

2. Compliance Summary and Community Involvement

DOE's operations on the ORR 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. Principal among the regulating agencies are the Environmental Protection Agency 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. The following sections summarize major environmental statutes and 2008 status for DOE's operations on the ORR. Note that a number of facilities at the ETTP site have been leased to private entities over the past several years through the DOE Reindustrialization Program and the compliance status of those leasee operations are not discussed in this report.

2.1 Laws and Regulations

Table 2.1 summarizes the principal environmental standards applicable to DOE activities on the reservation, the 2008 status, and references to the report sections that provide more detailed information.

2.2 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 the Bechtel Jacobs Company (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

Table 2.1. Applicable laws/regulations and 2008 status

Regulatory program description	2008 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	3.3 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 to the actions. NEPA also requires that decisions include public input and involvement through scoping and review of NEPA documents	During 2008, 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	3.3 4.3.2 5.3.4
The National Historic Preservation Act provides protection for 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	3.3 4.3.2 5.3.4
The Clean Air Act (CAA) and Tennessee environmental conservation laws regulate the release of air pollutants through permits and air quality limits. Emissions of airborne radionuclides are regulated by EPA via the National Emission Standards for Hazardous Air Pollutants (NESHAPs) authorizations	EPA has delegated authority for implementation and enforcement of the CAA. In 2008, all three major ORR sites operated in conformance to the CAA Title V Operating Permit Program	3.4 4.3.3 5.3.5
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	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 2008	3.5.1 4.3.4 5.3.6
The Safe Drinking Water Act (SDWA) establishes minimum drinking water standards and monitoring requirements	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, and was transferred to the city of Oak Ridge in CY 2008	3.3 4.3.5 5.3.7

Table 2.1 (continued)

Regulatory program description	2008 Status	Report sections
<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 2008. For a description of the major elements of this act, see Table 5.12</p>	<p>3.3 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. During 2008 each site operated in accordance with the RCRA permits that govern waste treatment, storage, and disposal units. ETTP received one NOV in 2008. The NOV stemmed from issues related to the TDEC inspection of the petroleum storage tanks at the K-1414 garage. All issues were resolved and there were no penalties</p>	<p>3.3 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 continued to provide a mechanism to addresses legacy PCB-use issues across the ORR</p>	<p>3.3 4.3.8 5.3.11</p>
<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>3.3 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 3.3 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 and are protected in accordance with this Act</p>	<p>1.3.6.2</p>

Table 2.1 (continued)

Regulatory program description	2008 Status	Report sections
DOE Order 231.1A, Environment, Safety, and Health Reporting , ensures timely collection, reporting, analysis, and dissemination of information on environment, safety, and health issues	The Oak Ridge Reservation Annual Site Environmental Report is prepared to summarize ORR environmental activities and to characterize environmental performance	All chapters
DOE Order 435.1, Change 1, Radioactive Waste Management , is implemented to ensure that all DOE radioactive waste is managed in a manner that protects workers, public health and safety, and the environment	UT-Battelle, B&W Y-12, and BJC all generate radioactive waste and have implemented waste certification programs that are protective of workers, the public and the environment	3.8.1 4.2.3.4.2 5.2.1.9
DOE Order 450.1A, Environmental Protection Program , 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	UT-Battelle, B&W Y-12, BJC and other DOE contractors on the ORR have implemented environmental management systems which are incorporated with the contractors' integrated safety management systems to promote sound stewardship practices	All chapters
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	A dose assessment, performed to ensure that the total dose to members of the public from all DOE ORR pathways did not exceed the 100 mrem annual limit established by this Order, estimated the maximum 2008 dose to a hypothetically exposed member of the public from all ORR sources could have been about 8 mrem. The derived concentration guides provided in DOE Order 5400.5 are employed on the ORR to ensure that effluents and emissions result in doses that meet the dose limits and "as low as reasonably achievable" policy	2.3 Chap. 7

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.

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 suspension. No scrap metal directly released from radiological areas is being recycled.

As the Spallation Neutron Source (SNS) and the High-Flux Isotope Reactor (HFIR) Cold Source at ORNL reach full user capacity, it will be necessary to release small samples of material that have been exposed 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 will 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 must be 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 using or handling such samples will be well below 1 mrem/year. When the authorized limits are approved, samples will be released to researchers only after careful review of predicted activation levels and measurement of actual postexperiment levels to verify that the residual radioactivity is below authorized limits for release.

2.3 External Oversight and Assessments

Numerous appraisals, surveillances, and audits of ORR environmental activities were conducted during 2008 and are summarized in Table 2.2. This table does not include internal DOE prime contractor assessments for 2008.

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 and reporting of monitoring conducted under the TOA is available at <http://www.state.tn.us/environment/doeo/>.

2.4 Emergency Reporting of Spills and Releases

There were no releases of hazardous substances exceeding reportable quantities on the ORR during 2008. Two fish kills attributable to excessive discharges of chlorinated water into White Oak Creek at ORNL occurred in July and September 2008, resulting in a project to install improved dechlorination systems to guard against recurrence. The fish kills are discussed in more detail in Sect. 5.3.6.

On August 16, 2008, a main potable water supply line in Y-12 facility 9201-1 failed. The ruptured line was isolated to the building, but water from the ruptured line flowed into the basement of the facility and into East Fork Poplar Creek. While there was no environmental damage caused by the flood, potable water did overflow into the East Fork Poplar Creek, and an oil sheen was observed, prompting reporting to the National Response Center, the Tennessee Emergency Management Agency, and the Local Emergency Planning Committee.

**Table 2.2. Summary of environmental audits and assessments
conducted at ORR, 2008**

Date	Reviewer	Subject	Issues
ORNL			
February 19	TDEC	NPDES Permit Renewal Discussion	0
February 20	EPA/TDEC	Annual CAA Inspection	0
February 25	TDEC	CAA Visible Emissions Inspection	0
April 15	EPA/TDEC	Underground Tank Inspection	0
May 12–14	TDEC	TDEC Annual RCRA Inspection	0
July 2	TDEC	Fish kill Follow-up	0
July 22–25	NSF-ISR	EMS Assessment	2
September 16	TDEC	Fish kill Follow-up	0
September 25	TDEC	RATA for Predictive Emissions	0
October 27–29	TDEC	Annual RCRA inspection at Y-12 Complex	0
December 3	TDEC	RATA for Continuous Emissions	0
December 16	TDEC	Annual CAA Inspection	0
December 18	Knox County Air Quality Management Division	Annual Inspection (NTRC)	0
ETTP			
February 4–6	TDEC	RCRA Storage Area	0
April 24	EPA/TDEC	TSCAI PCB Inspection	0
May 7	TDEC	K-1414 UST Inspection	2
May 14	City of Oak Ridge	Sewage Pretreatment Assessments	0
June 17	City of Oak Ridge	Sewage Pretreatment Assessments	0
September 11	EPA/TDEC	TSCAI PCB Inspection	0
November 18	TDEC	CNF, TSCAI CAA Inspection	0
November 21	City of Oak Ridge	Sewage Pretreatment Assessments	0
Y-12 Complex			
January 10	EPA/TDEC	EPA/TDEC ORR PCB FFCA Site Visit	0
February 6–7	TDEC	TDEC Annual Clean Air Compliance Inspection	0
February 16–19	City of Oak Ridge	Semi-Annual Industrial Pretreatment Compliance Inspection	0
June 24	TDEC	EMS Evaluation for TP3 Performer Level Review	0
August 27	City of Oak Ridge	Semi-Annual Industrial Pretreatment Compliance Inspection	0
September 16–17	TDEC, Water Pollution Control	NPDES Compliance Evaluation Inspection	0
October 16	EPA/TDEC	EPA/TDEC ORR PCB FFCA Site Visit	0
October 27–30	TDEC	Annual RCRA Inspection	0

Table 2.2 (continued)

Date	Reviewer	Subject	Issues
		TWPC	
May 13–14	TDEC	TDEC Annual RCRA Inspection	0
		EnergX	
May 13–14	TDEC, RCRA	TDEC Annual RCRA Inspection	0

Abbreviations:

CAA	Clean Air Act
CNF	Central Neutralization Facility
EMS	Environmental Management System
EPA	Environmental Protection Agency
FFCA	Federal Facilities Compliance Agreement
NPDES	National Pollutant Discharge Elimination System
NSF-ISR	NSF International Strategic Registrations
NTRC	National Transportation Research Center
ORR	Oak Ridge Reservation
PCB	polychlorinated biphenyl
RATA	Relative Accuracy Test Audit
RCRA	Resource Conservation and Recovery Act
TDEC	Tennessee Department of Environment and Conservation
TP3	Tennessee Pollution Prevention Partnership
TSCAI	Toxic Substances Control Act Incinerator
TWPC	TRU Waste Processing Center
UST	underground storage tank

2.5 Notices of Violations and Penalties

There were no notices of violations (NOVs), penalties, or consent orders issued to Y-12 in 2008.

An NOV letter, dated June 16, 2008, was issued to ETTP from the Tennessee Division of Underground Storage Tanks, Knoxville Environmental Field Office, as a result of a May 7, 2008, inspection. DOE and BJC initiated two corrective actions: (1) installation of emergency shutoff valves on all three dispenser pumps were completed per manufacturer's instruction, and (2) surfacial concrete on a gasket that plugs an end of a chase was removed; no corrosion was observed. Both services were performed and completed by an independent service vendor. The two corrective actions were addressed, and the issues/violations were closed in August 2008.

No NOVs or penalties were issued for ORNL during 2008.

2.6 Community Involvement

2.6.1 Public Comments Solicited

DOE solicited comments on a variety of significant cleanup/remediation documents and plans in 2008. Items to which the public provided input include the following:

- an environmental assessment that evaluated the potential impacts of advancing the technology transfer mission at ORNL by establishing the Oak Ridge Science and Technology Project;
- a hazardous waste permit to allow a storage facility at ETTP to continue storing and treating hazardous waste;
- a hazardous waste permit to allow ORNL to continue to store and treat hazardous and mixed waste in containers at its facility on Bethel Valley Road;

- a covenant deferral request for the transfer of Building K-1501-H&L to the Community Reuse Organization of East Tennessee (CROET);
- a covenant deferral request for the transfer of Building K-1008-F to CROET;
- a notice of a revised proposed policy on providing technical and financial assistance for training of public safety officials to state and Indian tribes through whose jurisdiction DOE plans to transport spent nuclear fuel or high-level radioactive waste;
- an environmental assessment that evaluates the potential environmental impacts of proceeding with a modernization initiative at ORNL;
- a permit modification to allow additional treatment options and additional storage of mixed waste at the Transuranic Waste Processing Center;
- a waste characterization program for radioactive, contact-handled transuranic waste at ORNL that would be shipped to the Waste Isolation Pilot Plant in New Mexico;
- an environmental assessment on the disposition of radioactively contaminated nickel located at ETPP; and
- a public meeting held at Y-12 New Hope Center regarding the draft complex transformation supplemental programmatic environmental impact statement.

2.6.2 Oak Ridge Site Specific Advisory Board

The Oak Ridge Site Specific Advisory Board (ORSSAB), an independent, volunteer, federally appointed citizens' panel formed in 1995, posted several key accomplishments during 2008 in its mission to provide informed advice and recommendations to DOE on its Oak Ridge EM Program and to involve the public in environmental decision-making. The complete text of all ORSSAB recommendations is available at www.oakridge.doe.gov/em/ssab/recc.htm. The following are summaries of some of the accomplishments.

- Participated on the "Center for Oak Ridge Oral History" steering committee. Oral histories are a source of information that will help DOE EM to identify areas of the ORR in need of remediation.
- Cosponsored a public meeting to gather input on how to best preserve the historical significance of the K-25 Building at ETPP. Most of the mile-long, U-shaped building has been decontaminated in preparation for demolition, and initial plans called for retaining the north tower, the footprint of the U-shaped building, and the upper 10 ft of the inner basement area walls. However, due to extensive deterioration of the building, the plan was reevaluated. On February 19, 2008, the ORSSAB cosponsored a public meeting to gather input, and as a result, numerous comments were received and forwarded to DOE. ORSSAB followed up in March 2008, providing DOE EM with a recommendation on K-25 Building preservation and by addressing steps to prevent other buildings on the ORR with historic value from deteriorating.
- Worked with DOE to produce a stewardship map that shows all remediated areas on the ORR and the land use controls that are currently in place. The map is on display in the DOE Information Center and will also be made available at the American Museum of Science and Energy and on line at www-oreis.bechteljacobs.org/oreis/help/oreishome.html. References to all decision documents related to each remediated area will be also available with the map.
- Updated the ORSSAB exhibit at the American Museum of Science and Energy to include a scale model of the EM Waste Management Facility in Bear Creek Valley, which describes the magnitude of the cleanup effort on the ORR.
- Generated thirteen local recommendations on cleanup-related issues, including
 - conducting future verifications of cleanup,
 - engineering and technology development on the ORR, and
 - historic preservation of the K-25 Building.
- Worked with the chairs of the other six SSABs that compose the national EM SSAB to draft four joint recommendations to DOE on topics such as EM SSAB participation in the EM budget process and long-term stewardship incorporation into new EM projects and legacy waste decisions.

2.6.3 DOE Information Center

The DOE Information Center, located at 475 Oak Ridge Turnpike, Oak Ridge, Tennessee, maintains a collection of more than 40,000 documents involving environmental activities in Oak Ridge. The Center hosts various meetings, including the ORSSAB meetings, relevant to cleanup activities in Oak Ridge. Staff are available Monday through Friday, 8 a.m. to 5 p.m., to assist with information needs. A web site is available for users to search for information at the Center at www.oakridge.doe.gov and click on “Public Activities.” Select the “Online Catalog” to begin the search.

2.6.4 Other Information Sources

- 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 2007) 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 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/>.

2.7 References

DOE. 2007. *The Public Involvement Plan for Comprehensive Environmental Response, Compensation, and Liability Act Activities at the U.S. Department of Energy Oak Ridge Reservation*. DOE/OR/01-2350&D2. October.