

2. Oak Ridge Reservation Compliance Summary

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 compliance status of ORR lessees is not discussed in this report.

Principal among the regulating agencies are the EPA and The Tennessee Department of Environment and Conservation. These agencies issue permits, review compliance reports, participate in joint monitoring programs, inspect facilities and operations, and oversee compliance with applicable regulations.

When environmental concerns or problems 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.

2.1 Laws and Regulations

Table 2.1 summarizes the applicable laws and regulations, the compliance status for each in the ORR, and cross references to applicable sections of this report.

Table 2.1. Applicable laws/regulations and compliance status

Regulatory program description	Compliance status	Report sections
The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) provides the regulatory framework for remediation of releases of hazardous substances and of inactive hazardous waste disposal sites	The Oak Ridge Reservation (ORR) has been on the U.S. Environmental Protection Agency (EPA) National Priorities List (NPL) since 1989. The ORR Federal Facility Agreement (FFA) was initiated in 1992 among EPA, the Tennessee Department of Environment and Conservation (TDEC), and the Department of Energy (DOE). The FFA establishes the framework and schedule for developing, implementing, and monitoring remedial actions on the ORR	3.2 4.3.7 5.3.10
The National Environmental Policy Act (NEPA) requires consideration of how federal actions may impact the environment and an examination of alternatives. NEPA also requires that decisions include public input and involvement through scoping and review of NEPA documents	During 2007, UT-Battelle, Bechtel Jacobs Company (BJC), and B&W Y-12 activities on the ORR were in full compliance with NEPA requirements. Procedures for implementing NEPA requirements at the three major ORR sites have been fully developed and implemented	3.2 4.3.2 5.3.4
The National Historic Preservation Act was enacted to protect the nation's historical resources by establishing a comprehensive national historic preservation policy	The ORR has several facilities eligible for inclusion in the <i>National Register of Historic Places</i> . Proposed activities are reviewed to determine potential adverse effects on these properties, and methods to avoid or minimize harm are identified	3.2 4.3.2 5.3.4

Table 2.1 (continued)

Regulatory program description	Compliance status	Report sections
<p>The Clean Air Act (CAA) and Tennessee environmental conservation laws regulate the release of air pollutants through permits and air quality limits. Emissions of radionuclides are regulated by EPA via the National Emission Standards for Hazardous Air Pollutants (NESHAPs) authorizations</p>	<p>Authority for implementation and enforcement of the CAA has been delegated to the state of Tennessee by EPA. In 2007, all three major ORR sites operated in conformance to the CAA Title V Operating Permit Program</p>	<p>3.5.1.1 4.3.3 5.3.5</p>
<p>The Clean Water Act (CWA) seeks to improve surface water quality by establishing standards and a system of permits. Wastewater discharges are regulated by National Pollutant Discharge Elimination System (NPDES) permits issued by TDEC</p>	<p>Discharges to surface water at each of the three sites are governed by NPDES permits. A compliance rate of greater than 99% was achieved by the three major ORR sites in 2007</p>	<p>3.5.1.2 4.3.4 5.3.6</p>
<p>The Safe Drinking Water Act establishes minimum drinking water standards and monitoring requirements</p>	<p>The city of Oak Ridge supplies potable water to the Y-12 Complex and to ORNL. The K-1515 sanitary water plant provides drinking water for ETTP and for an industrial park south of the site</p>	<p>3.2 4.3.5 5.3.7</p>
<p>Emergency Planning and Community Right-to-Know Act, also referred to as the Superfund Amendment Reauthorization Act (SARA Title III), requires reporting emergency planning information, hazardous chemical inventories, and environmental releases of certain toxic chemicals to federal, state, and local authorities</p>	<p>DOE facilities on the ORR are in full compliance with emergency planning and reporting requirements. There were no releases of hazardous substances exceeding reportable quantities in 2007. For a description of the major elements of this act, see Table 5.11</p>	<p>3.2 4.3.9.2 5.3.12</p>
<p>The Resource Conservation and Recovery Act (RCRA) governs the generation, storage, handling, and disposal of hazardous wastes. RCRA also regulates underground storage tanks containing petroleum and hazardous substances, universal waste, and recyclable used oil</p>	<p>The Y-12 Complex, ORNL, and ETTP are defined as large-quantity generators of hazardous waste because each generates > 1,000 kg of hazardous waste per month. Each site is also regulated as a handler of universal waste. Each site operates in accordance with the RCRA permits that govern waste treatment, storage, and disposal units</p>	<p>3.2 4.3.6 5.3.8</p>
<p>The Toxic Substances Control Act (TSCA) regulates the manufacture, use, and distribution of all chemicals</p>	<p>The ORR facilities manage TSCA-regulated materials, including polychlorinated biphenyls (PCBs). The ORR PCB Federal Facilities Compliance Agreement between EPA and DOE provides a forum that addresses legacy PCB-use issues across the ORR</p>	<p>3.2 4.3.8 5.3.11</p>

Table 2.1 (continued)

Regulatory program description	Compliance status	Report sections
<p>ORR Floodplains Management Programs are established 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</p>	<p>ORR Floodplains Management Programs incorporate management and protection goals into planning, regulatory, and decision-making processes through each site's NEPA program. Goals include flood loss reduction, minimization of the impact of floods, and the restoration and preservation of ORR floodplains</p>	<p>3.2 4.3.2 5.3.4</p>
<p>ORR Protection of Wetlands Programs are implemented to minimize the destruction, loss, or degradation of ORR wetlands and to preserve and enhance their beneficial values</p>	<p>Protection of approximately 243 ha of ORR wetlands is implemented through each site's NEPA program, and surveys for the presence of wetlands are conducted on a project- or program-as-needed basis</p>	<p>1.3.6.1 3.2 4.3.2</p>
<p>The Endangered Species Act prohibits activities that would jeopardize the continued existence of an endangered or threatened species, or cause adverse modification to a critical habitat</p>	<p>The ORR is host to several plant and animal species that are categorized as endangered, threatened, or of special concern</p>	<p>1.3.6.2</p>
<p>DOE Order 231.1A, <i>Environment, Safety, and Health Reporting</i>, ensures timely collection, reporting, analysis, and dissemination of information on environment, safety, and health issues</p>	<p>The <i>Oak Ridge Reservation Annual Site Environmental Report</i> is prepared to summarize ORR environmental activities and to characterize environmental performance</p>	<p>All chapters</p>
<p>DOE Order 435.1, <i>Change 1, Radioactive Waste Management</i>, is implemented to ensure that all DOE radioactive waste is managed in a manner that protects workers, public health and safety, and the environment</p>	<p>UT-Battelle, B&W Y-12, and BJC all generate radioactive waste and have implemented waste certification programs</p>	<p>3.3.1 4.2.3.4.2 5.2.3.4.2</p>
<p>DOE Order 450.1A, <i>Environmental Protection Program</i>, has the objective of implementing sound stewardship practices that protect the air, water, land, and other natural and cultural resources affected by DOE operations. DOE facilities meet this objective by implementing environmental management systems</p>	<p>UT-Battelle, B&W Y-12, and BJC have each implemented an environmental management system, which is integrated with the specific site's integrated safety management systems</p>	<p>All chapters</p>

Table 2.1 (continued)

Regulatory program description	Compliance status	Report sections
<p>DOE Order 5400.5, Radiation Protection, was established to protect members of the public and the environment against undue risk from radiation. This order establishes standards and requirements for operations of DOE and DOE contractors</p>	<p>The derived concentration guides provided in DOE Order 5400.5 are employed on the ORR to ensure that effluents and emissions do not affect the environment or public and worker safety and health, and to ensure that all doses meet the “as low as reasonably achievable” policy</p>	<p>2.3 Chap. 7</p>

2.2 Environmental Permits

Table 2.2 summarizes environmental permits for the three ORR sites. Continuing permits, required at each of the ORR facilities, are Resource Conservation and Recovery Act (RCRA) operating permits, National Pollutant Discharge Elimination System (NPDES) permits, and air operating permits.

2.3 Release of Property

DOE Order 5400.5 establishes standards and requirements for operations of DOE and its contractors with respect to protection of members of the public and the environment against undue risk from radiation. In addition to discharges to the environment, the release of property containing residual radioactive material is a potential contributor to the dose received by the public, and DOE Order 5400.5 specifies limits for unrestricted release of property to the public.

B&W Y-12, UT-Battelle, and BJC each use a graded approach for release of material and equipment for unrestricted public use. Material has been categorized so that in some cases an administrative release can be accomplished without a radiological survey. Such material originates from nonradiological areas and includes the following:

- documents, mail, diskettes, compact disks, and other office media;
- nonradioactive items or materials received that are immediately (within the same shift) determined to have been misdelivered or damaged;
- personal items or materials;
- paper, plastic products, aluminum beverage cans, toner cartridges, and other items released for recycling;
- office trash;
- nonradiological area housekeeping materials and associated waste;
- break-room, cafeteria, and medical wastes;
- medical and bioassay samples; and
- other items with an approved release plan.

Items originating from nonradiological areas within the sites’ controlled areas not in the listed categories are surveyed prior to release to the public, or a process knowledge evaluation is conducted to ensure that material has not been exposed to radioactive material or beams of radiation capable of creating radioactive material. In some cases both a radiological survey and a process knowledge evaluation are performed (e.g., a radiological survey is conducted on the outside of the item, and a process knowledge form is signed by the custodian for inaccessible surfaces.) When the process knowledge approach is employed, the item’s custodian is required to sign a statement that specifies the history of the material and confirms that no radioactive material has passed through or contacted the item. Items advertised for public sale via an auction are also surveyed on a random basis by state of Tennessee personnel, giving further assurance that material and equipment are not being released with inadvertent contamination.

Table 2.2. Summary of permits as of December 2007

	Y-12 National Security Complex	Oak Ridge National Laboratory (ORNL)	East Tennessee Technology Park (ETTP)
Resource Conservation and Recovery Act (RCRA)			
RCRA operating (Parts A and B)	2	2 ^a	3
Part B applications in process	0	0 ^b	0
Postclosure	3 ^c	0	0
Solid waste landfills	6 ^d	0	0
Annual petroleum underground storage tank facility certificate	2	1	1
Transporter permit	1	1	1
Hazardous Waste Corrective Action Permit	1 ^e	1 ^e	1 ^e
Clean Water Act (CWA)			
National Pollutant Discharge Elimination System (NPDES)	1 ^f	2	4 ^g
Storm water	1 ^h	1 ^h	1 ^h
Aquatic resource alteration	0	1	1
Army Corps of Engineers 404 permits	0	1	1
General storm water construction	2	5	0
Clean Air Act (CAA)			
Operating Title V major source permit	3	2	8 ⁱ
Construction	2	1	2
Sanitary Sewer			
Sanitary Sewer	1	0	0
Pump-and-haul permit	1	2 ^j	3
Toxic Substances Control Act (TSCA)			
TSCA Incinerator	0	0	1
Research and development for alternative disposal methods	0	0	0
Safe Drinking Water Act (SDWA)			
Class V underground injection control permits	0	0	0

^aTwo permits have been issued, representing 16 active units and 5 proposed units. One additional permit covers corrective action (Hazardous and Solid Waste Amendments) only.

^bTwo Part B Permit renewals are in process.

^cThree permits have been issued, representing units closed under RCRA in the Bear Creek, Chestnut Ridge, and Upper East Fork Poplar Creek hydrogeologic regimes.

^dThree landfills are operational; one is inactive and has a record of decision (ROD) under the Comprehensive Environmental Response, Compensation, and Liability Act; one is closed pending certification; and one is in postclosure care and maintenance.

^eOak Ridge Reservation permit (TNHW-121). Requirements for corrective action have been integrated into the ORR Federal Facility Agreement.

^fIssued 4/28/95 and effective 7/1/95. The Tennessee Department of Environment and Conservation (TDEC) has incorporated requirements for storm water into individual NPDES permits.

^gOnly two NPDES permits are directly administered by DOE contractor. Two permits are administered through the Community Reuse Organization of East Tennessee.

^hTDEC has incorporated NPDES storm water permit elements into each of the individual NPDES industrial wastewater permits for the three Oak Ridge facilities.

ⁱETTP has not been issued a Title V major source permit. The listed number represents the total of all applicable source-specific operating and construction permits previously issued by the state.

^jThis includes one pump-and-haul permit for Y-12 and two for office trailers at ORNL, as well as one at Clark Center Park, which is operated by East Tennessee Mechanical Contractors.

A similar approach is used for material released to state-permitted landfills on the ORR. The only exception is for items that could be contaminated in depth; items contaminated in depth are also sampled by laboratory analysis to ensure that landfill permit criteria are met.

ORR contractors continue to follow the requirements of the scrap metal moratorium. No scrap metal originating from radiological areas is being released for recycle.

As the Spallation Neutron Source (SNS) and the High-Flux Isotope Reactor (HFIR) Cold Source reach full user capacity, it will be necessary to release small samples of material that have been exposed at ORNL to neutrons as part of various material research experiments. Because these samples have been exposed to neutrons, there is the potential for production of radioactivity within the volume of the sample due to neutron activation reactions. The amount of radioactivity will depend on many factors, including time in the neutron beam, beam energy and intensity, and decay time after removal from the beam. Like other material from radiological areas, these samples must be evaluated prior to release using the requirements specified in DOE Order 5400.5. For material with potential residual radioactivity in volume, the order specifies that authorized limits must be developed using a limiting dose of 1 mrem/year under a conservative exposure scenario and approved by DOE prior to implementation. UT-Battelle has developed an authorized limits request package for neutron experiment samples from SNS and HFIR. This request outlines the dose assessment process used to derive specific release limits for groups of radionuclides expected in neutron-scattering experiment samples that will ensure that potential doses to the general public from use or handling such samples will be well below 1 mrem/year. Once the authorized limits are approved, samples will be released to researchers only after careful review of predicted activation levels and measurement of actual post-experiment levels to verify that the residual radioactivity is below authorized limits for release.

2.4 External Oversight and Assessments

Numerous appraisals, surveillances, and audits of ORR environmental activities were conducted during 2007 (see Table 2.3). The table does not include internal DOE prime contractor assessments for 2007.

The state of Tennessee also conducts a program of independent monitoring and oversight of DOE activities on the ORR through the Tennessee Oversight Agreement (TOA). The TOA is a voluntary agreement between DOE and the state of Tennessee and is designed to assure the citizens of Tennessee that their health, safety, and environment are being protected through existing programs and substantial new commitments by DOE. More information on the TOA is available at <http://www.state.tn.us/environment/doeo/>.

2.5 Emergency Reporting of Spills and Releases

There were no releases of hazardous substances exceeding reportable quantities, no reportable oil sheens, and no fish kills on the ORR during 2007.

2.6 Notices of Violations and Penalties

On July 20, 2007, a single notice of violation (NOV) was issued for ETPP (for a chromium exceedance). The event and the investigation are discussed in Sect. 3.7.2 of this report.

There were no penalties or consent orders issued to Y-12 in 2007. One NOV was received due to two minor violations noted during the annual RCRA audit conducted by the Tennessee Department of Environment and Conservation (TDEC). Both issues have been corrected to the satisfaction of TDEC.

No NOV's or penalties associated with RCRA inspections were issued for ORNL activities and facilities during 2007.

Table 2.3. Summary of environmental audits and assessments conducted at ORR, 2007^a

Date	Reviewer	Subject	Issues
UT-Battelle			
May 7–10	TDEC, RCRA	TDEC Annual RCRA Inspection	0
May 22	TDEC	ORNL NPDES Permit Renewal	0
May 31	TDEC	ORNL NPDES Permit Renewal	0
Jun 18–21	NSF-ISR	EMS Reassessment Audit	0
Jul 19	TDEC	ORNL NPDES Permit Renewal	0
Aug 10	TDEC	ORNL NPDES Permit Renewal	0
Sep 11–12	RAC	ORNL Dose Assessment	0
Sep 27	TDEC	ORNL NPDES Permit Renewal	0
Nov 5–7	TDEC	TDEC Annual RCRA inspection at Y-12 Complex	0
Nov 20	TDEC	ORNL NPDES Permit Renewal	0
Dec 6	TDEC	ORNL NPDES Permit Renewal	0
ETTP			
Feb	TDEC	RCRA Storage Area	0
Feb	EPA/TDEC	TSCAI	0
Sep	TDEC	CNF, TSCAI wastewater, ETTP storm water outfalls	0
Y-12 Complex, B&W Y-12			
Feb 20–22	TDEC	Annual Clean Air Compliance Inspection and NO _x RATA Observation	0
Feb 27	City of Oak Ridge	Pretreatment Inspection	0
May 9	TDEC	RCRA Inspection of OST Garage	0
Jul 25	TDEC	RCRA Inspection of Union Valley Facility	0
Aug 28	City of Oak Ridge	Pretreatment Inspection	0
Nov 5–7	TDEC	Annual RCRA Inspection	2

^aAbbreviations:

CNF	Central Neutralization Facility
EMS	Environmental Management System
EPA	Environmental Protection Agency
NPDES	National Pollutant Discharge Elimination System
NSF-ISR	NSF International Strategic Registrations, Ltd.
ORNL	Oak Ridge National Laboratory
OST	Office of Secure Transportation
RAC	Radiological Assessment Corporation
RATA	Relative Accuracy Test Audit
RCRA	Resource Conservation and Recovery Act
TDEC	Tennessee Department of Environment and Conservation
TSCAI	Toxic Substance Control Act Incinerator

2.7 Community Involvement

Most remediation projects on the ORR have moved from the decision-making phase to actual field work. However, DOE continues to seek public involvement in many decisions affecting ORR cleanup. In 2007, public input was sought on a number of initiatives, including the following:

- update of the *Public Involvement Plan for CERCLA Activities on the U.S. Department of Energy Oak Ridge Reservation*,
- engineering evaluation/cost analysis for the demolition and disposal of the Central Pollution Control Facility at the Y-12 National Security Complex,
- evaluation of the possibility of conducting an oral history initiative,
- release of the updated *Remediation Effectiveness Report* (DOE 2007a) and discussion of the report at the May 2007 Oak Ridge Site Specific Advisory Board (ORSSAB) meeting,
- environmental assessment to evaluate the potential environmental impacts of processing ²³³U,
- the Building 3019 Complex shutdown at ORNL,
- permit renewal for transuranic storage areas and the Transuranic Waste Processing Center,
- covenant deferral requests for ETPP property,
- modifications of waste permits for ORR facilities, and
- recommendation to establish a mechanism for the independent review of DOE's remedial actions and reindustrialization activities.

Public involvement initiatives also included the monthly distribution of *Public Involvement News*, distribution of the FY 2007 version of *Cleanup Progress Report*, (DOE 2006a) and updates of project fact sheets that are made available at the DOE Information Center. Other venues through which members of the public can participate in decision-making or obtain information include the following resources.

- The DOE Information Center is the central location for public information about all DOE programs in Oak Ridge. The Information Center is located at 475 Oak Ridge Turnpike in Oak Ridge; 865-241-4780 or 1-800-382-6938, option 6. The website is available at http://www.oakridge.doe.gov/info_cntr.
- The ORSSAB is an independent, federally appointed citizens' panel that provides advice and recommendations to DOE on the Environmental Management Program in Oak Ridge. All meetings are open to the public. Information is also available at <http://www.oakridge.doe.gov/em/ssab/> or by calling 865-241-4583. ORSSAB also has a video lending library.
- The ORR Local Oversight Committee (LOC) represents counties and communities affected most directly by DOE activities in Oak Ridge and is funded by a grant from TDEC's DOE Oversight Division. LOC board members are concerned with human health and the environment and with the economic and social well-being of the community. The LOC publishes the annual *Tennessee Department of Environment and Conservation Department of Energy Oversight Division's Status Report to the Public*, which presents an independent view of the safety and quality of the Oak Ridge environment. The LOC has established a citizen's advisory panel to enable interested citizens to study the issues in depth and make recommendations to the LOC. The LOC may be contacted at <http://www.local-oversight.org>, or at 865-483-1333.
- TDEC's Department of Energy Oversight Office provides independent state oversight of DOE's Oak Ridge activities. Information is available at <http://www.state.tn.us/environment/doeo>.
- DOE's Oak Ridge public affairs office covers programs in science, environmental management, and nuclear fuel supply at ORNL, ETPP, and ORISE. This office may be reached at 865-576-0885.
- The Y-12 National Security Complex public affairs office may be contacted for information on national security programs at 865-576-9918. Information is available at <http://www.yso.doe.gov>.
- A monthly calendar of meetings and announcements is highlighted on the web at <http://www.oakridge.doe.gov> under the "Public Activities" section.

- *The Public Involvement Plan for Comprehensive Environmental Response, Compensation, and Liability Act Activities at the U.S. Department of Energy Oak Ridge Reservation* (DOE 2004) highlights opportunities for public participation in environmental cleanup activities at Oak Ridge DOE sites. The plan is available at the DOE Information Center.
- The American Museum of Science and Energy (AMSE) contains exhibits highlighting the history of DOE in Oak Ridge along with educational displays on science, nuclear energy, national security, and environmental management. The museum is located at 300 S. Tulane Avenue in Oak Ridge. Public bus tours of the ORR are offered May through September. The museum may be reached at 865-576-3200 or through the website, <http://www.amse.org>.

Other information resources are available via internet sites or telephone:

- DOE Oak Ridge Office public information line: 1-800-382-6938,
- DOE: <http://www.energy.gov>,
- DOE Oak Ridge Office: <http://www.oakridge.doe.gov>,
- DOE Environmental Management Program: <http://www.oakridge.doe.gov> (click on “Programs” then select “Environmental Management”),
- Oak Ridge Accelerated Cleanup: <http://www.bechteljacobs.com/doeclean/>,
- ORNL: <http://www.ornl.gov/>, and
- B&W Y-12: <http://www.y12.doe.gov/>.

