

2. Environmental Compliance

Setting

It is DOE-ORO and DOE National Nuclear Security Administration (DOE-NNSA) policy to conduct its operations in compliance with federal, state, and local environmental protection laws, regulations, compliance agreements and decrees, settlement agreements, executive orders, DOE orders (as incorporated into the operating contracts), work smart standards, and best management practices. DOE and its contractors make every effort to conduct operations in compliance with the letter and intent of applicable environmental statutes. The protection of the public, personnel, and the environment is of paramount importance.

Update

All ORR sites were in compliance with all applicable environmental regulations in 2001 except for a few instances discussed in this chapter.

Each site achieved a National Pollutant Discharge Elimination System permit compliance rate greater than 99.9% in 2001.

In 2001, all three ORR facilities operated in compliance with the regulatory dose limits of Tennessee Rule 1200-3-11-.08 (Emission Standards for Hazardous Air Pollutants for Radionuclides) and met its emission and test procedures.

No releases of reportable quantities of hazardous chemicals or asbestos were reported under the Comprehensive Environmental Response, Compensation, and Liability Act by any of the sites.

There are several private businesses operating under leasing arrangements at the East Tennessee Technology Park under the DOE reindustrialization initiative. Lessees are accountable to comply with all applicable standards and regulations and to obtain permits and licenses with local, state, and federal agencies as appropriate. Unless specified, lessee operations are not discussed in this report.

2.1 INTRODUCTION

DOE's operations on the reservation are required to be in conformance with environmental standards established by a number of federal and state statutes and regulations, executive orders, DOE orders, contract-based standards, and compliance and settlement agreements. However, numerous facilities at the ETTP site have been leased to private entities over the past several years through the DOE Reindustrialization Program. The lessees are separate and distinct from DOE and obtain their own permits. The lessees' compliance activities are not reflected in this report.

Principal among the regulating agencies are the U.S. Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC). These agencies issue permits, review compliance reports, participate in joint monitoring programs, inspect facilities and

operations, and oversee compliance with applicable regulations.

When environmental issues are identified during routine operations or during ongoing self-assessments of compliance status, the issues are typically discussed with the regulatory agencies. In the following sections, major environmental statutes are summarized for the ORR sites.

2.2 COMPLIANCE ACTIVITIES

2.2.1 Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) was passed in 1976 to address management of the country's huge volume of solid waste. The law requires that EPA regulate the management of hazardous waste, which includes waste solvents, batteries, and many other

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substances deemed potentially harmful to human health and to the environment. RCRA also regulates underground storage tanks (USTs) used to store petroleum and hazardous substances; recyclable used oil; and batteries, mercury thermostats, selected pesticides, and fluorescent/hazardous-waste lamps as universal wastes.

Subtitle C of RCRA controls all aspects of the management of hazardous waste, from the point of generation to treatment, storage, disposal, and recycle (TSDR). Hazardous waste generators must follow specific requirements for handling these wastes. In addition, owners and operators of hazardous waste management facilities have operating and/or postclosure care permits.

Y-12, ORNL, and ETTP are considered RCRA large-quantity generators. Each generates both RCRA hazardous waste and RCRA hazardous waste containing or contaminated with radionuclides (mixed waste). The hazardous and/or mixed wastes are accumulated by individual generators at locations referred to as satellite accumulation areas or 90-day accumulation areas, as appropriate, where they are picked up by waste management personnel and transported to a TSDR facility or shipped directly off site for treatment, storage, or disposal. At the end of 2001, Y-12 had 142 generator accumulation areas for hazardous or mixed waste. ORNL had 335 generator accumulation areas, and ETTP maintained 17.

The Union Valley Sample Preparation Facility is also a large-quantity generator. At the end of 2001, this facility had nine satellite accumulation areas and one 90-day accumulation area.

ORISE is classified under RCRA as a conditionally exempt small-quantity generator. Its site accumulation area is located in the Chemical Safety Building on the Scarboro Operations Site.

The Central Training Facility on Bear Creek Road, the Transportation Safeguards Division Garage, ORNL's Walker Branch Watershed Laboratory, and the Freil's Bend area are also classified as conditionally exempt small-quantity generators.

Y-12 is registered as a large-quantity generator and a TSDR facility under EPA Identification (ID) Number TN3890090001. Most of the units at the Y-12 Complex are being operated under operating permits; however, several units still operate under interim status in

accordance with a Part A permit application. Six RCRA Part B permit applications have been submitted for storage and treatment units at the Y-12 Complex. Four Part B applications have been approved and issued as RCRA operating permits (Table 2.1). One application has been withdrawn because the unit (Interim Reactive Waste Treatment Unit) was closed in 1997. One application has not been acted on.

The first Y-12 permit (TNHW-032) was issued by TDEC on September 30, 1994, for tank and container storage units.

On September 28, 1995, TDEC issued permit TNHW-083 for container storage units and permit TNHW-084 for production-associated units.

On September 3, 1996, TDEC issued permit TNHW-092 for the production and storage of classified waste.

These permits are modified whenever a change occurs to the area. During 2001, TNHW-084 was modified one time to update a facility drawing and the RCRA contingency plan.

ORNL is registered as a large-quantity generator and a TSDR facility under EPA ID Number TN1890090003. ORNL's most recent Part A revision (on July 14, 1999) included 33 units. During most of 2001, 26 units operated as interim-status or permitted units; another 7 units were proposed (new construction). Three of the 26 units underwent closure in 2001 and were verified as closed by TDEC on September 21 and November 6, 2001. Closure of a fourth unit was initiated in late 2001 and will be completed in 2002. By the end of 2001, ORNL had closed a total of 11 RCRA units.

On January 8, 2001, ORNL was issued a notice of violation for self-disclosure of violations of RCRA for the mishandling of some solvent waste streams. It was resolved on August 8, 2001, with TDEC's issuance of a warning letter. A notice of deficiency was received from TDEC on December 1, 2000, regarding the revised permit application for the Chemical Detonation Facility; a response was submitted on June 29, 2001. ORNL's RCRA units operate under four permits, TNHW-027, TNHW-097, TNHW-010A, and TNHW-010; TNHW-010 is the existing RCRA Hazardous and Solid Waste Amendments (HSWA) permit for the ORR (see Table 2.1). One Class 1 permit modification was issued for each of the three operating permits in 2001 to update the

**Table 2.1. Resource Conservation and Recovery Act
operating permits, 2001**

Permit number	Building/description
<i>Y-12 Complex</i>	
TNHW-032	Building 9811-1 Tank Storage Unit (OD-7) Waste Oil/Solvent Storage Unit (OD-9) (closed 2001) Liquid Organic Solvent Unit (OD-10) (closed 2001)
TNHW-083	Building 9720-9 Container Storage Unit Building 9720-25 Container Storage Unit Building 9720-31 Container Storage Unit Building 9720-58 Container Storage Unit Building 9811-1 Container Storage Unit Portable Buildings 1 & 2 Container Storage Unit
TNHW-084	Building 9206 Building 9212 Building 9720-12 Cyanide Treatment and Storage Unit Organic Handling Unit
TNHW-092	Building 9720-32 Building 9720-59
<i>ORNL</i>	
TNHW-010	Hazardous and Solid Waste Amendments only
TNHW-010A	Building 7507 Container Storage Unit (closed 2001) Building 7507W Container Storage Unit Building 7651 Container Storage Unit Building 7652 Container Storage Unit ^a Building 7653 Container Storage Unit Building 7654 Container Storage Unit Building 7669 Container Storage Unit Building 7934 Container Storage Unit (closed 2001) Portable Buildings 1 & 2 Container Storage Unit
TNHW-027	Tank 7830A Storage Unit (closed 2001)
TNHW-097	Building 7572 Container Storage Unit Building 7574 Container Storage Unit Building 7576 Container Storage Unit Building 7577 Container Storage Unit Building 7578 Container Storage Unit Building 7579 Container Storage Unit Building 7580 Container Storage Unit Building 7823 Container Storage Unit Building 7824 Container Storage Unit Building 7842 Container Storage Unit Building 7855 Container Storage Unit Building 7878 Container Storage Unit Building 7879 Container Storage Unit Building 7883 Container Storage Unit Building 7884 Container Storage Unit
<i>ETTP</i>	
TNHW-015	K-1435 Toxic Substances Control Act Incinerator
TNHW-015A	K-1425 and K-1435 Container and Tank Storage Units
TNHW-056	Container Storage Units and Waste Pile Units (26 storage units closed in 2001)

^aIncorporated May 1997; was originally TN1890090003 (TNHW-010) up to May 1997.

RCRA Contingency Plan. A Class 1 permit modification requesting the early termination of Permit No. TNHW-027 is being submitted. That tank was RCRA closed in 2001 and certified as closed by the TDEC in 2001.

On August 22, 2001, and September 12, 2001, DOE self-disclosed the potential presence of nonconforming items in solid low-level waste containers in storage at the three ORR sites. Further issue identification and negotiations regarding resolution of that self-disclosure are anticipated for CY 2002. Additional details about this matter are provided in Section 2.5.

ETTP is registered as a large-quantity generator and a TSDR facility under EPA ID Number TN0890090004. ETTP has received three RCRA permits (see Table 2.1). The K-1435 Toxic Substances Control Act (TSCA) Incinerator is a hazardous waste treatment unit operating under a RCRA permit (TNHW-015) issued by TDEC on September 28, 1987. A revised RCRA permit based on trial-burn results was received in December 1995. A reapplication of this permit was submitted to TDEC in March 1997. A second permit (TNHW-015A) is for storage of waste at the incinerator. Permit TNHW-056 covers container storage at various locations throughout the plant.

Modifications in 2001 to all three ETTP RCRA permits included changes in an update of contingency plan information and removal of closed container storage. Modifications to TNHW-015 included equipment changes and modifications. Additional minor permit modifications provided clarification and updated information regarding the individual RCRA units. ETTP prepared and submitted a Class 1 permit modification for the early termination of Permit No. TNHW-057. The tank storage units were certified as closed by the TDEC.

2.2.1.1 RCRA Assessments, Closures, and Corrective Measures

The HSWAs to RCRA, passed in 1984, require any facility seeking a RCRA permit to identify, investigate, and (if necessary) clean up all former and current solid waste management units. The original HSWA permit (HSWA TN-001) for the ORR was issued by the EPA as

an attachment to the RCRA permit for Building 7652 at ORNL. The HSWA permit requires DOE to address past, present, and future releases of hazardous constituents to the environment. The HSWA permit requirement for corrective action has been integrated into the ORR Federal Facility Agreement (see Sect. 2.2.2 for details). In March 1998, EPA and TDEC issued separate drafts of the HSWA permit for DOE review and comment. EPA's was issued as a stand-alone permit; TDEC's was issued as a modification to a Y-12 postclosure permit. DOE submitted comments on the draft permits; however, comment resolution is still pending.

The renewed permit will address contaminant releases from solid waste management units and from RCRA areas of concern, but will also integrate RCRA requirements with cleanups conducted under the Federal Facility Agreement and CERCLA programs (see Sect. 2.2.3). "Areas of concern" are areas contaminated by a release of hazardous constituents that originated from something other than a solid waste management unit. Under the existing HSWA permit, DOE must notify EPA within 30 days of identification of a new solid waste management unit or of planned significant changes to units that could alter further investigation or corrective action. DOE has provided to EPA the *2001 Annual Update of the Solid Waste Management Units for the Oak Ridge Reservation* (see Table 2.2). The renewed permits (TDEC and EPA versions) have not yet been issued.

At Y-12, 31 RCRA units have been closed since the mid-1980s. Most recently, two permitted units, the Waste Oil/Solvent Storage Unit (OD-9) and the Liquid Organic Solvent Unit (OD-10), were certified closed on November 6, 2001.

Since the mid-1980s, ORNL has closed a total of 11 RCRA units. ORNL's Solid Waste Storage Area (SWSA) 6 is an interim-status disposal site (landfill) that underwent partial closure beginning in late 1988. Although a revised closure plan for SWSA 6 (which included the eight interim-measure caps, the Hillcut Test Facility, and the Former Explosives Detonation Trench) was submitted in July 1995, actual final remediation of SWSA 6 has been deferred to CERCLA. The Melton Valley Record of Decision, which includes the selected remedy under CERCLA for SWSA 6, was signed in September 2000.

Table 2.2. Summary of 2001 annual update of ORR solid waste management units (SWMUs)

Appendix A section ^a	Title	Number of sites proposed
1a	List of SWMUs and areas of concern requiring further investigation under the Federal Facility Agreement	222
1b	List of SWMUs and areas of concern requiring further investigation	0
2	List of SWMUs and areas of concern requiring no further action/ investigation at this time	334

^aU.S. Department of Energy. *2001 Annual Update of the Solid Waste Management Units for the Oak Ridge Reservation*. Submitted to the U.S. Environmental Protection Agency.

At ETTP, the RCRA closure of all of the K-25 vaults (except K-309-2A and K-301-2), the K-31/K-33 Waste Pile Units, K-1302, and the K-1202 and K-1420-A tank storage units were certified as closed by the TDEC in 2001. Two vaults in the K-25 Building (K-1036A, and K-711) remain to be RCRA closed in 2002. All other cleanup actions at ETTP are being conducted under CERCLA.

2.2.1.2 Land Disposal Restrictions

The 1984 RCRA amendments established land disposal restrictions, which prohibited the land disposal of untreated hazardous wastes. The amendments require that all untreated wastes meet treatment standards before land disposal or that they be disposed of in a land disposal unit from which there will be no migration of hazardous constituents for as long as the waste remains hazardous. These restrictions also prohibit storage of restricted hazardous or mixed waste except as necessary to facilitate recovery, treatment, or disposal. Because treatment and disposal capacity for mixed wastes was unavailable for many years, DOE's storage of those mixed wastes over a year constituted RCRA land disposal restriction violations. To become compliant with RCRA, DOE entered into agreements with EPA, and later, with TDEC (see Sect. 2.2.4).

2.2.1.3 RCRA Subtitle D Solid Waste

Located within the boundary of the Y-12 Complex are two Class II operating industrial solid waste disposal landfills and two operating Class IV construction demolition landfills. These facilities are permitted by TDEC and accept solid waste from DOE operations on the ORR. In

addition, one Class IV facility (Spoil Area 1) is overfilled by 11,700 yd³ and has been the subject of a CERCLA remedial investigation/feasibility study. A CERCLA record of decision for this unit was signed in 1997. One Class II facility (Landfill II) has been closed and is subject to postclosure care and maintenance. Associated TDEC permit numbers are noted in Table 2.3.

2.2.1.4 RCRA Underground Storage Tanks

USTs containing petroleum and hazardous substances are regulated under Subtitle I of RCRA, 40 CFR 280. TDEC has been granted authority by EPA to regulate USTs containing petroleum under TDEC Rule 1200-1-15; however, hazardous-substance USTs are still regulated by EPA. Table 2.4 summarizes the status of USTs on the ORR.

ORNL has responsibility for 54 USTs registered with TDEC under Facility ID Number 0-730089. These 54 USTs can be classified as follows: 49 USTs closed to meet the RCRA Subtitle I requirements; 3 USTs in service that meet the 1998 standards for new UST installations; 2 USTs still in service that are deferred or exempt from Subtitle I because they are regulated by other statutes [one UST under the RCRA Subtitle C and one UST under the Clean Water Act (CWA)]. Of the 49 closed USTs, 24 were replaced by double-walled, concrete-encased aboveground storage tanks; 3 were replaced by the new state-of-the-art USTs; and 22 were not replaced because they were no longer needed. Closure approval letters have been received for all USTs closed between 1988 and 1998.

The Y-12 UST Program includes four active petroleum USTs that meet all current regulatory

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Table 2.3. RCRA Subtitle D landfills, 2001^a

Facility	TDEC Permit Number	Comments
Industrial Landfill IV	IDL-01-103-0075	Operating, Class II
Industrial Landfill V	IDL-01-103-0083	Operating, Class II
Construction and Demolition Landfill (Spoil Area 1)	DML-01-103-0012	Overfilled, Class IV Subject of CERCLA record of decision
Construction and Demolition Landfill VI	DML-01-103-0036	Operating, Class IV
Construction and Demolition Landfill VII	DML-01-103-0045	Operating, Class IV
Centralized Industrial Landfill II	IDL-01-103-0189	Postclosure care and maintenance

^aAbbreviations

RCRA Resource Conservation and Recovery Act

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act

compliance requirements. The UST registration certificates for these tanks are current, and certificates are posted at the UST locations, enabling fuel delivery until March 31, 2003.

Table 2.4. ORR underground storage tank (UST) status, 2001

	Y-12 Complex	ORNL	ETTP
Active/in-service	4	3	2
Closed	40	51 ^a	14
Hazardous substance	3 ^b	0 ^c	6 ^d
Known or suspected sites	0	0	16
Total	47	54	38

^aThe 51 “closed” USTs include deferred or excluded tanks of various categories, as detailed in the text.

^bTwo USTs are deferred because they are regulated by the Atomic Energy Act of 1954. The third is a permanently closed methanol UST.

^cClosed tanks include two hazardous substance tanks, both of which were excavated, removed, and dismantled.

^dFour USTs were permanently closed that had been used to store natural gas odorant and are regulated under the Pipeline Safety Act. A fifth UST, designed as a spill-overflow tank, has never permanently been placed into service. A sixth UST, which stored a methanol-gasoline mixture, was permanently closed.

All legacy petroleum UST sites at Y-12 have either been granted final closure by TDEC or have been deferred to the CERCLA process for further investigation and remediation.

The ETTP UST Program includes two active petroleum USTs that meet all current regulatory compliance requirements. The UST registration certificates are updated annually and are conspicuously posted in accordance with TDEC rules. Fourteen other petroleum USTs have been removed or closed in place with TDEC regulators’ recommendation of “case closed” status.

Five hazardous substance USTs at ETTP have been removed since 1996. One other hazardous substance UST designed as a spill overflow tank is present at ETTP but has never been activated.

Sixteen known and/or suspected historical USTs that were out of service before January 1, 1974, are also included in the ETTP UST Program as a best management practice. These historical UST sites could be subject to closure requirements if directed by UST regulators. Magnetic and electromagnetic geophysical techniques are being used for detection and characterization of these historical UST sites and other underground structures to provide property database information for reindustrialization of ETTP.

A detailed description of all ORNL, Y-12, and ETTP USTs and their status is included in Appendix C of the CY 2000 *Annual Site Environmental Report* (ASER) (DOE 2001a).

2.2.2 Comprehensive Environmental Response, Compensation, and Liability Act

CERCLA, also known as Superfund, was passed in 1980 and was amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA). Under CERCLA, a site is investigated and remediated if it poses significant risk to health or the environment. The EPA National Priorities List is a comprehensive list of sites and facilities that have been found to pose a sufficient threat to human health and/or the environment to warrant cleanup under CERCLA. The ORR was placed on the National Priorities List in December 1989, ensuring that the environmental impacts associated with past and present activities at the ORR are thoroughly investigated and that appropriate remedial actions or corrective measures are taken as necessary to protect human health and the environment. An interagency agreement, known as the ORR Federal Facility Agreement, under Section 120(c) of CERCLA was signed in January 1991 by EPA, TDEC, and DOE. This agreement establishes the procedural framework and schedule for developing, implementing, and monitoring response actions on the ORR in accordance with CERCLA. Appendix C of the Federal Facility Agreement lists all of the sites/areas that will be investigated, and possibly remediated, under CERCLA. Milestones for completion of CERCLA documents are available in Appendix E of the agreement.

DOE-ORO has incorporated aggressive management and productivity goals into its planning for the accelerated completion of the DOE Environmental Management mission as detailed in the initial *Accelerating Clean-Up: Paths to Closure, Oak Ridge Operations Office* (DOE 1999), published in February 1999. The following are key assumptions for the accomplishment of these goals.

- Reindustrialization is a method of accomplishment for decontamination and decommissioning. The value of assets such as idle equipment, facilities, or land is provided to the private sector to offset some of the costs.

- The use of innovative technologies is incorporated into planning for the DOE Environmental Management Program.
- Current environmental standards are met unless there is a reasonable assurance that the dialogue with the stakeholders/regulators will result in an acceptable alternate standard.
- Wastes are disposed of as follows:
 - waste generated by CERCLA actions is to be disposed of in the Environmental Management Waste Management Facility, which will be operational by FY 2002,
 - low-level radioactive waste is disposed of at the Nevada Test Site or commercial disposal sites,
 - transuranic waste is disposed of at the Waste Isolation Pilot Plant (WIPP),
 - mixed low-level radioactive waste is disposed of at commercial disposal sites or the DOE Hanford Site,
 - hazardous waste is disposed of at various commercial facilities, and
 - sanitary/industrial waste is disposed of on site.

The progress toward achieving these goals is described in the *2001 Remediation Effectiveness Report/CERCLA Five Year Review for the U.S. Department of Energy Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE 2002b). This report describes the individual remedial actions and provides an overview of some of the monitoring conducted to evaluate the efficacy of those actions.

2.2.3 RCRA-CERCLA Coordination

The CERCLA response action and RCRA corrective action processes are similar and include four steps with similar purposes (Table 2.5). The ORR Federal Facility Agreement is intended to coordinate the corrective action processes of RCRA required under the HSWA permit with CERCLA response actions.

As a further example, three RCRA post-closure permits, one for each of the three hydrogeologic regimes at Y-12, have been issued to address the seven major closed waste disposal areas at Y-12. Because it falls under the jurisdic-

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Table 2.5. Resource Conservation and Recovery Act (RCRA) corrective action processes and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions

RCRA	CERCLA	Purpose
RCRA facility assessment	Preliminary assessment/site investigation	Identify releases needing further investigation
RCRA facility investigation	Remedial investigation	Characterize nature, extent, and rate of contaminant releases
Corrective measures study	Feasibility study	Evaluate and select remedy
Corrective measures implementation	Remedial design/remedial action	Design and implement chosen remedy

tion of two postclosure permits, the S-3 Pond Site is described as having two parts (east and west). (see Table 2.6). Groundwater corrective actions required under the postclosure permits have been deferred to CERCLA. Reporting of groundwater monitoring data will comply with RCRA postclosure permit conditions as well as with CERCLA requirements.

2.2.4 Federal Facility Compliance Act

In June 1992, DOE negotiated a federal facility compliance agreement with EPA and established the initial requirements for treating mixed wastes stored on the reservation. Later, the Federal Facility Compliance Act was signed by Congress on October 6, 1992, to bring federal facilities (including those under DOE) into full compliance with RCRA. The Federal Facility Compliance Act waives the government's sovereign immunity, allowing fines and penalties to be imposed for RCRA violations at DOE facilities. In addition, the act requires that DOE facilities provide comprehensive data to EPA and state regulatory agencies on mixed-waste inventories, treatment capacities, and treatment plans for each site. It ensures that the public will be informed of waste treatment options and encourages active public participation in the decisions affecting federal facilities. TDEC is the authorized regulatory agency under the act for the DOE facilities in the state of Tennessee. The 1992 agreement was replaced in 1995 with a state commissioner's order. The Tennessee commissioner's order, signed on September 26, 1995,

Table 2.6. Postclosure permits for Y-12 Complex hydrogeologic regimes

Hydrogeologic regime	Waste area	Postclosure permit
Bear Creek Valley	1. Bear Creek Burial Grounds (including the walk-in pits) 2. Oil Landfarm 3. S-3 Pond Site (west)	TNHW-087
Chestnut Ridge	1. Chestnut Ridge Sediment Disposal Basin 2. Chestnut Ridge Security Pits 3. Kerr Hollow Quarry	TNHW-088
Upper East Fork Poplar Creek	1. New Hope Pond 2. S-3 Pond Site (east)	TNHW-089

culminated negotiations between DOE and the state and established a site treatment plan to address treatment and disposal of DOE's mixed waste from Oak Ridge facilities.

The ORR Site Treatment Plan calls for low-level waste on the ORR to be treated by a combination of commercial treatment capabilities and existing and modified on-site treatment facilities. Mixed transuranic waste streams on the ORR, composed of both contact- and remote-handled wastes, will be treated in the Transuranic Processing Facility only as necessary to meet the waste acceptance criteria for disposal at the

WIPP. Construction of the Transuranic Processing Facility began in the spring of 2001.

The ORR Site Treatment Plan provides overall schedules, milestones, and target dates for achieving compliance with land disposal restrictions; a general framework for the establishment and review of milestones; and other provisions for implementing the plan that are enforceable under the commissioner's order.

Semiannual progress reports document the quantity of land-disposal-restriction mixed waste in storage at the end of the previous 6-month period and the estimated quantity to be placed in storage for the next 5 fiscal years. All milestones and commitments for the ORR Site Treatment Plan were met for CY 2001. The annual update of the plan has been issued for CY 2001.

The Site Treatment Plan will terminate when there is no land-disposal-restriction mixed waste in noncompliant storage (i.e., in storage for more than 1 year). In the absence of the plan, land-disposal-restriction mixed waste in storage for more than 1 year would be in violation of RCRA Section 3004(j).

2.2.5 National Environmental Policy Act

The National Environmental Policy Act (NEPA) provides a means to evaluate the potential

environmental impact of proposed federal activities and to examine alternatives to those actions. The NEPA review process results in the preparation of NEPA documents in which federal, state, and local environmental regulations and DOE orders applicable to the environmental resource areas must be considered. These environmental resource areas include air, surface water, groundwater, terrestrial and aquatic ecology, threatened and/or endangered species, land use, and environmentally sensitive areas. Environmentally sensitive areas include floodplains, wetlands, prime farm land, habitats for threatened and/or endangered species, historic properties, and archaeological sites. Each ORR site NEPA program maintains compliance with NEPA through the use of its site-level procedures and program descriptions. These procedures and program descriptions assist in establishing effective and responsive communications with program managers and project engineers to establish NEPA as a key consideration in the formative stages of project planning. Table 2.7 notes the types of NEPA activities conducted at the ORR during 2001.

During 2001, ORNL operated under a procedure that provided requirements for project reviews and compliance with NEPA. It called for review of each proposed project, activity, or facility for its potential to result in significant impacts to the environment. To streamline the

Table 2.7. National Environmental Policy Act (NEPA) activities during 2001

Types of NEPA documentation	Y-12 Complex	ORNL	ETTP	ORR
Categorical exclusion (CX) recommendation	5, 2 ^a	6, 2 ^a , 1 ^b	3	
Specific CX granted	5, 2 ^a	6, 2 ^a , 1 ^b	3	
Approved under general CX documents	44, 1 ^a	70, 2 ^a	45	
Environmental assessment (EA)		1		1 ^a
EA determination				
Special EA				
Programmatic EA				
Supplemental analysis				
Environmental impact statement (EIS)	1 ^c			
Supplemental EIS				
Programmatic EIS				

^aBechtel Jacobs Company.

^bWackenhut Services, Inc.

^cSite-wide environmental impact statement for operations of the Y-12 Complex was issued in September 2001.

NEPA review and documentation process, DOE-ORO approved “generic” categorical exclusions for the ORNL Physics Division and the Solid State Division that would cover proposed bench- and pilot-scale research activities. This brings the total number of divisional-level generic categorical exclusions in use at ORNL to nine. A categorical exclusion is one of a category of actions defined in 40 CFR 1508.4 that does not individually or cumulatively have a significant effect on the human environment and for which neither an environmental assessment nor an environmental impact statement is normally required. In addition to NEPA compliance reviews for a variety of projects that were not covered by generic categorical exclusions (Table 2.7), other NEPA reviews covered routine maintenance actions, laboratory and office renovation and upgrades, and site characterization activities. A project-specific categorical exclusion, Office of Transportation Firing Range Area Expansion, was prepared for Wackenhut Services, Inc. In addition, job-specific categorical exclusions were prepared by Bechtel Jacobs LLC (BJC) and were approved in 2001 for the 3019B Laboratory Off-gas Duct Deposit Characterization and the closure of the former Reactive Chemicals Facility (7659B).

DOE implemented the Facilities Revitalization Project at ORNL, and groundbreaking activities for the various infrastructures (e.g., parking lots, utilities) have begun. The Facilities Revitalization Project is being accomplished through a cooperative effort between DOE, the state of Tennessee, and private entities. The goal of this collaboration is to upgrade ORNL’s R&D capabilities, to ensure worker health and safety, and to reduce operating costs and energy consumption. The Facilities Revitalization Project has been developed as a phased program. DOE drafted an environmental assessment to assess potential environmental impacts of the project, and the “finding of no significant impact” has been signed and issued (DOE/EA-1362, June 2001). The proposed action alternative included upgrading existing facilities, constructing new facilities on brownfield sites, relocating ORNL staff from substandard facilities, and either maintaining deactivated facilities in a safe, “cheap-to-keep” mode or transferring them to the Environmental Management Program.

DOE has prepared a draft environmental assessment for the United States Enrichment Corporation Centrifuge Research and Development Project at ETTP.

Much of the NEPA activity at ETTP during 2001 continued to involve review of potential leases of the land and facilities. The *Final Environmental Assessment, Lease of Land and Facilities Within the East Tennessee Technology Park, Oak Ridge, Tennessee* (ORO 1997) was completed and approved in 1997 and was issued in December 1997 with a finding of no significant impact. The environmental assessment was written to describe the baseline environmental conditions at the site, to analyze potential generic impacts to the baseline environment from future tenant operations based on defined bounding scenarios, and to identify and characterize cumulative impacts of future industrial uses of the site. In addition, the assessment provides DOE with environmental information for developing lease restrictions.

In 2001, NEPA reviews supported 31 potential lease actions as well as tenant modifications and improvements to facilities. Other NEPA reviews covered more routine maintenance actions, such as roof repairs, fencing projects, tree removal, cylinder yard upgrades, installation of power lines, and replacement of pumps in groundwater interceptor wells. Three job-specific categorical exclusions were prepared and approved in 2001 for ETTP:

- relocation of RCRA portable units from ORNL to Y-12 and ETTP,
- closure of RCRA waste storage unit facilities at ETTP, and
- installation of flammable storage units at Building K-1065-D.

At Y-12, several job-specific categorical exclusion documents were prepared and were approved in 2001 in support of the Infrastructure Reduction Program, including the following:

- Demolish Building 9416-2, Water Treatment Building,
- Demolish Building 81-22 Warehouse,
- Demolish Building 9722-4 Lab/Office,
- Demolish Building 9949-1 Guard Post 7, and

- Demolish Building 9929-1 Carpenter Shop and Ancillary Structures.

In addition, two job-specific categorical exclusions were prepared by BJC and were approved in 2001 for the closure of Y-12 RCRA waste storage units OD-7, OD-9, and OD-10 (formerly used for storage of hazardous and radioactively contaminated liquids) and for the exterior Column Exchange Equipment Removal at Alpha Building 9201-4. Other general NEPA categorical exclusion reviews covered routine actions, such as office renovations, improvements to security systems, equipment replacements, and infrastructure improvements.

In December 2000, a draft site-wide environmental impact statement for the Y-12 Complex was issued for public review. The draft statement analyzed current and ongoing operations at Y-12 as projected for the next 5 to 10 years. In addition, specific analyses were presented for two proposals for new facilities and alternatives for the highly enriched uranium storage and the special materials missions at Y-12.

Public hearings on the site-wide environmental impact statement were held in January 2001 where comments were received on the proposed action. Written comments were accepted from interested parties over the next several months. The *Final Site-Wide Environmental Impact Statement for the Y-12 National Security Complex* (DOE 2001b) was distributed in November 2001.

The Preferred Alternative presented in the final site-wide environmental impact statement is to continue the historic mission support operations at Y-12 and to construct and operate a new Highly Enriched Uranium Materials Facility and a new Special Materials Complex at Y-12.

In March 2002, DOE-NNSA issued the Record of Decision on the Site-Wide Environmental Impact Statement for the Y-12 National Security Complex, which is the formal statement of the agency's decision on the proposed action evaluated in the environmental impact statement.

The decision on the proposed Highly Enriched Uranium Materials Facility is construction of the new facility in the Y-12 West Portal Parking Lot. The record of decision deferred the decision on the location for construction of the Special Materials Complex. Ongoing studies involving the

special materials mission and project configuration and design needs must be completed before a decision on the location can be made.

The *Oak Ridge Reservation Environmental Impact Assessment for Transportation of Low-Level Radioactive Wastes from the Oak Ridge Reservation to Off-Site Treatment or Disposal Facilities* (DOE 2001c) was finalized during 2001. This environmental assessment evaluated the potential environmental impacts associated with transportation of legacy and operational low-level (radioactive) waste from the reservation for treatment or disposal at various locations in the United States. The finding of no significant impact was signed by the DOE manager of Oak Ridge Operations, and in December 2001, a notice of availability was published in the *Federal Register*. The environmental assessment and the finding of no significant impact were available for a 30-day public review period.

2.2.6 National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) requires that federal agencies take into account the effects of their undertakings on properties included in or eligible for inclusion in the *National Register of Historic Places* (National Park Service 2002). To comply with Section 106 of the NHPA and its implementing regulations at 36 CFR 800, DOE-ORO was instrumental in the ratification of a programmatic agreement among DOE-ORO, the Tennessee state historic preservation officer, and the Advisory Council on Historic Preservation concerning management of historical and cultural properties on the ORR. The programmatic agreement was ratified on May 6, 1994, and has been incorporated into the approved *Cultural Resource Management Plan, DOE Oak Ridge Reservation* (DOE 2001d). The plan was completed in accordance with stipulations in the programmatic agreement, including historical surveys to identify significant historical properties on the ORR.

Compliance with NHPA at ORNL, Y-12, and ETTP is achieved and maintained in conjunction with NEPA compliance. The scope of proposed actions is reviewed in accordance with the *Cultural Resource Management Plan*. If

warranted, consultation is initiated with the state historic preservation officer and the Advisory Council on Historic Preservation, and the appropriate level of documentation is prepared and submitted. A memorandum of agreement was signed by DOE-ORO (April 18, 2001) and the state historic preservation officer (May 2, 2001) for the demolition of Building 2019 and 5000 at ORNL. In addition, on March 20, 2001, the state historic preservation officer approved the three-phased approach for the ORNL Facilities Revitalization Project. This approach includes (1) constructing new buildings and upgrading existing facilities, (2) deactivation of facilities to the “cheap-to-keep” mode, and (3) decontamination and decommissioning of facilities eligible for inclusion in the *National Register of Historic Places*.

The Y-12 project reviews were covered under the programmatic agreement; therefore, no project summaries were submitted to the state historic preservation officer for concurrence in 2001. Y-12 has 93 historical properties as a result of its association with the Manhattan Project, development as a nuclear weapons component plant within the overall post-World War II government-sponsored scientific movement, and for early nuclear research. Two buildings (Buildings 9731 and 9204-3) have been recommended for National Historic Landmark status because of their national roles in uranium enrichment and in the production of stable isotopes.

ETTP was surveyed in 1994 to identify properties eligible for inclusion in the *National Register*. An archaeological survey was also completed at ETTP. Properties eligible for inclusion in the *National Register* include the ETTP Main Plant Historic District, which includes facilities within the main plant and contains 120 contributing structures, 37 noncontributing structures, and 11 structures that are not contiguous with the historic district. More detailed information on the properties eligible for inclusion in the *National Register* is provided in the *Cultural Resource Management Plan*.

In August 2001, DOE submitted a notification of adverse effect of a proposed undertaking for the demolition of ten facilities at ETTP. Concurrence of the adverse effect was received from the state historic preservation officer, and a memorandum of agreement was prepared and transmitted to the state historic preservation officer for concurrence

in December 2001. During 2001, consultation continued with the Advisory Council, the state historic preservation officer, and other consulting parties on the decontamination and decommissioning of the K-25 and K-27 Buildings to determine actions to avoid, minimize, or mitigate the adverse effects to these historical properties. Other ETTP projects were reviewed in accordance with the programmatic agreement or the *Cultural Resource Management Plan*, and no additional adverse effects to historical properties were identified that required notification to the state historic preservation officer. As cleanup efforts at ETTP continue, proposed actions resulting in an impact to historical properties are submitted to DOE-ORO, the state historic preservation officer, and the Advisory Council to review and determine ways to avoid, minimize, or mitigate adverse effects to these historic properties.

A survey of all ORISE structures was conducted to comply with the NHPA. Only one structure currently under ORISE stewardship, the Atmospheric Turbulence Diffusion Laboratory main building, was identified as being included in the *National Register*. All actions performed at that site conform to the programmatic agreement with the state historic preservation officer.

2.2.7 Protection of Wetlands

Executive Order 11990 (issued in 1977) was established to mitigate adverse effects to wetlands caused by destruction or modification of wetlands and to avoid construction in wetlands wherever possible. Avoidance of these effects is ensured through implementation of the sensitive-resource analysis conducted as part of the DOE NEPA review process. Protective buffer zones and application of best management practices are required for activities on the ORR. Coordination with TDEC, the U.S. Army Corps of Engineers, and sometimes TVA is necessary for activities involving waters of the United States and waters of the state, which include wetlands and floodplains. Generally, this coordination results in permits from the Corps of Engineers, TVA, and/or the state of Tennessee (see Sect. 2.2.12.4 for permitting details). In addition, TDEC has developed a regulatory position on impacted wetlands that includes mitigation: affected wetlands must be replaced in area and function by

restoration of disturbed wetlands, construction of wetlands, or enhancement of previously impacted areas.

The ORR implements protection of wetlands through each site's NEPA program in accordance with 10 CFR 1022, "Compliance With Floodplain/Wetlands Environmental Review Requirements." Each of the sites has also conducted surveys for the presence of wetlands and conducts surveys on a project- or program-as-needed basis. In the early to middle 1990s, an effort was initiated to conduct a wetlands survey of the entire reservation (LMES 1995). That effort was not completed, but it was reported in the 1995 ASER (LMER 1996) that wetland surveys and delineations were conducted on about 14,000 acres (5668 ha) of the 34,424 acres (13,968 ha) that made up the reservation. About 800 acres (324 ha) of wetlands were identified in the areas in which surveys were conducted. Since then, wetland surveys have been conducted on an as-needed basis.

Y-12 has conducted two surveys of its wetlands resources. *Identification and Characterization of Wetlands in the Bear Creek Watershed* (MMES 1993) was completed in October 1993, and a wetland survey of selected areas in the Y-12 Complex area of responsibility was completed in October 1994. The first report surveys the Y-12 Complex and surrounding areas; the second report, *Wetland Survey of Selected Areas in the Oak Ridge Y-12 Plant Area of Responsibility, Oak Ridge, Tennessee* (LMES 1997a), surveys additional areas for which restoration activities are planned.

A wetlands survey of ORNL areas, *Wetland Survey of the X-10 Bethel Valley and Melton Valley Groundwater Operable Units at Oak Ridge National Laboratory* (Rosensteel 1996), serves as a reference document to support wetlands assessments for upcoming ORNL projects and activities.

A wetland mitigation plan, *Project Description and Wetland Mitigation Plan, Spallation Neutron Source Bethel Valley Access Road, Anderson County and Roane County, Tennessee* (SNS 2001), was developed in March 2000 as a result of projected impacts to a small wetland from the construction of the new Spallation Neutron Source access road. In June 2000, TDEC issued an aquatic resources alteration permit for the project. The construction of the new road

provided an opportunity to restore the original wetland and its natural hydrology, which had been negatively affected by the old Chestnut Ridge Road that crossed the area. Wetland mitigation activities, which included site grading and the planting of native wetland trees and shrubs, were largely completed in December 2000, with final seeding of the site with native wetland herbs in March 2001. As required by TDEC, the restored wetland was monitored in 2001, with the first annual report due to TDEC in spring 2002. Monitoring results to date suggest that the wetland is on its way to being fully restored.

In 1999, a partial survey of the ETPP wetlands was conducted. Approximately 75% of the ETPP area was surveyed, and the wetland areas were mapped. In late 2001 and early 2002, the remainder of ETPP was surveyed, and wetland areas near proposed construction activities were mapped and flagged. The ETPP wetland map is in the process of being updated so that construction crews, remediation project planners, and those involved in other operations will be aware of these sensitive areas. The Blair Road wetland was surveyed, and the results were documented in the *East Tennessee Technology Park Blair Road Wetland Monitoring Report* (BJC 2000a), which was prepared and issued in July 2001.

2.2.8 Floodplains Management

Executive Order 11988 (issued in 1977) was established to require federal agencies to avoid to the extent possible adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. Agencies must determine whether a floodplain is present that may be affected by an action, assess the impacts on such, and consider alternatives to the action. The executive order requires that provisions for early public review and measures for minimizing harm be included in any plans for actions that might occur in the floodplain. Floodplain assessments and the associated notices of involvement and statements of findings are prepared in accordance with 10 CFR 1022, usually as part of the NEPA review and documentation process.

2.2.9 Endangered Species Act

Good stewardship, state laws (“The Rare Plant Protection and Conservation Act of 1985,” Tennessee Code Annotated Section 70-8-301 to 314, and “Tennessee Nongame and Endangered or Threatened Wildlife Species Conservation Act of 1974,” Tennessee Code Annotated Section 70-8-101 to 110), and federal laws (“Endangered Species Act of 1973,” 16 U.S.C. 1531 et seq.) dictate that animal and plant species of concern be considered when a proposed project has the potential to alter their habitat or otherwise harm them. At the federal level, such species are classified as endangered, threatened, or species of concern. At the state level, these species are considered endangered, threatened, of special concern (plants), or in need of management (animals). All such species are termed “threatened and endangered” species in this report.

2.2.9.1 Threatened and Endangered Animals

Listed animal species known to be present on the reservation (excluding the Clinch River bordering the reservation) are given along with their status in Table 2.8. The list illustrates the diversity of birds on the ORR, which is also habitat for many unlisted species, some of which are in decline nationally or regionally. Other listed species may also be present, although they have not been observed recently. These include several species of mollusks (such as the spiny riversnail), amphibians (such as the hellbender), birds (such as Bachman’s sparrow), and mammals (such as the smoky shrew). Birds, fish, and aquatic invertebrates are the most thoroughly surveyed animal groups on the ORR. The only federally listed animal species that have been recently observed (e.g., the gray bat) are represented by one to

Table 2.8. Animal species of concern reported from the Oak Ridge Reservation (ORR)^a

Species	Legal status ^b	
	Federal	State
Fish		
<i>Phoxinus tennesseensis</i>	Tennessee dace	NM
Amphibians and reptiles		
<i>Hemidactylium scutatum</i>	Four-toed salamander	NM
Birds		
<i>Accipiter striatus</i>	Sharp-shinned hawk	NM
<i>Anhinga anhinga</i>	Anhinga	NM
<i>Casmerodius alba</i>	Great egret	NM
<i>Circus cyaneus</i>	Northern harrier	NM
<i>Contopus borealis</i>	Olive-sided flycatcher	NM
<i>Dendroica cerulea</i>	Cerulean warbler	C NM
<i>Egretta caerulea</i>	Little blue heron	NM
<i>Egretta thula</i>	Snowy egret	NM
<i>Falco peregrinus^d</i>	Peregrine falcon	E
<i>Haliaeetus leucocephalus^c</i>	Bald eagle	T NM
<i>Lanius ludovicianus</i>	Loggerhead shrike	NM
<i>Pandion haliaetus</i>	Osprey	E
<i>Sphyrapicus varius</i>	Yellow-bellied sapsucker	NM
Mammals		
<i>Myotis grisescens</i>	Gray bat	E E
<i>Sorex longirostris</i>	Southeastern shrew	NM

^aLand and surface waters of the ORR exclusive of the Clinch River, which borders the ORR.

^bE = endangered, T = threatened, C = species of concern, NM = in need of management.

^cThe bald eagle was proposed for federal delisting on July 6, 1999.

^dThe peregrine falcon was federally delisted on August 25, 1999.

several migratory or transient individuals rather than by permanent residents, although this situation may change as these species continue to recover. The federally threatened bald eagle is increasingly seen in winter and may well begin nesting here within a few years. Similarly, several state-listed bird species, such as the anhinga, olive-sided fly catcher, double-crested cormorant, and little blue heron, are currently uncommon migrants or visitors to the reservation; however, the double-crested cormorant and little blue heron are probably increasing in numbers. Others, such as the cerulean warbler, northern harrier, great egret, and yellow-bellied sapsucker, are migrants or winter residents that do not nest on the reservation.

2.2.9.2 Threatened and Endangered Plants

There are currently 21 listed plant species on the ORR; among them are the pink lady's-slipper and Canada lily (Table 2.9). Two species occurring on the ORR, Carey's saxifrage and the purple fringeless orchid, have been removed from the state list as of November 17, 1999. Four species (spreading false-foxglove, Appalachian bugbane, tall larkspur, and butternut) have been under review for listing at the federal level and were listed under the formerly used "C2" candi-

Table 2.9. Currently known or previously reported vascular plant species reported from the Oak Ridge Reservation (ORR) that are listed by state or federal agencies, 2001

Species	Common name	Habitat on ORR	Status code ^a
<i>Aureolaria patula</i>	Spreading false-foxglove	River bluff	C2, T
<i>Carex gravida</i>	Heavy sedge	Varied	S
<i>Carex oxylepis</i> var. <i>pubescens</i> ^b	Hairy sharp-scaled sedge	Shaded wetlands	S
<i>Cimicifuga rubifolia</i>	Appalachian bugbane	River slope	C2, T
<i>Cypripedium acaule</i>	Pink lady's-slipper	Dry to rich woods	E-CE
<i>Delphinium exaltatum</i>	Tall larkspur	Barrens and woods	C2, E
<i>Diervilla lonicera</i>	Northern bush-honeysuckle	River bluff	T
<i>Draba ramosissima</i>	Branching whitlow-grass	Limestone cliff	S
<i>Elodea nuttallii</i>	Nuttall waterweed	Pond, embayment	S
<i>Fothergilla major</i>	Mountain witch-alder	Woods	T
<i>Hydrastis canadensis</i>	Golden seal	Rich woods	S, CE
<i>Juglans cinerea</i>	Butternut	Slope near stream	C2, T
<i>Juncus brachycephalus</i>	Small-head rush	Open wetland	S
<i>Lilium canadense</i>	Canada lily	Moist woods	T
<i>Lilium michiganense</i> ^c	Michigan lily	Moist woods	T
<i>Liparis loeselii</i>	Fen orchid	Forested wetland	E
<i>Panax quinquefolius</i>	Ginseng	Rich woods	S, CE
<i>Platanthera flava</i> var. <i>herbiola</i>	Tuberculed rein-orchid	Forested wetland	T
<i>Ruellia purshiana</i>	Push's wild-petunia	Dry, open woods	S
<i>Scirpus fluviatilis</i>	River bulrush	Wetland	S
<i>Spiranthes lucida</i>	Shining ladies-tresses	Boggy wetland	T
<i>Thuja occidentalis</i>	Northern white cedar	Rocky river bluffs	S
<i>Viola tripartita</i> var. <i>tripartita</i>	Three-parted violet	Rocky woods	S

^aStatus codes:

- C2 Special concern, under review for federal listing; was listed under the formerly used C2 candidate designation. More information needed to determine status.
- E Endangered in Tennessee.
- T Threatened in Tennessee.
- S Special concern in Tennessee.
- CE Status due to commercial exploitation.

^b*Carex oxylepis* var. *pubescens* has not been relocated during recent surveys.

^c*Lilium michiganense* is believed to have been extirpated from the ORR by the impoundment at Melton Hill.

candidate designation. These species are now informally referred to as “special concern” species by the U.S. Fish and Wildlife Service.

Two additional species listed by the state, Michigan lily and hairy sharp-scaled sedge, were identified in the past on the ORR; however, they have not been found in recent years. Several state-listed plant species currently found on adjacent lands may be present on the ORR as well, although they have not been located (Table 2.10).

2.2.10 Environmental Justice

On February 11, 1994, Executive Order 12898, *Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*, was promulgated. The executive order requires that federal actions not have the effect of excluding, denying, or discriminating on the basis of race, color, national origin, or income level and that federal agencies must ensure that there are no disproportionate impacts from their actions on low-income and minority communities surrounding their facilities.

An Environmental Justice strategy is in place at DOE-ORO under the direction of the Diversity Programs Office. It addresses the need to communicate DOE activities effectively to minority communities. In addition, the interim scoping team involved in the review and editing of NEPA documents ensures that the language is presented in a manner that does not require stakeholders to possess a technical background for them to effectively participate in the decision-making process.

Planned DOE actions to be addressed under NEPA include an analysis of the health, environmental, economic, and demographic impacts of the planned action on surrounding minority and low-income communities that could be affected by the action.

2.2.11 Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) of 1974 is an environmental statute for the protection of drinking water. This act requires EPA to establish primary drinking water regulations for

Table 2.10. Additional rare plants that occur near and could be present on the Oak Ridge Reservation (ORR)

Species	Common name	Habitat on ORR	Status code ^a
<i>Agalinis auriculata</i>	Earleaf false foxglove	Calcareous barren	C2, E
<i>Allium burdickii</i> or <i>A. tricoccom</i> ^b	Ramps	Moist woods	S, CE
<i>Berberis canadensis</i>	American barberry	Rocky bluff, creek bank	S
<i>Gnaphalium helleri</i>	Catfoot	Dry woodland edge	S
<i>Lathyrus palustris</i>	A vetch	Moist meadows	S
<i>Liatris cylindracea</i>	Slender blazing star	Calcareous barren	E
<i>Lonicera dioica</i>	Mountain honeysuckle	Rocky river bluff	S
<i>Meehania cordata</i>	Heartleaf meehania	Moist calcareous woods	T
<i>Pedicularis lanceolata</i>	Swamp lousewort	Calcareous wet meadow	T
<i>Solidago ptarmicoides</i>	Prairie goldenrod	Calcareous barren	E
<i>Pycnanthemum torrei</i> ^c	Torrey’s mountain-mint	Calcareous barren edge	

^aStatus codes:

- C2 Special concern, under review for federal listing; was listed under the formerly used C2 candidate designation. More information needed to determine status.
- E Endangered in Tennessee.
- T Threatened in Tennessee.
- S Special concern in Tennessee.
- CE Status due to commercial exploitation.

^bRamps have been reported near the ORR, but there is not sufficient information to determine which of the two species is present or if the occurrence may have been introduced by planting. Both species of ramps have the same state status.

^cThe scientific advisory committee on listing plants in Tennessee decided (12/17/99) not to list this species until a specimen is placed in the University of Tennessee Herbarium.

contaminants that may cause adverse public health effects. Although many of the requirements of the SDWA apply to public water supply systems, Section 1447 states that each federal agency having jurisdiction over a federally owned or maintained public water system must comply with all federal, state, and local requirements regarding the provision of safe drinking water.

The city of Oak Ridge supplies potable water to Y-12 and ORNL. The Water Treatment Plant, located north of the Y-12 Complex was originally owned by DOE but was transferred by DOE to the city of Oak Ridge on April 1, 2000. Prior to April 2000, operation of the plant was managed by East Tennessee Mechanical Contractors in partnership with Johnson Controls World Services, Inc., for DOE.

In December 2000, ORNL began construction of a new 1.5-million-gal potable water storage tank. Construction was completed during the summer of 2001, and the tank was put into service on October 3, 2001.

Y-12, ORNL, and ETTP, perform certain monitoring activities, including free residual chlorine, bacteriological, and copper and lead analysis. The Y-12 distribution system has qualified for triennial lead and copper sampling and was last sampled in 1999; the ORNL system was last sampled in 2000. All ORNL analyses were satisfactory. Lead and copper sampling is not planned again until 2002. The Y-12 and ORNL drinking water distribution system bacteriological sample analyses were satisfactory in 2001; the bacteriological monitoring plans were revised in late July 2000, and the ORNL bacteriological monitoring procedure has been updated since that time. ETTP monitors the levels of turbidity and of organic, inorganic, and radioactive contaminants in finished drinking water at its water plant. All test results during 2001 were satisfactory.

Y-12, ORNL, and ETTP have cross-connection prevention programs to prevent the contamination of potable water through the use of backflow preventers, engineering design, and physical separation. Backflow preventers that failed performance checks have been repaired, or the equipment served by the units has been taken out of service.

The K-1515 Sanitary Water Plant provides drinking water for ETTP and for an industrial park

located on Bear Creek Road south of the site. The DOE-owned facility is classified as a non-transient, noncommunity water supply system by TDEC and is subject to state regulations. On April 1, 1998, operation of this leased facility became the responsibility of Operations Management International, Inc., under contract with CROET.

2.2.12 Clean Water Act

The CWA was originally enacted as the Water Pollution Control Act in 1948. It was then established as the Federal Water Pollution Control Act in 1972. As amended in 1977, this law became commonly known as the Clean Water Act. Since that time, the CWA received two major amendments. The objective of the CWA is to restore, maintain, and protect the chemical, physical, and biological integrity of the nation's waters. With continued amendments, the CWA has established a comprehensive federal and state program to protect the nation's waters from pollutants. Congress continues to work on amendments to and reauthorization of the CWA. (See Appendix C for reference standards and data for water.)

2.2.12.1 National Pollutant Discharge Elimination System

One of the strategies developed to achieve the goals of the CWA was EPA's establishment of limits on specific pollutants allowed to be discharged to waters of the United States by municipal sewage treatment plants and industrial facilities. In 1972, the EPA established the National Pollutant Discharge Elimination System (NPDES) permitting program to regulate compliance with these pollutant limitations. The program was designed to protect surface waters by limiting effluent discharges into streams, reservoirs, wetlands, and other surface waters.

Y-12 Complex

The current Y-12 Complex NPDES permit (TN0002968) became effective on July 1, 1995, and expired on April 28, 2000. In October 1999, a complete application for renewal of the Y-12 NPDES permit was submitted to the TDEC. Y-12

continues to operate under the existing 1995 permit until TDEC completes the renewal process. Presently, approximately 93 active point-source discharges or storm water monitoring locations are monitored for compliance with the permit. Monitoring resulted in approximately 11,500 laboratory analyses in 2001 in addition to numerous field observations. Monitoring of discharges demonstrates that the Y-12 Complex continues to achieve an NPDES permit compliance rate of nearly 100%. At the Y-12 Complex, there were nine NPDES noncompliances in 2001 (Fig. 2.1). Information on these noncompliances is provided in Appendix D, Table D.1.

In September 1999, a consent order agreed to by DOE and Tennessee Water Quality Board resolved the outstanding permit appeals regarding biotoxicity and mercury limitations in East Fork Poplar Creek. The requirements for in-stream mercury monitoring and limits were deleted from the NPDES permit and were placed under the CERCLA program. The current permit requires storm water characterizations at selected monitoring locations in accordance with the *Y-12 Complex Storm Water Pollution Prevention Plan* (LMES 1998). Other documents submitted to TDEC in accordance with the NPDES permit include the *Radiological Monitoring Plan* (revised in 1997) (LMES 1997b) and the *Oak Ridge Y-12 Plant Biological Monitoring and Abatement*

Program Plan (revised in 2000) (Adams et al. Sept. 2000). A report on the analysis of fecal coliform bacteria levels at selected storm water monitoring points has been previously submitted.

ORNL

ORNL is currently operating under NPDES Permit TN 0002941, which was renewed by TDEC on December 6, 1996, and went into effect February 3, 1997. A four-volume permit renewal application was submitted to TDEC and EPA in June 2001. The ORNL NPDES permit lists 164 point-source discharges and monitoring points that require compliance monitoring. Approximately 100 of these are storm drains, roof drains, and parking lot drains. Compliance was determined by approximately 6500 laboratory analyses and measurements in 2001, in addition to numerous field observations by ORNL field technicians. The NPDES permit limit compliance rate for all discharge points for 2001 was nearly 100%, with only 4 out of about 6500 individual measurements exceeding their respective permit limits (Fig. 2.1). All four exceedances occurred during one week in April at the sewage treatment plant. In addition, there was one unpermitted discharge and one holding time exceedance.

The four exceedances were of the total suspended solids limits and were attributed to high winds blowing debris into the sewage treatment plant's tertiary sand filter effluent tank and/or the ozone contact chamber, both of which are partially open to the atmosphere and are the final two treatment operations at the plant. Information on the exceedances is provided in Appendix D, Table D-3.

The current permit requires ORNL to conduct detailed characterization of numerous storm water outfalls, develop and implement a radiological monitoring plan, develop and implement a storm water pollution prevention plan, implement a revised Biological Monitoring and Abatement Program (BMAP) plan, and develop and implement a chlorine control strategy. DOE appealed certain limits and conditions of the 1996 ORNL permit, including numeric limits on effluent mercury, arsenic, and selenium.

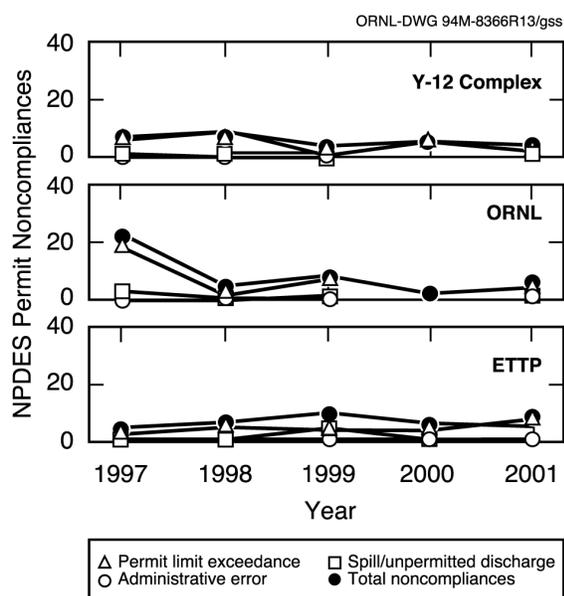


Fig. 2.1. Five-year summary of NPDES noncompliances.

ETTP

ETTP is operating under NPDES Permit TN0002950, issued with an effective date of October 1, 1992. A major permit modification became effective June 1, 1995, and the permit expired on September 29, 1997. In anticipation of reindustrialization activities at ETTP and to facilitate the transfer of ownership/operation of ETTP facilities to other parties, the NPDES permit application submitted in March 1997 included a request to TDEC to issue four separate NPDES permits for the two wastewater treatment facilities, the sanitary water treatment plant, and the storm water drainage system. A permit for the K-1515 sanitary water treatment plant (TN0074233) was issued on January 14, 2000, with an effective date of March 1, 2000. The remainder of the site continues to operate under the terms and conditions of the expired permit until new permits are issued.

The ETTP NPDES permit currently includes 2 major outfalls and 136 storm-drain outfalls. Monitoring resulted in approximately 3700 laboratory analyses in 2001 in addition to numerous field measurements. There were 4 NPDES noncompliances in 2001, indicating a compliance rate of nearly 100% (Fig. 2.1). Information on these noncompliances is provided in Appendix D, Table D.2.

In addition to the outfall-monitoring requirements, the current ETTP NPDES permit includes requirements to develop and implement a storm water pollution prevention plan, a BMAP plan, a wastewater control and surveillance plan for wastewater treatment facilities, and monitoring of the TSCA Incinerator scrubber effluent. Additionally, four compliance schedules were included in the permit when it was issued on September 30, 1992. These compliance schedules required termination of discharges at three major outfalls and compliance with chlorine limitations at seven outfalls. All requirements specified by the compliance schedules were met by the required deadlines.

2.2.12.2 Sanitary Wastewater

Y-12 Complex

The CWA includes pretreatment regulations for publicly owned treatment works. Sanitary

wastewater from the Y-12 Complex is discharged to the city of Oak Ridge treatment works under an industrial and commercial wastewater discharge permit. City personnel performed semiannual inspections on February 16 and September 7, 2001. No deficiencies of the Y-12 Sanitary Sewer Compliance Program were noted during the inspections.

The current industrial user discharge permit was issued to Y-12 on January 1, 2000, by the city of Oak Ridge. This permit establishes discharge limits for total suspended solids, biochemical oxygen demand, total nitrogen, and various metals, and requires monitoring and reporting of uranium, gross alpha and beta, and several organic compounds. Compliance with the permit is determined from samples taken at the East End Sanitary Sewer Monitoring Station, located on the east end of the complex where the Y-12 system ties into the city's sanitary sewer collection system.

During 2001, the Y-12 Complex experienced no exceedance of the industrial user discharge permit. Compliance to a state-issued operating permit for a holding tank/pump-and-haul at office trailer 9983-AZ was also maintained.

Sanitary sewer radiological sample results at the Y-12 Complex are routinely reviewed to determine compliance with DOE Order 5400.5, "Radiation Protection of the Public and Environment." Sample results are compared to the derived concentration guides listed in the order. No radiological parameter that is monitored (including uranium) has exceeded a derived concentration guide.

ORNL

At ORNL, sanitary wastewater is collected, treated, and discharged separately from other liquid wastewater streams through an on-site sewage treatment plant. Wastewater discharged into this system is regulated by means of internally administered waste acceptance criteria based on the plant's NPDES operating permit parameters. Wastewater streams currently processed through the plant include sanitary sewage from facilities in Bethel and Melton valleys, area runoff of rainwater that infiltrates the system, and specifically approved small volumes of nonhazardous biodegradable wastes such as

scintillation fluids. The effluent stream from the sewage treatment plant is ultimately discharged into White Oak Creek through an NPDES-permitted outfall (X-01). Infiltration into the system and the discharge from the on-site laundry have, at times, caused the sludge generated during the treatment process to become slightly radioactive. ORNL has completed a line-item project for comprehensive upgrades of its sanitary sewage system to reduce infiltration of contaminated groundwater and surface water and to redirect discharges from the laundry to appropriate alternative treatment facilities. The radioactivity level of ORNL sewage treatment plant sludge continues to decline. In 1998, ORNL's sewage sludge was accepted into the city of Oak Ridge's Biosolids Land Application Program. ORNL transported no sewage sludge to the Oak Ridge sewage treatment plant in 2001 because the plant was undergoing an expansion project. Sludge shipments are expected to resume in 2002.

ETTP

ETTP domestic wastewater is treated at the on-site K-1203 sewage treatment plant and is discharged pursuant to the NPDES Permit TN0002950. Beginning April 1, 1998, operation of this leased facility became the responsibility of publicly owned treatment works under a contract with CROET. The sewer-use policy of Operations Management International, Inc., and a wastewater control and surveillance program are in effect to ensure adequate treatment of wastewater at the K-1203 plant and to ensure that effluent from the facility continues to meet all NPDES permit limits. BJC operates a holding tank/pump-and-haul system to dispose of sanitary wastewater from the K-1310-DF facility at ETTP. The permit to operate this system (State Operating Permit No. 99-033) was issued April 28, 2000, and expires April 28, 2005. Monthly operations reports are submitted each month to the TDEC Environmental Assistance Center; there were no noncompliances or operational problems in 2001.

2.2.12.3 Storm Water Protection Permits

Storm water discharges associated with construction activities that disturb more than five acres of land must be NPDES-permitted. Coverage under a general permit is typically available to a construction project if the proper notice of intent is filed. In 2001, ORNL submitted one storm water notice of intent for a construction project that would result in the disturbance of greater than five acres. The permitted project was the installation of new parking areas around the ORNL site to replace parking capacity that would be lost to a private development facility to be constructed east of Sixth Street in the main ORNL complex.

2.2.12.4 Aquatic Resources Protection

The Army Corps of Engineers, TVA, and TDEC conduct permitting programs for projects and activities that could potentially affect aquatic resources, including navigable waters, surface waters (including tributaries), and wetlands. These are the Corps of Engineers Section 404 dredge-and-fill permits, TDEC aquatic resource alteration permits, and TVA 26A approvals.

An aquatic resource alteration permit (permit number 98-318) was issued to Y-12 in 1998 for removal of debris in East Fork Poplar Creek at the Oil/Water Separator. This permit remains valid for this location until September 2003. No TVA or Corps of Engineers permits were issued to Y-12 in 2001.

In 2001, ORNL projects that were conducted under aquatic resource alteration permits included streambed sediment removal at the White Oak Creek headwaters monitoring station, removal of one storm drain outfall pipe, an emergency road repair on Melton Valley Drive, and construction of new security checkpoints on Bethel Valley Road. At ETTP, there were no activities requiring aquatic resource protection permits conducted in 2001.

2.2.12.5 Oil Pollution Prevention

Section 311 of the CWA regulates the discharge of oils or petroleum products to waters of the United States and requires the development

and implementation of a spill prevention control and countermeasures plan to minimize the potential for oil discharges. Currently, each facility implements a site-specific plan. This section of the CWA was significantly amended by the Oil Pollution Act of 1990, which has as its primary objective the improvement of responses to oil spills.

2.2.12.6 Clean Water Action Plan

The Clean Water Action Plan essentially reflects a commitment by federal agencies to work cooperatively to improve water quality in the United States and is structured around watershed-based approaches in four key areas of need:

- prioritizing and undertaking water quality assessments,
- preparing restoration action strategies,
- developing and refining water quality standards, and
- enhancing stewardship of water resources on federal lands.

On a national level, the Department of Agriculture and the Department of the Interior are developing the Unified Federal Policy for Ensuring a Watershed Approach to Federal Land and Resource Management, to which other agencies (including DOE) are contributing. The goals and principles of this multi-agency policy are to

- use a consistent and scientific approach to managing lands and resources and for assessing, protecting, and restoring watersheds;
- identify specific watersheds in which to focus budgetary and other resources and to accelerate improvements in water quality and watershed condition;
- use the results of watershed assessments to guide planning and management activities;
- work closely with states, tribes, local governments, and stakeholders to implement this policy;
- meet CWA responsibilities to adhere to federal, state, tribal, interstate, and local water quality requirements to the same extent as nongovernmental entities; and

- take steps to ensure that federal land and resource management actions are consistent with federal, state, tribal, and, where appropriate, local government water quality management programs.

2.2.13 Clean Air Act

Authority for implementation and enforcement of the Clean Air Act (CAA) has been delegated to the state of Tennessee by EPA as described in the State Implementation Plan. Air pollution control rules are developed and administered by TDEC.

2.2.13.1 General CAA Compliance

The TDEC air pollution control rules ensure compliance with the federal CAA. The TDEC Air Permit Program is the primary method by which emission sources are reported to and regulated by the state.

CAA compliance program staff participate in regulatory inspections and internal audits to verify compliance with applicable regulations or permit conditions. Air emission sources subject to the permitting requirements are permitted, and relevant compliance documentation for these sources is maintained at each site. In addition, a number of sources that are exempt from permitting requirements under state rules are documented for internal purposes. Programs for permitting, compliance inspection, and documentation are in place and ensure that all ORR operations remain in compliance with all federal and state air pollution control regulations.

2.2.13.2 Title V Operating Permits

All three sites are subject to the CAA Title V Operating Permit Program. Permit applications were submitted and were determined to be complete by TDEC. However, no Title V permits had been issued for DOE operations on the ORR as of December 31, 2001. All sites continue to operate under previously issued air permits until Title V air permits are issued.

2.2.13.3 National Emission Standards for Hazardous Air Pollutants for Radionuclides

Under Section 112 of the CAA, on December 15, 1989, the EPA promulgated National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities at 40 CFR 61, Subpart H. This emission standard limits emissions of radionuclides to the ambient air from DOE facilities not to exceed amounts that would cause any member of the public to receive in any year an effective dose equivalent of 10 mrem/year. As noted in the preamble to this rule, the entire DOE facility at Oak Ridge, Tennessee, must meet this emission standard.

On June 10, 1996, EPA delegated authority for regulation of airborne radionuclide emissions from DOE facilities in Tennessee to the TDEC Division of Air Pollution Control. TDEC adopted the federal rule verbatim as Tennessee Rule 1200-3-11-.08, *Emission Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities*. In addition, TDEC codified that all past formal agreements between DOE and EPA, including the May 1994 Federal Facilities Compliance Agreement Compliance Plan (MMES 1994a), would be recognized provided that they are current, valid, and supported by appropriate documentation. The TDEC Division of Air Pollution Control has given primary administrative authority of the radionuclide emission standard to the TDEC Division of Radiological Health, which also licenses non-DOE nuclear facilities in the state.

During 2001, the ORR facilities operated in compliance with the Radionuclide National Emission Standards for Hazardous Air Pollutants (NESHAP) dose limit of 10 mrem/year to the most exposed member of the public. Based on modeling of radionuclide emissions from all major and minor point sources, the effective dose equivalent to the most exposed member of the public was 0.8 mrem/year in 2001.

Beginning in 2000, the TDEC Division of Radiological Health required DOE to assess the dose from airborne radionuclide emissions to members of the public located on the ORR. Specifically, dose was determined for lessees located in areas of the ORR where access to the public is not restricted.

Continuous sampling for radionuclide emissions is conducted at the ETTP TSCA Incinerator, the K-33 Supercompactor, and the K-33 Decontamination Room, major sources at ORNL, and exhaust stacks serving uranium-processing areas at the Y-12 Complex. Compliance with the off-site dose limit is demonstrated by using grab samples and other EPA-approved estimation techniques on the remaining minor emission points and on grouped area sources to estimate confirmatory measurements of emissions. Fugitive emissions continue to be monitored by the ORR Perimeter Air Monitoring System. In addition to this, ETTP continued to operate a site-specific ambient air monitoring system for surveillance of TSCA Incinerator uranium emissions. In addition to the ORR regulatory compliance program mentioned above, the EPA and DOE Oversight Division also conduct independent ambient air monitoring programs.

2.2.13.4 NESHAP for Asbestos

The ORR facilities have numerous buildings and equipment that contain asbestos-containing materials. The compliance program for management of removal and disposal of asbestos-containing materials includes demolition and renovation notifications to TDEC and inspections, monitoring, and prescribed work practices for abatement and disposal of asbestos materials. No releases of reportable quantities of asbestos were reported at ETTP, ORNL, or the Y-12 Complex in 2001.

2.2.13.5 Air Permits

BWXT Y-12 has 36 active air permits covering 117 air emission points. All remaining emission sources are categorized as insignificant and exempt from permitting. During 2001, no new construction permits were issued, and one permit was canceled for a source no longer in service.

During CY 2001 ORNL held 11 operating permits and 1 construction permit. All remaining emission sources are categorized as insignificant and are exempt from permitting.

At the end of CY 2001, there were 88 active air emission sources under DOE control at ETTP. The total includes 30 sources covered by 8 TDEC operating permits and two construction permits.

All remaining active air emission sources are exempt from permitting requirements. Permitted sources under DOE's Reindustrialization Program are no longer reported in this annual report, except for the portion of the year the source was under DOE control.

Air permit data are summarized in Appendix E.

2.2.13.6 NESHAP for Source Categories

The EPA has missed congressionally established promulgation dates for a number of NESHAP "Maximum Achievable Control Technology" (MACT) standards (see 40 Code of Federal Regulations Part 63, Subpart B, starting at § 63.50). Sources that may be subject to a delayed standard must comply with the "MACT hammer" permitting provisions in Section 112(j) of the CAA. Impacted sources must submit applications for case-by-case MACT determinations in two parts. Part 1, due on May 15, 2002 (the MACT "hammer" date), notifies agencies of the applicability of the delayed MACT standard to the facility. Part 2, due 18 months later, is a detailed application based on a number of requirements.

A number of MACT standards potentially applicable to ORR sources are being developed by EPA (e.g., Industrial, Commercial, and Institutional Boilers and Process Heaters; Miscellaneous Metal Parts (surface coating); Site Remediation; and Off-Site Waste and Recovery Operations). In 2002, ORR facilities will submit Part 1 applications regarding applicability of several MACT standards (e.g., Industrial Heaters/Process Boilers, Site Remediation). There are currently only two sources on the ORR subject to MACT standards. One source is the TSCA Incinerator; the other source, registered with the EPA, is a waste drum storage area at ETTP designated for storage of waste received from off site, making this area subject to the Off-Site Waste and Recovery Operations standard.

2.2.13.7 Stratospheric Ozone Protection

DOE remains committed to continued reductions in the use of regulated ozone-depleting substances and, where possible, replacing them

with materials reported to have less ozone-depleting potential. For example, DOE has committed to replacing Class I refrigeration appliances at all DOE installations if the appliances were installed before 1984, contain ozone-depleting substances, and have cooling capacities of 150 tons or greater, except in certain cases where replacement is not economical and will not benefit the environment. All units meeting this criterion at ETTP, ORNL, and Y-12 have been evaluated and replaced, except for seven units located at ORNL. These seven units serve facilities that have either adequate backup capacity or no continuing funded mission. The units will be decommissioned as funding and circumstances allow.

2.2.13.8 Chemical Accident Release Prevention

All sites on the ORR have evaluated all DOE processes for inventories of chemicals contained in quantities exceeding thresholds specified in rules pursuant to Title III, Section 112(r), "Prevention of Accidental Releases." No risk management program plans are required for a regulated substance at any DOE facility on the ORR. Administrative measures were implemented for some processes to limit the quantity of a regulated substance that could be present in a process at any given time.

2.2.14 Toxic Substances Control Act

TSCA was passed in 1976 to address the manufacture, processing, distribution in commerce, use, and disposal of chemical substances and mixtures that present an unreasonable risk of injury to human health or the environment. TSCA mandated that EPA identify and control chemical substances manufactured, processed, distributed in commerce, and used within the United States. EPA imposes strict information-gathering requirements on both new and existing chemical substances, including PCBs.

2.2.14.1 Polychlorinated Biphenyls

TSCA specifically bans the manufacture, processing, and distribution in commerce of PCBs but authorizes the continued use of some existing PCBs and PCB equipment. TSCA also imposes marking, storage, and disposal requirements for PCBs. The regulations governing PCBs mandated by TSCA are found at 40 CFR 761 and are administered by EPA. Most of the requirements of 40 CFR 761 are matrix- and concentration-dependent. TDEC restricts PCBs from being disposed of in landfills and classifies PCBs as special wastes under Tennessee solid waste regulations. A special waste approval is required from the state of Tennessee to dispose of solid PCB-contaminated waste in landfills.

2.2.14.2 PCB Compliance Agreements

The Oak Ridge Reservation PCB Federal Facilities Compliance Agreement (ORR-PCB-FFCA) between EPA Region 4 and DOE-ORO became effective on December 16, 1996. The agreement addresses PCB compliance issues at ETTP, ORNL, the Y-12 Complex, and ORISE. The ORR-PCB-FFCA specifically addresses the unauthorized use of PCBs, storage and disposal of PCB wastes, spill cleanup and/or decontamination, PCBs mixed with radioactive materials, PCB R&D, and records and reporting requirements for the ORR.

2.2.14.3 Authorized and Unauthorized Uses of PCBs

Specific applications of PCBs are authorized by EPA for continued use under restricted conditions. A variety of PCB systems and equipment have been in service at the ORR during its 50-year history. Many of these systems and equipment were used in accordance with industry standards at the time, and their continued use was authorized under the 1979 PCB regulations. Systems that were authorized included transformers, capacitors, and other electrical distribution equipment; heat-transfer systems; and hydraulic systems. The vast majority of these PCB uses have been phased out on the ORR. Small amounts of PCBs remain in service in PCB light

ballasts; however, ballasts containing PCBs are being replaced by non-PCB ballasts during normal maintenance. Most transformers that contained PCBs either have been retrofilled (replacement of PCB fluid with non-PCB dielectric fluid) to reduce the PCB concentration to below regulated limits or have been removed from service altogether.

The 1979 regulations did not anticipate the use of PCBs in many applications for which they were used. The proposals to the new amendments that would have addressed uses still prevalent on the ORR were omitted from the final rule. As a result, past uses not specifically authorized continue to present compliance issues for DOE under TSCA.

At the ORR, unauthorized uses of PCBs have been found in building materials, lubricants, paint coatings, paint sealants, and nonelectrical systems (including a rolling mill and a reactor positioning device). More such unauthorized uses are likely to be found during the course of decontamination and decommission activities. The most widespread of these unauthorized uses of PCBs are PCBs in paint and PCB-impregnated gaskets in the gaseous diffusion process motor ventilation systems at ETTP. The discoveries of such uses include rubber gasket components used to seal glove-box units, paint coatings used on hydraulic equipment at the Y-12 Complex, and interior and exterior wall paints. In 1998, ORNL reported finding PCBs at regulated levels in roofing paint used on Buildings 2000 and 2001. An annual sampling and monitoring plan was prepared and submitted for the site. EPA approval of the sampling and monitoring plan was verbally issued on February 11, 1999. Annual monitoring was conducted in 1999, 2000, and 2001. A summary of the 1999 results of that sampling was submitted to EPA in 2000 as required. Submittals of the 2000 and the 2001 monitoring results was not required. In 2001, ORNL reported finding PCBs in floor paint in Building 7007.

2.2.14.4 ETTP TSCA Incinerator PCB Disposal Approval

The ETTP TSCA Incinerator is currently operating under an extension of EPA Region 4 approval granted on March 20, 1989. This extension is based on submittal of a reapplication for

PCB disposal approval filed with EPA Region 4 on December 20, 1991, which was within the time frame allowed for reapplication. Minor amendments, updates, and corrections to this reapplication identified by DOE have been made in the interim and have been submitted to EPA. Since the submittal of the December 20, 1991, reapplication, a joint RCRA/PCB permit reapplication has been under development. This joint reapplication was submitted in March 1997 to TDEC under RCRA for treatment of hazardous wastes and to EPA Region 4 for disposal of PCB wastes. The new reapplication will replace the December 20, 1991, PCB disposal reapplication. In anticipation of this joint application, EPA Region 4 has delayed action on renewal of the PCB incineration approval.

2.2.15 Federal Insecticide, Fungicide, and Rodenticide Act

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) governs the sale and use of pesticides and requires that all pesticide products be registered by EPA before they can be sold. If a pesticide can be used according to directions without unreasonable adverse effects on the environment or applicator (i.e., if no special training is required), it is classified for general use. A pesticide that can harm the environment or injure the applicator, even when being used according to directions, is classified for restricted use. The regulations for the application of restricted-use pesticides are presented in 40 CFR 171.

The Y-12 Complex, ETTP, and ORNL maintain procedures for the storage, application, and disposition of pesticides. Individuals responsible for application of FIFRA materials are certified by the Tennessee Department of Agriculture.

No restricted-use pesticide products are used at the Y-12 Complex, ETTP, or ORNL. An inventory of pesticide products is maintained at each facility.

2.2.16 Emergency Planning and Community Right-To-Know Act

The Emergency Planning and Community Right-to-Know Act (EPCRA), also referred to as SARA Title III, requires reporting to federal, state, and local authorities of emergency planning information, hazardous chemical inventories, and releases of certain toxic chemicals to the environment. The ongoing requirements are contained in Sections 302, 303, 304, 311, 312, and 313 of EPCRA and in 40 CFR Parts 355, 370, and 372. Table 2.11 describes the main parts of EPCRA. All DOE-ORO sites in Oak Ridge are in compliance with all aspects of EPCRA. Executive Order 12856, *Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements* requires all federal agencies to comply with provisions of EPCRA and the Pollution Prevention Act.

2.2.16.1 Planning Notification and Extremely Hazardous Substance Release Notifications (Sections 302–304)

The ORR did not have any releases of extremely hazardous substances, as defined by EPCRA, in 2001.

2.2.16.2 Material Safety Data Sheet/Chemical Inventory (Sections 311–312)

Inventories, locations, and associated hazards of hazardous and extremely hazardous chemicals were submitted as required. Of the chemicals identified for CY 2001 on the ORR, 58 were located at the Y-12 Complex, 30 at ORNL, and 16 at ETTP.

Reindustrialization's private-sector lessees were not included in the CY 2001 submittals. Under terms of their lease, lessees must evaluate their own inventories of hazardous and extremely hazardous chemicals and must submit information as required by the regulations.

Table 2.11. Descriptions of the main parts of the Emergency Planning and Community Right-to-Know Act (EPCRA)

Title	Description
Sections 302–303, Planning notification	Requires that local planning committee and state emergency response commission be notified of EPCRA-related planning
Section 304, Extremely hazardous substance release notification	Addresses reporting to state and local authorities of off-site releases
Section 311–312, Material safety data sheet/chemical inventory	Requires that either material safety data sheets (MSDSs) or lists of hazardous chemicals for which MSDSs are required be provided to state and local authorities for emergency planning
Section 313, Toxic chemical release reporting	Requires that releases of toxic chemicals be reported annually to the U.S. Environmental Protection Agency

2.2.16.3 Toxic Chemical Release Reporting (Section 313)

DOE submits an annual toxic release inventory report to EPA and TDEC on or before July 1 of each year. The report covers the previous calendar year and addresses releases of certain toxic chemicals to air, water, and land as well as waste management, recycling, and pollution prevention activities. Previously, threshold determinations and reports for the three ORR facilities were combined into one report for submittal to the regulators. Beginning in reporting year 2001, threshold determinations and reports for each of the ORR facilities were separated. Operations involving toxic release inventory chemicals were compared with regulatory thresholds to determine which chemicals exceeded the reporting thresholds based on amounts manufactured, processed, or otherwise used at each facility. After threshold determinations were made, releases and off-site transfers were calculated for each chemical that exceeded one or more of the thresholds. Filing three separate reports altered threshold determinations of the chemicals to be reported and required the reporting of transfers of the chemicals between the facilities.

The following text explains how the reporting thresholds were exceeded. Table 2.12 summarizes releases and off-site transfers for those chemicals exceeding reporting thresholds.

Y-12 Complex

Total 2001 reportable toxic release inventory chemical releases to air, water, and land and waste transferred off-site for treatment, disposal, and recycling decreased compared with the amounts reported for the Y-12 Complex in 2000.

- **Freon.** Freon is otherwise used in excess of the reporting threshold as a result of enriched uranium operations.
- **Hydrochloric acid (aerosol form).** Hydrochloric acid is coincidentally manufactured in excess of the reporting threshold as a combustion by-product from burning coal at the Y-12 steam plant.
- **Lead.** The reporting threshold for lead was reduced to 100 lb beginning in reporting year 2001. The otherwise use threshold for lead was exceeded at the steam plant and the Central Training Facility firing range. The processing threshold for lead was exceeded as a result of metal sent off site for recycle.
- **Methanol.** Most of the methanol at the Y-12 Complex is otherwise used in the chiller buildings for the brine-methanol system.
- **Mercury compounds.** Mercury compounds were otherwise used and coincidentally manufactured as a combustion by-product from burning coal in excess of the 10-lb reporting threshold at the Y-12 steam plant.

Table 2.12. Emergency Planning and Community Right-to-Know Act Section 313 toxic chemical release and off-site transfer summary for the Oak Ridge Reservation, 2001

Chemical	Year	Quantity (lb) ^a			
		Y-12 Complex	ORNL	ETTP	Total
Copper	2000	49	235	1,488,037	1,488,321
	2001	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>
Dioxin and dioxin-like compounds	2000	<1	<i>b</i>	<i>b</i>	<i>b</i>
	2001	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>
Freon 113	2000	17,778	<i>b</i>	<i>b</i>	17,778
	2001	16,530	<i>b</i>	<i>b</i>	16,530
Hexachlorobenzene	2000	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>
	2001	<i>b</i>	<i>b</i>	272	272
Hydrochloric acid (aerosol)	2000	132,882	38,146	21,994	193,022
	2001	102,332	<i>b</i>	49,371	151,703
Lead/lead compounds	2000	7,237	127,045	385	134,667
	2001	12,759	163,892	8,460	185,111
Mercury/mercury compounds	2000	23	11	<i>b</i>	34
	2001	395	<i>b</i>	<i>b</i>	395
Methanol	2000	59,422	<i>b</i>	404	59,826
	2001	22,362	<i>b</i>	<i>b</i>	22,362
Nitrate compounds	2000	7,048	50,000	2,413	59,461
	2001	5,641	45,000	<i>b</i>	50,641
Nitric acid	2000	1,773	<i>b</i>	26	1799
	2001	2,701	41,214	<i>b</i>	43,915
Ozone	2000	<i>d</i>	<i>c</i>	<i>c</i>	N/A
	2001	<i>d</i>	<i>b</i>	<i>b</i>	
PCBs	2000	2,447	<i>b</i>	9,836	12,283
	2001	<i>b</i>	<i>b</i>	26,828	26,828
Sulfuric acid (aerosol)	2000	52,917	19,510	<i>b</i>	72,427
	2001	44,221	<i>b</i>	<i>b</i>	44,221
Total	2000	281,576	234,947	1,523,095	2,039,618
	2001	206,941	250,106	84,931	541,978

^aRepresents total releases to air, land, and water and includes off-site waste transfers. Also includes quantities released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes.

^bNo reportable releases because the site did not exceed the applicable Toxic Release Inventory reporting thresholds.

^cThere were no releases of this material in CY 2001.

^dNot applicable because releases were less than 500 lb and hence a Form A was submitted.

- **Nitrate compounds.** Nitrate compounds were coincidentally manufactured in excess of the reporting threshold as by-products of neutralizing nitric acid.
- **Nitric acid.** Nitric acid is used in excess of the otherwise use threshold as a chemical-processing aid.
- **Ozone.** Ozone is manufactured at Y-12 cooling towers for microbial control.
- **Sulfuric acid (aerosol form).** Sulfuric acid is coincidentally manufactured in excess of the reporting threshold as a combustion by-product from burning coal at the Y-12 steam plant.

ETTP

- **Hexachlorobenzene.** Hexachlorobenzene was brought from off-site and burned in the TSCA Incinerator. The otherwise use activity threshold of 10 lb was exceeded.
- **Hydrochloric acid (aerosol form).** Hydrochloric acid is coincidentally manufactured in an aerosol form as a combustion by-product in the TSCA Incinerator. Releases of aerosolized hydrochloric acid from the TSCA Incinerator have been relatively small because most is scrubbed from the exhaust gas stream.
- **Lead.** The otherwise use activity threshold for lead was exceeded. Activities and releases being reported for lead at ETTP are primarily those associated with waste management activities at the Central Neutralization Facility and the TSCA Incinerator, off-site waste shipments, and lead contained in storm water discharges.
- **PCBs.** The “otherwise use” activity threshold for PCBs was exceeded at ETTP by the incineration of PCBs in the TSCA Incinerator.

ORNL

- **Lead.** The ORNL Lead Shop is processing lead for shielding.
- **Nitrate compounds.** Nitrate compounds were coincidentally manufactured as by-products of neutralizing nitric acid waste and as by-products of sewage treatment.
- **Nitric acid.** Nitric acid was used to regenerate ion-exchange columns at the High Flux Isotope Reactor and in the separation process for californium by the Chemical Technology Division.

2.2.17 Environmental Occurrences

CERCLA requires that the National Response Center be notified if a nonpermitted release of a

reportable quantity or more of a hazardous substance (including radionuclides) is released to the environment within a 24-h period. The CWA requires that the National Response Center be notified if an oil spill causes a sheen on navigable waters, such as rivers, lakes, or streams. When notified, the National Response Center alerts federal, state, and local regulatory emergency organizations so that they can determine whether government response is appropriate.

During 2001, Y-12 had no releases of hazardous substances exceeding reportable quantities. There was one reportable oil sheen observed at Y-12 on October 8, 2001. The sheen was from outfall 125 and was determined to be oil from a cooling system when a heat exchanger in 9204-1 developed a leak. The National Response Center and Tennessee Emergency Management Agency were notified of one oil sheen observed on First Creek at ORNL during CY 2001. The sheen had been caused by the release of a few drops of oil from a chainsaw being operated near the creek bank. ORNL had no releases of hazardous substances exceeding reportable quantities in CY 2001.

During 2001, ETTP reported no reportable-quantity releases, fish kills, or oil sheens to federal or state agencies. There were also no reportable-quantity releases or oil sheens from BJC projects at NNSA or ORNL.

2.2.18 Implementation Status of DOE Order 435.1

DOE Order 435.1, “Radioactive Waste Management,” was issued to ensure that all DOE radioactive waste is managed in a manner that protects the environment and worker and public safety and health. This order, effective July 1, 1999, cancels DOE Order 5820.2A, “Radioactive Waste Management,” and includes the requirements that DOE facilities and operations must meet in managing radioactive waste. The implementation plan for DOE Order 435.1 (DOE 2000) was developed to document the approach employed by DOE-ORO and each prime contractor. In the appendixes, the detailed approach, schedule for implementation, and corrective actions were provided for each prime contract.

UT-Battelle's responsibilities related to this order are limited to those incumbent upon waste generators due to the division of responsibilities between UT-Battelle and BJC. UT-Battelle has completed the 18 actions relating to waste generation planning, waste certification, waste characterization, waste packaging, waste accumulation and staging, and waste transfer to TSDR providers required to achieve compliance with the order.

Y-12 has developed an implementation plan that outlines the strategy for compliance with the order. Affected operations at Y-12 include all low-level waste-generation processes and accumulation/storage areas for waste generated from such processes. BJC completed all of the corrective actions required to be in "compliance with the DOE-ORO Implementation Plan in 2000.

2.2.19 Implementation of Requirements from Executive Order 13148, *Greening the Government Through Leadership in Environmental Management*

The President signed Executive Order 13148, *Greening the Government Through Leadership in Environmental Management*, on April 21, 2000. The order consolidates and enhances several previously existing executive orders and affirms DOE's approach to improving environmental performance through the use of management systems and aggressive pollution prevention initiatives.

In February 2001, DOE Notice 450.4, "Assignment of Responsibilities for Executive Order 13148," was issued to incorporate the requirements of Executive Order 13148 into DOE directives, policies, and procedures. A new DOE Order, 450.1, "Environmental Protection Program," is currently awaiting DOE approval. The new DOE order will supersede DOE Order 5400.1, "General Environmental Protection Program," and will call for the implementation of sound environmental stewardship practices by integrating environmental management systems (EMS) into DOE's Integrated Safety Management System (ISMS).

A key component of Executive Order 13148 is the requirement for federal facilities to have an EMS in place by December 2005. An EMS is a formal methodology for managing the environmental aspects of an organization's operations. It provides a systematic way to review and improve operations in terms of environmental performance and continual environmental improvement and also serves as a driver to promote more efficient use of materials, chemicals, and energy.

DOE-NNSA has identified the EMS described in the International Organization for Standardization (ISO) voluntary standard ISO 14001, "Environmental Management Systems—Specification with Guidance for Use" (ISO 1996), as the model of choice. The ISO 14001 model is an internationally recognized standard that provides a widely recognized set of principles and standards for integrating environmental considerations into daily business decisions, including performance and cost.

In October 2001, a management assessment to examine the similarities and the differences between ISO 14001 and the environmental component of the ISMS for BWXT Y-12 was completed. BWXT Y-12 subsequently developed an ISO 14001 implementation plan, and DOE approved that plan on February 25, 2002. EMS planning will proceed in CY 2002 and will include a detailed gap analysis to identify how best to incorporate the ISO 14001 requirements into the BWXT Y-12 ISMS.

BJC uses ISMS core functions and guiding principles to integrate EMS considerations into its work activities. By integrating EMS considerations within the elements of ISMS, the BJC Environment, Safety and Health Organization provides procedures and processes for identifying environmental protection controls and compliance impacts and concerns prior to performing a scope of work, during work activities, and after the work is completed. Issued in September 2000, the BJC environmental management policy is a key attribute of the EMS. The policy reflects the mission, goals, and responsibilities of the company with respect to environmental aspects and impacts, including pollution prevention. At the beginning of each project, subject-matter experts, called Environmental Compliance (EC) Leads, are assigned to each subcontractor's work activity to support the formation, project, and

subproject teams in identifying and analyzing environmental hazards and in implementing controls that comply with DOE Work Smart Standards and applicable laws and regulations. The EMS is supported by communication between BJC and its subcontractors through the project's EC Lead, as work activities progress. The EMS ensures that periodic assessments are conducted to evaluate the ISMS performance of both a project and its subcontractor against the EMS attributes.

During CY 2002 DOE plans to conduct a reverification of ISMS as implemented by BJC on all management and integration projects. Any changes to ISMS that result from reverification will provide opportunities to improve integration of EMS. During CY 2003, BJC will self-perform a gap analysis to determine how well EMS is being implemented through each element of the reverified ISMS. Any subsequent modifications to enhance the EMS will be made to meet the Executive Order 13148 requirement that a fully implemented EMS is in place by December 2005.

In 2001, UT-Battelle continued the implementation of an EMS that is also modeled after ISO 14001. The purpose of this system is to achieve, maintain, and demonstrate environmental excellence by assessing and controlling the impact of activities and facilities on the environment. The system is designed to ensure that UT-Battelle activities are in compliance with environmental laws and regulations, and it provides a framework for integrating compliance, pollution prevention, and other environmental considerations into the planning and implementation phases of all UT-Battelle activities. UT-Battelle's EMS is consistent with ISMS core functions and guiding principles and includes the following features:

- a policy,
- identified significant environmental aspects and controls,
- applicable legal requirements,
- objectives and targets,
- training requirements,
- communication issues,
- records and document control requirements,
- monitoring and measurement requirements,
- an emergency preparedness and response program, and
- provisions for handling nonconformances and corrective/preventive actions.

ISO 14001 encourages organizations to make their environmental policy and significant environmental aspects available to the public. These elements of the UT-Battelle EMS are described in the following paragraphs.

ORNL's policy is a high-level document that contains both scientific/technical and environment, safety, and health commitments. As required by ISO 14001, ORNL's policy contains commitments to (1) comply with applicable requirements, (2) prevent pollution, and (3) continually improve. ORNL's policy is available on the web at <http://eshtraining.ornl.gov/sbms/policies.html>.

UT-Battelle has identified the following aspects as potentially having significant environmental impacts:

- industrial waste requiring special approval for disposal;
- hazardous waste;
- radioactive waste;
- PCB waste;
- mixed waste;
- medical waste;
- recyclable materials;
- air emissions;
- liquid discharges;
- storage or use of chemicals or radioactive materials;
- use/storage of PCB-contaminated equipment;
- transuranic or Class III/IV waste;
- historic/cultural resources;
- sensitive/endangered species;
- quarantined soils or plants;
- hold-for-decay wastes;
- universal waste;
- RCRA, PCB, and CERCLA treatability studies;
- excavated soils; and
- physical disturbance of aquatic environs.

Activities containing these aspects are carefully controlled to minimize or eliminate impacts to the environment. Monitoring activities associated with these aspects are described in Chapters 3, 5, and 7.

2.3 APPRAISALS AND SURVEILLANCES OF ENVIRONMENTAL PROGRAMS

Numerous appraisals, surveillances, and audits of ORR environmental activities were conducted during 2001 (see Tables 2.13, 2.14, and 2.15). These tables do not include internal DOE prime contractor assessments for 2001.

2.4 ENVIRONMENTAL PERMITS

Table 2.16 contains a summary of environmental permits for the three ORR sites. Continuing permits, required at each of the ORR facilities, are RCRA operating permits, NPDES permits, and air operating permits.

2.5 NOTICES OF VIOLATIONS AND PENALTIES

The Y-12 Complex received a notice of violation on February 7, 2002, for exceedances of the NPDES mercury limit at the Central Mercury Treatment Facility (Outfall 551) on August 8 and September 5, 2001. A response was sent to TDEC that outlined the suspected cause of the exceedances and the corrective actions that have been taken to prevent future exceedances. The facility is currently operating in full compliance with the NPDES permit.

ORNL received a notice of violation on January 8, 2001, for its self-disclosure of mis-handling of some RCRA-regulated solvent waste streams in prior years. It was resolved through a combination of internal corrective actions and a "show cause" hearing held on July 31, 2001. As a result of ORNL's corrective actions, TDEC issued

Table 2.13. Summary of environmental audits and assessments conducted at the Y-12 Complex, 2001^a

Date	Reviewer	Subject	Issues
BWXT Y-12			
2/1 through 2/12	TDEC/TOA	TDEC Annual Clean Air Compliance Inspection	0
2/16	City of Oak Ridge	Pretreatment Inspection	0
9/7	City of Oak Ridge	Pretreatment Inspection	0
Bechtel Jacobs Company			
2/22	TDEC	Inspection of ORR Landfill Operations Project	0
3/15	TDEC	Inspection of Landfills IV, V, and VI	0
4/23	TDEC	Inspection of Landfills V, VI, and VII	0
6/6	TDEC	Inspection of RCRA-permitted hazardous waste storage units (9720-9, 9720-31, 9720-45, 9720-58, and 9811-8)	0
7/11	TDEC	Inspection of Landfill V	0
8/24	TDEC	Inspection of Landfill VI and VII	0
10/25	TDEC	RCRA closure verification inspections at units OD-9 and OD-10	0

^aAbbreviations

NPDES	National Pollutant Discharge Elimination System
ORR	Oak Ridge Reservation
RCRA	Resource Conservation and Recovery Act
TDEC	Tennessee Department of Environment and Conservation
TOA	Tennessee Oversight Agreement

Table 2.14. Summary of environmental audits and assessments conducted at Oak Ridge National Laboratory, 2001^a

Date	Reviewer	Subject	Issues
UT-Battelle			
1/25/01	TDEC/DOE-O	CAA annual inspection of permitted emission sources	0
2/7/01	TDEC/DOE-O	CAA annual inspection of permitted emission sources	0
2/22/01	TDEC/DOE-O	CAA annual inspection of permitted emission sources	0
2/26/01	TDEC/DOE-O	CAA annual inspection of permitted emission sources	0
5/25/01	TDEC/DOE-O	Conducted a site visit to assist the Knoxville office of TDEC to make a waters-of-the-state determination	0
7/11/01	TDEC	Unannounced inspection of SNS site erosion controls	0
12/13/01	TDEC	Observation of relative accuracy test audit for continuous emission monitoring system for Boiler 6	0
Bechtel Jacobs Company			
4/18	TDEC	Inspection of RCRA-permitted storage facilities	0
7/24	TDEC	RCRA closure verification inspection at 7934	0
10/25	TDEC	RCRA closure verification inspections at units 7830A and 7507	0
11/19	TDEC	Site walk-down conducted in support of RCRA permit application	0
12/20	TDEC	Detonation of container of shock-sensitive material observed	0

^aAbbreviations

CAA	Clean Air Act
RCRA	Resource Conservation and Recovery Act
SNS	Spallation Neutron Source
TDEC	Tennessee Department of Environment and Conservation
TDEC/DOE-O	Tennessee Department of Environment and Conservation/DOE-Oversight Division

a warning letter. No fines or penalties were assessed by TDEC in connection with the ORNL notices of violation.

DOE received a notice of violation in 2001 from TDEC, citing several potential violations of Tennessee’s Hazardous Waste Management Act and hazardous waste regulations at ETTP. Certain nonconforming waste was found in some low-level waste containers. On October 11, 2001, a compliance review meeting was held with DOE and TDEC representatives in attendance. At that time, DOE discussed previously self-reported RCRA-related vulnerabilities with TDEC and recommended that the nonconforming low-level waste be managed under the ETTP Site Treatment Plan. The subject waste is being evaluated for management under the plan because the plan provides a regulatory framework to manage this waste. TDEC issued the notice of violation to DOE on December 14, 2001.

2.6 TENNESSEE OVERSIGHT AGREEMENT

On May 13, 1991, the state of Tennessee and DOE entered into the Tennessee Oversight Agreement, a 5-year monitoring and oversight agreement in which DOE agreed to provide the state with financial and technical support for “independent monitoring and oversight” of DOE activities on the ORR. In June 1996 and June 2001, the state and DOE signed 5-year extensions of the agreement. The agreement will continue in effect through June 30, 2006, and may be extended as mutually agreed by the parties. A joint review of the agreement will be conducted one year before the expiration date to consider its extension and any mutually agreeable modifications. This agreement is supported by three separate grants that provide funding for the state’s

Table 2.15. Summary of environmental audits and assessments conducted at the ETPP, 2001^a

Date	Reviewer	Subject	Issues
1/17	TDEC	Inspection of RCRA training and inspection records for the RCRA-permitted storage units at ETPP	0
2/13	TDEC	Tour of selected RCRA units at ETPP impacted by proposed permit modifications and meeting to discuss issues and decide resolution	0
2/14	TDEC/DOE-O	Title V air permit inspection	0
4/23	TDEC	Collection of surface water samples at K-901	0
5/14	TDEC, Division of Air Pollution Control ^b	CAA Inspection, TSCA Incinerator Trial Burn	0
5/14	EPA ^b	RCRA Inspection, TSCA Incinerator Trial Burn	0
5/14	EPA ^b	PCB Inspection, TSCA Incinerator Trial Burn	0
5/14	TDEC, Division of Solid Waste Management ^b	RCRA Inspection, TSCA Incinerator Trial Burn	0
6/13	TDEC	NPDES inspection at the Central Neutralization Facility and sewage treatment plant	0
7/12	TDEC	Inspection of installed modular flammable storage units at K-1065 complex	0
7/24	TDEC	RCRA closure verification inspections at K-1302	0
9/18	TDEC	Collection of surface water samples at K-901	0
10/22	TDEC	RCRA closure verification inspections at units K-1420-A, K-1202, and K-25 vaults	0
10/23	TDEC	Collection of surface water samples at K-901	0
10/25	EPA	Annual ORR-PCB-FFCA meeting with ORR technical contacts	0
11/12	TDEC	Collection of surface water samples at K-901	0
12/04	TDEC	Installation of composite sampler to collect surface water samples from the Clinch River	0
12/11	TDEC	Collection of surface water samples at K-901	0

^aAbbreviations

CAA	Clean Air Act
EPA	U.S. Environmental Protection Agency
ETPP	East Tennessee Technology Park
ORR	Oak Ridge Reservation
ORR-PCB-FFCA	Oak Ridge Reservation Polychlorinated Biphenyl Federal Facilities Compliance Agreement
PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
TDEC	Tennessee Department of Environment and Conservation
TDEC/DOE-O	Tennessee Department of Environment and Conservation/DOE-Oversight Division
TSCA	Toxic Substances Control Act

^bTDEC/DOE-O also participated in the May 14, 2001, TSCA Incinerator trial burn audits.

Table 2.16. Summary of permits as of December 2001

	Y-12 Complex	ORNL	ETTP
<i>Resource Conservation and Recovery Act (RCRA)</i>			
RCRA operating (Parts A and B)	4 ^a	3 ^b	3
Part B applications in process	0 ^c	1	0
Postclosure	3 ^d	0	0
Permit-by-rule units	13 ^e	115 ^e	9 ^e
Solid waste landfills	6 ^f	0	0
Annual petroleum underground storage tank facility certificate	2	1	1
Transporter permit	1	1	1
Hazardous and Solid Waste Amendments (HSWA) Permit	1 ^g	1 ^g	1 ^g
<i>Clean Water Act</i>			
National Pollutant Discharge Elimination System (NPDES)	1 ^h	1	1
Storm water	1 ⁱ	1 ⁱ	1 ⁱ
Aquatic resource alteration	1	2	0
U.S. Army Corps of Engineers 404 permits	0	1	1
General storm water construction	1 ^j	2	0
<i>Clean Air Act</i>			
Operating air	35	11	8
Construction	2	1	2
Prevention of significant deterioration	0	0	0
<i>Sanitary Sewer</i>			
Sanitary sewer	1	0	0
Pump-and-haul permit	2	0	1
<i>Toxic Substances Control Act (TSCA)</i>			
TSCA Incinerator	0	0	1
Research and development for alternative disposal methods	0	0	0
<i>Safe Drinking Water Act</i>			
Class V underground injection control permits	0	0	0

^aFour permits have been issued, representing 13 active units.

^bThree permits have been issued, representing 19 active units and 7 proposed units. One permit covers corrective action (HSWA) only.

^cA Part B permit application for three waste piles at the Y-12 Complex was previously submitted to the Tennessee Department of Environment and Conservation (TDEC), but a permit is no longer being pursued because the waste piles are scheduled to be closed. One has already been closed.

^dThree permits have been issued, representing units closed under RCRA in Bear Creek Hydrogeologic Regime, Chestnut Ridge Hydrogeologic Regime, and Upper East Fork Poplar Creek Regime.

^eNumber of units reported in 3016 Report/Inventory of Federal Hazardous Waste Activities. This report/inventory includes each tank unit (i.e., facility) and does not count individual tanks as separate units.

^fFour landfills are operational; one (Spoil Area 1) is inactive and has a record of decision under the Comprehensive Environmental Response, Compensation, and Liability Act; and one (Landfill II) is in postclosure care and maintenance.

^gOak Ridge Reservation (ORR) permit. Requirements for corrective action have been integrated into the ORR Federal Facility Agreement.

^hIssued 4/28/95 and effective 7/1/95. TDEC has incorporated requirements for storm water into individual NPDES permits.

ⁱTDEC has incorporated into individual NPDES permits.

^jNotice of intent that accesses a general NPDES permit. A notice of intent remains on file for construction at Landfills V and VII.

participation in (1) a nonregulatory independent environmental monitoring and oversight program to supplement activities conducted under applicable environmental laws and regulations; (2) a regulatory based program to support the state's participation in the activities conducted under the ORR Federal Facility Agreement effective January 1, 1992, pursuant to Sections 107 and 120 of CERCLA; and (3) emergency response activities to assist the state and local governments in preparing for potential off-site impacts from DOE activities conducted at the ORR.

TDEC is the lead Tennessee state agency for implementation of the Tennessee Oversight Agreement. Within the TDEC, the TDEC/DOE Oversight Division, located in the city of Oak Ridge, is the designated lead for the nonregulatory independent oversight program and the regulatory based program activities conducted under the Federal Facility Agreement and for coordinating the regulatory activities both within TDEC and with various state agencies for CERCLA actions, including but not limited to remedial actions, Natural Resource Damage Assessment, CERCLA interagency working groups, surveillance, land use planning, and long-term stewardship activities. The Tennessee Emergency Management Agency is the designated lead agency for the emergency management activities and assists the state and local governments in preparing for any potential off-site impacts from DOE activities conducted at the ORR.

TDEC has entered into contracts with various state and local agencies to support oversight activities. An agreement is in place with the ORR Local Oversight Committee for assistance in achieving a better public understanding of the issues and activities on the ORR.

BJC, BWXT Y-12, UT-Battelle, and other selected DOE prime contractors have established internal organizations, including the designation of Tennessee Oversight Agreement coordinators, to facilitate implementation of the agreement.

To date, a variety of activities have been conducted under the agreement. DOE has provided security clearances and training necessary for state employees to gain access to the sites. Environmental data and documents pertaining to the environmental management, restoration, and emergency management programs are provided or are made available to the state for its review. The TDEC/DOE Oversight Division routinely visits the three DOE sites to attend formal meetings and briefings, conduct walk-throughs of buildings and grounds, and conduct observations of site operations to assess compliance with environmental regulations. The TDEC/DOE Oversight Division also prepares an annual environmental monitoring report of its activities (TDEC 2002). The report covering the state's FY 2001 activities will be issued by July 2002 and, when completed, will be available on the web at <http://www.state.tn.us/environment/doeo/>.