

2. Compliance Summary and Community Involvement

DOE operations are compliance-driven activities. All activities conducted on ORR must conform to environmental standards established by federal and state statutes and regulations including Executive Orders, DOE Orders, contract-based standards, and compliance and settlement agreements. The US Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC) are the principal regulating agencies that issue permits, review compliance reports, participate in joint monitoring programs, inspect facilities and operations, oversee compliance with applicable regulations, and issue a notice of violation when appropriate.

Environmental concerns or problems identified during routine operations or during ongoing self-assessments of compliance status require reporting or discussions with the respective regulatory agencies. The following sections summarize the major environmental statutes and their 2019 status for DOE operations on ORR. Note that the DOE Reindustrialization Program has leased several facilities at ETTP and the Oak Ridge Science and Technology Park to private entities over the past several years. This report does not discuss the compliance status of these lessee operations.

Due to different permit reporting requirements and instrument capabilities, this report uses various units of measurement. The lists of units of measure and conversion factors on pages xxvii and xxviii are included to help readers convert numeric values presented herein as needed for specific calculations and comparisons.

2.1 Laws and Regulations

Table 2.1, which begins on the following page, is a summary of the principal environmental standards applicable to DOE activities on ORR, their 2019 status, and the sections in this report that provide more detailed information.

2.2 External Oversight and Assessments

Table 2.2 (see page 2-7) lists the inspections of ORR environmental activities conducted by regulatory agencies for each of the ORR sites (ORNL, ETTP, and Y-12) during 2019. This table does not include internal DOE or DOE contractor assessments, audits, or evaluations.

Table 2.1. Applicable environmental laws and regulations and 2019 status

Regulatory program description	2019 status	Report sections
The Clean Air Act and corollary State of Tennessee requirements regulate the release of air pollutants through permits and air quality limits. Emissions of airborne radionuclides are regulated by EPA via National Emission Standards for Hazardous Air Pollutants for radionuclides authorization. Greenhouse gas emissions inventory tracking and reporting are regulated by EPA and by DOE internal oversight.	In 2019 all activities on ORR were conducted in accordance with Clean Air Act requirements.	3.3.3
		4.3.3
		5.3.3
The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) provides a regulatory framework for remediation of the release or threat of release of hazardous substances from past practices on ORR.	ORR was placed on the EPA National Priorities List in 1989. The ORR Federal Facility Agreement, initiated in 1992 between EPA, TDEC, and DOE, established the framework and schedule for developing, implementing, and monitoring remedial actions on ORR. The on-site CERCLA Environmental Management Waste Management Facility (EMWMF) is operated by UCOR for DOE. Located in Bear Creek Valley, EMWMF is used for disposal of waste resulting from CERCLA cleanup actions on ORR. EMWMF is an engineered landfill that accepts low-level radioactive, hazardous, asbestos, and polychlorinated biphenyl (PCB) wastes (and combinations of these wastes) in accordance with specific waste acceptance criteria under an agreement with state and federal regulators. No notices of violations were issued for CERCLA-related ORR actions during 2019.	3.3.8
		4.3.7
		5.3.8
The Clean Water Act seeks to protect and improve surface water quality by establishing surface water standards enabled by 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 major ORR sites are governed by NPDES permits. In 2019, ETTP and Y-12 achieved a compliance rate of 100% and the ORNL NPDES permit limit compliance rate for all discharge points was greater than 99%. ETTP and Y-12 had no permit noncompliances; At ORNL there was one concentration and one loading effluent exceedance and two nonnumeric permit noncompliances. See Appendix D for more information.	3.3.4
		4.3.4
		5.3.4
The Energy Independence and Security Act (EISA) § 438 establishes requirements for federal agencies to reduce storm water runoff from development projects to protect water resources.	A variety of storm water management techniques, referred to as green infrastructure or low impact design practices, have been implemented on ORR to comply with EISA. The site sustainability plans and associated reporting provide data on sustainability projects and support EISA Section 438 compliance.	4.2.6.4
		5.2.1.5

Table 2.1. Applicable environmental laws and regulations and 2019 status (continued)

Regulatory program description	2019 status	Report sections
The Emergency Planning and Community Right-to-Know Act , also referred to as the Superfund Amendments and Reauthorization Act Title III, requires reporting emergency planning information, hazardous chemical inventories, and environmental releases of certain toxic chemicals to federal, state, and local authorities.	In 2019, DOE facilities on ORR were operated in accordance with emergency planning and reporting requirements. ETTP and Y-12 had no reportable releases of hazardous or extremely hazardous substances. ORNL had no releases of extremely hazardous substances but exceeded the reporting threshold and reported on the otherwise use of nitric acid and the manufacture of nitrate compounds, as defined by the Emergency Planning and Community Right-to-Know Act, in 2019.	3.3.11 4.3.9 5.3.10
The National Environmental Protection 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 2019, DOE planning and decision-making activities at ETTP, Y-12, and ORNL were conducted via site-level procedures that provide requirements for project reviews and NEPA compliance. Over 50 environmental reviews were completed at Y-12 during 2019. Seven reviews were completed at ETTP in 2019. At ORNL, 87 NEPA reviews were completed during 2019.	3.3.2 4.3.2 5.3.2
The National Historic Preservation Act provides protection for the nation's historic resources by establishing a comprehensive national historic preservation policy.	ORR has several facilities eligible for inclusion in the National Register of Historic Places. Proposed activities are reviewed to determine potential adverse effects on these properties, and methods to avoid or minimize harm are identified. During 2019, activities on ORR were conducted in compliance with National Historic Preservation Act requirements.	3.3.2 4.3.2 5.3.2
ORR Protection of Wetlands Programs are implemented to minimize the destruction, loss, or degradation of ORR wetlands and to preserve and enhance their beneficial value.	Surveys to determine the presence of wetlands are conducted as needed for projects or programs through NEPA and other reviews to facilitate compliance with TDEC and US Army Corps of Engineers wetlands protection requirements. Wetland protection on ORR is conducted in accordance with 10 <i>Code of Federal Regulations</i> 1022 and Executive Order (EO) 11990, <i>Protection of Wetlands</i> . No new wetlands delineations were made at ETTP, Y-12, or ORNL in 2019. The monitoring conducted at Y-12 in 2019 marked the end of wetland monitoring for the Upper Bear Creek Remediation wetlands.	1.3.6.1 4.5.8.4 5.3.12
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.	Y-12, ORNL, and ETTP are defined as large-quantity generators of hazardous waste because each generates more than 1,000 kg of hazardous waste per month. Each site is also regulated as a handler of universal waste. In addition, several permits have been issued for hazardous waste management units on ORR. No notices of violation were issued for ETTP or Y-12 in 2019. At ORNL, two violations were identified and both violations were corrected when identified, returning the facility to compliance.	3.3.7 4.3.6 5.3.6

Table 2.1. Applicable environmental laws and regulations and 2019 status (continued)

Regulatory program description	2019 status	Report sections
The Safe Drinking Water Act establishes minimum drinking water standards and monitoring requirements.	The City of Oak Ridge supplies potable water to the facilities on ORR and is responsible for meeting all regulatory requirements for drinking water. Sampling results in 2019 for residual chlorine levels, bacterial constituents, and disinfectant by-products in ORR's water system were all within acceptable limits.	3.3.8 4.3.5 5.3.5
The Toxic Substances Control Act regulates the manufacture, use, and distribution of a number of toxic chemicals.	PCB waste generation, transportation, disposal, and storage at ORR are regulated under EPA identification numbers TN1890090003 and TN0890090004. ETPP operated five PCB waste storage areas at ETPP in 2019. These five PCB storage areas were in RCRA-permitted facilities that meet the PCB regulations for long-term storage when PCB waste is being stored for longer than 30 days, which may be necessary for PCB radioactive waste. In 2019, UT-Battelle, LLC operated nine PCB storage areas and one PCB waste storage area was operated at a UT-Battelle, LLC facility in the Y-12 Complex. The ORR PCB Federal Facilities Compliance Agreement between EPA and DOE continues to provide a mechanism to address legacy PCB-use issues across ORR. The agreement specifically addresses the unauthorized use of PCBs, storage and disposal of PCB waste, PCB spill cleanup and decontamination, PCBs mixed with radioactive materials, PCB research and development, and ORR records and reporting requirements. EPA is updated annually on the status of DOE actions regarding management and disposition of legacy PCBs covered by the ORR PCB Federal Facilities Compliance Agreement.	3.3.12 4.3.8 5.3.9
The Bald and Golden Eagle Protection Act (16 US Code 668-668d) protects bald and golden eagles by prohibiting, except under certain specified conditions, the taking or possession of and commerce in such birds. The act imposes criminal and civil penalties for any such actions.	Bald eagles are known to frequent ORR year-round. The one active bald eagle nest on ORR is protected in accordance with this act. Eaglets have been successfully fledged from a Poplar Creek nesting location in the past.	1.3.6.2
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.	ORR is host to several plant and animal species categorized as endangered, threatened, or of special concern, and these species are protected in accordance with this act.	1.3.6.2
The Migratory Bird Treaty Act protects migratory birds by governing the taking, killing, possession, transportation, and importation of such birds, including their eggs, parts, and nests and any product, manufactured or not, from such items.	ORR hosts numerous migratory birds that are protected under this act.	1.3.6.2

Table 2.1. Applicable environmental laws and regulations and 2019 status (continued)

Regulatory program description	2019 status	Report sections
DOE Order 231.1B, <i>Environment, Safety, and Health Reporting</i> , ensures timely collection, reporting, analysis, and dissemination of information on environment, safety, and health issues.	The <i>2019 Oak Ridge Reservation Annual Site Environmental Report</i> summarizes ORR environmental activities during 2019 and characterizes environmental performance.	All chapters
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.	Waste certification programs that are protective of workers, the public, and the environment have been implemented for all activities on ORR to ensure compliance with this DOE Order.	3.8 4.8 5.8
DOE Order 436.1, <i>Department Sustainability</i> , provides requirements and responsibilities for managing sustainability within DOE to ensure the department carries out its missions in a sustainable manner that addresses national energy security and global environmental challenges and advances sustainable, efficient, and reliable energy for the future.	DOE contractors on ORR have developed site sustainability plans and have implemented environmental management systems that are incorporated with the contractors' integrated safety management systems to promote sound stewardship practices and ensure compliance with this DOE Order.	3.2 4.2 5.2
DOE Order 458.1, <i>Radiation Protection of the Public and the Environment</i> , issued in June 2011, canceled DOE Order 5400.5 and was established to protect members of the public and the environment from undue risk from radiation. This order established standards and requirements for operations of DOE and DOE contractors.	In 2019, DOE Order 458.1 was the primary contractual obligation for radiation protection programs for UT-Battelle, LLC and Consolidated Nuclear Security LLC, and for all UCOR work scope areas where existing CERCLA decision documents do not specifically identify DOE Order 5400.5 requirements. A dose assessment was 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. The assessment estimated the maximum 2019 dose to a hypothetically exposed member of the public from all ORR potential exposure pathways combined would be about 6.4 mrem. The 2019 maximum effective dose was about 6.4% of the 100 mrem annual limit given in DOE Order 458.1. Clearance of property from ORNL, ETTP, and the Y-12 Complex was conducted in accordance with approved procedures that comply with DOE Order 458.1. There were no unplanned radiological air emission releases from the three major ORR sites in 2019. No limits were exceeded in 2019.	4.3.13 5.3.13 3.2.6 Chapter 7 5.4.3.2 4.3.11

Table 2.1. Applicable environmental laws and regulations and 2019 status (continued)

Regulatory program description	2019 status	Report sections
DOE Order 5400.5, <i>Radiation Protection</i> , was established to protect members of the public and the environment against undue risk from radiation. This order established standards and requirements for operations of DOE and DOE contractors.	DOE Order 5400.5 is the primary environmental surveillance radiological applicable, relevant, and appropriate requirement for most CERCLA activities across ORR. It will remain in force until the individual CERCLA decision documents are reissued or revised to incorporate DOE Order 458.1. A dose assessment, performed to ensure the total dose to members of the public from all ORR pathways did not exceed the 100 mrem annual limit established by this order, estimated the maximum 2019 dose to a hypothetical exposed member of the public from all ORR potential exposure pathways combined would be about 6.4 mrem.	Chapter 7
Executive Order 13186, <i>Responsibilities of Federal Agencies to Protect Migratory Birds</i> , identifies the responsibilities of federal agencies to promote the conservation of migratory bird populations.	A memorandum of understanding entered into by DOE and the US Fish and Wildlife Service meets the requirements under Section 3 of EO 13186. ORR hosts numerous migratory birds that are present either seasonally or year-round. This memorandum, which was updated in September 2013, strengthens migratory bird conservation on ORR through enhanced collaboration between DOE and the US Fish and Wildlife Service.	1.3.6.2
Executive Order 13834, <i>Efficient Federal Operations</i> , directs federal agencies to manage their buildings, vehicles, and overall operations to optimize energy and environmental performance, reduce waste, and cut costs.	EO 13834, <i>Efficient Federal Operations</i> , superseded EO 13693. Progress toward meeting the requirements of the EO and achieving DOE sustainability goals is summarized in this report. ORNL, Y-12, and ETPP all have sustainability processes and management systems to comply with the EO and subsequent federal instructions for implementing the EO.	3.2.4 3.2.1 4.2.3.4 5.2.1.4

Acronyms:

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act

DOE = US Department of Energy

EISA = Energy Independence and Security Act

EMWMTF = Environmental Management Waste Management Facility

EO = Executive Order

EPA = US Environmental Protection Agency

ETTP = East Tennessee Technology Park

NEPA = National Environmental Protection Act

NPDES = National Pollutant Discharge Elimination System

ORNL = Oak Ridge National Laboratory

ORR = Oak Ridge Reservation

PCB = polychlorinated biphenyl

RCRA = Resource Conservation and Recovery Act

TDEC = Tennessee Department of Environment and Conservation

Y-12 or Y-12 Complex = Y-12 National Security Complex

Table 2.2. Summary of regulatory environmental evaluations, audits, inspections, and assessments conducted at Oak Ridge Reservation in 2019

Date	Reviewer	Subject	Issues
<i>Oak Ridge National Laboratory</i> (including UT-Battelle, LLC; UCOR; Isotek Systems, LLC; and North Wind Solutions, LLC activities)			
January 8	TDEC	Notice of Termination for Construction Storm Water Permit Coverage	0
February 11-13	EPA/TDEC	Unannounced EPA/TDEC RCRA Inspection	2
February 26	City of Oak Ridge	Carbon Fiber Technology Facility (CFTF) Wastewater Inspection	
March 25	Knox County Department of Air Quality Management	National Transportation Research Center Clean Air Act Inspection	0
May 14	TDEC	NPDES Permit Inspection	0
August 22	TDEC	Underground Storage Tanks Compliance Inspection	1
September 27	City of Oak Ridge	CFTF Wastewater Inspection	0
October 24	TDEC	Annual Clean Air Act Inspection for ORNL and CFTF	0
<i>East Tennessee Technology Park</i>			
January 17	City of Oak Ridge	Sewage Network Discharge Inspection	0
October 2	TDEC	Annual RCRA Compliance Inspection	0
December 5	TDEC	NPDES Storm Drain Inspection	0
December 10	TDEC	K-1065-B and -C Closure Inspection	0
<i>Y-12 National Security Complex</i>			
January 24	City of Oak Ridge	Semiannual Industrial Pretreatment Compliance Inspection	0
March 5-6	TDEC	Annual RCRA Hazardous Waste Compliance Inspection (Y-12 National Security Complex)	0
April 3	TDEC	Annual Air Quality Compliance Inspection	0
May 21	TDEC	NPDES Compliance Evaluation Inspection	0
September 19	TDEC	RCRA Hazardous Waste Compliance Inspection (Union Valley)	0
October 2	City of Oak Ridge	Semiannual Industrial Pretreatment Compliance Inspection	0

Acronyms:

CFTF = Carbon Fiber Technology Facility

EPA = US Environmental Protection Agency

NPDES = National Pollutant Discharge Elimination System

ORNL = Oak Ridge National Laboratory

RCRA = Resource Conservation and Recovery Act

TDEC = Tennessee Department of Environment and Conservation

2.3 Reporting of Oak Ridge Reservation Spills and Releases

CERCLA hazardous substances are substances considered to be harmful to human health and the environment. Many are commonly used substances that are harmless in normal uses but can be dangerous when released. CERCLA establishes reportable quantities for hazardous substance releases. Any hazardous substance release exceeding a reportable quantity triggers reports to the National Response

Center, the State Emergency Response Center, and community coordinators. Discharges of oil must be reported if they “cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines” (40 *Code of Federal Regulations* 110.3[b]).

Neither ETTP, Y-12, nor ORNL had any reportable releases of extremely hazardous substances, as defined by the Emergency Planning and Community Right-to-know Act, in 2019. See Sections 3.3.11, 4.3.11, and 5.3.10 of this report for more information.

2.4 Notices of Violations and Penalties

ETTP had no notices of environmental violations or penalties in 2019. Y-12 had no environmental permit violations or exceedances in 2019. ORNL had two violations of Tennessee’s hazardous waste management regulations, an underground storage tank testing violation, and four NPDES permit noncompliances in 2019.

2.5 Community Involvement

DOE and its contractors provided or supported numerous community involvement activities in 2019 that addressed a range of subjects. These included ETTP historic interpretation efforts, Manhattan Project National Historical Park public meetings and public engagement efforts, Historic American Engineering Record activities, American Museum of Science and Energy community meetings hosted by the City of Oak Ridge, ETTP airport public meetings, public bus tours of ORR, public comment periods for draft environmental assessments, and Community Relations Council meetings.

During 2019, organizations such as Great Smoky Mountains National Park, the East Tennessee Foundation, and Girls, Inc., America Recycles Day and Earth Day activities, and many local charities benefited from DOE and its contractors’ efforts in the community.

2.5.1 Public Comments Solicited

To keep the public informed of comment periods and other matters related to cleanup activities on ORR, DOE publishes online notices at <https://www.energy.gov/ore/services/community-engagement>, conducts public meetings, and issues notices in local newspapers as appropriate. Information regarding environmental policy and DOE’s commitment to providing sound environmental stewardship practices and keeping the public informed is available to the public via sponsored forums and public documents, such as this report.

2.5.2 Oak Ridge Site Specific Advisory Board

The Oak Ridge Site Specific Advisory Board (ORSSAB) is a federally appointed citizens’ panel that provides independent advice and recommendations to the DOE Oak Ridge Environmental Management Program. The board was formed in 1995 and is composed of up to 22 members chosen to reflect the diversity of genders, races, occupations, views, and interests of persons living near ORR. Members are appointed by DOE and serve on a voluntary basis without compensation.

Information on recommendations the board has made since its establishment, minutes of board and committee meetings, and other information are available on the ORSSAB website at <http://www.energy.gov/ORSSAB>. Videos of the first hour of recent board meetings are posted at <https://www.energy.gov/ore/listings/oak-ridge-site-specific-advisory-board-meetings>. Additional information may be obtained by calling 865-241-4583 or 865-241-4584.

2.5.3 DOE Information Center

The DOE Information Center, located at 1 Science.Gov Way, Oak Ridge, Tennessee, is a one-stop information facility that maintains a collection of more than 40,000 documents describing environmental activities in Oak Ridge. The center is open Monday through Friday from 8 a.m. to 5 p.m. An online catalog that can be used to search for DOE documents by author, title, date, and other fields is available at <https://www.energy.gov/orem/services/community-engagement/doe-information-center>.

2.5.3.1 Telephone Contacts

- Agency for Toxic Substances and Disease Registry: 1-800-232-4636
- DOE Information Center: 865-241-4780; toll free 1-800-382-6938 (option 6)
- DOE Public Affairs Office: 865-576-0885
- EPA Region 4: 1-800-241-1754
- ORSSAB: 865-241-4583, 865-241-4584, 1-800-382-6938 (option 4)
- TDEC, DOE Oversight Division: 865-481-0995

2.5.3.2 Internet Sites

- Agency for Toxic Substances and Disease Registry: <http://www.atsdr.cdc.gov>
- American Recovery and Reinvestment Act: <http://www.energy.gov/recovery-act>
- DOE Main Website: <http://www.energy.gov>
- DOE Information Center: <https://www.energy.gov/orem/services/community-engagement/doe-information-center>
- EPA Region 4: <http://www.epa.gov/region4>
- ETTP: <https://www.energy.gov/orem/cleanup-sites/east-tennessee-technology-park>
- ORNL: <https://www.ornl.gov/>
- ORSSAB: <http://www.energy.gov/ORSSAB>
- TDEC: <https://www.tn.gov/environment/program-areas/rem-remediation/rem-oak-ridge-reservation-clean-up.html>
- Y-12 National Security Complex: <http://www.y12.doe.gov/>

2.6 References

- DOE 2019. *2019 Remediation Effectiveness Report for the U.S. Department of Energy Oak Ridge Reservation, Oak Ridge, Tennessee, Data and Evaluations*. DOE/OR/01-2787&D1. US Department of Energy, Oak Ridge, Tennessee, March.
- UCOR 2018. *2018 Annual Report to the Oak Ridge Regional Community, Oak Ridge, Tennessee*, OREM-18-2555. UCOR, Oak Ridge, Tennessee.