office of River Protection and CH2M HILL Hanford Group, Inc. on December 8, 2003. This letter documented concerns regarding compliance with Washington Administrative Code and Code of Federal Regulation requirements for owners/operators to ensure that new hazardous waste tank system components were independently inspected prior to covering. During an inspection conducted by Washington State Department of Ecology on October 1, 2003, installation records that were reviewed did not indicate that independent inspections per WAC 173-303-640(3)(c) and 40 CFR 265.192(b) were performed for Project W-211 transfer piping installations. Washington State Department of Ecology required submittal of an inspection plan (within 60 days of the notice date) that addressed independent inspection of newly installed tank system components. This plan was submitted to Washington State Department of Ecology as required in 2004.

2.2.7 Clean Air Act

K. A. Peterson

Federal, state, and local agencies, as appropriate, are mandated to enforce the standards and requirements of the *Clean Air Act* to regulate air emissions at facilities such as the Hanford Site. The DOE and EPA signed the *Federal Facility Compliance Agreement for Radionuclides NESHAP* (EPA 1994). The agreement provides a compliance plan and schedule that are being followed to bring the Hanford Site into compliance with *Clean Air Act* requirements under 40 CFR 61, Subpart H, for continuous measurement of emissions from applicable airborne emission sources. Scheduled milestones of the *Federal Facility Compliance*

Agreement for Radionuclides NESHAP (EPA 1994) were met during 2003, and Hanford Site air emissions remained well below the levels that approach the EPA offsite emission standard of 10 mrem (100 μ Sv) per year (40 CFR 61.92). The requirements for flow and emissions measurements, quality assurance, and sampling documentation have been implemented at Hanford Site emission sources and/or are monitored for milestone progress in accordance with a schedule approved by the EPA and monitored by Washington State Department of Health. Data for the sources are documented annually in the *Radioactive Air Emissions Report for the Hanford Site* (e.g., DOE/RL-2003-21).

Washington State Department of Health's Division of Radiation Protection regulates radioactive air emissions statewide through Washington State legislative authority. Washington State Department of Health implements the federal and state requirements mainly under state regulation WAC 246-247. Prior to beginning any work that would result in creating a new or modified source of radioactive airborne emissions, a notice of construction application must be submitted to Washington State Department of Health and the EPA for review and approval. Typical requirements for radioactive air emission sources include adequate emission controls, emission monitoring/sampling, and annual reporting of air emissions. The Hanford Site operates under state license FF-01 for such emissions. Conditions specified in the FF-01 license were incorporated into the Hanford Site air operating permit issued in July 2001. The Hanford Site air operating permit was issued in accordance with Title V of the *Clean Air Act Amendments of 1990*, and is implemented through federal and state programs under 40 CFR 70 and WAC 173-401. The permit provides a compilation of applicable *Clean Air Act* requirements both for radioactive and non-radioactive emissions at the Hanford Site. The permit requires the DOE Richland Operations Office to submit periodic reports (e.g., DOE/RL-2002-38) and an annual compliance certification to Washington State Department of Ecology.

Washington State Department of Ecology's Nuclear Waste Program regulates air toxic and criteria pollutant emissions from the Hanford Site. The Department enforces state regulatory controls for air contaminants as allowed under the *Washington Clean Air Act* (RCW 70.94). The Washington State Department of Ecology's implementing requirements (e.g., WAC 173-400; WAC 173-460) specify



a review of new source emissions, permitting, applicable controls, reporting, notifications, and provisions of compliance with the general standards for applicable sources of Hanford Site emissions.

The EPA regulates other potential air emission sources under the *Clean Air Act* at the Hanford Site. For example, 40 CFR 82 requires regulation of the service, maintenance, repair, and disposal of certain systems containing Class I and Class II ozone-depleting substances (refrigerants) within facility systems at the Hanford Site. Implementation of the ozone-depleting substance management requirements on the Hanford Site is administered at the facility/project level, as applicable.

At the local level, the EPA designated Benton Clean Air Authority as the agency to establish a local oversight and compliance program for asbestos renovation and/or demolitions. Benton Clean Air Authority imposes additional requirements on sources within the local agency's jurisdiction and incorporates the EPA's regulation by reference, (i.e., the "National Emission Standards for Hazardous Air Pollutants" [40 CFR 61, Subpart M]). In addition, Benton Clean Air Authority regulates open air burning as an extension of Washington State Department of Ecology's open air burning requirements (WAC 173-425).

Clean Air Act Enforcement Inspections

R. C. Bowman

Hanford Site contractors and the DOE received no notices of violation or warning letters of non-compliance associated with *Clean Air Act* requirements from Washington State Department of Health or Washington State Department of Ecology during 2003.

2.2.8 Clean Water Act

R. Ranade

The *Clean Water Act* applies to point source discharges to surface waters of the United States. At the Hanford Site, the regulations are applied through National Pollutant Discharge Elimination System (40 CFR 122) permits that govern effluent discharges to the Columbia River. There is one National Pollutant Discharge Elimination System permit, WA-002591-7, issued by the EPA for the Hanford

Site. The permit covers three active outfalls: outfall 001 for the 300 Area Treated Effluent Disposal Facility and outfalls 003 and 004 in the 100-K Area. Fluor Hanford, Inc. is the holder of this permit.

The Hanford Site was covered by one storm water permit during 2003. The EPA's National Pollutant Discharge Elimination System Storm Water Multi-Sector General Permit WAR05A57F establishes the terms and conditions under which storm water discharges associated with industrial activity are authorized. This permit was issued on May 30, 2001, and supersedes all other National Pollutant Discharge Elimination System storm water permits previously in effect at the site. Fluor Hanford, Inc. is the holder of this permit.

Wastewater from the William R. Wiley Environmental Molecular Sciences Laboratory located in the Richland North Area is discharged to the city of Richland's wastewater treatment facility under pretreatment permit CR-IU005. This permit, formerly issued by the city to the DOE Richland Operations Office, was re-issued by the city of Richland to Battelle on October 1, 2001.

There are numerous sanitary waste discharges to the ground throughout the site. Sanitary wastewater from the 400 Area is discharged to a treatment facility of Energy Northwest's Columbia Generating Station (Figure 1.0.1). Sanitary wastewater from the 300 Area, the former 1100 Area, and other facilities north of and in Richland is discharged to the city of Richland treatment facility. Sanitary wastewater in the 200 Areas of the Hanford Site is primarily treated in a series of onsite sewage systems. The placement of these systems is based on population centers and facility locations. In recent years, extensive efforts have been made to regionalize the onsite sewage systems. Many of the small onsite sewage systems have been replaced with larger systems. These larger systems (with design capacities of 13,248 to 54,883 liters [3,500 to 14,500 gallons] per day) operate under permits issued by Washington State Department of Health and treat wastewater from several facilities rather than a single facility.

State Wastewater Discharge Permit Program. The Washington State Department of Ecology has a State Wastewater Discharge Permit Program that regulates the discharge or disposal of wastewater to groundwater.



The DOE is complying with this program at the Hanford Site and is currently holding several state wastewater discharge permits. During 2003, the Hanford Site had 10 state waste discharge permits issued by Washington State Department of Ecology. A brief summary of each permit is included in Appendix D, Table D.6.

2.2.9 Safe Drinking Water Act

L. M. Kelly

There were nine public water systems on the Hanford Site in 2003. All public water systems must comply with requirements of the *Safe Drinking Water Act*, *Safe Drinking Water Act Amendments of 1986*, and *Safe Drinking Water Act Amendments of 1996*. Specific performance requirements are defined within the federal regulations (40 CFR 141; EPA-570/9-76-003; EPA 822-R-96-001) and WAC 246-290. The Hanford Site drinking water program has been updated to comply with the changing regulatory requirements. A complete revision of WAC 246-290 was issued on April 27, 2003, and all site water programs have had the necessary changes incorporated.

Eight of the nine public drinking water systems onsite are supplied from the Columbia River. The water treatment plants supplied from the Columbia River must demonstrate compliance with filtration and disinfection requirements set forth in the Surface Water Treatment Rule. The 283-W water treatment plant in 200-West Area provides water to customers in the 200-East and 200-West Areas as the primary water supply. The 200-East Area water treatment plant remains on standby to be put into service if needed. The DOE's 300 Area is supplied from the city of Richland, but the 300 Area water treatment plant also remains on standby. The well that supplied water to the Hanford Patrol Training Academy was taken out of service for potable use during May 1999. The training academy water is now supplied by the city of Richland, which maintains the system and samples the quality of the drinking water. Drinking water at the Fast Flux Test Facility (400 Area) was primarily drawn from well 499-S1-8J, one of three local groundwater wells. Section 4.3 provides further information for each public water system.

The compliance monitoring program elements are updated annually with monitoring cycles beginning in January. Drinking water is monitored for radionuclides, inorganics, synthetic and volatile organics, lead, copper, asbestos, arsenic, disinfectant byproduct precursors, disinfectant byproducts, and microorganisms including total and fecal coliform bacteria. In 2003, all chemical contaminant concentrations met the requirements of Washington State Department of Health and were well below the maximum contaminant levels set by the EPA. There were four total coliform (a broad class of bacteria common in the environment) detections during the 2003 monitoring cycle for the 400, 300, and 200-East and 200-West Area water systems. To investigate the possibility of contamination, each positive sample was tested further and found to be negative for *E. coli* organisms. Follow-up samples were taken at the sites of the original unsatisfactory samples and at locations throughout associated distribution systems. All additional samples provided "satisfactory" results as reported by the state-accredited laboratory. All analytical results for 2003 radiological monitoring of drinking water are discussed in Section 4.3.

2.2.10 Toxic Substances Control Act

A. L. Prignano

Requirements in the *Toxic Substances Control Act* that apply to the Hanford Site primarily involve regulation of polychlorinated biphenyls. Federal regulations for use, storage, and disposal of polychlorinated biphenyls are found in 40 CFR 761. (Washington State also regulates certain classes of non-*Toxic Substances Control Act*-regulated polychlorinated biphenyls through the "Dangerous Waste Regulations" in WAC 173-303.) Non-radioactive and certain categories of radioactive polychlorinated biphenyl waste are stored and disposed in accordance with 40 CFR 761. Other radioactive polychlorinated biphenyl waste remains in storage onsite pending the development of adequate treatment and disposal technologies and capacities. Electrical equipment that might contain polychlorinated biphenyls or polychlorinated biphenyl items is maintained and serviced in accordance with 40 CFR 761.



To encourage consistent interpretation and implementation of the *Toxic Substances Control Act* polychlorinated biphenyl regulations throughout the Hanford Site, a *Toxic Substances Control Act* Polychlorinated Biphenyl Hanford Site Users Guide was drafted in 2001. In 2003, the polychlorinated biphenyl guide was revised to add additional sections on management of polychlorinated biphenyls and polychlorinated biphenyl waste. During 2003, Hanford submitted both a 2002 polychlorinated biphenyl annual document log (DOE/RL-2003-35) and a 2002 polychlorinated biphenyl annual report (DOE/RL-2003-40) to the EPA as required by 40 CFR 761.180. The reports describe the management and disposal activities taking place for polychlorinated biphenyl waste at the Hanford Site. The “Framework Agreement for Management of Polychlorinated Biphenyls in Hanford Tank Waste,” signed on August 31, 2000 <<http://yosemite.epa.gov/R10/OWCM.NSF/permits/hanfordframework>>, resulted in the EPA, Washington State Department of Ecology, and DOE and its Hanford Site contractors working together to resolve the regulatory issues associated with managing polychlorinated biphenyl waste at the Waste Vitrification Plant (now under construction), in tank farms, and at affected units upstream and downstream of the tank farms. The flexibility of the 1998 polychlorinated biphenyl disposal amendments in 40 CFR 761 is used at the Hanford Site to allow necessary storage and to expedite disposal of *Toxic Substances Control Act* regulated polychlorinated biphenyl waste.

In October 2003, the EPA approved a risked-based disposal approval for management of certain aqueous polychlorinated biphenyl remediation waste generated from cleanup of Hanford 100-K Area basins at the 200 Areas liquid waste processing facilities. In November 2003, the EPA approved an extension of a risked-based disposal approval to operate the Hanford Site 242-A evaporator. The original risked-based disposal approval was issued in March 2001. The extension allowed continued campaigns through early 2004. The 242-A evaporator is located in the 200-East Area, and its operation results in reduction of tank waste volume. Two risked-based disposal approvals were submitted to the EPA in 2002 – one for the double-shell tank system and another for operation of the Hanford Site 200 Areas liquid waste processing facilities. The approvals are still under review by the EPA and no responses or comments were received in 2003.

2.2.11 Federal Insecticide, Fungicide, and Rodenticide Act

J. M. Rodriguez

The *Federal Insecticide, Fungicide, and Rodenticide Act* is administered by the EPA. The standards administered by Washington State Department of Agriculture to regulate implementation of the act in Washington State include the *Washington Pesticide Control Act* (RCW 15.58), *Washington Pesticide Application Act* (RCW 17.21), and rules relating to general pesticide use codified in WAC 16-228. At the Hanford Site, pesticides are applied by commercial pesticide operators, who are listed on one of two commercial pesticide applicator licenses, and by a private commercial applicator.

2.2.12 Endangered Species Act of 1973

R. K. Zufelt

Several protected species of plants and animals exist on the Hanford Site and along the Hanford Reach of the Columbia River. The bald eagle (*Haliaeetus leucocephalus*) occurs on the site and steelhead trout (*Oncorhynchus mykiss*) and spring-run Chinook salmon (*Oncorhynchus tshawytscha*) are listed by the U.S. Fish and Wildlife Service as either threatened or endangered (50 CFR 17, Subpart B) and occur onsite. Other species are listed by Washington Department of Fish and Wildlife as endangered, threatened, or sensitive (Appendix G).

Bald eagles are seasonal visitors to the Hanford Site. Pacific Northwest National Laboratory documented several nesting attempts along the Hanford Reach during the 1990s. The Hanford Site bald eagle management plan (DOE/RL-94-150) was finalized in 1994. This plan established seasonal 800-meter (2,600-foot) zones of restricted access around all active nest sites and five major communal roosting sites. If nesting activities are observed during January and early February, all Hanford-related



activities within the restricted access zone are constrained or limited until the pair abandons nesting or successfully rears young.

Steelhead and spring-run Chinook salmon are regulated as evolutionary significant units by the National Oceanic and Atmospheric Administration Fisheries based on their historical geographic spawning areas. The evolutionary significant units for the upper Columbia River steelhead and spring-run Chinook salmon were listed as endangered during August 1997 and March 1999, respectively. A Hanford Site steelhead management plan (DOE/RL-2000-27) was prepared and serves as the formal plan for the National Oceanic and Atmospheric Administration fisheries as required under the *Endangered Species Act of 1973*. Like the bald eagle management plan, the steelhead management plan discusses mitigation strategies and lists activities that can be conducted without impacting steelhead or their habitats.

2.2.13 Migratory Bird Treaty Act

M. R. Sackschewsky

The *Migratory Bird Treaty Act* prohibits taking or disturbing specified migratory birds or their feathers, eggs, or nests. There are over 100 species of birds that regularly occur on the Hanford Site that are protected by the *Migratory Bird Treaty Act*.

All Hanford Site projects with a potential to affect federally or state listed species of concern complied with the requirements of this act by using the ecological review process as described in the *Hanford Site Biological Resources Management Plan* (DOE/RL-96-32). When applicable, the ecological reviews produced recommendations to minimize adverse impacts to migratory birds, such as performing work outside of the nesting season and minimizing the loss of habitat.

2.2.14 Cultural Resources

D. W. Harvey

During 2003, 142 cultural resource reviews were conducted on the Hanford Site to comply with Section 106 of the

National Historic Preservation Act. The effects of land management policies on archaeological sites and buildings, and management of a repository for federally owned archaeological collections and Manhattan Project and Cold War era artifacts are evaluated. Federal agencies, as a matter of policy, are directed by Executive Order 11593, *Protection and Enhancement of the Cultural Environment* (36 FR 8921), and Section 110 of the *National Historic Preservation Act* to administer the cultural and historic properties under their control in a spirit of stewardship and trusteeship for future generations.

Cultural resources on the Hanford Site are mainly subject to the provisions of the following seven acts, two executive orders, and one Presidential Proclamation: *American Indian Religious Freedom Act*; *Antiquities Act of 1906*; *Archaeological and Historic Preservation Act*; *Archaeological Resources Protection Act of 1979*; Executive Order 11593, *Protection and Enhancement of the Cultural Environment* (36 FR 8921); *Historic Sites, Buildings, and Antiquities Act*; *National Historic Preservation Act*; *Native American Graves Protection and Repatriation Act*, Proclamation 7319 of June 9, 2000 (65 FR 37253), and Executive Order 13287 of March 3, 2003, *Preserve America* (68 FR 10635). Compliance with these regulations is accomplished through an active management and monitoring program. Included in the program are reviews of all proposed projects to assess their potential impact on cultural resources and the periodic inspection of known archaeological sites and historic buildings to determine their condition and eligibility for listing in the National Register of Historic Places.

The *American Indian Religious Freedom Act* requires federal agencies to help protect and preserve the rights of Native Americans to practice their traditional religions. The DOE cooperates with Native Americans by providing site access for organized religious activities. The regulations of the *Native American Graves Protection and Repatriation Act* provide a process to determine the rights of Indian Tribes “to certain Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony with which they are affiliated” (43 CFR 10).

Proclamation 7319 of June 9, 2000 (65 FR 37253), established the Hanford Reach National Monument that incorporated selected areas of the Hanford Site. Administered by the DOE Richland Operations Office and U.S. Fish and Wildlife Service, “the monument is one of the few



remaining archaeological rich areas in the western Columbia Plateau, containing well-preserved remnants of human history spanning more than 10,000 years” (65 FR 37253). President Bill Clinton issued a memorandum to the Secretary of Energy the same day the proclamation was signed directing the DOE to manage and protect “...objects of scientific and historic interest...where practical” in the site’s central area as if they were in monument lands.

President George W. Bush signed Executive Order 13287 of March 3, 2003, *Preserve America*, which reinforces the federal government’s responsibilities under the *National Historic Preservation Act* to preserve the nation’s heritage through the protection and enhancement of historic properties. “The federal government shall recognize and manage the historic properties in its ownership as assets that can support department and agency missions while contributing to the vitality and economic well-being of the Nation’s communities” (68 FR 10635). Additionally, the federal government shall pursue preservation partnerships for the purpose of promoting historic preservation through assistance to “... States, Indian tribes, and local communities in promoting the use of historic properties for heritage tourism and related economic development in a manner that contributes to the long-term preservation and productive use of those properties” (68 FR 10635).

See Section 7.3 for more details regarding the cultural resources program on the Hanford Site.

2.2.15 National Environmental Policy Act

M. T. Jansky

The *National Environmental Policy Act* requires consideration of the effects of major federal actions before those actions are taken. The preparation of an environmental impact statement is required for major federal actions with the potential to significantly affect the quality of the human environment. Other *National Environmental Policy Act* documents include the environmental assessment, which is prepared when it is uncertain if a proposed action has the potential to significantly affect the environment and, therefore, would require the preparation of an environmental impact statement. A supplement analysis is prepared to consider new information developed since

issuance of a *National Environmental Policy Act* environmental impact statement and record of decision. The purpose is to consider if the federal action is still bounded by the original environmental impact statement and record of decision or if a supplemental environmental impact statement is required.

Additionally, certain types of actions may fall into typical classes that have already been analyzed by the DOE and have been determined to not normally result in a significant environmental impact. These actions are called categorical exclusions, and, if eligibility criteria are met, they are exempt from *National Environmental Policy Act* environmental assessment or environmental impact statement requirements. Typically, the DOE Richland Operations Office documents less than 10 specific categorical exclusions annually, involving a variety of actions by multiple Hanford Site contractors. In addition, site-wide categorical exclusions are applied to routine, typical actions conducted daily on the Hanford Site. In 2003, there were 20 site-wide categorical exclusions.

National Environmental Policy Act documents for the Hanford Site are prepared and approved in accordance with the Council on Environmental Quality National Environmental Policy “Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act” (40 CFR 1500-1508), the DOE *National Environmental Policy Act* implementation procedures (10 CFR 1021), and DOE Order 451.1B Change 1. In accordance with the order, DOE documents prepared for CERCLA projects incorporate *National Environmental Policy Act* values such as analysis of cumulative, offsite, ecological, and socio-economic impacts to the extent practicable in lieu of preparing separate *National Environmental Policy Act* documentation.

2.2.15.1 Recent Environmental Impact Statements

The potential environmental impact associated with ongoing major operations at the Hanford Site has been documented in environmental impact statements and in the ensuing records of decision. Additional *National Environmental Policy Act* reviews and supplement analyses as appropriate are conducted during the course of the actions, as described in the records of decision.



The final environmental impact statement addressing the Hanford Site Solid (Radioactive and Hazardous) Waste program was issued in January 2004 (DOE/EIS-0286F). The final statement analyzed alternatives to (1) dispose of immobilized low-activity waste from the Hanford tanks, low-level waste, and mixed low-level waste; (2) treat mixed low-level waste; and (3) process and certify transuranic waste prior to its shipment to the Waste Isolation Pilot Plant in New Mexico for disposal. Records of decision are expected to be issued in 2004.

A final environmental impact statement for the stabilization of plutonium-bearing materials at the Plutonium Finishing Plant was issued in May 1996 (DOE/EIS-0244F). The record of decision was issued in July 1996 (61 FR 36352). A supplement analysis (DOE/EIS-0244-FS/SA10) was issued on April 7, 2003, and provided the basis for determining if a supplemental environmental impact statement was required before washing select plutonium-bearing oxides to remove chloride salts. It was determined that a supplemental environmental impact statement was not required.

A final environmental impact statement for the management and disposal of tank waste and cesium and strontium capsules was issued in January 1997 (DOE/EIS-0189). The capsules are currently stored at the Waste Encapsulation and Storage Facility. In the record of decision issued in February 1997, the DOE decided to implement the preferred alternative identified in the final environmental impact statement for retrieval, treatment, and disposal of tank waste, the "Phased Implementation Alternative," and to defer the decision on disposition of the cesium and strontium capsules. In 2003, a supplement analysis (DOE/EIS-0189-SA3) was prepared to determine if a supplemental environmental impact statement would be required. Two previously prepared supplement analyses (DOE/EIS-0189-SA1 and DOE/EIS-0189-SA2) resulted in determinations that the *National Environmental Policy Act* required no additional analyses. However, based on DOE/EIS-0189-SA3, issued on March 20, 2003, the DOE determined that two supplemental environmental impact statements would be required. The first supplemental environmental impact statement addressed immobilized low-activity waste, and was incorporated into the scope of the *Final Hanford Site Solid (Radioactive and Hazardous) Waste Program Environmental Impact Statement*

(DOE/EIS-0286F). The second environmental impact statement (68 FR 1052-1057) is currently being prepared and addresses the impact of proposed retrieval, treatment, and disposal of tank waste being managed in high-level waste tank farms, and closure of the 149 single-shell tanks and associated facilities in the tank farms. Washington State Department of Ecology is a cooperating agency in the preparation of this environmental impact statement. In 2003, the draft environmental impact statement schedule was under review.

A supplement analysis (DOE/EIS-0189-SA4) was issued on December 15, 2003, and provided the basis for determining if a supplemental environmental impact statement was required before the retrieval, packaging, characterization, certification, and temporary storage of contact-handled transuranic mixed waste from single-shell tanks at the Hanford Site. It was determined that a supplemental environmental impact statement was not needed; however, an amended record of decision would be required.

The *Final Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility* (DOE/EIS-0310) was issued in December 2000. A record of decision was issued in January 2001 (66 FR 7877) indicating the Fast Flux Test Facility would be permanently deactivated. The ruling was later postponed pending review. The decision was upheld in February 2003 and deactivation of the Fast Flux Test Facility has resumed under an earlier *Environmental Assessment: Shutdown of the Fast Flux Test Facility, Hanford Site, Richland, Washington* (DOE/EA-0993).

A draft environmental impact statement is being prepared to consider alternatives for final disposition of the Fast Flux Test Facility. Public participation will be sought to develop the environmental impact statement, and the draft will be issued for public comment. During 2003, the draft environmental impact statement schedule was under review.

US Ecology operates a commercial low-level radioactive waste disposal site near the 200 Areas on land leased from the federal government by the state of Washington. Washington State Department of Health and Washington



State Department of Ecology distributed a draft environmental impact statement for the facility for comment in August 2000. This *Washington State Environmental Policy Act* (RCW 43.21C) impact statement considers the renewal of US Ecology's license to operate the waste site, an increase to the upper limit for disposal of naturally occurring radioactive materials, and an approval of the site stabilization and closure plan. The final environmental impact statement is still in preparation.

A draft comprehensive conservation plan and environmental impact statement for the Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge is being prepared by the U.S. Fish and Wildlife Service to evaluate management alternatives for the monument and national wildlife refuge. As co-manager of the monument, the DOE Richland Operations Office is a cooperating agency. The draft environmental impact statement is scheduled to be issued for public comment in October 2004.

2.2.15.2 Recent Environmental Assessments

An environmental assessment (DOE/EA-1469) was prepared to determine whether an environmental impact statement would be required for the deactivation of the Plutonium Finishing Plant. The analysis of the anticipated impact led to a conclusion that no significant effects were expected. A finding of no significant impact was issued on October 20, 2003, determining that no further review was required under the *National Environmental Policy Act*.

An environmental assessment (DOE/EA-1454) was prepared to determine whether an environmental impact statement would be required to re-open the former borrow sites and to construct haul roads in the 100 Areas of the Hanford Site to provide backfill materials for remedial actions in the 100-F, 100-H, 100-K, and 100-N Areas. The analysis of the anticipated impact led to a conclusion that no significant effects were expected. A finding of no significant impact was issued on March 7, 2003, determining that no further review was required under the *National Environmental Policy Act*.

An environmental assessment (DOE/EA-1462) was prepared to determine whether an environmental impact statement would be required for tank closure activities on

single-shell tank 241-C-106 in the Hanford 200-East Area. The analysis of the anticipated impact led to a conclusion that no significant effects were expected. A finding of no significant impact was issued on June 16, 2003, determining that no further review was required under the *National Environmental Policy Act*.

2.2.16 Hanford Site Institutional Controls Plan

A. E. Teimouri

Section 4.2 of the *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions*, DOE/RL-2001-41, dated July 30, 2001, requires the DOE Richland Operations Office to conduct an annual assessment regarding the performance of the institutional controls described in the plan. The plan calls for a focused and periodic self-assessment and reporting of institutional controls to (1) assess the performance of institutional controls to ensure their effectiveness and (2) identify the need to make any adjustments to the institutional controls based on performance findings. Initially, the plan required an assessment be conducted on an annual basis within 12 months of its issuance and a report be submitted to the EPA and Washington State Department of Ecology as a "primary" Tri-Party Agreement document as described in Section 9.2.1 of the Tri-Party Agreement. This institutional controls assessment addresses objectives outlined in the assessment plan by conducting a performance-based review of selected areas of institutional controls located within the four National Priorities List sites at the Hanford Site. An assessment team primarily comprised of DOE staff is usually designated and the assessment team reviews any prior institutional controls self-assessments/performance reviews and the contractor's oversight program as it pertains to this activity. The first annual assessment report was submitted to regulators in July 2003. Subsequently, the regulators provided comments to the DOE Richland Operations Office. On January 14, 2004, the DOE Richland Operations Office met with regulators to resolve comments made in 2003. A March 12, 2004, letter to the regulators documents an assessment strategy that has been negotiated between the DOE, EPA, and Washington State Department of Ecology, which focuses and streamlines the efforts of the institutional controls



assessments. This was intended as a response to the regulators concerns about the 2003 reviews. The annual directions provided to the Hanford Site contractors were received in March 2004. The final assessment report is due to regulators on September 30, 2004.

2.2.17 Defense Nuclear Facilities Safety Board

The Defense Nuclear Facilities Safety Board is an independent federal agency established by Congress in 1988. The board's mandate under the *Atomic Energy Act of 1954* is to provide safety oversight of the nuclear weapons complex operated by the DOE. The nuclear weapons program remains a complex and hazardous operation. The DOE must maintain readiness of the nuclear arsenal, dismantle surplus weapons, dispose of excess radioactive materials, clean up surplus facilities, and construct new facilities for many purposes. It is the board's responsibility to help assure that all of these activities are carried out by the DOE in a manner that provides adequate protection for the public, workers, and the environment.

2.2.17.1 Defense Nuclear Facilities Safety Board, DOE Richland Operations Office

S. M. Hahn

The DOE Richland Operations Office has accelerated site cleanup and continues to improve the effectiveness of their Integrated Safety Management Systems to reduce risk and perform work safely.

Risk Reduction

- The DOE Richland Operations Office met or exceeded fiscal year 2003 goals for reducing risk in all areas, except spent nuclear fuel removal (K Basins).

DOE Richland Operations Defense Nuclear Facilities Safety Board Recommendations and Safety Issues

- Defense Nuclear Facilities Safety Board Recommendation 2000-2 is fully institutionalized at the DOE

Richland Operations Office in both contractor and engineering operations. Institutionalization was completed on schedule and all recommendation commitments were closed by the end of 2002.

- The Plutonium Finishing Plant is on track to complete stabilization and packaging of plutonium oxides by February 2004, which will complete Commitment 111 for Recommendation 2000-1. Commitments 115 (the complete stabilization and packaging of polycubes) and 116 (the complete stabilization and packaging of residues at Hanford) were completed in 2003.
- The DOE Richland Operations Office completed Commitment 4.1.3 to Defense Nuclear Facilities Safety Board Recommendation 2002-1 to identify the federal positions whose duties and responsibilities require them to provide assistance, guidance, direction, oversight, or evaluation of software used in the safety analysis and design of defense nuclear facilities quality assurance activities.

The Defense Nuclear Facilities Safety Board recommendations are available online at <http://www.deprep.org>.

2.2.17.2 Defense Nuclear Facilities Safety Board, DOE Office of River Protection

C. M. Fetto

The DOE Office of River Protection has worked closely with the Defense Nuclear Facilities Safety Board over the past year addressing safety questions related to the design and construction of the Waste Treatment Plant. Primary areas of interest included the following:

- Control of hydrogen generation.
- Seismic analysis.
- Unique design features.
- Construction/supplier quality assurance.
- Fire protection.

The Defense Nuclear Facilities Safety Board did not identify any inadequacies that affected the DOE Office of River Protection's environmental cleanup programs in 2003.



2.2.18 Key Provisions of DOE Order 435.1 Ruled Invalid

DOE Order 5820.2A, “Radioactive Waste Management,” was issued in 1988. During September 1994, the Defense Nuclear Facilities Safety Board issued recommendation 94-2, addressing problems with the DOE’s radioactive waste management. In July 1999, the DOE issued a revised directive on managing radioactive waste, DOE Order 435.1, “Radioactive Waste Management,” with its associated manual and guidance documents, reflecting advances in radioactive waste management practices. DOE Order 435.1 included a compliance date of July 12, 2000.

The U.S. District Court for the District of Idaho ruled on July 3, 2003, that a key provision of DOE Order 435.1 is invalid. The ruling applies to that portion of the order that allows waste that is incidental to reprocessing to be managed as low-level radioactive waste. Such classification is viewed by the DOE as important to speeding the treatment and reducing associated disposal costs of liquid wastes generated by the DOE’s prior reprocessing of spent nuclear fuel. Waste incidental to reprocessing that remains in Hanford tanks could be disposed of in place, as low-level waste, for example, rather than being disposed of in a repository as high-level waste.

The Natural Resources Defense Council, along with other groups, challenged the provision as inconsistent with the

Nuclear Waste Policy Act of 1982. The court agreed that part of DOE Order 435.1 was inconsistent with the *Nuclear Waste Policy Act of 1982*.

The court declined plaintiff’s request that it enjoin the DOE from implementing specific plans including closing waste tanks by filling them with grout. The court found “no indication” that the DOE would “continue with any plan inconsistent with the *Nuclear Waste Policy Act*.” Plaintiffs may bring the issue back before the court should the need arise.

In a letter to Congress on August 1, 2003, the Secretary of Energy submitted draft legislation to Congress to clarify that high-level waste does not include radioactive materials from reprocessing that the DOE, in consultation with the Nuclear Regulatory Commission, determines do not require disposal in a geologic repository designed for spent nuclear fuel and high-level waste in order to protect public health and safety. The Secretary also filed a Notice of Appeal on August 27, 2003. The government’s brief was filed on January 29, 2004; plaintiffs’ brief was due March 18, 2004, and was filed. The decision and other documents filed in this case are available online at <http://www.id.uscourts.gov> under Case Files, District, non-restricted cases, case number 01-413.

If upheld on appeal, this decision could adversely impact accelerated cleanup of the Hanford tank waste, as well as increase the cost of cleanup.

