6.3 Waste Management Operations

This section provides information about liquid and solid waste management on the Hanford Site. The underground single-shell and double-shell waste storage tanks and the status of the Hanford Tank Waste Treatment and Immobilization Plant (Waste Treatment Plant) construction are also discussed.

6.3.1 Waste Classifications

L. P. Diediker and D. L. Dyekman

Waste produced from Hanford Site cleanup operations is classified as either radioactive, non-radioactive, mixed, or dangerous. Radioactive waste is categorized as transuranic, high-level, and low-level. Mixed waste has both radioactive and dangerous non-radioactive substances. Dangerous waste contains hazardous substances. Hanford's dangerous waste is managed in accordance with the state of Washington *Dangerous Waste Regulations* (WAC 173-303).

Radioactive waste and mixed waste are currently handled in several ways. High-level waste is stored in underground single-shell and double-shell tanks. The method used to manage low-level waste is dependent on the source, composition, and concentration of the waste. Low-level waste is stored in either the underground waste storage tank system, on storage pads, or is buried. Transuranic waste is stored in vaults or on underground and aboveground storage pads from which it can be retrieved.

Approximately 33 Hanford Site generators (as defined in WAC 173-303-040, *Definitions*) have the capacity to produce dangerous waste during site cleanup activities. An annual report lists the dangerous waste generated, treated, stored, and disposed of onsite and offsite (e.g., DOE/RL-2004-23). Dangerous waste is treated, stored, and prepared for disposal at several Hanford Site facilities. Dangerous waste generated at the site also is shipped offsite for disposal or destruction. Some types of dangerous waste, such as used lead acid batteries and used aerosol products, are shipped offsite for recycling.

Non-dangerous waste is waste that does not contain hazardous or radioactive substances. Non-dangerous waste generated at the Hanford Site historically has been buried near the 200 Areas Solid Waste Landfill. Beginning in 1999, non-dangerous waste has been disposed of at the Roosevelt Regional landfill near Goldendale, Washington, through a contract with Basin Disposal, Inc. Since 1996, medical waste has been shipped to Waste Management of Kennewick, Washington. Asbestos has been shipped to Basin Disposal, Inc. in Pasco, Washington, and the onsite Environmental Restoration Disposal Facility. Since 1996, non-regulated drummed waste has been shipped to Waste Management of Kennewick.

Non-dangerous waste originates at a number of areas across the site. Examples include construction debris, office trash, cafeteria waste, and packaging materials. Other materials and items classified as non-dangerous waste are solidified filter backwash and sludge from the treatment of river water, failed and broken equipment and tools, air filters, uncontaminated used gloves and other clothing, and certain chemical precipitates such as oxalates. Non-dangerous demolition waste from 100 Areas decommissioning projects is buried in situ or in designated sites in the 100 Areas.

6.3.2 Solid Waste Inventories

Annual reports document the quantities and types of solid waste generated onsite, received, shipped offsite, and disposed of at the Hanford Site (e.g., HNF-EP-0125-16). Solid waste program activities are regulated by RCRA and the *Toxic Substances Control Act*, discussed in Section 5.1.3. Solid waste quantities generated onsite or received from offsite and disposed of at the Hanford Site from 1999 through 2004 are shown in Tables 6.3.1 and

Table 6.3.1. Quantities of Solid Waste[a] Generated on the Hanford Site, 1999 through 2004, kg (lb)

Waste Category	1999	2000	2001	2002	2003	2004
Mixed	421,000 (928,300)	441,000 (973,500)	328,500 (724,300)	1,025,200 (2,260,600)	421,000 (929,000)	144,512 (319,000)
Radioactive	957,000 (2,109,700)	700,000 (1,544,300)	1,675,200 (3,693,800)	1,588,000 (3,500,900)	758,000 (1,671,000)	906,591 (1,999,000)

(a) Solid waste includes containerized liquid waste.

6.3.2. Quantities of dangerous waste shipped offsite from 1999 through 2004 are shown in Table 6.3.3. Table 6.3.4 provides a detailed summary of the radioactive solid waste stored or disposed of in 2004.

6.3.3 Solid Waste Management

Solid waste management includes the treatment, storage, and/or disposal of solid waste produced as a result of Hanford Site operations or received from offsite sources that are authorized by DOE to ship waste to the site. The following sections contain information regarding specific waste treatment, storage, or disposal locations at Hanford.

6.3.3.1 Central Waste Complex

D. G. Saueressig

Waste is received at the Central Waste Complex in the 200-West Area from sources at the Hanford Site and any offsite sources that are authorized by DOE to ship waste to the Hanford Site for treatment, storage, and disposal. Ongoing cleanup, research, and development activities on the Hanford Site, as well as remediation activities, generate most of the waste received at the Central Waste Complex. Offsite waste has been primarily from other DOE sites and U.S. Department of Defense facilities. The characteristics of the waste received vary greatly, including low-level, transuranic, or mixed waste, and radioactively contaminated PCBs.

The Central Waste Complex can store as much as 22,710 cubic meters (801,996 cubic feet) of low-level mixed waste and transuranic waste. This capacity is adequate to store the projected volumes of low-level, transuranic, mixed waste, and radioactively contaminated PCBs to be generated from the sites identified above, assuming on-schedule treatment of the stored waste. Treatment will reduce the amount of waste in storage and make room for newly generated mixed waste. The dangerous waste designation of each container of waste is established at the point of origin based on process knowledge or sample analysis.

On April 28, 2004, the Washington State Department of Ecology approved the transfer of the 2404-WB and 2404-WC buildings (including the 1,913,600-liter

Table 6.3.2. Quantities of Solid Waste[a] Received on the Hanford Site from Offsite Sources, 1999 through 2004, kg (lb)

Waste Category	1999	2000	2001	2002	2003	2004
Mixed	1,306 (2,880)	1,381 (3,045)	127,000 (280,000)	112,000 (246,200)	667,000[b] (1,470,500)	255,690[b] (563,800)
Radioactive	2,325,700 (5,128,100)	6,958,000 (15,343,500)	4,736,500 (10,444,100)	1,517,000 (3,345,800)	407,000 (898,200)	519,609 (1,145,700)

(a) Solid waste contains containerized liquid waste. Solid waste quantities do not include U.S. Navy reactor compartments.
(b) Total includes Hanford-generated waste treated by offsite contractor and returned as newly generated waste.

Table 6.3.3. Quantities of Dangerous Waste[a] Shipped Off the Hanford Site, 1999 through 2004, kg (lb)

Waste Category	1999	2000	2001	2002	2003	2004
Containerized	1,732,700[b] (3,820,700)	33,200[b] (73,200)	56,000[b] (124,200)	78,400[b] (172,900)	83,500[b] (184,100)	75,296[b] (166,000)
	70,000[c] (154,300)	315,500[c] (695,700)	2,600[c] (5,800)	3,500[c] (7,800)	91,800[c] (202,400)	49,560[c] (109,300)
Bulk Solids	402,300[d] (887,000)	0	0	0	0	0
Bulk Liquids	0	0	0	50,700 (111,700)	48,400 (106,900)	35,057 (77,300)
Total	2,205,000 (4,862,000)	348,700 (768,900)	58,600 (130,000)	132,600 (292,400)	223,700 (493,400)	159,913 (352,600)

(a) Does not include *Toxic Substances Control Act* waste.
(b) Dangerous waste only.
(c) Mixed waste (radioactive and dangerous).
(d) Includes 399,875 kg (881,724 lb) from extraction of carbon tetrachloride from soil.

[421,000-gallon] storage capacity) from Central Waste Complex management to Waste Receiving and Processing Facility management.

6.3.3.2 Waste Receiving and Processing Facility

H. C. Boynton

Waste destined for the Waste Receiving and Processing Facility includes stored waste as well as newly generated waste from current site cleanup activities. The waste consists primarily of contaminated cloth, paper, rubber, metal, and plastic. Processed waste that qualifies as low-level radioactive waste and meets disposal requirements is buried onsite. Low-level radioactive waste not meeting burial requirements is processed in the facility for onsite burial or prepared for future treatment at other onsite or offsite treatment, storage, and disposal facilities. Waste determined at the facility to be transuranic is certified and packaged for shipment to the Waste Isolation Pilot Plant in Carlsbad, New Mexico, for permanent disposal. Other materials requiring further processing to meet disposal criteria are retained, pending treatment.

The Waste Receiving and Processing Facility, which began operating in 1997, analyzes, characterizes, and prepares drums and boxes of waste for disposal. The 4,800-square-meter (52,000-square-foot) facility along with two 2,000-square-meter (21,900-square-foot) storage buildings is located north of the Central Waste Complex in the 200-West Area. The facility dispositioned and shipped 154 cubic meters (5,440 cubic feet) of waste during 2004.

6.3.3.3 T Plant Complex

B. M. Barnes

The T Plant complex in the 200-West Area provides waste treatment, storage, and decontamination services for the Hanford Site as well as for offsite facilities. The T Plant complex currently operates under RCRA interim status. In 2004, the following activities occurred at the T Plant complex:

- Head-space gas was sampled in hundreds of containers of transuranic waste to support Waste Isolation Pilot Plant Project waste acceptance criteria.
- Numerous containers and boxes of waste were re-packaged, treated, sampled, and characterized to meet waste acceptance criteria and land disposal restriction requirements.
- Approximately 28 Shippingport reactor fuel elements were shipped to the Canister Storage Building. All 72 Shippingport fuel elements have been removed

Table 6.3.4. Radioactive Solid Waste Stored or Disposed of on the Hanford Site, 2004

Constituent[b]	Quantity, Ci[a] Low-Level Waste	Mixed Low-Level Waste	Transuranic Waste
Tritium	0.373	48.6	0.0443
Carbon-14	0.0000703	0.150	[c]
Manganese-54	[c]	0.682	[c]
Iron-55	1,900	5,670	[c]
Nickel-59	[c]	0.147	[c]
Cobalt-60	0.0000206	4,800	0.10
Nickel-63	26,600	15,800	[c]
Strontium-90	0.288	17.2	705
Yttrium-90	0.288	17.2	705
Technetium-99	0.0115	22.7	[c]
Iodine-129	0.0000201	0.00000463	[c]
Cesium-137	0.538	25.5	17.6
Barium-137m	0.510	24.2	16.6
Uranium-233	0.00000000198	0.458	[c]
Uranium-234	0.0000496	53.6	0.00710
Uranium-235	0.0000299	2.64	0.000701
Uranium-236	0.0000209	4.90	0.000000158
Neptunium-237	0.00000338	0.00000338	0.000647
Uranium-238	0.000527	42.7	0.015
Plutonium-238	0.00728	0.155	607
Plutonium-239	607	1.29	1,740
Plutonium-240	0.0129	0.0129	488
Plutonium-241	0.179	5.54	5.54
Plutonium-242	0.000121	0.000835	0.0745
Americium-241	0.0139	0.0139	543
Total	28,500	28,500	15,200

(a) 1 Ci = 37 GBq.
(b) Constituents for which values are given are those that are in abundance, or are otherwise thought to be of interest.
(c) No inventory was reported for this waste type.

from the 221-T Building and are now stored at the Canister Storage Building. The fuel elements are from the Shippingport Atomic Power Station, a nuclear generating station in western Pennsylvania that has been decommissioned.

- Approximately 25 containers of material including lead-acid batteries; alkali batteries; fluorescent light bulbs; incandescent, sodium, and mercury light bulbs; and aerosol cans were shipped to the 400 Area Consolidation Center.
- Equipment was decontaminated for re-use or disposal as waste.

The T Plant Complex Part B Permit was submitted to the Washington State Department of Ecology in September 2002 for inclusion in the Hanford Facility RCRA Permit (Ecology 1994). The Washington State Department of Ecology has requested an update to this permit for their review. This review is in support of the Washington State Department of Ecology eventually incorporating this permit into the Hanford Facility RCRA Permit (Ecology 1994).

The T Plant complex has completed all necessary activities to receive K Basin sludge for storage.

The T Plant complex continued with upgrades to the 291-T-1 stack. Upgrades included removal of obsolete fans #1 and #2 from service, installation of a new modern fan (fan #4), removal of ducting, and installation of new ducting. Upgrades in 2004 also included installation of a new stack cabinet monitoring system containing continuous air monitors for alpha and beta/gamma.

6.3.3.4 Mixed Low-Level Waste Treatment and Disposal

D. E. Nester

During 2004, 2,272 cubic meters (2,972 cubic yards) of mixed low-level waste were treated and/or directly disposed. These included:

- 457 cubic meters (598 cubic yards) of waste, or approximately 2,200 drum equivalents (based on a standard 208-liter [55-gallon] drum), that were non-thermally treated to RCRA land disposal restriction standards at the Pacific EcoSolutions facility located in Richland, Washington. The treated waste was returned to Hanford and disposed of in trench 34 of the Radioactive Mixed Waste Disposal Facility.
- 67 cubic meters (88 cubic yards) of waste, or approximately 320 drum equivalents of waste, that were removed from inventory at the Central Waste Complex after it was determined that they met disposal standards. This waste was direct-disposed in the Hanford Site low-level burial grounds.
- 230 cubic meters (301 cubic yards) of waste, or approximately 1,100 drum equivalents of waste, that were directly disposed into the Radioactive Mixed Waste Disposal Facility. This waste came from various Hanford Site operations and either met land disposal restriction standards in the "as generated" state, or was treated by the generators to meet RCRA and state land disposal restrictions.
- 1,518 cubic meters (1,986 cubic yards) of waste, or approximately 7,300 drum equivalents of waste, that were shipped from the Central Waste Complex to the Environmental Restoration Disposal Facility where the waste was treated and disposed. The waste was all originally from the 183-H evaporation basins and had been stored in the Central Waste Complex since the late 1980s. Approval to dispose of this waste at the Environmental Restoration Disposal Facility was obtained through an engineering evaluation and cost analysis determination, which was approved in July 2003. There remains in the Central Waste Complex approximately 700 cubic meters (915 cubic yards) of this waste, which is scheduled to be shipped to the Environmental Restoration Disposal Facility during 2005.

Additionally during 2004, two commercial treatment contracts were issued, one to Perma-Fix Environmental Services and the other to Pacific EcoSolutions. Both contracts are for the thermal treatment of mixed low-level waste labpacks and solids contaminated with RCRA organic constituents. Since both of the contracts were let in the later part of 2004, no waste was treated during the year.

6.3.3.5 Disposal of Navy Reactor Compartments

S. G. Arnold

Two disposal packages containing defueled U.S. Navy reactor compartments were received and placed in trench 94 in the 200-East Area during 2004. This brings the total number of reactor compartments received to 114. All Navy reactor compartments shipped to the Hanford Site for disposal have originated from decommissioned nuclear-powered submarines or cruisers. Decommissioned submarine reactor compartments are approximately 10 meters (33 feet) in diameter and 14.3 meters (47 feet) long. They weigh between 908 and 1,362 metric tons (1,000 and 1,500 tons). Decommissioned cruiser reactor compartments are approximately 10 meters (33 feet) in diameter and 12.8 meters (42 feet) high. They weigh approximately 1,362 metric tons (1,500 tons).

6.3.3.6 Environmental Restoration Disposal Facility

M. A. Casbon

The Environmental Restoration Disposal Facility is located near the 200-West Area. The facility began operations during July 1996 and serves as the central disposal site for contaminated waste removed during cleanup operations conducted under CERCLA on the Hanford Site.

To provide a barrier to contaminant migration from the facility, the Environmental Restoration Disposal Facility was constructed to RCRA Subtitle C Minimum Technology Requirements including a double liner and leachate collection system. Remediation waste disposed in the facility includes soil, rubble, or other solid waste materials contaminated with hazardous, low-level radioactive, or mixed (combined hazardous and radioactive) waste.

There are currently six waste cells associated with the Environmental Restoration Disposal Facility site. Initially, cells 1 and 2 were constructed and the placement of waste in these cells has since been completed. An interim cover has been placed over the parts of cells 1 and 2 that have been brought up to grade. Cells 3 and 4 were later constructed at the site and are currently receiving waste. Construction of cells 5 and 6 has been completed and the cells are scheduled to start receiving waste during 2005. All six cells are roughly equal in size. Throughout 2004, approximately 566,733 metric tons (624,719 tons) of remediation wastes were disposed at the facility. A total of approximately 4.8 million metric tons (5.2 million tons) of remediation wastes have been placed in the Environmental Restoration Disposal Facility from initial operations start-up through 2004. The total available expansion area of the Environmental Restoration Disposal Facility site was authorized in the 1995 record of decision to cover as much as 4.1 square kilometers (1.6 square miles).

6.3.3.7 Radioactive Mixed Waste Disposal Facility

D. E. Nester

The Radioactive Mixed Waste Disposal Facility is located in the 218-W-5 low-level waste burial ground in the 200-West Area and is designated as trenches 31 and 34.

Disposal to trench 34 began during September 1999. Currently, there are approximately 3,020 cubic meters (106,600 cubic feet) of waste disposed in about 2,150 waste packages in trench 34. During the summer of 2004, the first operational layer of waste packages was covered with compacted gravel and soil. The second waste operational layer was started and continues to be filled.

Trench 31 became operational for disposal during July 2004; however, no waste packages are currently disposed. This trench is being used to store waste pending final disposal. Currently, there are approximately 80 cubic meters (2,825 cubic feet) of waste stored in about 210 waste packages in trench 31.

These trenches are rectangular landfills, with approximate base dimensions of 76 by 30 meters (250 by 100 feet). The bottom of the excavations slopes slightly, giving a variable depth of 9 to 12 meters (30 to 40 feet). These trenches comply with RCRA requirements because they have double liners and systems to collect and remove leachate. The bottom and sides of the facilities are covered with a layer of soil 1 meter (3.3 feet) deep to protect the liner system during fill operations. There is a recessed section at the end of each excavation that houses a sump for leachate collection. Access to the bottom of each trench is provided by ramps along the perimeter walls.

6.3.3.8 Low-Level Burial Grounds

D. G. Saueressig

The low-level burial grounds are a land-based unit consisting of eight burial grounds located in the 200-East and 200-West Areas of the Hanford Site used for disposal of low-level waste and mixed waste (i.e., low-level radioactive waste with a dangerous waste component regulated by WAC 173-303). The low-level burial grounds have been permitted under a RCRA Part A permit since 1985.

Three trenches receive mixed waste regulated by WAC 173-303. Trenches 31 and 34 in burial ground 218-W-5 are lined trenches with leachate collection and removal systems (Sections 6.3.3.4 and 6.3.3.7). Trench 94 in burial ground 218-E-12B is used for disposal of defueled navy reactor compartments (Section 6.3.3.5). Low-level waste and transuranic waste have been placed in the other burial grounds. Transuranic waste has not been placed in the low-level burial grounds without specific DOE approval since August 19, 1987. Soil is placed over some of the waste containers to provide radiological protections. The transuranic waste was placed in a manner that allows for retrieval and/or removal in the future.

On June 23, 2004, DOE issued a record of decision for the Solid Waste Program at Hanford. Part of the record of decision stated that DOE will dispose of low-level waste in lined disposal facilities. Only two of the low-level burial

ground trenches are lined (trenches 31 and 34); therefore, since this date, all low-level waste as well as mixed low-level waste is being disposed in these two trenches (Section 6.3.3.7). Disposal of navy reactor compartments (Section 6.3.3.5) in the low-level burial grounds is not affected by this record of decision.

A draft revision to the Part B permit application for the low-level burial grounds was submitted to the Washington State Department of Ecology in June 2002. Discussions between DOE and the state concerning the permit application are ongoing. In addition, the low-level burial grounds are included in a draft remedial investigation/feasibility study work plan completed December 2004. The plan outlines possible characterization and remediation activities for specified landfills and dump sites at Hanford.

6.3.4 Liquid Waste Management

Facilities are operated on the Hanford Site to store, treat, and dispose of various types of liquid effluent generated by site cleanup activities. These facilities are operated and maintained in accordance with state and federal regulations and facility permits.

6.3.4.1 Liquid Effluent Retention Facility

S. S. Lowe

The Liquid Effluent Retention Facility in the 200-East Area consists of three RCRA-compliant surface basins to temporarily store process condensate from the 242-A evaporator and other aqueous waste. The Liquid Effluent Retention Facility provides for a steady flow and consistent pH of the feed to the Effluent Treatment Facility. Each basin has a maximum capacity of 29.5 million liters (7.8 million gallons). Generally, spare capacity is maintained in the event a leak should develop in an operating basin. Each basin is constructed of two flexible high-density polyethylene membrane liners. A system is provided to detect, collect, and remove leachate from between the primary and secondary liners. Beneath the secondary liner is a soil and bentonite clay barrier should both the primary and secondary liners fail. Each basin has a floating membrane cover constructed of very low-density polyethylene to keep out windblown soil and weeds and to minimize evaporation of small amounts of organic compounds and tritium that may be present in the basin contents. The facility began operating in April 1994 and receives liquid waste from both RCRA- and CERCLA-regulated cleanup activities.

The volume of wastewater received for interim storage during 2004 was approximately 107.5 million liters (28.4 million gallons). The wastewater received for interim storage during 2004 included approximately 2.8 million liters (750,000 gallons) of RCRA-regulated wastewater (primarily 242-A evaporator process condensate and mixed waste trench leachate) and approximately 104.8 million liters (27.7 million gallons) of CERCLA-regulated wastewater (primarily Environmental Restoration Disposal Facility leachate and contaminated groundwater from the 200-UP-1 Operable Unit in the 200-West Area). The majority of the wastewater was received via pipeline direct from the originating facility. Approximately 2.93 million liters (775,000 gallons) of wastewater were received from various facilities by tanker trucks. The volume of wastewater transferred to the Effluent Treatment Facility for treatment and disposal during 2004 was 106.9 million liters (28.25 million gallons).

The volume of wastewater being stored in the Liquid Effluent Retention Facility at the end of 2004 was 46.84 million liters (12.38 million gallons). This included 5.62 million liters (1.49 million gallons) of RCRA-regulated wastewater and 41.22 million liters (10.89 million gallons) of CERCLA-regulated wastewater.

6.3.4.2 Effluent Treatment Facility

S. S. Lowe

The Effluent Treatment Facility (200-East Area) treats liquid effluent to remove toxic metals, radionuclides, and ammonia, and destroy organic compounds. The treated effluent is stored in tanks, sampled and analyzed, and discharged to the State-Approved Land Disposal Site (also known as the 616-A crib). The treatment process constitutes best available technology and includes pH adjustment, filtration, ultraviolet light and peroxide destruction of organic compounds, reverse osmosis to remove dissolved solids, and ion exchange to remove the last traces of contaminants. The facility began operating in December

1995. Treatment capacity of the facility is a maximum of 570 liters (150 gallons) per minute.

The volume of wastewater treated and disposed of in 2004 was approximately 106.9 million liters (28.25 million gallons). This was primarily CERCLA-regulated wastewater (groundwater from the 200-UP-1 Operable Unit in the 200-West Area and Environmental Restoration Disposal Facility leachate).

6.3.4.3 200 Area Treated Effluent Disposal Facility

S. S. Lowe

The 200 Area Treated Effluent Disposal Facility is a collection and disposal system for non-RCRA-permitted waste streams. The individual waste streams must be treated or otherwise comply with best available technology and all known available and reasonable treatment in accordance with WAC 173-240, *Submission of Plans and Reports for Construction of Wastewater Facilities*, which is the responsibility of the generating facilities. The 200 Area Treated Effluent Disposal Facility consists of approximately 18 kilometers (11 miles) of buried pipeline connecting three pumping stations, one disposal sample station (the 6653 Building), and two 2-hectare (5-acre) disposal ponds located east of the 200-East Area. The facility began operating in April 1995 and has a capacity of 12,900 liters (3,400 gallons) per minute. The volume of unregulated effluent disposed of in 2004 was 540.9 million liters (142.9 million gallons). The major source of this effluent was uncontaminated cooling water and steam condensate from the 242-A evaporator, with a variety of other uncontaminated waste streams received from other Hanford facilities.

6.3.4.4 300 Area Treated Effluent Disposal Facility

S. S. Lowe

Industrial wastewater generated throughout the Hanford Site is collected and treated in the 300 Area Treated Effluent Disposal Facility. Laboratories, research facilities, office buildings, and former fuel fabrication facilities in the 300 Area are the primary sources of the wastewater. The wastewater consists of once-through cooling water, steam condensate, and other industrial wastewater. The facility began operation in December 1994. Wastewater that is potentially contaminated is collected in the nearby 307 retention basins where it is monitored and released to the 300 Area process sewer for treatment by the 300 Area Treated Effluent Disposal Facility.

This facility is designed to continuously receive wastewater, with a storage capacity of up to 5 days at the design flow rate of 1,100 liters (300 gallons) per minute. The treatment process includes iron co-precipitation to remove heavy metals, ion exchange to remove mercury, and ultraviolet light and hydrogen peroxide oxidation to destroy organics and cyanide. Sludge from the iron co-precipitation process is dewatered and used for backfill in the low-level waste burial grounds. The treated liquid effluent is monitored and discharged through an outfall to the Columbia River under a National Pollutant Discharge Elimination System permit (No. WA 002591-7 [Section 5.4.1]). The volume of industrial wastewater treated and disposed of during 2004 was 136.8 million liters (36.13 million gallons). The volume of wastewater monitored and released to the 300 Area Treated Effluent Disposal Facility for treatment and disposal from the 307 Retention Basins in 2004 was 7.46 million liters (1.97 million gallons).

6.3.4.5 242-A Evaporator

J. A. Voogd

The 242-A evaporator in the 200-East Area concentrates dilute liquid tank waste by evaporation. This reduces the volume of liquid waste sent to double-shell waste storage tanks for storage and reduces the potential need for additional double-shell tanks. The 242-A evaporator completed one campaign during 2004. The volume of waste treated was 3.69 million liters (974,000 gallons), reducing the waste volume by 619,000 liters (164,000 gallons), or approximately 17% of the total volume. The volume of process condensate transferred to the Liquid Effluent Retention Facility for subsequent treatment in the Effluent Treatment Facility was 1.36 million liters (360,000 gallons).