

5.1 Hazardous Materials



This section provides information about federal statutes related to the regulation of hazardous materials.

5.1.1 Emergency Planning and Community Right-To-Know Act

D. E. Zaloudek

The *Emergency Planning and Community Right-to-Know Act* requires states to establish a state emergency response commission and local emergency planning committees and to develop a process to distribute information on hazardous chemicals present in facilities. These organizations gather information and develop emergency plans for local planning districts. Facilities that produce, use, or store extremely hazardous substances in quantities above threshold planning quantities must identify themselves to the state emergency response commission and local emergency planning committee and periodically provide information to support the emergency planning process. Facilities must also notify the state emergency response commission and local emergency planning committee immediately after an accidental release of an extremely hazardous substance (40 CFR 355, Appendices A and B) over the reportable quantity. Two annual reports are required by the *Emergency Planning and Community Right-To-Know Act*. The *Tier Two Emergency and Hazardous Chemical Inventory* contains information about hazardous chemicals stored at the facility in amounts exceeding minimum threshold levels. The *Toxic Chemical Release Inventory* contains information about total annual releases of certain toxic chemicals and associated waste management activities.

In early 2005, the Hanford Site issued the *2004 Hanford Site Tier Two Emergency and Hazardous Chemical Inventory*

(DOE/RL-2005-11) 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 *2004 Hanford Site Toxic Chemical Release Inventory* report (DOE/RL-2005-12), which included releases and waste management activities involving the metal lead and the chemical propylene, was provided to the U.S. Environmental Protection Agency (EPA) and the Washington State Department of Ecology. Table 5.1.1 provides an overview of 2004 reporting under the *Emergency Planning and Community Right-To-Know Act*.

Types, quantities, and locations of hazardous chemicals are tracked through prime-contractor-specific chemical management system requirements (Section 4.0.2). Table 5.1.2 summarizes the information reported, listing the average quantity of ten hazardous chemicals stored in greatest quantity on the Hanford Site in 2004.

5.1.2 Resource Conservation and Recovery Act

M. J. Hartman

The *Resource Conservation and Recovery Act* (RCRA) was enacted during 1976 with the objective of protecting human health and the environment. During 1984, the *Hazardous and Solid Waste Amendments* re-authorized RCRA and imposed new requirements on the management of hazardous waste. The most important aspect of RCRA is its establishment of cradle-to-grave management to track hazardous waste from generator to treatment, storage, and disposal. The Washington State Department of Ecology has the authority to enforce RCRA requirements in the state under *Washington*



Table 5.1.1. Emergency Planning and Community Right-to-Know Act Compliance Reporting at the Hanford Site, 2004

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

- (a) "Yes" indicates that notifications were provided and/or reports were issued under the applicable provisions. "No" indicates that notifications or reports should have been provided but were not. "Not Required" indicates that no actions were required under the applicable provisions, either because releases were too small to require action or no releases occurred.
- (b) These notifications apply to the Hanford Site but were completed prior to 2004.

Table 5.1.2. Average Quantity of Ten Hazardous Chemicals^(a) Stored on the Hanford Site, 2004

<u>Hazardous Chemical</u>	<u>Average Quantity, kg (lb)</u>
Mineral oil	1,700,000 (3,800,000)
Sodium	790,000 (1,700,000)
Portland cement	750,000 (1,700,000)
Diesel fuel (Grades 1 and 2)	420,000 (920,000)
Fly ash (class F)	270,000 (600,000)
Argon (compressed)	180,000 (400,000)
Propane	95,000 (210,000)
Nitrogen (compressed)	90,000 (200,000)
Sulfuric acid	46,000 (100,000)
Sodium hydroxide	33,000 (72,000)

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

Administrative Code (WAC) 173-303, Dangerous Waste Regulations. At Hanford, RCRA applies to approximately 70 hazardous waste treatment, storage, or disposal units that have received waste since implementation of the act.

5.1.2.1 Hanford Facility RCRA Permit

S. A. Thompson

The Washington State Department of Ecology issued the Hanford Facility RCRA Permit on September 27, 1994 (Ecology 1994). The permit is the foundation for RCRA

permitting on the Hanford Site in accordance with provisions set forth in the Tri-Party Agreement (Ecology et al. 1989). The permit is issued to seven permittees: the DOE Richland Operations Office and the DOE Office of River Protection as the owners/operators and to five of their contractors as co-operators. The Hanford Facility RCRA Permit expired on September 27, 2004, and on September 1, 2004, DOE submitted, in accordance with WAC 173-303-806(6), *Final Facility Permits*, re-applications and relevant documentation for renewal of the permit. The Washington State Department of Ecology determined the documentation was sufficiently complete according to WAC 173-303-840(1)(b), *Procedures for Decision Making*, for them to begin preparing a draft permit. DOE continues to operate under the old permit, until a new permit is in effect.

5.1.2.2 RCRA/Dangerous Waste Permit Applications and Closure Plans

S. A. Thompson

The Hanford Site is considered a single facility for purposes of RCRA and WAC 173-303. The facility encompasses approximately 70 treatment, storage, and disposal units. The Tri-Party Agreement recognized that not all of the units could be issued dangerous waste permits simultaneously, and a schedule was established to submit unit-specific permit applications and closure plans to the Washington State Department of Ecology.

During 2004, ten revisions to the Part A RCRA Permit were submitted to the Washington State Department of Ecology for review and approval. These revisions to the Part A forms included modifications to information for the 183-H evaporation basins, 300 Area process trenches, 325 hazardous waste treatment units, 1301-N liquid waste disposal facility, 1324-N surface impoundment, 1324-NA percolation pond, 1325-N liquid waste disposal facility, 1706-KE waste treatment system, hexone storage and treatment facility, and T Plant complex.

In 2004, two Part B permit applications were submitted to the Washington State Department of Ecology. The submittals included the *Hanford Facility Dangerous Waste Permit Application, General Information Portion* (DOE/RL-91-28), and *Hanford Facility Dangerous Waste Permit Application, Integrated Disposal Facility* (DOE/RL-2003-12).

5.1.2.3 RCRA Groundwater Monitoring

M. J. Hartman

RCRA groundwater monitoring is part of the Hanford Site Groundwater Performance Assessment Project (Section 8.7).

In 2004, DOE, the Washington State Department of Ecology, and EPA agreed to revise Tri-Party Agreement Milestone M-24 to allow prioritization of groundwater drilling for *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) and *Atomic Energy Act* wells along with RCRA wells. During 2004, drillers completed seven RCRA monitoring wells, nine CERCLA monitoring wells, and two wells for research on chromate bioremediation.

At the end of 2004, 15 RCRA sites were monitored to detect whether they were contaminating groundwater with hazardous constituents. Seven sites were monitored to assess the extent of known contaminants, and two were monitored to determine the progress of groundwater contamination cleanup activities. Twelve of the sites monitored under RCRA are scheduled for closure under the Hanford Site Part B RCRA Permit. The Liquid Effluent Retention Facility, low-level burial grounds (Waste Management Areas 1 to 4), and planned Inte-

grated Disposal Facility, will receive permits as operating facilities.

A summary of groundwater monitoring activities for these sites during 2004 is provided in Section 8.7 and more detailed information is available in the *Hanford Site Groundwater Monitoring Report for Fiscal Year 2004* (PNNL-15070).

5.1.2.4 RCRA Inspections

R. C. Bowman

Hanford Site contractors and DOE worked to resolve notices of violation and warning letters of non-compliance that were received from the Washington State Department of Ecology during 2004. These documents identified conditions that were alleged to be non-compliant with RCRA requirements. The following items summarize RCRA non-compliance documents that were received in 2004:

- **Notice of Non-Compliance in Process Tanks with Pulse Jet Mixers at the Waste Treatment Plant** – On July 1, 2004, the Washington State Department of Ecology issued a Notice of Non-Compliance letter to the DOE Office of River Protection and Bechtel National, Inc. The letter stated that during an inspection of the nearly completed waste feed receipt vessel at the Waste Treatment Plant (now under construction), it was noticed that wear plates were not installed beneath each pulse jet mixer. The Washington State Department of Ecology claims that Bechtel National, Inc. approved design changes that deleted the wear plates. It further alleges that these design changes should have been submitted as permit modification requests since the plates are included in the approved equipment assembly drawings that are incorporated in the Waste Treatment Plant Dangerous Waste Permit. Resolution is still under discussion with the Washington State Department of Ecology.
- **Failure to Consider Corrosion Allowances in Piping Design** – On July 2, 2004, the Washington State Department of Ecology issued a Notice of Non-Compliance letter to the DOE Office of River Protection and Bechtel National, Inc. This letter documented their concerns regarding compliance with Waste Treatment Plant RCRA Permit conditions.



A meeting was held between the Washington State Department of Ecology and Bechtel National, Inc. on June 25, 2004, to discuss how corrosion allowances had been factored into the design of the Waste Feed Evaporation Process System concentrate recycle line at the Waste Treatment Plant. The Washington State Department of Ecology's letter alleged that Bechtel National, Inc. failed to include corrosion allowance and its effect on piping in its design. This violated design requirements that Bechtel National, Inc. had committed to follow in the permit and could potentially compromise the structural integrity of Waste Treatment Plant tank systems. All requested information was provided to the Washington State Department of Ecology.

- **Notice of Penalty Incurred - Violation of Washington Administrative Code** – On September 21, 2004, the Washington State Department of Ecology issued a Notice of Penalty for alleged violations of WAC 173-303 related to receipt and management of sample residues from the Savannah River Technical Center. The Notice of Penalty levied a penalty of \$270,000 against the DOE Richland Operations Office and DOE Office of River Protection; Fluor Hanford, Inc.; and Duratek Federal Services of Hanford, Inc. This matter is under appeal.
- **Notice of Administrative Order - Violation of Washington Administrative Code** – On September 21, 2004, the Washington State Department of Ecology issued Notice of Administrative Order No. 1671 for alleged violations of WAC 173-303 related to receipt and management of sample residues from the Savannah River Technical Center. This Administrative Order was written against the DOE Richland Operations Office and DOE Office of River Protection; Fluor Hanford, Inc.; and Duratek Federal Services of Hanford, Inc. This matter is under appeal.
- **Notice of Concerns for Waste Transfer Line Inspections and Slope** – On October 22, 2004, the Washington State Department of Ecology issued a Notice of Concerns letter to the DOE Office of River Protection and Bechtel National, Inc. This letter documented their concerns regarding compliance with specified Waste Treatment Plant permit conditions. During an inspection conducted by the Washington State Department of Ecology on June 22, 2004, it was determined that the recently backfilled

waste transfer lines from the Low-Activity Waste Building and Laboratory Building to the Pretreatment Building did not meet the Waste Treatment Plant permit conditions for the required minimum slope of 0.5% or evidence of required inspections by a qualified professional engineer or an independent installation inspector to ensure that design requirements were met. The Notice of Concerns was closed by the Washington State Department of Ecology on February 11, 2005, following the receipt of requested information.

5.1.3 Toxic Substances Control Act

Hanford Site PCB Technical Team
(POC - A. L. Prignano)

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

To encourage consistent interpretation and implementation of the *Toxic Substances Control Act* PCB regulations throughout the Hanford Site, a *Polychlorinated Biphenyl Hanford Site Users Guide* was drafted in 2001 (DOE 2002). In 2003, this guide was revised to add additional sections on management of PCBs and PCB waste. During 2004, Hanford submitted both the 2003 PCB annual document log (DOE/RL-2004-51) and a 2003 PCB annual report (DOE/RL-2004-52) to EPA as required by 40 CFR 761.180. The reports describe the management and disposal activities taking place for PCB waste at the Hanford Site. The "Framework Agreement for Management of Polychlorinated Biphenyls in Hanford Tank Waste," signed on

August 31, 2000 (<http://yosemite.epa.gov/R10/OWCM.NSF/permits/hanfordframework>), resulted in EPA, the Washington State Department of Ecology, and DOE and its Hanford Site contractors working together to resolve the regulatory issues associated with managing PCB waste at the Waste Treatment Plant (now under construction), in the waste tank farms, and at affected units upstream and downstream of the waste tank farms. The flexibility of the 1998 PCB 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 PCB waste.

During 2004, the Pacific Northwest National Laboratory completed studies, under 40 CFR 761.60(j), *Disposal Requirements*, for disposal of 4 liters (1.1 gallons) of PCB remediation waste from the North Load-Out Pit located in the East K Basin. The PCB remediation waste included sludge consisting of sand, dust, and water and corrosion products from the corrosion of the spent fuel that was stored in the basin. The purpose of the studies was to optimize the process to solidify the sludge for transportation to, and disposal at, the Waste Isolation Pilot Plant in Carlsbad, New Mexico.

In January 2002, DOE submitted a Risk-Based Disposal Approval to EPA Region 10 for the management of PCB waste brought into and managed in the double-shell waste storage tank system. This Risk-Based Disposal Approval has not been approved. In June 2004, EPA approved a Risk-Based Disposal Approval for management of certain aqueous PCBs at the 200 Areas Liquid Waste Processing Facility. EPA found that treatment of the aqueous PCB waste would result in effluents and secondary waste that do not pose an unreasonable risk of injury to human health or the environment. The approval allows for the 242-A evaporator to process waste feed with a PCB concentration up to 600 µg/L without individual campaign approvals

from EPA. Also in June, DOE submitted to EPA a chemical waste landfill application to allow disposal of certain PCB-containing waste in lined onsite land disposal trenches. The chemical waste landfill application has not been approved, but there have been discussions among DOE and the regulatory agencies. In October 2004, EPA approved an application for alternative PCB decontamination of spent nuclear fuel from K Basin. This activity is being performed as part of the cleanout of the Hanford K Basins.

In November 2004, DOE submitted a Risk-Based Disposal Approval for retrieval of waste from single-shell waste storage tanks using double-shell waste storage tank supernatant, a *Toxic Substances Control Act*-regulated PCB remediation waste. The approval for this application is still under review by EPA and approval is expected in summer 2005.

5.1.4 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 implementation of the act in Washington State include the *Washington Pesticide Control Act* (Revised Code of Washington [RCW] 15.58), *Washington Pesticide Application Act* (RCW 17.21), and rules relating to general pesticide use codified in WAC 16-228, *Pesticide Regulations*. 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.

