



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 discussed under their applicable statute.

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. 1998) commits 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 2001, a total of 728 milestones and 268 target dates were completed on or ahead of schedule. In 2001, there were 41 specific cleanup milestones scheduled for completion: 39 were completed on or before their required due dates, 1 was delayed due to unanticipated cost escalation and contracting issues, and 1 is expected to be completed successfully under the terms of an agreement between the DOE and the Washington State Department of Ecology.

The Tri-Party Agreement contains a schedule, using enforceable major and interim milestones and unenforceable target dates, that reflects a goal of achieving full regulatory compliance and remediation in an aggressive manner.

2.2.1.1 Tri-Party Agreement Highlights

Highlights of milestone accomplishments during 2001 under the terms of the Tri-Party Agreement include (associated milestone numbers are shown in parenthesis):

- Excavation activities on the process effluent pipelines at the 100-BC Operable Unit were begun (M-16-26D).

- A report assessing the development of ultrasonic (or equivalent) testing equipment to determine tank-wall thickness and defects in the double-shell tanks was prepared and submitted to the Washington State Department of Ecology (M-48-02B).
- A site-specific Single-Shell Tank Waste Management Area Phase 1 RCRA Facility Investigation and/or Corrective Measures Study Work Plan Addenda for Waste Management Area T and TX-TY was developed and submitted to the Washington State Department of Ecology (M-45-54) (RPP-7578).
- Construction of upgrades to the ventilation and electrical systems in double-shell tanks began in a third tank farm (M-43-14).
- All Rocky Flats ash mixed waste currently stored in the Plutonium Finishing Plant was repackaged and shipped to Hanford's Central Waste Complex for storage (M-83-07).
- The installations of RCRA groundwater monitoring wells in accordance with major milestone M-24-00M were completed at the following locations:
 - five wells in Single-Shell Tank Waste Management Area S-SX (M-24-49/55)
 - four wells in Single-Shell Tank Waste Management Area TX-TY (M-24-50/53)
 - three wells in Single-Shell Tank Waste Management Area B-BX-BY (M-24-51)

- three wells in Single-Shell Tank Waste Management Area U (M-24-52)
- one well in Single-Shell Tank Waste Management Area T (M-24-54)
- The T Plant sludge storage conceptual design document was completed and submitted to the Washington State Department of Ecology (M-91-18).
- The disposal of contact-handled low-level mixed waste was begun (M-91-13).
- A draft and subsequently a final tank waste information requirements document was completed and submitted to the Washington State Department of Ecology (M-44-13E/14E) (RPP-8093).
- The annual Hanford Land Disposal Restrictions Report was completed and submitted to the Washington State Department of Ecology (M-26-01K) (DOE/RL-2001-20).
- The results of ultrasonic testing and static leak tests of miscellaneous waste tanks were prepared and submitted to the Washington State Department of Ecology (M-48-08).
- The DOE Office of River Protection's semiannual project compliance report was submitted to the Washington State Department of Ecology (M-62-01C) (01-ORP-104).
- Remedial action excavation on the J.A. Jones 1 and the 600-23 waste sites (north of the 300 Area and within the Pit 11 boundary just off of Route 2 South, respectively) was completed (M-16-41A).
- Remediation and backfill of 22 liquid waste sites and process effluent pipelines in the 100-DR-1 and the 100-DR-2 operable units were completed (M-16-07B).
- An evaluation of the development status of tritium treatment technology that would be pertinent to the cleanup and management of tritiated wastewater was prepared and submitted to the Washington State Department of Ecology (M-26-05H) (DOE/RL-2001-33).
- A written report documenting results of ultrasonic testing of the primary tank walls in four double-shell tanks not previously examined was prepared and submitted to the Washington State Department of Ecology (M-48-09) (01-TOD-T022).
- A second report assessing the development of ultrasonic (or equivalent) testing equipment to determine tank-wall thickness and defects in the double-shell tanks was prepared and submitted to the Washington State Department of Ecology (M-48-02C) (01-TOD-T021).
- A double-shell tank waste volume projection report was developed and submitted to the Washington State Department of Ecology (M-46-00H) (RPP-8554).
- An annual update of the single-shell tank retrieval sequence document was developed and submitted to the Washington State Department of Ecology (M-45-02J) (RPP-8554).
- High-level waste tank characterization data and information were entered into an electronic database to make them available to the EPA and Washington State Department of Ecology thereby completing milestone M-44-16E. These data and information were from sampling and characterization work completed according to the appropriate waste information requirements document.
- Filter boxes were removed and verification sampling was completed at the 100-B-12 waste site in the 100-B Area (M-16-26G).
- Remediation and backfill of 10 liquid waste disposal sites and process effluent pipelines in the 100-HR-1 Operable Unit were completed (M-16-26C).
- Waste tank safety issues for high priority watch list tanks were mitigated and or resolved (M40-00).
- Start of construction for the K-East Basin and K-West Basin facility modifications for the alternative fuel transfer strategy cask transportation system was approved (M-34-26-T01).
- Well drilling and sample collection in the 200-TW-1 Operable Unit was completed (M-15-41A).
- Well drilling and sample collection in the 200-TW-2 Operable Unit was completed (M-15-42A).
- A revised hazardous waste facility permit application identifying and describing all current and past structures and waste management areas associated with the single-shell tank system was prepared and submitted to the Washington State Department of Ecology (M-23-21).
- The S-112 tank saltcake waste retrieval technology demonstration functions and requirements

document was prepared and submitted to the Washington State Department of Ecology (M-45-03-T03) (RPP-7825).

- Completed transfer of the remaining ~235 metric tons (~259 tons) of uranium billets (small bars) located in the 300 Area to the Portsmouth, Ohio site (M-92-06-T01).
- The single-shell tank C-104 sludge/hard heel, confined sluicing and robotic technologies, waste retrieval demonstration functions and requirements document was submitted to the Washington State Department of Ecology (M-45-03-T04) (RPP-7807).
- Phase II In Situ Redox Manipulation barrier emplacement, planning and well installation in the 100-HR-3 Operable Unit was completed (M-16-27B).
- The remedial investigation work plan for the plutonium/organic rich process waste group (operable unit 200-PW-1) was prepared and submitted to EPA (M-13-26) (DOE-RL-2001-01).
- Three 200 Areas National Priorities List Remedial Investigation/Feasibility Study or RCRA Facility Investigation/Corrective Measures Study work plans were prepared and submitted to the Washington State Department of Ecology (M-13-00L) and EPA (DOE-RL-2001-01; DOE/RL-2001-65; DOE/RL-2001-66).
- The 300 Area Special Case Waste Project Management Plan (M-92-13) was reviewed by the Washington State Department of Ecology, and the Department's comments were incorporated into this document (HNF-5068).
- 300 Area Phase II Special Case Materials were packaged and shipped to the 200 Areas to fulfill the requirements of Tri-Party Agreement milestone M-92-15.
- 324 Building mixed waste and equipment were collected, containerized, removed, and shipped to the 200 Areas to fulfill the requirements of Tri-Party Agreement milestone M-89-02.

Since this annual report was issued last year, 26 negotiated change requests to the Tri-Party Agreement were approved. A summary of the significant changes is given in the following sections.

2.2.1.2 Tri-Party Agreement Negotiated Change Requests

Waste Management. There were two Tri-Party Agreement change requests related to waste management approved during 2001.

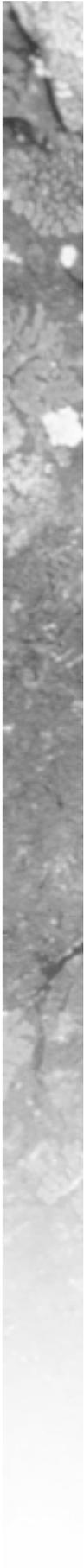
The annual land disposal restrictions report (DOE/RL-2001-20) is due by April 30 of each year. Technical discussions between DOE and the Washington State Department of Ecology resulted in significant changes to the report content. A 2-month extension to the due date for the 2000 report was approved to allow DOE and the Washington State Department of Ecology additional time to work together and produce a document that would be acceptable and satisfactory. Additionally, the time period covered by the report was adjusted from April 1 through March 31 of each year to January 1 through December 31 of each year.

Milestone M-91-12 states "...initiate thermal treatment of currently stored and newly generated contact-handled low level mixed waste. At least 600 m³ (21,189 ft³) will be provided for treatment by December 2000." On January 12, 2001, the Washington State Department of Ecology notified DOE that the milestone had not been met. DOE believed that the milestone had been met and initiated the dispute resolution procedures of the Tri-Party Agreement to resolve the issue. The final settlement of this dispute was embodied in a change request that allowed DOE an additional 24 months to achieve sustained treatment capabilities.

Environmental Restoration. Eleven Tri-Party Agreement change requests related to environmental restoration were approved during 2001.

Three change requests added nine new milestones to the Tri-Party Agreement requiring the completion of remedial investigations and remedial actions in the 200-TW-1, 200-TW-2, and the 100-IU-6 Operable Units.

Interim milestone M-13-26 required the submittal of the remedial investigation work plan for the 200-PW-1 Operable Unit by June 30, 2001. The focus of this work plan is the characterization of the vadose zone. Based upon the distribution of carbon tetrachloride in groundwater, it was believed there might be additional unidentified sources of carbon tetrachloride in the vadose zone. The EPA requested that the 200-PW-1 Operable Unit work plan incorporate all



investigations needed to answer questions surrounding the operable unit's contaminants of concern, carbon tetrachloride being of particular concern. Inclusion of the investigation of the dispersed carbon tetrachloride vadose zone plume, as requested by the EPA, required the deferral of the milestone due date from June 30, 2001 to December 31, 2001.

Two approved change requests were related to the installation of RCRA monitoring wells on the Hanford Site. One change request established 5 new enforceable milestones requiring the installation of 11 new groundwater monitoring wells by December 31, 2001. The other change request changed the location of two wells to be installed under the terms of previously established milestones.

Interim milestone M-15-38A required the submittal of a feasibility study/proposed plan for the Gable Mountain Pond/B Pond and Ditch Cooling Water Group and a closure plan for the 216-B-3 Pond System by November 30, 2001. Based on regulatory and stakeholder comments received on a related remedial investigation/feasibility study work plan and a remedial investigation report, it was determined that interim milestone M-15-38A should be deferred to allow time for assessment of ecological impacts and to resolve human health and ecological risk assessment exposure scenarios prior to completion of the subject feasibility study/proposed plan. Therefore, a change request was approved which extended the due date of milestone M-15-38A to March 31, 2003.

Milestone M-16-26B originally required the completion of remediation of 51 waste sites as well as process effluent pipelines in the 100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, and 100-HR-1 operable units. The 100-BC-1 and 100-BC-2 pipeline remediation efforts encountered impacts when actual field conditions encountered during remediation differed from the design conditions. These events necessitated the approval of four new milestones (M-16-26D, M-16-26E, M-16-26F, and M-16-26G) covering the remediation of the 100-B/C Area pipelines and the extension of the due date for the original M-16-26B waste site remediation activities.

Milestone M-16-26C required the remediation of waste sites and process effluent pipelines in the 100-HR-1 Operable Unit by May 31, 2001. The discovery of two contaminants, arsenic and chromium, during the closeout sampling process for the waste sites required that additional research, sampling, and studies be performed. These additional activities prompted the approval of a change request providing a 4-month extension to the due date of this milestone.

The original M-16-03D milestone required the completion of remediation of the waste sites in the 300-FF-1 Operable Unit by May 31, 1999. Impacts occurred to this milestone resulting from the discovery of numerous drums during excavation, the emergence of questions regarding the protectiveness of the cleanup levels for uranium, and the time necessary to obtain valid results from soil leach tests. As a result, it became necessary to delete M-16-03D and associated follow on milestones M-16-03E and M-16-03F and create three new milestones. A change request was ultimately approved which created the three new milestones (M-16-03G, M-16-03H, and M-16-03I) thereby extending the due dates covering the remediation of the waste sites in the 300-FF-1 Operable Unit including the 618-4 burial ground.

DOE Office of River Protection. There were six Tri-Party Agreement change requests approved related to the DOE Office of River Protection during 2001.

The Washington State Department of Ecology completed an inspection of interim status compliance on the Hanford Site's single-shell tanks. The inspection consisted of a review of current and historic records, interviews of DOE and Hanford Site contractor personnel, and a facility walkdown. As a result of this inspection, the Washington State Department of Ecology identified alleged non-compliances with regulatory requirements and some related concerns. A change request was ultimately developed and approved which established 11 new enforceable milestones and one new target date, under the M-23-00 series of milestones, addressing the outcome of the inspection. A related change request also made modifications to the scope of target date M-45-06-T05 in support of the M-23-00 agreements. These modifications added the requirement for a description and depiction of all components of the single-shell tank system to the scope of target date M-45-06-T05.

The Washington State Department of Ecology and DOE concluded negotiations in August 2000 on near-term Tri-Party Agreement milestones and target dates in the M-45-00 milestone series governing single-shell tank waste retrieval activities prior to September 30, 2006. This near-term strategy has shifted from focusing on maximizing the number of tanks entered for retrieval (regardless of waste volume or content) to a focus on scheduling the retrieval of waste from single-shell tanks with high volumes of contaminants of concern. The strategy also focuses on the performance of key retrieval technology demonstrations on a variety of waste forms in various tank farm locations and on the performance of risk assessments, incorporating vadose zone characterization data on a tank-by-tank basis, and

on updating tank farm closure/postclosure work plans. The resulting change request established 14 new milestones and 8 new target dates.

In 1998, the Washington State Department of Ecology called on DOE to develop and submit a corrective action plan for the S, SX, B, BX, BY, T, TX, and TY single-shell tank farms, and that this plan at a minimum: (1) provide information equivalent to a RCRA Facility Investigation and include provisions to characterize the vadose zone and aquifer beneath the tank farms, (2) define the sources, nature, and extent of vadose zone contamination, and (3) identify actual or potential contaminant receptors. After extensive negotiations, agreement was reached on modifications to Tri-Party Agreement requirements within major milestone series M-45-00 (complete closure of all single-shell tank farms). These modifications included 11 new interim milestones and 9 new target dates.

One change request modified the completion dates for interim milestone M-45-54 and target dates M-45-55-T01 and M-45-55-T02. These commitments required the development of plans and information for remedial investigations in the T, TX-TY, S-SX, and B-BX-BY Single-Shell Tank Waste Management Areas. These modifications became necessary as the result of an effort to better align the planning, characterization and final reporting requirements in response to data that have been collected and analyzed in the waste management areas.

Facilities Transition. Six Tri-Party Agreement change requests approved during 2001 were related to facility transition, i.e., the transition of a major facility from an expensive high maintenance shutdown/standby condition to a low maintenance, low cost, safe, stable condition to await final decommissioning.

Four change requests were approved establishing Tri-Party Agreement commitments related to the handling, storage, and disposition of various materials at the Plutonium Finishing Plant. Three of these change requests established three new interim milestones addressing the following materials: (1) the disposition of Hanford ash waste; (2) the disposition of sand, slag, and crucible waste; and (3) the solidification of plutonium bearing solutions that have been selected to be disposed of as transuranic-mixed waste. The fourth Plutonium Finishing Plant related change request established additional requirements and an extended start date of November 1, 2001 to conduct transition and disposition negotiations.

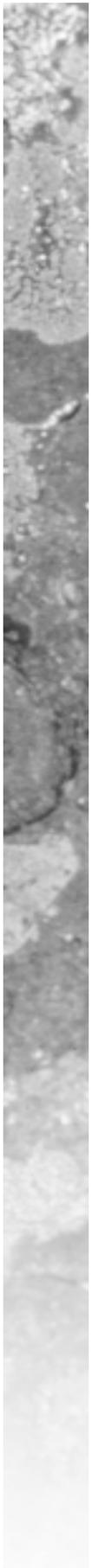
The due date of target date MX-92-11-T01 requiring the disposition of all Hanford Site non-radioactive sodium was extended from March 31, 2002 to September 30, 2004. This action was taken to establish a clearer understanding of the disposal/disposition of the remaining non-radioactive sodium and its alignment with other integrated site priorities.

Verification of three existing Tri-Party Agreement milestones was the subject of one milestone M-92-00 series related change request. Milestones M-92-14, M-92-15, and M-92-16 were re-confirmed in conjunction with the required project management plan. These milestones control the removal, transfer, and storage of 300 Area special case wastes.

Negotiations conducted by the Washington State Department of Ecology, EPA, and DOE Richland Operations Office resulted in the development of Change Number M-094-01-01, which defines proposed Tri-Party Agreement milestone M-94-00 (Establish Date for Final Disposition of all 300 Area Surplus Facilities under the M-094 series milestones). Proposed milestone M-94-00 provides the overall framework for disposition of the 300 Area surplus facilities, and aligns the M-94-00 milestones for 300 Area surplus facility disposition with the objective of completion by 2018.

Spent Nuclear Fuel. There was one Tri-Party Agreement change request approved related to the Spent Nuclear Fuel Project during 2001. The approved change request adopted the "Alternate Fuel Transfer Strategy" into the existing spent nuclear fuel series of milestones. This strategy eliminates the need for certain construction activities in the K-East Basin that would otherwise be necessary to retrieve, clean, package, and remove spent nuclear fuel from the basin. The Alternate Fuel Transfer Strategy requires the K-East Basin fuel to be retrieved and packaged in shipping casks that are transported to the K-West Basin. The existing K-West Basin facilities will then be used to retrieve, clean, package, and remove the fuel. The strategy accelerates the removal of spent nuclear fuel and water from the K-East Basin.

A Tri-Party Agreement Change Request was approved in 2001 that changed some interim milestones without changing the 2004 date for having all the spent nuclear fuel removed from the K Basins.



2.2.2 Environmental Management Systems

H. T. Tilden II, G. D. Cummins, R. D. Lichfield,
and L. M. Dittmer

Major contractors at the Hanford Site have established Integrated Environment, Safety, and Health Management Systems. These systems, contractually mandated by DOE, are intended to protect the worker, public, and environment by integrating environment, safety, and health into the way work is planned, performed, and improved. 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 in the development of the systems. Basic elements of these systems include environmental policy, planning, implementation, checking and corrective action, and management review.

In 1998, DOE Headquarters approved the Integrated Environment, Safety, and Health Program

Description for the Pacific Northwest National Laboratory (<https://sbms.pnl.gov/mgtsys/ms0ed010.htm>). Also in 1998, Fluor Hanford, Inc. issued an *Integrated Environmental, Safety, and Health Management System Plan* (HNF-MP-003); and Bechtel Hanford, Inc. issued an *Integrated Environmental, Safety, and Health Management System Description* (BHI-01199). DOE has verified the following Hanford contractors as having adequately implemented Integrated Environmental, Safety and Health Systems: Fluor Hanford, Inc. (August 2000), CH2M HILL Hanford Group, Inc. (May 2000), Bechtel Hanford, Inc. (May 2000), and Pacific Northwest National Laboratory (1998). Efforts continued in 2001 to implement and improve these environmental, safety, and health programs. Hanford Site contractors are moving to pursue ISO 14001 registration through either self-certification to the standard or certification by third-party registrars.

2.2.3 Chemical Management Systems

M. T. Jansky

The Hanford Site, with its numerous contractors, facilities, and processes, uses a variety of approaches for chemical management. Formal systems for the management of chemicals were developed and documented in 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 1910.1200, 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.

2.2.4 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

L. M. Dittmer

In 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. The EPA is the federal agency responsible for oversight of DOE's implementation of CERCLA. There is significant overlap between the state RCRA corrective action program (see Section 2.2.6) and CERCLA. 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 Hanford and is generally consistent with the national contingency plan process.

There are several remediation activities under way at Hanford that are accomplished using the CERCLA process (e.g., remedial investigation in the 200 and 300 Areas, cleanup in the 100, 200, and 300 Areas). Specific project activities and accomplishments are described in Sections 2.3.2 and 2.3.10.

2.2.5 Emergency Planning and Community Right-To-Know Act

D. E. Zaloudek

This 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 the local emergency planning committee, and periodically provide information to support the emergency planning process. Facilities must also notify the state emergency response commission and the local emergency planning committee immediately after an accidental release of an extremely hazardous substance over the reportable quantity. Extremely hazardous substances are listed in 40 CFR 355 (Appendices A and B) along with the applicable threshold planning quantity.

The Hanford Site provides required hazardous chemical inventory information to the 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 2001

Hanford Site Tier Two Emergency and Hazardous Chemical Inventory (DOE/RL-2002-13) was issued as required by law.

Facilities must also report total annual releases of certain toxic chemicals. The *Pollution Prevention Act* requires additional information with the report, and Executive Order 13148 (65 FR 24595), *Greening the Government Through Leadership in Environmental Management*, extends the requirements to all federal facilities, regardless of the types of activities conducted. Based on evaluation of Hanford Site toxic chemical usage data during 2001, the Hanford Site was required to prepare a Toxic Chemical Release Inventory report for lead. The 2001 *Toxic Chemical Release Inventory* report (DOE/RL-2002-37) includes information about the quantities of lead released to the environment; transferred offsite for recycle, treatment, or disposal; recycled, treated or disposed onsite; source reduction activities involving lead; and other pollution prevention information.

For reporting year 2001, the Hanford Site issued the reports and notifications required by this act. Table 2.2.1 provides an overview of 2001 reporting under the *Emergency Planning and Community Right-To-Know Act*.

Table 2.2.1. Emergency Planning and Community Right-to-Know Act Compliance Reporting, 2001

Sections of the Act	Yes^(a)	No^(a)	Not Required^(a)
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 2001.

2.2.6 Resource Conservation and Recovery Act (RCRA)

M. J. Hartman

RCRA was enacted in 1976 with the objective of protecting human health and the environment. In 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. The Washington State Department of Ecology has the authority for enforcing RCRA in the state. At Hanford, RCRA regulates ~70 hazardous waste treatment, storage, or disposal units that have received waste since implementation of the act.

2.2.6.1 Hanford Facility RCRA Permit

J. C. Sonnichsen

The Hanford Facility RCRA Permit (WA7890008967), Dangerous Waste Portion that was issued by the Washington State Department of Ecology has been in effect since late September 1994 (DOE/RL-91-28). The permit provides the foundation for all future RCRA permitting on the Hanford Site in accordance with provisions of the Tri-Party Agreement (Ecology et al. 1998). Modification E, Revision 7, of the Hanford Facility RCRA Permit was appealed. Settlement of the appeal has been completed and Revision 8 of the Hanford Facility RCRA Permit is scheduled to be issued in fall 2002.

2.2.6.2 RCRA/Dangerous Waste Permit Applications and Closure Plans

J. C. Sonnichsen

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

During February 2001, Revision 7 (Modification E) of the Hanford Facility RCRA Permit Dangerous Waste Portion was issued. In March 2001, this permit was

appealed by the permittees (DOE Richland Operations Office, Bechtel Hanford, Inc., Fluor Hanford, Inc., Pacific Northwest National Laboratory, and CH2M HILL Hanford Group, Inc.) to the Washington State Department of Ecology to resolve some issues about permit conditions. During 2001, eight Part A, Form 3, revisions were certified and submitted to the Washington State Department of Ecology. Since appeal of the permit, one Part B permit application for final status has been submitted to the Washington State Department of Ecology (DOE/RL-2001-64).

2.2.6.3 RCRA Groundwater Monitoring

B. A. Williams

RCRA groundwater monitoring is part of the Hanford Site Groundwater Monitoring Project (see Section 6.2). Table 2.2.2 lists the 24 facilities and units (or waste management areas) that require groundwater monitoring and notes their monitoring status, and Figure 6.1.3 shows the locations of these units. Samples were collected from 233 RCRA wells sitewide in 2001, the same number as during 2000. A summary of groundwater monitoring activities and results for these sites during 2001 is provided in Section 6.4.

Groundwater samples were analyzed for a variety of dangerous waste constituents and site-specific constituents, including selected radionuclides. The constituent lists meet the minimum RCRA regulatory requirements and are integrated to supplement other groundwater monitoring project requirements (e.g., *Atomic Energy Act*, CERCLA) at the Hanford Site.

During 2001, 16 new RCRA wells were installed (Table 2.2.3) to fulfill the requirements of Tri-Party Agreement milestone M-24-00M. The installation of these 16 wells was successfully completed in November 2001, ahead of the completion deadline of December 31, 2001. Of these 16 wells, 3 were installed at Waste Management Area B-BX-BY located in the 200-East Area, 1 at Waste Management Area T, 4 at Waste Management Area TX-TY, 3 at Waste Management Area U, and 5 at Waste Management Area S-SX all located in the 200-West Area. All the wells were completed as shallow (top of the aquifer) monitoring wells. The wells have well screens ~10.7 meters (~35-feet) long intended to monitor the uppermost portion of the unconfined aquifer. Well data package summaries will be published in 2002 that contain characterization and construction

Table 2.2.2. RCRA Interim and Final Status Groundwater Monitoring Projects, September 2001

TSD Units, date initiated	Interim Status TSD Unit Groundwater Monitoring		Final Status TSD Unit Groundwater Monitoring			Groundwater Monitoring Regulations	Year Scheduled for Part B or Closure
	Indicator Parameter Evaluation^(a)	Groundwater Quality Assessment, date initiated	Detection Evaluation	Compliance Evaluation	Corrective Action, date initiated		
1301-N LWDF, December 1987			X ^(b)			40 CFR 265.93(b) WAC 173-303-400	1999 ^(c)
1324-N/NA LWDF, December 1987			X ^(b)			40 CFR 265.93(b) WAC 173-303-400	1999 ^(c)
1325-N LWDF, December 1987			X ^(b)			40 CFR 265.93(b) WAC 173-303-400	1999 ^(c)
183-H solar evaporation basins, June 1985					X, 1998	40 CFR 264 WAC 173-303-645(10)	1994 ^(c)
216-A-29 ditch, November 1988	X					40 CFR 265.93(b) WAC 173-303-400	2006 ^(c)
216-B-3 pond, November 1988	X					40 CFR 265.93(b) WAC 173-303-400	2003 ^(c)
216-B-63 trench, August 1991	X					40 CFR 265.93(b) WAC 173-303-400	2006 ^(c)
216-S-10 pond and ditch, August 1991	X					40 CFR 265.93(b) WAC 173-303-400	2006 ^(c)
216-U-12 crib, September 1991		X, 1993				40 CFR 265.93(d) WAC 173-303-400	2006 ^(c)
316-5 process trenches, June 1985					X, 1998	40 CFR 264 WAC 173-303-645(10)	1996 ^(c,d)
LERF, July 1991						40 CFR 265.93(b) WAC 173-303-400	1998 ^(e,f)
LLWMA 1, September 1988	X					40 CFR 265.93(b) WAC 173-303-400	2002 ^(f,g)



Table 2.2.2. (contd)

TSD Units, date initiated	Interim Status TSD Unit Groundwater Monitoring		Final Status TSD Unit Groundwater Monitoring			Groundwater Monitoring Regulations	Year Scheduled for Part B or Closure
	Indicator Parameter Evaluation^(a)	Groundwater Quality Assessment, date initiated	Detection Evaluation	Compliance Evaluation	Corrective Action, date initiated		
LLWMA 2, September 1988	X					40 CFR 265.93(b) WAC 173-303-400	2002 ^(f,g)
LLWMA 3, October 1988	X					40 CFR 265.93(b) WAC 173-303-400	2002 ^(f,g)
LLWMA 4, October 1988	X					40 CFR 265.93(b) WAC 173-303-400	2002 ^(f,g)
NRDWL, October 1986	X					40 CFR 265.93(b) WAC 173-303-400	2006 ^(c)
PUREX cribs ^(h) 1988		X, 1997				40 CFR 265.93(d) WAC 173-303-400	TBD ^(c,i)
WMA A-AX, February 1990	X					40 CFR 265.93(b) WAC 173-303-400	TBD ^(c,i)
WMA B-BX-BY, February 1990		X, 1996				40 CFR 265.93(d) WAC 173-303-400	TBD ^(c,i)
WMA C, February 1990	X					40 CFR 265.93(b) WAC 173-303-400	TBD ^(c,i)
WMA S-SX, October 1991		X, 1996				40 CFR 265.93(d) WAC 173-303-400	TBD ^(c,i)
WMA T, February 1990		X, 1993				40 CFR 265.93(d) WAC 173-303-400	TBD ^(c,i)
WMA TX-TY, September - October 1991		X, 1993				40 CFR 265.93(d) WAC 173-303-400	TBD ^(c,i)

Table 2.2.2. (contd)

TSD Units, date initiated	Interim Status TSD Unit Groundwater Monitoring		Final Status TSD Unit Groundwater Monitoring			Groundwater Monitoring Regulations	Year Scheduled for Part B or Closure
	Indicator Parameter Evaluation ^(a)	Groundwater Quality Assessment, date initiated	Detection Evaluation	Compliance Evaluation	Corrective Action, date initiated		
WMA U, October 1990		X, 2000				40 CFR 265.93(b) WAC 173-303-400	TBD ^(c,i)

- (a) Contamination indicator parameters (pH, specific conductance, total organic carbon, and total organic halides) used to determine if a facility is affecting groundwater quality. Exceeding the established limits means that additional evaluation and sampling are required (i.e., groundwater quality assessment). An X in the assessment column indicates whether an evaluation was needed or an assessment was required.
- (b) Monitored according to interim status plan as specified in closure plans.
- (c) Closure/postclosure plan; TSD unit will close under WAC 173-303-610.
- (d) Closure plan pending Washington State Department of Ecology approval.
- (e) Statistical evaluations suspended in January 2001 because only one downgradient well is not dry.
- (f) Part B permit; TSD unit scheduled to operate under final status regulations beginning in year indicated.
- (g) Facility Part B permit and final status groundwater monitoring plan contingent on completion of solid waste environmental impact statement.
- (h) 216-A-10, 216-A-36B, and 216-A-37-1 combined into one RCRA monitoring unit. RCRA monitoring will be performed according to interim status groundwater quality assessment requirements.
- (i) Unscheduled.

- LERF = Liquid effluent retention facility.
- LLWMA = Low-level waste management area.
- LWDF = Liquid waste disposal facility.
- NRDWL = Nonradioactive Dangerous Waste Landfill.
- PUREX = Plutonium-uranium extraction (plant).
- RCRA = Resource Conservation and Recovery Act of 1976.
- TBD = To be determined.
- TSD = Treatment, storage, or disposal (unit).
- WMA = Waste management area.



Table 2.2.3. New RCRA Well Installations for Fiscal Year 2001

Well Number	Well ID	Program Project
299-E33-337	C3390	B tank farm
299-E33-338	C3391	B tank farm
299-E33-339	C3392	B tank farm
299-W10-27	C3125	TX-TY tank farms
299-W10-28	C3400	T tank farm
299-W14-18	C3396	TX-TY tank farms
299-W15-763	C3339	TX-TY tank farms
299-W15-765	C3397	TX-TY tank farms
299-W18-40	C3395	U tank farm
299-W19-44	C3393	U tank farm
299-W19-45	C3394	U tank farm
299-W22-81	C3123	SX tank farm
299-W22-82	C3124	SX tank farm
299-W22-83	C3126	SX tank farm
299-W22-84	C3398	S tank farm
299-W22-85	C3399	SX tank farm

details including detailed geologic and geophysical descriptions and a complete set of sample analytical data.

The dropping water table beneath the Central Plateau, resulting from the near cessation of wastewater discharges to ground-disposal facilities on the plateau, has caused some wells in the RCRA groundwater monitoring networks to go dry. Pump-and-treat operations have changed the direction of groundwater flow under some RCRA treatment, storage, and disposal units, requiring some well network design changes. Washington State Department of Ecology and DOE have agreed to focus near-term monitoring well construction on upgrades at single-shell tank farm waste management areas and to defer new wells at other waste management areas.

No major changes occurred during 2001 in RCRA facility groundwater monitoring at the waste management units. At the end of 2001, 11 RCRA waste management areas were monitored under interim status indicator parameter evaluation, 7 were monitored under interim status assessment, 4 were monitored under final status detection evaluation, and 2 were monitored under final status corrective action. All the facilities being

monitored under RCRA are scheduled for closure under the Site Part B RCRA Permit except the Liquid Effluent Retention Facility and low-level burial grounds (Low-Level Waste Management Areas 1 to 4), which are operating facilities. The Liquid Effluent Retention Facility is currently monitored under final status detection evaluation program and Low-Level Waste Management Areas 1 to 4 will be added as soon as the Part B permit is approved.

2.2.6.4 RCRA Inspections

R. C. Bowman

Hanford Site contractors and DOE are working to resolve outstanding notices of violation and warning letters of non-compliance that were received from the Washington State Department of Ecology during 2001. These documents identify conditions that are alleged to be non-compliant with RCRA requirements. The following list of RCRA non-compliance issues are being addressed:

- The Washington State Department of Ecology issued a Notice of Correction on March 1, 2001, following a compliance inspection associated with the storage of a potentially shock-sensitive chemical (trade name Collodion) in the form of waste and/or product in the 222-S Laboratory Complex, Waste Sampling and Characterization Facility, and Plutonium Finishing Plant. The Notice of Correction identified three alleged violations, three corrective measures, and three concerns. DOE has implemented the identified corrective measures.
- On March 26, 2001, the Washington State Department of Ecology issued a Notice of Penalty in response to the identification of alleged waste management violations associated with the storage of a potentially shock-sensitive chemical (trade name Collodion) in the form of waste and/or product in the 222-S Laboratory Complex, Waste Sampling and Characterization Facility, and Plutonium Finishing Plant laboratories. The Notice of Penalty levied a penalty of \$57,800 against DOE and Fluor Hanford, Inc. This issue was appealed to the Pollution Control Hearing Board (an independent Washington State appeals board). Resolution efforts are ongoing.

2.2.7 Clean Air Act

K. A. Peterson

Federal, state, and local agencies enforce the standards and requirements of the *Clean Air Act* to regulate

air emissions at facilities such as the Hanford Site. A summary of the major agency interfaces and applicable regulations for the Hanford Site is provided in the

following paragraphs. Section 3.1 discusses air emissions from Hanford facilities. Sections 3.2 and 4.1 discuss monitoring efforts at the site to determine compliance with this act and other applicable laws and regulations. Appendix D, Table D.6 provides a summary of permits covering air emissions on the Hanford Site.

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. All scheduled milestones of the *Federal Facility Compliance Agreement* (EPA 1994) were met in 2001, and Hanford Site air emissions remained well below the levels that approach the state and EPA offsite emission standard of 10 millirems per year. The requirements for flow and emissions measurements, quality assurance, and sampling documentation have been implemented at all Hanford Site emission sources and/or are tracked for milestone progress in accordance with a schedule approved by EPA and monitored by the Washington State Department of Health.

The Washington State Department of Health's Division of Radiation Protection regulates radioactive air emissions statewide through delegated authority from EPA and Washington State legislative authority. The Washington State Department of Health implements the federal/state requirements 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 the Washington State Department of Health and EPA for review and approval. Assuring adequate emission controls, emissions monitoring/sampling, and/or annual reporting of air emissions are typical requirements for radioactive air emission sources. 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 will be implemented through federal and state programs under 40 CFR 70 and WAC 173-401. The permit is intended to provide 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 and an annual compliance certification to the Washington State Department of Ecology.

The 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.

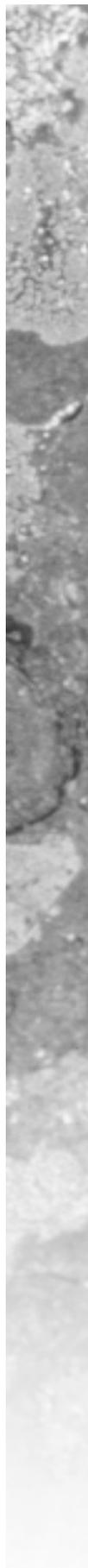
EPA regulates other potential air emission sources at the Hanford Site. Under 40 CFR 61, Subpart M, EPA regulations specifically address asbestos management requirements under the *Clean Air Act*. These regulations apply at the Hanford Site with regard to building demolition and/or asbestos renovation and waste disposal operations. Asbestos at Hanford is handled in accordance with federal/local regulations and approved contractor procedures. In addition, 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.

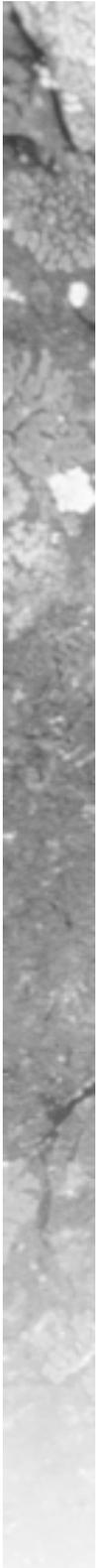
At the local level, the Benton Clean Air Authority was designated authority by EPA to establish a local oversight and compliance program for asbestos renovation and/or demolitions, as regulated by EPA under the National Emission Standards for Hazardous Air Pollutants (40 CFR 61, Subpart M). In addition, the Benton Clean Air Authority regulates open burning, as an extension of the Washington State Department of Ecology's open burning requirements (WAC 173-425). The Benton Clean Air Authority administers federal/state regulations by reference, as well as imposes additional requirements on sources within the local agency's jurisdiction.

Clean Air Act Enforcement Inspections

R. C. Bowman

Hanford Site contractors and DOE are working to resolve outstanding notices of violation and warning letters of non-compliance that were received from the Washington State Department of Health and





Washington State Department of Ecology during 2001. These documents identify conditions that are alleged to be non-compliant with *Clean Air Act* requirements. The following list of non-compliance issues are being addressed:

- On January 16, 2001, the Washington State Department of Health issued a Notice of Correction against all sampling systems (including the sampling system on stack 291-Z-1 that provides ventilation for the Plutonium Finishing Plant) used to measure emissions from facilities on the Hanford Site. The Washington State Department of Health wrote the Notice of Correction based on findings associated with inspection of the 291-Z-1 sample probe and their review of sample filters used to measure emissions from various facilities located on the Hanford Site. They alleged that there were two reported instances of monitored releases attributed to particles deposited in the sample line. The Notice of Correction required that DOE develop criteria and a schedule for the full review of all emission sampling systems (major and minor) on the Hanford Site. DOE provided a response to this Notice of Correction. Corrective action efforts are ongoing.
- A Notice of Violation and Compliance Order was received on March 23, 2001. The Washington State Department of Health alleged that DOE failed to properly notify them following a continuous air monitor alarm in stack 291-Z-1 at the Plutonium Finishing Plant on February 23, 2001, which indicated a release of radioactive material to the air. The Notice of Violation and Compliance Order required DOE to propose to the Washington State Department of Health a corrective action to assure this does not recur. The Washington State Department of Health also posed a number of questions regarding the extent and nature of the release, as well as decisions that were made during and after the event. DOE provided a response to this Notice of Violation and Compliance Order. Corrective action efforts are ongoing.
- On May 11, 2001, the Washington State Department of Health issued a Notice of Correction against emission unit 296-P-23. This unit is a stack at the S tank farm. The Notice of Correction was issued based on findings associated with inspection of the S tank farm. The Washington State Department of Health alleged that emission unit 296-P-23 was not maintained in a condition consistent with as-low-as-reasonably-achievable control technology. The Notice of Correction required that DOE provide a procedure that assures emission unit indication devices (continuous air monitor data, high-efficiency particulate air differential pressure readings, etc.) are monitored and evaluated for changing conditions that may indicate abatement controls are not operating as designed. This procedure applies to all DOE emission units on the Hanford Site. DOE provided a response to this Notice of Correction. Corrective action efforts are ongoing.
- On July 10, 2001, the Washington State Department of Health issued a Notice of Correction against the 296-S-16 emission unit. The 296-S-16 emission unit is a stack at the 222-S laboratory. The Washington State Department of Health wrote the Notice of Correction based on their concern that a temporary repair of the high-efficiency particulate air filter clamping mechanism did not meet the as-low-as-reasonably-achievable control technology standard requirements. The Notice of Correction required that DOE provide a plan and schedule to replace the existing high-efficiency particulate air filter housing. The Notice of Correction also required additional sampling and testing of the current high-efficiency particulate air filter installation until the high-efficiency particulate air filter housing is replaced. DOE provided a response to this Notice of Correction. Corrective action efforts are ongoing.
- A Notice of Violation and Compliance Order was received from the Washington State Department of Health on October 15, 2001. The Washington State Department of Health alleged that DOE's prime contractor, Fluor Hanford, Inc., is in violation of WAC 246-247-040(4), which states that all existing emission units shall use as-low-as-reasonably-achievable control technology. This Notice of Violation and Compliance order is associated with the Notice of Correction issued by the Washington State Department of Health on May 11, 2001. All corrective actions associated with this Notice of Violation and Compliance Order were completed.

2.2.8 Clean Water Act

J. A Winterhalder

The *Clean Water Act* applies to point source discharges to 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, 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 stormwater permit in 2001. EPA's National Pollutant Discharge Elimination System Storm Water Multi-Sector General Permit WAR05A57F establishes the terms and conditions under which stormwater discharges associated with industrial activity are authorized. This permit was issued on May 30, 2001, and supersedes all other National Pollutant Discharge Elimination System stormwater permits previously in effect at the site.

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 to Battelle on October 1, 2001.

There are numerous sanitary waste discharges to the ground throughout the site. Sanitary waste from the

400 Area is discharged to the Energy Northwest treatment facility (see Figure 1.0.1 for Energy Northwest location). Sanitary waste from the 300 Area, the former 1100 Area, and other facilities north of, and in, Richland discharge to the city of Richland treatment facility.

State Wastewater Discharge Permit Program

W. E. Toebe

The Washington State Department of Ecology, State Wastewater Discharge Permit Program regulates the discharge or disposal of wastewater to surface or ground waters. The program's goal is to maintain the highest purity of public waters by limiting pollutant discharges to the greatest extent possible. In calendar year 2001, the Hanford Site had seven state waste discharge permits issued by the Washington State Department of Ecology. A brief summary of each permit is provided 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 2001. All public water systems are required to meet the *Safe Drinking Water Act*, the *Safe Drinking Water Act Amendments of 1986*, and the *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 drinking water program has been updated to comply with the changing regulatory requirements. A complete revision of WAC 246-290 was issued on April 9, 1999, and all site water programs have had the necessary changes incorporated.

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, disinfectant byproducts, and coliform bacteria. All sampling results for 2001 met the requirements of the Washington State Department of Health. Sample results for radiological monitoring of drinking water are discussed in Section 4.3.

The 200-East Area water treatment plant remains on standby if needed. The 283-W water treatment plant in the 200-West Area, provides potable water to customers in both 200 Areas as the primary water supply. The 300 Area treatment plant remains on standby if needed. The well that supplied water to the Hanford Patrol Training Academy was taken out of service for potable use in May 1999. The well remains in service for irrigation purposes only. The training academy 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 drawn from a local groundwater well (499-S1-8J).



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. The state of Washington also regulates certain classes of 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 of 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.

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>), has resulted in 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.

An operational run was performed at the 242-A evaporator (200-East Area) on polychlorinated biphenyl waste under the authority of a risk-based disposal approval in March 2001 (Section 2.3.8.1). EPA approved the run in February 2001. This activity reduced tank waste volume by ~2,441,591 liters (~645,000 gallons). In 2001, work continued on a RCRA risk assessment for treatment of tank waste at the future Waste Vitrification Plant. Results of this assessment will be used to evaluate polychlorinated biphenyls regulated by the *Toxic Substances Control Act* as well. Additional disposal approvals for polychlorinated biphenyl waste originating from cleanup activities, double-shell tanks, the Liquid Effluent Retention Facility, and the Effluent Treatment Facility were prepared during 2001 for submittal to EPA in 2002.

A polychlorinated biphenyl strategy team and a polychlorinated biphenyl technical team consisting of DOE Richland Operations Office, DOE Office of River Protection, and DOE Hanford Site contractor representatives were formed to expedite resolution of polychlorinated biphenyl issues on a Hanford sitewide basis. A *Toxic Substances Control Act Polychlorinated Biphenyl Hanford Site Users Guide* was drafted in 2001 (DOE/RL-2001-50) to assure consistent interpretation and implementation of *Toxic Substances Control Act* polychlorinated biphenyl regulations throughout the Hanford Site. In addition, discussions were held with representatives throughout the DOE complex to identify and address various *Toxic Substances Control Act*/polychlorinated biphenyl compliance topics.

2.2.11 Federal Insecticide, Fungicide, and Rodenticide Act

J. M. Rodriguez

The *Federal Insecticide, Fungicide, and Rodenticide Act* is administered by EPA. The standards administered by the Washington State Department of Agriculture to regulate the implementation of the act in Washington State include: *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

R. K. Zufelt

Many rare species of native plants and animals are known to exist on the Hanford Site. Three species that may occur onsite (bald eagle, steelhead trout, and spring chinook salmon) are listed by the U.S. Fish and Wildlife Service as either threatened or endangered (50 CFR 17.11). Others are listed by the Washington Department of Fish and Wildlife as endangered, threatened, or sensitive species (see Appendix G). The bald eagle is currently under review for a change in listing status. The site wildlife monitoring program is discussed in Section 8.2.

Bald eagles are seasonal visitors to the Hanford Site. Several nesting attempts along the Hanford Reach were documented by Pacific Northwest National Laboratory in the 1990s. The Hanford Site bald eagle management plan (DOE/RL-94-150) was finalized in 1994. That 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 at the historical nesting sites are observed in 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. In 1997 and 1998, nests were built by two pairs of eagles, but the nesting attempts were abandoned by May. One pair attempted to nest again in 1999. The pair occupied and tended the nest through August, but no eggs were laid and no young were reared. The nest was again occupied for a short time in 2000, but no nesting activity was observed. In 2001, the pair attempted to nest again but abandoned the nest by mid-March.

Steelhead and salmon are regulated as evolutionary significant units by the National Marine Fisheries Service based on their historical geographic spawning areas. The evolutionary significant units for the upper Columbia River steelhead and the upper Columbia River spring-run chinook salmon were listed as endangered in August 1997 and March 1999, respectively. A Hanford Site steelhead management plan (DOE/RL-2000-27) was prepared and will serve as the formal plan for the National Marine Fisheries Service as required under the *Endangered Species Act*. Like the bald eagle management plan, the steelhead management plan discusses mitigation strategies and lists activities that can be conducted without impacting steelhead trout 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 effect federally- or state-listed species of concern complied with

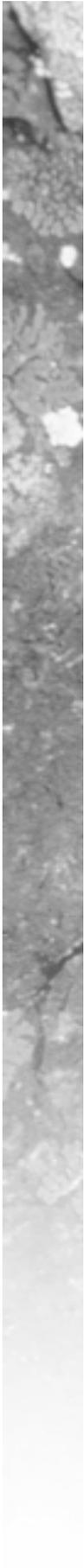
the requirements of this act by using the ecological review process as described in the *Hanford Site Biological Resources Management Plan* (DOE/RL-96-32). When applicable, the ecological reviews produced recommendations to minimize the adverse impact to migratory birds, such as performing work outside of the nesting season and minimizing the loss of habitat.

2.2.14 Cultural Resources

D. W. Harvey

Cultural resources on the Hanford Site are mainly subject to the provisions of the following seven acts, one executive order, and one Presidential Proclamation: *American Indian Religious Freedom Act*; *Antiquities Act*; *Archaeological and Historic Preservation Act*; *Archaeological Resources Protection Act*; 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*, and Proclamation 7319 of June 9, 2000 (65 FR 37253). Compliance with these regulations is accomplished through an active management and monitoring program. Included is the review 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 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 also evaluated. Federal agencies, as a matter of policy, are directed by Executive Order 11593 and Section 110 of the *National Historical Preservation Act* to administer the cultural and historic properties under their control in a spirit of stewardship and trusteeship for future generations.

In 2001, 150 cultural resource reviews were conducted on the Hanford Site to comply with Section 106 of the *National Historic Preservation Act*. The *American Indian Religious Freedom Act* requires federal agencies to help protect and preserve the rights of Native Americans to practice their traditional religions. DOE cooperates with Native Americans by providing site access for organized religious activities. The regulations of the *Native American Graves Protection and Repatriation Act* provides 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 established the Hanford Reach National Monument that incorporated selected areas of the Hanford Site. Administered by DOE Richland Operations Office and the 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 Clinton issued a memorandum to the Secretary of Energy the same day the proclamation was signed directing 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.

See Section 8.3 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 federal actions before those actions are taken. The preparation of an environmental impact statement is required for federal actions determined to be major federal actions with the potential to impact the quality of the human environment. Other *National Environmental Policy Act* documents include an environmental assessment prepared when it is uncertain if a proposed action has the potential to significantly impact the environment and, therefore, would require the preparation of an environmental impact statement. A summary and status of environmental assessments that apply to specific activities and facilities on the Hanford Site may be found in the *National Environmental Policy Act Source Guide for the Hanford Site* (HNF-SP-0903). The report is updated annually. A supplemental 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 DOE and have been determined not to 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 more than 20 specific categorical exclusions annually, involving a variety of actions by multiple contractors. In addition, sitewide categorical exclusions are applied to routine, typical actions conducted daily on the Hanford Site. In 2001, there were 20 sitewide categorical exclusions.

The Council on Environmental Quality, which reports directly to the President, was established to oversee the *National Environmental Policy Act* process. *National Environmental Policy Act* documents are prepared and approved in accordance with *Council on Environmental Quality National Environmental Policy Act* regulations (40 CFR 1500-1508), *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 socioeconomic impacts to the extent practicable in lieu of preparing separate *National Environmental Policy Act* documentation.

Each year, Pacific Northwest National Laboratory updates a document (PNL-6415) that describes the environment on the Hanford Site. This document is intended to provide a consistent description of the Hanford Site environment and specific information on the affected environment and statutory and regulatory requirements for the many *National Environmental Policy*

Act documents prepared by DOE contractors. This report contains the relevant data for use in preparing documents for Hanford *National Environmental Policy Act*, *Washington State Environmental Policy Act* (RCW 43.21C), and CERCLA documents.

2.2.15.1 Recent Environmental Impact Statements

M. T. Jansky

The potential environmental impact associated with ongoing, major operations at the site has been analyzed in environmental impact statements issued in the past several years and the ensuing records of decision. Additional *National Environmental Policy Act* reviews and supplemental analyses as appropriate are being conducted during the course of the actions, moving forward as described in the records of decision.

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 proposed action is to stabilize selected plutonium-bearing materials for interim storage and immobilize some materials for transport to a Hanford Site solid waste management facility. The record of decision was issued in July 1996 (61 FR 36352). Five supplemental analyses approved through 2000 (DOE/EIS-0244-FS/SA1 through DOE/EIS-0244-FS/SA5) resulted in determinations that no additional *National Environmental Policy Act* analyses were required.

A supplemental analysis (DOE/EIS-0244-FS/SA6) was issued on May 4, 2001, and provided the basis to determine if a supplemental environmental impact statement was required prior to packaging plutonium alloys for shipment to the Waste Isolation Pilot Plant (with potential interim storage at the Hanford Site before shipment). The analysis determined that a supplemental environmental impact statement was not required.

A supplemental analysis (DOE/EIS-0244-FS/SA7) was issued on August 6, 2001, and provided the basis to determine if a supplemental environmental impact statement was required before disposition of all Plutonium Finishing Plant plutonium-bearing solutions either as (1) stored plutonium oxide using a magnesium hydroxide and/or oxalate precipitation process, or (2) waste. This document reported that additional *National Environmental Policy Act* analysis was not required.

The DOE Office of River Protection is planning to perform a supplemental environmental impact statement to the *Tank Waste Remediation System Environmental Impact Statement* (DOE/EIS-0189) because of a

potential change in the management of immobilized low-activity waste. A Notice of Intent to prepare an environmental impact statement is being prepared.

2.2.15.2 Programmatic and Offsite Environmental Impact Statements

M. T. Jansky

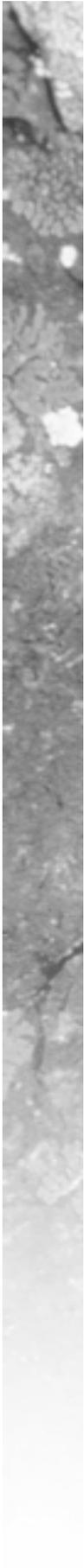
The draft environmental impact statement, *Idaho High-Level Waste & Facilities Disposition Final Environmental Impact Statement* (DOE/EIS-0287D), was issued by the Idaho National Engineering and Environmental Laboratory in December 1999 for the disposition of Idaho high-level waste and facilities in which Hanford was listed as an alternative disposal site. Public comments were received through April 2000. The final environmental impact statement was expected to be issued in 2001 but is now expected to be released in 2002.

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. The final statement evaluated the expanded civilian nuclear energy research and development and isotope production missions in the United States including the role of the Fast Flux Test Facility at the Hanford Site (see Section 2.3.4). A Record of Decision was issued on January 19, 2001 (66 FR 7877) indicating the Fast Flux Test Facility would be permanently deactivated. On April 25, 2001, the new Secretary of Energy, Spencer Abraham, suspended the *National Environmental Policy Act* Record of Decision ordering a thorough and comprehensive review of the Fast Flux Test Facility, which included an initial review of all information that might be relevant to a decision on the future of the facility, as well as a review of expressions of interest to commercially operate the facility. After these extensive review efforts, DOE announced on December 19, 2001, that deactivation of the facility would proceed.

2.2.15.3 Site-Specific Environmental Impact Statements in Progress

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A draft environmental impact statement, *Hanford Site Solid (Radioactive and Hazardous) Waste Program Environmental Impact Statement* (DOE/EIS-0286) is



being prepared by DOE Richland Operations Office. The draft environmental impact statement was released in April 2002.

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. The 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, to increase the upper limit for disposal of naturally occurring radioactive materials, and to approve the site stabilization and closure plan. A final decision was planned for 2001, but is now expected in 2002.

2.2.15.4 Recent Environmental Assessments

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An environmental assessment was prepared to determine whether an environmental impact statement

would be required for storage of K Basins' sludge at the 221-T Building (T Plant, 200-West Area) at the Hanford Site (DOE/EA-1369). The environmental assessment analyzed the impact of modifications to the T Plant Complex, and the offloading and storage of up to 70 cubic meters (2,480 cubic feet) of K Basins' sludge. A finding of no significant impact was issued on June 20, 2001, determining that no further review was required under the *National Environmental Policy Act*.

An environmental assessment was prepared to determine whether an environmental impact statement would be required for continued operation of onsite locations for a supply of raw aggregate materials (e.g., sand and gravel) for new facility construction, maintenance of existing facilities and transportation corridors, and fill and capping material for remediation and other sites (DOE/EA-1403). The environmental assessment analyzed the potential impact of removing ~7.6 million cubic meters (~10 million cubic yards) of aggregate material over the next 10 years. A finding of no significant impact was issued on October 10, 2001, determining that no further review was required under the *National Environmental Policy Act*.