



2.2 Compliance Status

K. R. Price

This section summarizes the current status of activities conducted to ensure that the Hanford Site is in compliance with federal environmental protection statutes and related state and local

environmental protection regulations. Environmental permits required under the environmental protection regulations are discussed under the applicable statute.

2.2.1 Hanford Federal Facility Agreement and Consent Order, 2000 Performance

R. D. Morrison

The 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 2000, a total of 689 milestones

and 264 target dates were completed on or ahead of schedule. In 2000, there were 48 specific cleanup milestones and target dates scheduled for completion: 45 were completed on or before their required due dates, 2 were delayed because of programmatic issues, and 1 remained at issue at the time of this report. Highlights of the work accomplished in 2000 are listed in Section 2.3.

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*, was used in the development of the systems.

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

Program Description for the Pacific Northwest National Laboratory (<https://sbms.pnl.gov/program/pd03d010.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 an Integrated Environmental, Safety and Health System: Fluor Hanford, Inc. (August 2000), CH2M HILL Hanford Group (May 2000), Bechtel Hanford, Inc. (May 2000), and Pacific Northwest National Laboratory (1998). Efforts continued in 2000 to implement and improve these environmental, safety, and health programs.



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. The major contractors developed and documented formal systems for the management of chemicals 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 2.3.3 and 2.3.11.

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 for the distribution of 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 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 2000 Hanford Site Tier Two Emergency and Hazardous Chemical Inventory (DOE/RL-2001-0010) was issued in February 2001.

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 1999 and 2000, no chemicals were used in quantities exceeding applicable thresholds; therefore, reporting was not required for either year.

The Hanford Site was in compliance with the reporting and notification requirements contained in this act. Table 2.2.1 provides an overview of 2000 reporting under the *Emergency Planning and Community Right-To-Know Act*.

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 reauthorized 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.

Table 2.2.1. Emergency Planning and Community Right-to-Know Act Compliance Reporting, 2000^(a)

<u>Sections of the Act</u>	<u>Yes</u>	<u>No</u>	<u>Not Required</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 2000.





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).

2.2.6.2 RCRA/Dangerous Waste Permit Applications and Closure Plans

J. C. Sonnichsen

For purposes of the RCRA and the 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 treatment, storage, and disposal units could not be issued permits simultaneously and a schedule was established for submitting unit-specific Part B dangerous waste permit applications and closure plans to the Washington State Department of Ecology. During 2000, eight Part A, Form 3, revisions were certified and submitted to the Washington State Department of Ecology. In 2000, one Part B permit application for final status was certified and submitted.

2.2.6.3 RCRA Groundwater Monitoring Project Management

B. A. Williams

RCRA groundwater monitoring is part of the Hanford Site Groundwater Monitoring Project. Pacific Northwest National Laboratory conducts

the project for the DOE, to detect and characterize groundwater contaminants (see Section 7.1). Table 2.2.2 lists the facilities and units (or waste management areas) that require groundwater monitoring and notes their monitoring status. Samples were collected from 233 RCRA wells sitewide in 2000, five less than during 1999. The decrease was mainly due to wells going dry on the 200 Area plateau as the water table in that area declines. A summary of groundwater monitoring activities and results for these sites during 2000 is provided in Section 7.1.7.

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 project requirements (e.g., *Atomic Energy Act*, CERCLA) at the Hanford Site.

During 2000, ten new RCRA wells were installed (Table 2.2.3) to fulfill requirements of the Tri-Party Agreement milestone M-24-00L. The installation of these ten wells was successfully completed on December 27, 2000. Of these ten wells, three were installed at Waste Management Area S-SX, four at Waste Management Area T, and three at Waste Management Area TX-TY all located in the 200-West Area. All the wells are completed as shallow (top of the aquifer) monitoring wells. The wells have ~10.7-meter- (35-foot-) long well screens intended to monitor the uppermost portion of the unconfined aquifer. Well data package summaries are being prepared that contain characterization and construction details including detailed geologic and geophysical descriptions and a complete set of sample data results.

At the end of 2000, 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

Table 2.2.2. RCRA Interim and Final Status Groundwater Monitoring Projects, September 2000

TSD Units, date initiated	Interim Status TSD Unit Groundwater Monitoring			Final Status TSD Unit Groundwater Monitoring			Year Scheduled for Part B or Closure
	Indicator Parameter Evaluation ^(a)	Groundwater Quality Assessment, date initiated	Detection Evaluation	Compliance Evaluation	Corrective Action, date initiated	Regulations	
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)
WMA S-SX October 1991		X, 1996				40 CFR 265.93(d) WAC 173-303-400	TBD ^(c,d)
WMA T, February 1990		X, 1993				40 CFR 265.93(d) WAC 173-303-400	TBD ^(c,d)
WMA TX-TY, September -October 1991		X, 1993				40 CFR 265.93(d) WAC 173-303-400	TBD ^(c,d)
WMA U, October 1990		X, 2000				40 CFR 265.93(b) WAC 173-303-400	TBD ^(c,d)
216-S-10 pond and ditch, August 1991	X					40 CFR 265.93(b) WAC 173-303-400	2003 ^(c)
216-U-12 crib, September 1991		X, 1993				40 CFR 265.93(d) WAC 173-303-400	2005 ^(c)
LLWMA 3, October 1988	X					40 CFR 265.93(b) WAC 173-303-400	2002 ^(e,f)

2.15

Compliance Status



Table 2.2.2. (contd)

TSD Units, date initiated	Indicator Parameter Evaluation ^(a)	Interim Status TSD Unit Groundwater Monitoring		Final Status TSD Unit Groundwater Monitoring		Year	Scheduled for Part B or Closure
		Groundwater Quality Assessment, date initiated	Detection Evaluation	Compliance Evaluation	Corrective Action, date initiated	Regulations	
LLWMA 4, October 1988	X					40 CFR 265.93(b) WAC 173-303-400	2002 ^(e,d)
WMA A-AX, February 1990	X					40 CFR 265.93(b) WAC 173-303-400	TBD ^(e,d)
WMA B-BX-BY, February 1990		X, 1996				40 CFR 265.93(d) WAC 173-303-400	TBD ^(e,d)
WMA C, February 1990	X					40 CFR 265.93(b) WAC 173-303-400	TBD ^(e,d)
PUREX cribs ^(g) 1988		X, 1997				40 CFR 265.93(d) WAC 173-303-400	2005 ^(c)
216-B-3 pond, November 1988	X					40 CFR 265.93(b) WAC 173-303-400	2003 ^(c)
216-A-29 ditch, 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	2003 ^(c)
LERE, July 1991			X, 1998 ^(h)			40 CFR 265.93(b) WAC 173-303-400	1998 ^(c)
LLWMA 1, September 1988	X					40 CFR 265.93(b) WAC 173-303-400	2002 ^(g,h)
LLWMA 2, September 1988	X					40 CFR 265.93(b) WAC 173-303-400	2002 ^(g,h)



Table 2.2.2. (contd)

TSD Units, date initiated	Indicator Parameter Evaluation ^(a)	Interim Status TSD Unit Groundwater Monitoring		Final Status TSD Unit Groundwater Monitoring		Regulations	Year Scheduled for Part B or Closure
		Groundwater Quality Assessment, date initiated	Detection Evaluation	Compliance Evaluation	Corrective Action, date initiated		
NRDWL, October 1986	X					40 CFR 265.93(b) WAC 173-303-400	2006 ^(c)
316-5 process trenches, June 1985					X, 1996	40 CFR 264 WAC 173-303-645(10)	1996 ^(c)

(a) Specific 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 (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) Unscheduled.

(e) Part B permit; TSD unit scheduled to operate under final status regulations beginning in year indicated.

(f) Facility Part B permit and final status groundwater monitoring plan contingent on completion of solid waste environmental impact statement.

(g) 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.

(h) Will monitor groundwater under interim status until final status groundwater monitoring plan is approved.

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act of 1980.

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 (single-shell tank farm).





Table 2.2.3. New RCRA Well Installation in the 200-West Area, 2000

<u>Well Number</u>	<u>Location</u>
299-W11-39	WMA T
299-W11-40	WMA T
299-W11-41	WMA T
299-W11-42	WMA T
299-W14-15	WMA TX-TY
299-W14-16	WMA TX-TY
299-W14-17	WMA TX-TY
299-W22-80	WMA S-SX
299-W23-20	WMA S-SX
299-W23-21	WMA S-SX

WMA = Waste management area.

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 1-4), which are operating facilities. The Liquid Effluent Retention Facility is currently monitored under final status detection evaluation program and the Low-Level Waste Management Areas 1-4 will be added as soon as the Part B permit is approved.

2.2.6.4 RCRA Inspections

R. C. Bowman

DOE and its contractors are working to resolve outstanding notices of violation and warning letters of non-compliance from the Washington State Department of Ecology that were received during 2000. Each of these notices lists specific violations. RCRA non-compliance events for 2000 are detailed below.

- The Washington State Department of Ecology issued a Notice of Correction on May 25, 2000,

based on an inspection of a long-term and sitewide practice that had resulted in RCRA regulated waste being shipped offsite for disposal in municipal landfills. The inspection included an investigation into the storage of hazardous and mixed waste from drilling in the 200-West Area. The Notice of Correction identified 2 alleged violations, 2 concerns, and 2 corrective measures. All corrective actions have been completed.

- The Washington State Department of Ecology issued a Notice of Correction on May 26, 2000, following a compliance inspection of the Hexone Storage and Treatment Facility, 200-West Area, on April 25, 2000. The inspection alleged that the facility had not been managed in accordance with formal agreements between the Washington State Department of Ecology and DOE signed on December 6, 1996. In addition the Washington State Department of Ecology believed that the Hexone Storage and Treatment Facility posed a safety hazard to employees because the tanks contained potentially reactive and explosive dangerous waste. The Notice of Correction identified one alleged violation and one corrective measure. Corrective action efforts are ongoing.
- The Washington State Department of Ecology delivered a Notice of Correction for the Waste Encapsulation and Storage Facility on June 12, 2000, following a compliance inspection that was initiated on August 8, 1999. The Waste Encapsulation and Storage Facility is located in the 200-East Area of the Hanford Site. The Notice of Correction alleges 5 violations, 5 corrective measures, and 5 concerns related to compliance with Dangerous Waste Regulations, WAC 173-303, and 40 CFR Part 265 interim status requirements. The Notice of Correction alleged that DOE and Fluor Hanford, Inc. had not completed the actions

necessary to obtain interim status, had not completed a waste analysis plan, did not meet the weekly inspection requirements for the cesium and strontium capsule storage areas, had not properly labeled cesium and strontium capsules, and did not have a written closure plan for the facility. All corrective actions have been completed.

- EPA and Washington State Department of Ecology conducted a RCRA inspection from May through July 1998 as part of a multimedia inspection of the Hanford facility. The inspection identified concerns that resulted in the issuance of a Compliance Order and Notice of Opportunity for Hearing (“Complaint”). The complaint identified three alleged violations of RCRA regulations: 1) storage without a permit, 2) failure to make a hazardous waste determination, and 3) failure to immediately amend a contingency plan. Civil penalties were assessed for these alleged violations in the amount of \$367,078. EPA and the DOE Richland Operations Office agreed to settle the multimedia inspection matter as documented in the Consent Agreement and Final Order issued on October 12, 2000. The Consent Agreement and Final Order requires payment of a \$25,000 civil penalty, performance of two Supplemental Environmental Projects, and the performance of specified compliance activities. The fine was paid and corrective action efforts are ongoing.
- The Washington State Department of Ecology issued an Administrative Order on June 13, 2000, following a compliance inspection on the M-32-00 Milestone, “Complete Identified Dangerous Waste Tank Corrective Actions.” The Administrative Order required DOE and CH2M HILL Hanford Group to comply with WAC 173-303-640 requirements as they apply to determine the integrity of the double-shell

tank system. The Administrative Order requires payment of a penalty and the performance of specified compliance activities. Corrective action efforts are ongoing.

- The Washington State Department of Ecology issued a Notice of Correction on October 11, 2000, following a compliance inspection of twenty-six 55-gallon drums currently stored at the T Plant complex in the 200-West Area. The drums contain dangerous and/or mixed waste collected more than 20 years ago. The Notice of Correction alleged 3 violations, 3 corrective measures, and 2 concerns. The Notice of Correction alleged that the drums had not been managed properly because the drums have remained undesignated since the 1970s, two of the drums contained completely unknown waste and had no identification labels on them, and the contents of the drums had never been sampled. All corrective actions have been completed.
- The Washington State Department of Ecology issued a Notice of Correction on August 18, 2000, following a compliance inspection of the 274-E 90-Day Dangerous Waste Storage Pad and associated facilities on June 22, 2000. The inspection alleged that a drum of flocculent stored on the non-regulated waste storage pad in the 200-East Area had exceeded its useful shelf life and had been labeled as a “Non-Regulated Waste.” An examination of the manufacturer’s Material Safety Data Sheet by the Washington State Department of Ecology revealed that the chemical is designated as a toxic waste in Washington State. It was alleged that the drum contents were not properly designated as required by WAC 173-303-070. The Notice of Correction identified one alleged violation and one corrective measure. All corrective actions have been completed.





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.

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* were met in 2000, 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 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. Ensuring

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 will be incorporated into the Hanford Site air operating permit, scheduled to be issued in 2001. The Hanford Site air operating permit will be 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 emissions and for 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 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, Title VI of the *Clean Air*

Act Amendments of 1990 require regulation of the service, maintenance, repair, and disposal of certain systems containing Class I and Class II ozone-depleting substances (refrigerants) through implementation of the requirements in 40 CFR 82. 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). In both areas of responsibility, the Benton Clean Air Authority enforces/adopts the federal/state regulations, respectively by reference, as well as imposes additional requirements on sources within the local agency's jurisdiction.

2.2.71 Clean Air Act Enforcement Inspections

R. C. Bowman

DOE and its contractors are working to resolve outstanding compliance findings from the Washington State Department of Health and Washington State Department of Ecology inspections. The non-compliance events in 2000 are listed below.

- The Washington State Department of Health conducted an inspection of all minor emission units at the Plutonium Finishing Plant, 200-West Area, on January 31, 2000. The inspection resulted in the Washington State Department of Health issuing a Notice of Correction for all Plutonium Finishing Plant emission units. The Notice of Correction addressed the calibration/function testing frequencies of

differential pressure gauges. All corrective actions have been completed.

- The Washington State Department of Health issued a Notice of Violation and Compliance Order as authorized by WAC 246-247-100(a) and RCW 70.94.332 for actions taken at the 244-AR Vault. The Notice of Violation and Compliance Order alleges that entries into the 244-AR Vault were made without proper Washington State Department of Health approvals and permitting or adequate radiation control measures in place. The 244-AR Vault is located in the 200-East Area and serves as a waste transfer station. The Washington State Department of Health alleged three violations and three compliance orders. All corrective actions have been completed.

DOE and its contractors entered into technical assistance partnering with the Washington State Department of Ecology. On July 1, 2000, the Washington State Department of Ecology initiated a 1-year period of technical assistance visits (versus formal inspections) from the Air Program Office of its Nuclear Waste Program. During that time, the Washington State Department of Ecology agreed to meet with several Hanford facilities/projects, as requested, to resolve any compliance issues with air monitoring and/or questions pursuant to WAC 173-400 and WAC 173-460. As of December 31, 2000, five technical assistance visits were successfully completed.

The technical assistance program is part of a sitewide criteria/toxic air emissions program review between the Washington State Department of Ecology, DOE, and contractor representatives. The technical assistance visits are to facilities or projects with existing notice of construction approvals and existing facilities that are grandfathered from new source review but comply with the general air requirement standards. The Washington State Department of Ecology conducts the technical assistance visits in accordance with the Revised Code of





Washington (RCW 43.05) in preparation for the Washington State Department of Ecology's initiation of a formal air inspection program at the start of their fiscal year (i.e., July 1, 2001). That formal

air inspection program will include coordinated involvement with the Title V, Level II inspections, once the Hanford Site air operating permit is issued.

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: one (outfall 001) for the 300 Area Treated Effluent Disposal Facility and two (outfalls 003 and 004) in the 100-K Area. Fluor Hanford, Inc. is the holder of this permit.

There was one non-compliance with Permit WA-002591-7 during 2000. In February, analytical laboratory results indicated that the permit threshold limits for three metals had been exceeded at outfall 001. Copper was detected at 75 ppb; manganese at 110 ppb; and zinc at 115 ppb. The permit threshold limits for copper, manganese, and zinc are 15 ppb, 17 ppb, and 15 ppb, respectively. No other exceedances of the permit occurred throughout the remainder of 2000.

The Hanford Site was covered by two storm water permits in 2000. WAR-10-000F is the storm water general permit for construction activities covering five acres or more. Storm water discharges from the 1908-K Outfall in the 100-K Area are covered under Multi-Sector General Storm Water Permit WAR-05-A45F. The requirements of the National Pollutant Discharge Elimination System Multi-Sector General Storm Water Permit are fulfilled through implementation of the Hanford Site Storm Water Pollution Prevention Plan (HNF-4081). The

Pollution Prevention Plan establishes a process to evaluate potential pollution sources at the 100-K Area, and select and implement appropriate measures that are designed to prevent and control the discharge of pollutants in the storm water run-off.

The DOE Richland Operations Office has a pretreatment permit (CR-IU005) from the city of Richland to discharge wastewater from the William R. Wiley Environmental Molecular Sciences Laboratory located in the Richland North Area. Also, 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.

2.2.8.1 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. The Hanford Site has eight state waste discharge permits issued by the Washington State Department of Ecology. In 2000, there were six non-compliances with three of the eight discharge permits in place at the Hanford Site. Details of the permit non-compliances are listed below.

- Permit No. ST 4508, Hydrotest, Maintenance, Construction Discharges – During a review of water line flushing logs, personnel noted that five water line flushes at various locations in the 300 Area exceeded the instantaneous flow rate limit of 3,785 liters (1,000 gallons) per minute. Flushing procedures and associated blank log sheets were modified to more clearly identify discharge limits.
- Permit No. ST 4500, 200 Areas Effluent Treatment Facility – Tritium tracking data must be reported annually as part of a groundwater monitoring summary for the 200 Areas Effluent Treatment Facility. During an audit of the onsite analytical laboratory's records, it was discovered that the accreditation for tritium analysis had not been renewed. The onsite laboratory, the Waste Sampling and Characterization Facility, is pursuing renewal of its tritium accreditation through the Washington State Department of Ecology for future sample analyses.
- Permit No. ST 4507, 100-N Sewage Lagoon – It was reported that the flow meter which measures the effluent at the 100-N Sewage Lagoon had stopped collecting data. The flow meter in use at the time was a replacement that did not have the same memory capacity as the original monitoring device. Upon discovery, the flow meter was reprogrammed to correct the problem pending repair and re-installation of the original device.
- Permit No. ST 4507, 100-N Sewage Lagoon – Effluent data for March 2000 indicated the permit limits for pH and total suspended solids were exceeded. It was believed that the limits were exceeded because of an algae bloom brought on by warmer weather during the month of March.
- Permit No. ST 4507, 100-N Sewage Lagoon – Effluent data indicated that permit limits for total suspended solids were exceeded during July and September 2000. An algae bloom within the stabilization pond appeared to be contributing to the increase in suspended solids.

2.2.9 Safe Drinking Water Act

D. A. Rohl

There were 11 public water systems on the Hanford Site in 2000. Two of these systems, the Yakima Barricade well and the 100-D Area system, were removed from service to supply potable water for human consumption. 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 2000 met the requirements of the Washington State Department of Health with the exception of a non-acute Coliform Maximum Contaminant Level Exceedance (RL-PHMC-S&W-2000-0002) issued by the state for the 200-East Area water system on February 3, 2000. Section 2.4.3 discusses the details of this event where bacteria were present in two samples but no *E. coli* bacteria were found in the system. Sample results for radiological monitoring of drinking water are discussed in Section 4.3.





The 200-East Area water treatment plant remains in 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 in 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 who will maintain the system and sample the quality of the drinking water.

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 polychlorinated biphenyl waste is stored and disposed of in accordance with 40 CFR 761. 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.

EPA issued a *Federal Facility Notice of Significant Noncompliance* on February 10, 1999, following *Toxic Substances Control Act* inspections conducted as a part of the multimedia inspection on the Hanford Site. DOE Richland Operations Office responded on February 26, 1999. During 1999 and 2000, EPA, DOE, and DOE contractors worked toward resolving all issues associated with this Notice of Significant

Noncompliance. DOE and its contractors provided requested information to EPA and assisted in inspections. This issue was closed in January 2001.

EPA, Washington State Department of Ecology, and DOE have discussed the potential for double-shell tank waste to be subject to *Toxic Substances Control Act* requirements. These discussions resulted in the signing of the "Framework Agreement for Management of Polychlorinated Biphenyls in Hanford Tank Waste"^(a) on August 31, 2000. Per this agreement, some double-shell tank waste might be regulated under the *Toxic Substances Control Act* as polychlorinated biphenyl remediation waste. Through the framework agreement, DOE, EPA, Washington State Department of Ecology, and DOE contractors are working together to resolve the regulatory issues associated with managing polychlorinated biphenyl remediation waste at the proposed waste vitrification plant, in tank farms, and at affected upstream and downstream facilities.

In 2000, work started on a RCRA risk assessment for treatment of tank waste at the proposed waste vitrification plant. This assessment is being performed so that results can be used to evaluate polychlorinated biphenyls regulated by the *Toxic Substances Control Act* as well.

(a) Agreement signed by Washington State Department of Ecology, U.S. Environmental Protection Agency, U.S. Department of Energy, Richland Operations Office and Office of River Protection, Richland, Washington, dated August 31, 2000.

2.2.11 Federal Insecticide, Fungicide, and Rodenticide Act

J. M. Rodriguez

This 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. In 2000, the Hanford Site was in compliance with the federal and state standards.

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 (the 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 State 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. In compliance with the *Endangered Species Act*, the Hanford Site bald eagle management plan (DOE/RL-94-150) was finalized in 1994. That plan established seasonal 800-meter (2,600-foot) restricted access zones around all active nest sites and five major communal roosting sites. A pair of eagles once again prepared a nest and occupied it for a short time in 2000, but no other nesting activities were observed (see Section 8.2.2).

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 that 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 affecting steelhead trout or their habitats.

As part of the *National Environmental Policy Act* review process, an ecological review is conducted on all Hanford Site projects to evaluate their potential to affect federal- and/or state-listed species within the proposed project area (PNNL-6415). The ecological reviews included efforts to quantify the potential impact of project activities and to identify mitigation strategies to minimize or eliminate such effects.





2.2.13 Migratory Bird Treaty Act

M. R. Sackschewsky

The *Migratory Bird Treaty Act* (DOE/RL-96-32) 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 effect federally- or state-listed species of concern complied with the requirements of this act using the ecological review process. 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 Compliance Legislation

D. W. Harvey

Cultural resources on the Hanford Site are subject to the provisions of the following seven acts and one executive order: *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*; and *Native American Graves Protection and Repatriation Act*. 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 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 2000, 113 cultural resource reviews were requested and 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). 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 impact the environment significantly 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 2000, 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. 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.

2.2.15.1 Recent Environmental Impact Statements

M. T. Jansky

The potential environmental impact associated with ongoing, major operations at the Hanford Site have 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). In 2000, three supplemental analyses were prepared to provide the basis for determining if a supplemental environmental impact statement would be required. Two previously prepared Supplemental Analyses (DOE/EIS-0244-FS/SA1 and DOE/EIS-0244-FS/SA2) resulted in determinations that no additional NEPA analyses were required.

Supplemental Analysis (DOE/EIS-0244-FS/SA3) was issued on March 9, 2000, and provided the





basis for determining if a supplemental environmental impact statement was required prior to providing enhanced stabilization, packaging, and storage capabilities for plutonium oxides and metals under Project W-460, "Plutonium Finishing Plant Plutonium Stabilization and Packaging System." It was determined that additional *National Environmental Policy Act* analysis was not required.

Supplemental Analysis (DOE/EIS-0244-FS/SA4) was issued on August 18, 2000, and provided the basis for determining if a supplemental environmental impact statement was required prior to starting an alternate method for packaging selected bulk plutonium-bearing materials presently stored at the Plutonium Finishing Plant. It was determined that additional *National Environmental Policy Act* analysis was not required.

Supplemental Analysis (DOE/EIS-0244-FS/SA5) was issued on September 22, 2000, and provided the basis for determining if a supplemental environmental impact statement was required prior to stabilizing all of the plutonium-bearing solutions presently stored at the Plutonium Finishing Plant using a magnesium hydroxide precipitation process. It was determined that additional *National Environmental Policy Act* analysis was not required.

2.2.15.2 Programmatic and Offsite Environmental Impact Statements

M. T. Jansky

The *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* was issued in May 1997 (DOE/EIS-0200F) to evaluate management and national siting alternatives for the treatment, storage, and disposal

of five types of radioactive and hazardous waste. The Hanford Site was considered in all alternatives. A record of decision was issued in January 1998 (63 FR 3623) on treatment and storage of transuranic waste. A subsequent record of decision on hazardous waste treatment was issued in August 1998 (63 FR 41810). A record of decision for storage of immobilized high-level waste was issued in August 1999 (64 FR 46661). A record of decision for the treatment and disposal of low-level waste and mixed low-level waste was issued in February 2000 (65 FR 10061).

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 is expected to be issued in 2001.

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. A record of decision was issued in January 2001 (66 FR 7877) indicating the Fast Flux Test Facility would be permanently deactivated, but the ruling was later postponed pending review. A detailed summary of the status of the Fast Flux Test Facility can be found on the project website at <http://www.fftf.org/currstat/>.

2.2.15.3 Site-Specific Environmental Impact Statements in Progress

M. T. Jansky

A draft environmental impact statement is being prepared for the Hanford Site Solid (Radioactive and Hazardous) Waste Program.^(b) The Yakama Nation is a cooperating agency. The draft environmental impact statement is expected to be issued for public comment in 2002.

US Ecology operates a commercial low-level radioactive waste disposal site near the 200 Area 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 is planned for 2001.

2.2.15.4 Recent Environmental Assessments

M. T. Jansky

An environmental assessment was prepared to determine whether an environmental impact statement would be required for disposition of surplus Hanford Site uranium (DOE/EA-1319). The environmental assessment analyzed the impact of 1) relocating potentially saleable Hanford Site surplus unirradiated uranium to the DOE's Portsmouth Site near Portsmouth, Ohio, for future beneficial use and 2) providing onsite management of Hanford Site surplus uranium that is not considered readily saleable. The analysis of the anticipated impacts led to a conclusion that no significant impacts were expected. A finding of no significant impact was issued on June 15, 2000, determining that no further review was required under the *National Environmental Policy Act*.

(b) A draft report (DOE/EIS-0286), *Hanford Site Solid (Radioactive and Hazardous) Waste Program*, is being prepared by the U.S. Department of Energy, Richland Operations Office, Richland, Washington.

