

2008 ANNUAL SITE ENVIRONMENTAL REPORT *Summary*

THE OAK RIDGE RESERVATION



Message from the Department of Energy and the National Nuclear Security Administration

Each year the Department of Energy conducts environmental monitoring at each of the three sites on the Oak Ridge Reservation—the Oak Ridge National Laboratory, the East Tennessee Technology Park, and the Y-12 National Security Complex. The information we collect is presented in this summary report, the data volume, and the more comprehensive publication entitled the *Annual Site Environmental Report*.

Each of these reports is highly important because it allows DOE to clearly and concisely explain our environmental-monitoring programs to our stakeholders. The environmental monitoring also assists us in achieving our mission in science, national security, environmental management, and nuclear energy.

The information presented in this summary shows that Oak Ridge is a safe community for its citizens, and part of the reason for that is the Department's unwavering focus on safety. The work at each of our facilities is highly detailed and technically complex, but it is our commitment to perform each of our activities safely. No matter what we do, our first priority is to protect the well-being of our workers, the surrounding communities, and the environment.

Once again this year, we would like to offer our sincerest appreciation to the students at Karns High School who worked to put together this summary document. On behalf of the entire Department of Energy, we congratulate each of you for your effort, enthusiasm, and willingness to support DOE with this project.

We hope that you enjoy reading the *2008 Annual Site Environmental Report Summary*.



U.S. DEPARTMENT OF
ENERGY



Handwritten signature of Gerald Boyd in black ink.

Gerald Boyd
Manager, Oak Ridge Office

Handwritten signature of Ted Sherry in black ink.

Ted Sherry
Manager, Y-12 Site Office

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“We managed to take a large, technical encyclopedia’s worth of environmental management information and turn it into this short book. We hope you like it!”
– Jonathon Fehl

About the Annual Site Environmental Report

The *Oak Ridge Reservation Annual Site Environmental Report* is prepared and published each year to inform the public of the environmental activities that take place on the reservation and in the surrounding areas. It is written to comply with DOE Order 231.1A, *Environment, Safety, and Health Reporting*. This document has been prepared to present the highlights of the *Oak Ridge Reservation Annual Site Environmental Report 2008* in an easy-to-read, summary format.

The Oak Ridge Reservation Annual Site Environmental Report 2008 and this summary are on the World Wide Web at www.ornl.gov/aser.

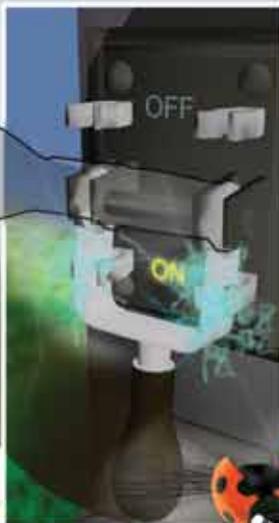


Credits

OAK RIDGE, TN



Contributors from left to right: Amanda Peretich (teacher), Matt Ward, Derrick Menn, Justin Knight, Josh Hinkle, Jonathon Fehl, Joan Hughes



Message from the Students

Dear reader,

This assignment has been incredibly interesting, and we hope that this summary report helps you understand what happens on the Department of Energy's Oak Ridge Reservation, which includes the East Tennessee Technology Park, Oak Ridge National Laboratory, and Y-12 National Security Complex. We learned a lot during this informative experience, and our class is thankful to have been chosen to work on summarizing the *Annual Site Environmental Report*. It was particularly interesting to learn about the space box at Y-12, the Graphite Reactor and the Spallation Neutron Source at Oak Ridge National Laboratory, the massive cleanup efforts at the East Tennessee Technology Park, and the constant research across the Oak Ridge Reservation that is powering the ideas of tomorrow.

We have also learned that along with encouraging scientific advancements, DOE is very concerned with protecting the surrounding environment. It constantly monitors the ecosystems in and around the reservation and has huge programs in place to correct any environmental damage done in the past. DOE monitors air, water, vegetation, fish, and even wildlife to make sure that no contamination originating from the ORR is harming the local environment or public. The workforce at DOE's sites is also monitored to ensure that the safety and health of workers are protected. This summary report is provided to inform you, the general public, about the environmental programs implemented on the Oak Ridge Reservation and the status and effectiveness of these programs during 2008.



Handwritten signatures of the students: Matt, Derrick Mann, Justin Knight, Jonathon Frehl, and Josh Zinkler.

Fall 2009 Chemistry II Honors Students, Karns High School

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Karns Middle School, Student Artwork

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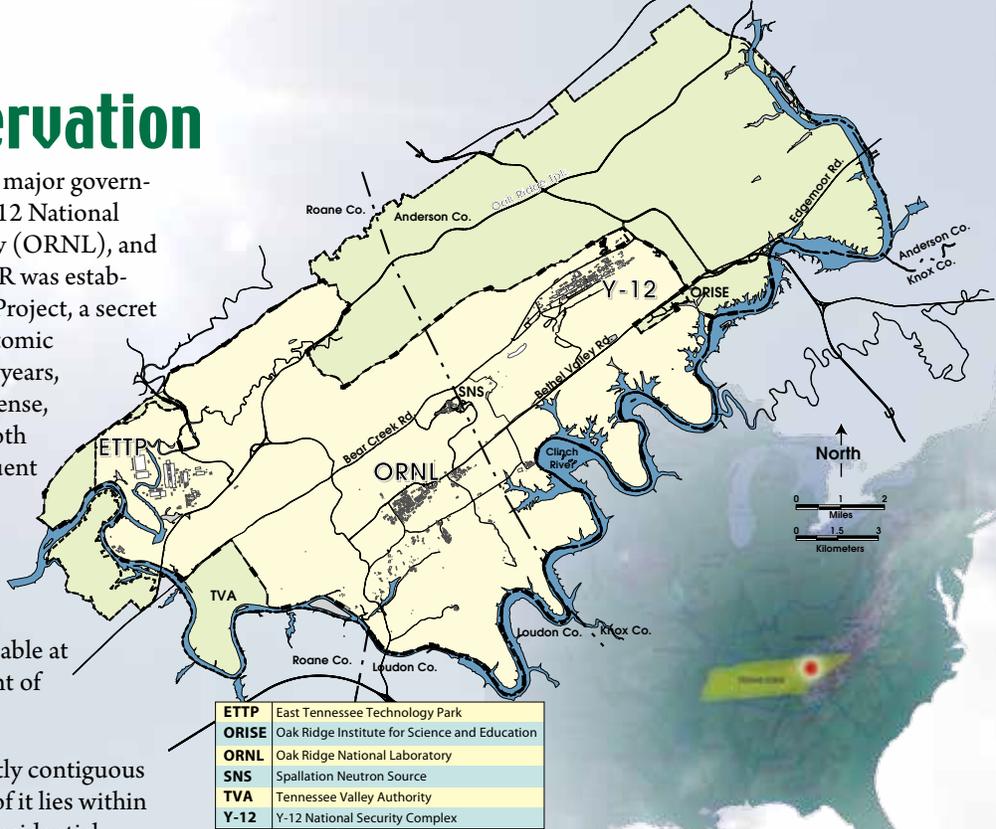
The Oak Ridge Reservation

The Oak Ridge Reservation (ORR) includes three major government-owned, contractor-operated facilities: the Y-12 National Security Complex, Oak Ridge National Laboratory (ORNL), and East Tennessee Technology Park (ETTP). The ORR was established in the early 1940s as part of the Manhattan Project, a secret undertaking that produced materials for the first atomic bombs. The reservation's role has evolved over the years, and it continues to adapt to meet the changing defense, energy, and research needs of the United States. Both the work carried out for the war effort and subsequent research, development, and production activities have involved, and continue to involve, the use of radiological and hazardous materials.

The *Oak Ridge Reservation Annual Site Environmental Report* and supporting data are available at www.ornl.gov/sci/env_rpt or from the Department of Energy (DOE).

The ORR encompasses about 33,653 acres of mostly contiguous land owned by DOE in the Oak Ridge area. Most of it lies within the corporate limits of the city of Oak Ridge. The residential section of Oak Ridge forms the northern boundary of the reservation. The Tennessee Valley Authority's Melton Hill and Watts Bar reservoirs on the Clinch and Tennessee rivers form the southern and western boundaries. The population of the 10-county region surrounding the ORR is about 927,200 with about 1.5% of the labor force employed on the reservation. Other towns close to the reservation include Oliver Springs, Clinton, Lake City, Lenoir City, Farragut, Kingston, and Harriman. Knoxville, the major metropolitan area nearest Oak Ridge, is located about 25 miles to the east and has a population of about 183,550. Except for the city of Oak Ridge, the land within 5 miles of the ORR is semirural and is used primarily for residences, small farms, and cattle pastures. Fishing, boating, water skiing, and swimming are popular recreational activities in the area. The climate of the Oak Ridge region is broadly classified as humid subtropical and is characterized by significant temperature changes between summer and winter. The average temperature for the Oak Ridge area during 2008 was about 59°F. The coldest month is usually January, and July tends to be the warmest month.

Average annual precipitation in the Oak Ridge area for the 30-year period from 1978 to 2007 was about 53 inches, including about 11 inches of snowfall annually (*Local Climatological Data Annual Survey with Comparative Data, Oak Ridge, Tenn.*, National Oceanic and Atmospheric Administration, 2006). Total rainfall during 2008 was about 47 inches, and total 2008 snowfall was less than



1 inch. Although precipitation during 2008 was much higher than 2007 levels, it was still more than 12% below average.

Waters that drain from the ORR eventually reach the Tennessee River via the Clinch River, which forms the southern and western boundaries of the ORR. Surface water at each of the major facilities on the ORR drains into a tributary or series of tributaries, streams, or creeks within different watersheds. Each of these watersheds drains into the Clinch River. The ORR is located in the Tennessee portion of the Valley and Ridge Physiographic Province, which is part of the southern Appalachian fold-and-thrust belt. As a result of thrust faulting and differential erosion rates, a series of parallel valleys and ridges have formed that trend southwest–northeast.

The ORR contains a unique variety of natural, cultural, and historic resources. About 600 acres of wetlands have been identified on the ORR, and several animals listed as species of concern or sensitive wildlife species have also recently been found on the reservation. The ORR is a habitat for many unlisted species, some of which are in decline nationally or regionally, and 22 state-listed plant species have also been observed on the ORR in the last 10 years. Historic and cultural resources documented on the ORR include the New Bethel Baptist Church and Cemetery, George Jones Memorial Baptist Church, Freels Cabin, and the Oak Ridge Turnpike, Bear Creek, and Bethel Valley Road checking stations.

The DOE–Oak Ridge Office

The ORR is home to a world-leading research and manufacturing park, with major federal programs in the areas of science, environmental management, nuclear fuel supply, and national security. The DOE–Oak Ridge Office (ORO) oversees and manages these programs at three primary sites: ORNL, ETPP, and the Oak Ridge Institute for Science and Education (ORISE).

The DOE presence in Oak Ridge has a major financial impact on the area as well; it serves as an economic engine, driving local, regional, and statewide development. DOE is credited with providing a \$3.6 billion increase in the gross state product. It supports some 44,889 full-time jobs statewide, results in \$76.9 million in state and local sales tax, and is the fourth-largest employer in Tennessee.

With a federal and contractor workforce in Oak Ridge of more than 12,000 people, DOE is committed to continuing its strong ties to the communities in East Tennessee. The support of local communities has enabled ORO to undertake some of the most complex work in the department, and there is more to come as ORO advances public- and private-sector growth in the areas of science, manufacturing, national security, and reindustrialization.

The National Nuclear Security Administration Y–12 Site Office

Established by Congress in 2000, the National Nuclear Security Administration (NNSA) is a semiautonomous agency within DOE that works in partnership with the Department of Defense, national laboratories, and production plants to conduct routine maintenance and repair necessary to support the U.S. nuclear weapons stockpile; dismantle retired weapons; refurbish warheads through the Life Extension Program; and maintain the capability to design, manufacture, and certify new warheads for the foreseeable future.

The NNSA Y-12 Site Office (YSO) is responsible for operation of the Y-12 facilities. YSO employees perform program oversight, contract and administrative management, and technical evaluation and assessment to meet the YSO mission.

East Tennessee Technology Park

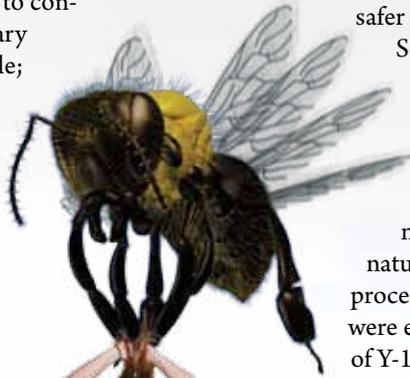
ETTP's primary mission is environmental cleanup, decontamination, and decommissioning of facilities. The long-term goal for ETTP is to convert as much of the site as possible into a private mixed-use and industrial park. Bechtel Jacobs Company LLC (BJC) is the prime environmental contractor for the ETTP environmental monitoring and surveillance program. ETTP was formerly known as K-25, and its original mission was to enrich uranium for use in atomic weapons.

The Y–12 National Security Complex



The Y-12 National Security Complex is a premier manufacturing facility dedicated to making the United States and the world safer places. Operated by Babcock & Wilcox Technical Services Y-12, L.L.C., (B&W Y-12) for NNSA, Y-12 plays a vital role in DOE's nuclear security enterprise.

The complex was constructed as part of the World War II Manhattan Project in 1943. The first site mission was the separation of uranium-235 from natural uranium by the electromagnetic separation process. At its peak in 1945, more than 22,000 workers were employed at the site. Thirty months later the success of Y-12's mission was announced to the world when, after two atomic weapons (the uranium bomb, Little Boy, and the plutonium bomb, Fat Man) were detonated, the Empire of Japan surrendered, and World War II ended. Y-12 had separated the uranium used in Little Boy.





Since that time Y-12's mission has changed. Today Y-12 is a unique national asset in the manufacture, processing, and storage of special materials vital to our national security; contributes to the prevention of the spread of weapons of mass destruction; retrieves and stores nuclear materials; fuels the nation's naval reactors; and performs complementary work for other government and private-sector entities.

Oak Ridge National Laboratory

ORNL, DOE's largest science and energy laboratory, has been managed since April 2000 by UT-Battelle, LLC, a partnership of the University of Tennessee and Battelle Memorial Institute. ORNL was established in 1943 as a part of the then-secret Manhattan Project

to pioneer a method for producing and separating plutonium. Today the laboratory supports the nation with a peacetime science and technology mission that is just as important as, but very different from, its role during the Manhattan Project. As an international leader in a range of scientific areas that support DOE's mission, ORNL has six major mission roles: neutron science, energy, high-performance computing, systems biology, materials science at the nanoscale, and national security. ORNL's leadership role in the nation's energy future includes hosting the U.S. project office for the ITER international fusion experiment and the Bioenergy Science Center, which is sponsored by the DOE Office of Science.

The Transuranic Waste Processing Center (TWPC), managed by EnergX for DOE, is located on the western boundary of ORNL. The mission of the

TWPC is to receive transuranic wastes for processing, treatment, repackaging, and shipment to designated facilities for final disposal. Transuranic waste is solid radioactive waste containing primarily alpha-emitting elements heavier than uranium.

-Contributors: Derrick Menn, Justin Knight, Josh Hinkle

Summary of Environmental Audits & Assessments Conducted at ORR in 2008

Date	Agency	Subject	Hours
ORNL			
Feb. 19	TDEC	NPODES Permit Renewal Discussion	0
Feb. 20	EPA/TDEC	Annual CAA Inspection	0
Feb. 20	TDEC	CAA Visible Emissions Inspection	0
Feb. 24	TDEC	Underground Tank Inspection	0
April 14	EPA/TDEC	TDEC Annual RCRA Inspection	0
Mar. 13-14	TDEC	Env. Air Follow-Up	0
Mar. 3	TDEC	EMS Assessment	0
July 22-29	NES-ORR	Env. Air Follow-Up	0
July 22-29	TDEC	RATA for Predictable Emissions	0
Sept. 16	TDEC	Annual RCRA Inspection at Y-12 Complex	0
Sept. 25	TDEC	RATA for Continuous Emissions	0
Oct. 20-28	TDEC	Annual CAA Inspection	0
Dec. 3	TDEC	Annual Inspection (NTRC)	0
Dec. 18	Know-County Air Quality Management Division		0
ETP			
Feb. 4-6	TDEC	RCRA Storage Area	0
Apr. 24	EPA/TDEC	TSCA PCB Inspection	2
May 7	TDEC	N. 1414 LUST Inspection	0
May 14	City of Oak Ridge	Sludge Pretreatment Assessments	0
May 14	City of Oak Ridge	Sludge Pretreatment Assessments	0
June 17	EPA/TDEC	TSCA PCB Inspection	0
Sept. 11	TDEC	Env. Air CAA Inspection	0
Nov. 18	TDEC	Sludge Pretreatment Assessments	0
Nov. 21	City of Oak Ridge	Sludge Pretreatment Assessments	0
Y-12 Complex			
Jan. 10	EPA/TDEC	EPA/TDEC ORR PCB FFCA Site Visit	0
Feb. 6-7	TDEC	TDEC Annual Clean Air Compliance Inspection	0
Feb. 18-19	City of Oak Ridge	Semi-Annual Industrial Pretreatment Compliance Inspection	0
June 24	TDEC	EMS Evaluation for TP3 Postformer Level Review	0
Aug. 21	City of Oak Ridge	Semi-Annual Industrial Pretreatment Compliance Inspection	0
Sept. 18-17	TDEC Water Pollution Control	NPODES Compliance Evaluation Inspection	0
Oct. 16	EPA/TDEC	EPA/TDEC ORR PCB FFCA Site Visit	0
Oct. 27-30	TDEC	Annual RCRA Inspection	0
TWPC			
May 13-14	TDEC	TDEC Annual RCRA Inspection	0
EnergX			
May 13-14	TDEC/RCRA	TDEC Annual RCRA Inspection	0

Agency	Activity
CAA	Clean Air Act
CERCLA	Superfund
EMS	Environmental Management System
EPA	Environmental Protection Agency
FFCA	Federal Facilities Compliance
NPODES	National Pollution Discharge Elimination System
NSF-ORR	NSF International Sewage Regulations
NTRC	National Transportation Research Council
ORR	Oak Ridge Reservation
PCB	polychlorinated biphenyls
RATA	Relative Accuracy Test Audit and Recovery Act
RCRA	Resource Conservation and Recovery Act
TDEC	Tennessee Department of Environment and Conservation
TP3	Tennessee Pollution Prevention Partnership
TSCA	Toxic Substances Control Act
TWPC	TRU Waste Processing Center
UGT	underground storage tank

ORR 2008 Environmental Compliance Status

DOE has established extensive environmental protection and monitoring programs at ORNL, Y-12, and ETPP to make sure activities on the ORR do not harm the environment. These programs ensure compliance with federal and state regulations, executive orders, DOE orders, and contract clauses. In addition, all of the major contractors conducting operations on the reservation have implemented Environmental Management Systems (EMSs) that go beyond simply complying with regulations and instead promote continuous improvement in environmental programs and conditions. The two major organizations that regulate environmental activities on DOE's ORR are the U.S. Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC).

The table on the following pages summarizes many of the laws and regulations applicable to DOE activities on the ORR and the 2008 compliance status across the reservation.

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.

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 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.

Notices of Violations and Penalties

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

An NOV letter, dated June 16, 2008, was issued to BJC 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 was completed per manufacturer's instruction, and (2) removal of surface concrete on a gasket that plugs an end of a chase was performed, and 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 to UT-Battelle during 2008.

Numerous appraisals, surveillances, and audits of ORR environmental activities were conducted during 2008 (see the table on pages 8 and 9). The 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 through substantial new commitments by DOE. More information on the TOA is available at www.state.tn.us/environment/doeo.

—Contributor: Matt Ward



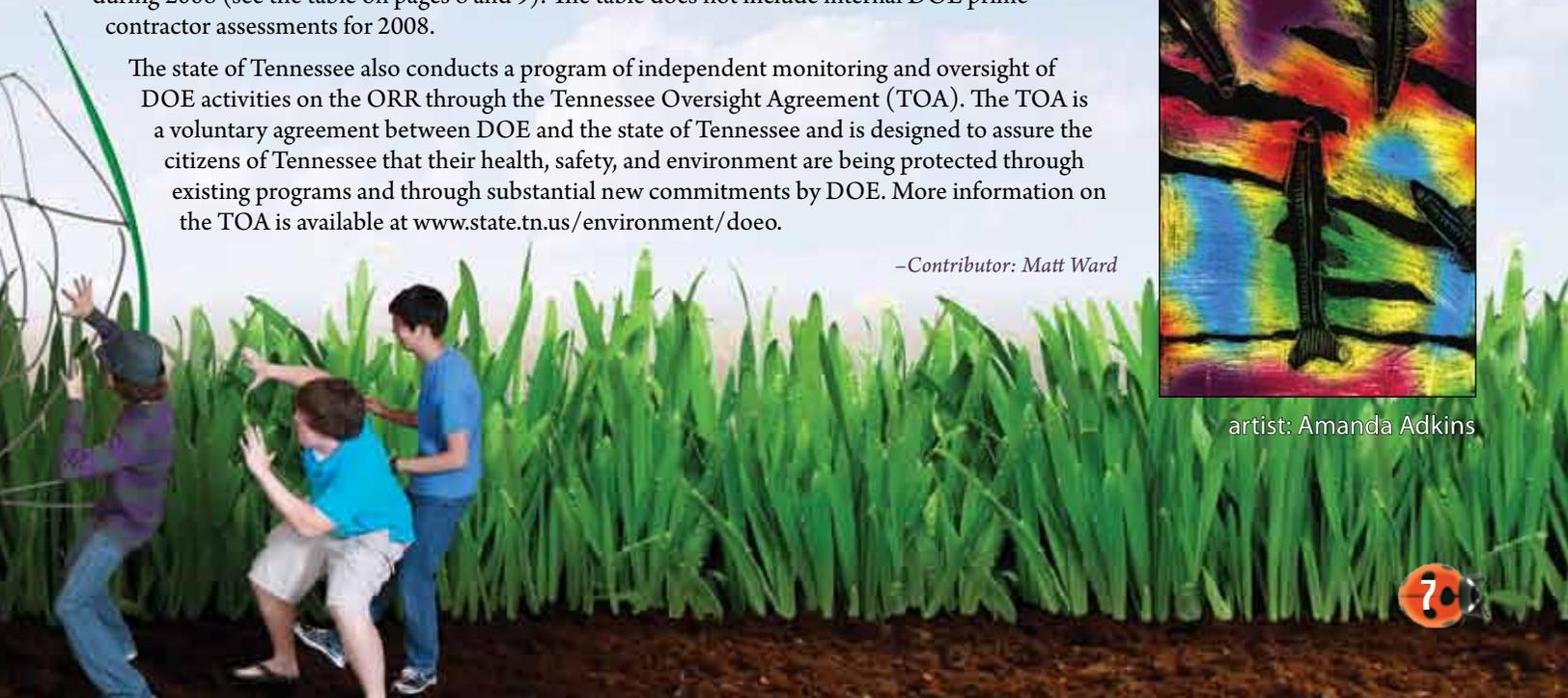
artist: Taylor Jensen



artist: Taylor Bohanan



artist: Amanda Adkins



Applicable Laws/Regulations and 2008 Status

Regulatory Program Description

2008 Status

The Comprehensive Environmental Response, Compensation, and Liability Act provides the regulatory framework for remediation of releases of hazardous substances and of inactive hazardous waste disposal sites.

The ORR has been on the EPA National Priorities List since 1989. The ORR Federal Facility Agreement (FFA) was initiated in 1992 among EPA, TDEC, and DOE. The FFA establishes the framework and schedule for developing, implementing, and monitoring remedial actions on the ORR.

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, 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.

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 *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.

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.

The Clean Water Act 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.

The Safe Drinking Water Act 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 ETPP and for an industrial park south of the site and was transferred to the city of Oak Ridge in calendar year 2008.

Emergency Planning and Community Right-to-Know Act, also referred to as the Superfund Amendment Reauthorization Act (SARA Title III), requires reporting of emergency planning information, hazardous chemical inventories, and environmental releases of certain toxic chemicals to federal, state, and local authorities.

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.

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.

The Y-12 Complex, ORNL, and ETPP are defined as large-quantity generators of hazardous waste as each generates >1,000 kg of hazardous waste per month. Each site is also regulated as a handler of universal waste. In 2008 each site operated in accordance with the RCRA permits that govern waste treatment, storage, and disposal units. ETPP received one NOV in 2008, which stemmed from issues related to a TDEC inspection of the petroleum storage tanks. All issues were resolved, and there were no penalties.

"Science is deep." - Justin Knight





Regulatory Program Description

2008 Status

The Toxic Substances Control Act (TSCA) regulates the manufacture, use, and distribution of many hazardous chemicals.

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 address legacy PCB-use issues across the ORR.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

"This project has been an incredibly enlightening experience."

- Johnathon Fehl

Radiation and Chemical Exposures

Activities on the ORR have the potential to release small quantities of radionuclides and hazardous chemicals to the environment. These releases could result in members of the public being exposed to low concentrations of radionuclides or chemicals. Monitoring programs—which include a wide variety of environmental media such as air, water, foodstuffs, and vegetation that could be affected by releases from the reservation—provide data used to calculate impacts to the public and the environment. These calculated values are compared with state and federal criteria to show that exposures to the public are in compliance with the law.



Radiation

Radiation comes from both natural and human-made sources. Natural radiation is also called background radiation and is the most abundant form of radiation within our environment. Background radiation is given off by many natural materials. Levels of background radiation are similar to those that existed a hundred years ago. Examples of background radiation include cosmic radiation (which increases the higher one is above sea level), terrestrial radiation (from rocks, soils, and minerals), and internal radiation (from the air breathed or from foods people eat).

A small percentage of radiation is human-made. Examples of these sources include medical sources, consumer products, atom bomb test fallout, and by-products in industry.

Dose is the amount of radiation absorbed by an individual and is often measured in rems or millirems. A rem is a unit that measures the potential biological damage to the body caused by exposure to radiation, and a millirem, which is one-thousandth of a rem, is the unit used in this report.

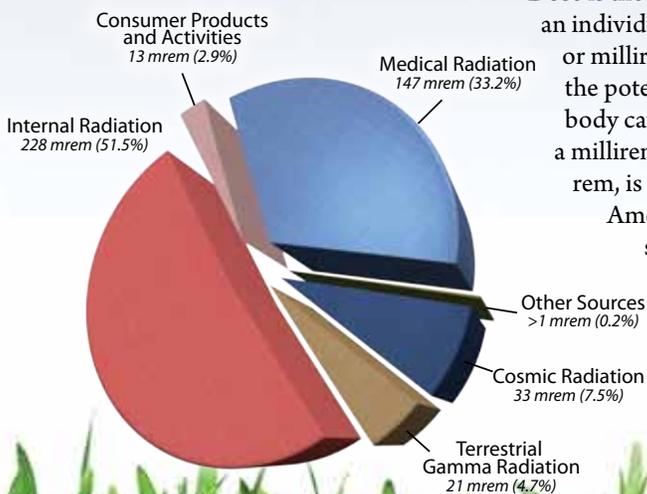
“They’re constantly upgrading and improving everything, and continually working toward a better future.”

— Derrick Menn

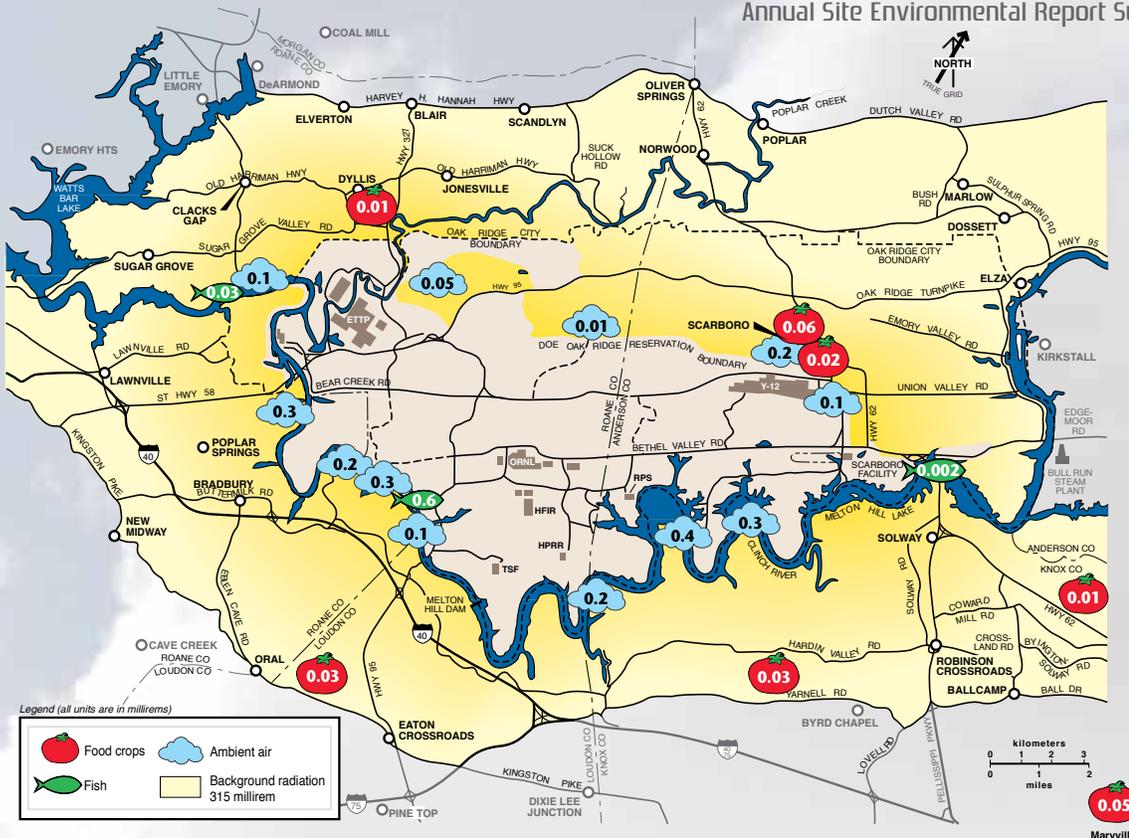
The average annual radiation exposure for Americans is approximately 311 millirems. As the chart at the left demonstrates, this dose increases somewhat for people undergoing medical tests and procedures such as x-rays and CAT scans.

A hypothetical maximally exposed individual could have received a total effective dose (ED) of about 0.4 millirem from radionuclides emitted to the atmosphere from all the sources on the ORR in 2008; this is well below the NESHAPs standard of 10 millirems for protection of the public.

sources of radiation exposure



possible radiation doses
(on or near the Oak Ridge Reservation)



A worst-case analysis of exposures to waterborne radionuclides originating from the ORR gives a maximum possible individual ED of about 1 millirem, and the total estimated worst-case maximum dose to a person irradiated by water, air, vegetation, and wildlife from the ORR is about 4 millirems. This is equivalent to about 1% of the annual dose from background radiation (311 millirems) and is considerably less than the DOE threshold of 100 millirems per year to members of the public from all DOE sources.

Dose estimates are performed using monitored and estimated release data, environmental monitoring and surveillance data, estimated exposure conditions that tend to maximize the calculated EDs, and environmental transport and dosimetry codes that also tend to overestimate the calculated EDs. Thus, these estimates do not necessarily reflect doses received by typical people in the vicinity of the ORR; these estimates likely are overestimates.

pathway	dose to maximally exposed individual	
	millirem	millisievert*
Airborne effluents		
(All pathways)	0.4	0.004
Liquid effluents		
- Drinking water	0.2	0.002
- Eating fish	0.9	0.009
- Other activities	0.2	0.002
Eating deer	2.0	0.02
Eating geese	0.2	0.002
Eating turkey	0.04	0.0004
Direct radiation	0.4	0.004
All pathways	4.0	0.04

*A millisievert is another unit of measurement for radiation dose and is equal to 0.01 millirem.

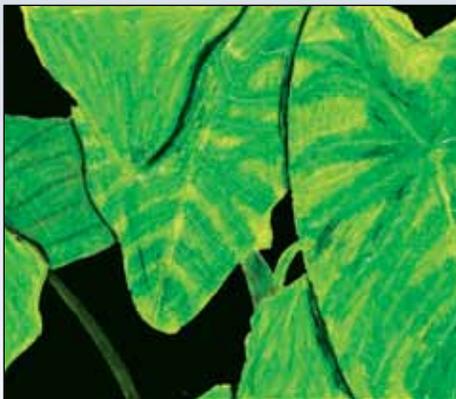




artist: Becca Craig



artist: Caitlin Hairrell



artist: Derek Siddel



artist: Peyton Jollay

Chemicals

Humans can also be exposed to chemicals that exist in the environment in many ways. The term “pathway” refers to the route (or way) in which a person can come into contact with something, such as a chemical substance or radiation. One pathway of chemical exposure to humans is through food that we eat, such as peanuts and apples, which contain aflatoxin and cyanide. People can also be exposed through some soils that naturally contain high levels of metals. Humans also produce and move hazardous chemicals, and these activities affect exposure. For instance, older building materials and paint may contain formaldehyde, asbestos, and lead. Pesticides and fertilizers added to the soil can create pathways of exposure; also, industrial wastes released into the environment may result in chemical exposures.

Samples are collected in areas on and surrounding the ORR and tested for chemicals likely to be released from the reservation. Chemical concentrations in liquids are expressed in terms of milligrams or micrograms of the chemical per liter of water; concentrations in solids are expressed in milligrams or micrograms of the chemical per gram or kilogram of sample. To evaluate the drinking water pathway, surface water samples were collected in the Clinch River, which borders the reservation, and catfish and sunfish were collected to evaluate the fish consumption pathway. The only levels of concern in these samples were consistent with a state consumption advisory for the entire Clinch River, not just that segment that could be affected by ORR activities.

—Contributors:

Jonathon Fehl, Justin Knight, Derrick Menn

Environmental Monitoring

Environmental monitoring is performed across the ORR to confirm that no member of the public is exposed to hazardous substances or radionuclides above regulatory levels from DOE activities. There are two primary types of environmental monitoring and sampling. Effluent monitoring involves collecting and analyzing liquid or gaseous samples at the point of emission. This could be a pipe discharging water from a facility or a stack emitting gaseous discharges from an operation or activity. Surveillance monitoring involves collecting and analyzing samples of air, water, soil, vegetation, wildlife, biota, and other media from the reservation and nearby areas. Each major facility conducts site-specific monitoring programs and participates in a reservation-wide surveillance monitoring program that measures radiological and nonradiological parameters directly in environmental media adjacent to the facilities. Sampling programs and results from 2008 environmental activities on the ORR are described in the following discussions.

“The site monitoring checks are so thorough that the sensors pick it up when someone gets minimal medical radiation.” — Josh Hinkle



Reservation-Wide Environmental Monitoring Programs

Meteorological Monitoring – Eight meteorological towers provide data on atmospheric conditions on the ORR. Data from the towers are used in modeling to predict impacts from facility operations and as input for emergency response atmospheric models. The meteorological data are also used to support various research and engineering projects.

Ambient Air – Ambient air is the surrounding air, and in this report the term specifically refers to the air surrounding the ORR. In addition to the exhaust-stack monitoring performed at each of the three major Oak Ridge DOE installations, ambient air is monitored to measure radiological parameters at eight locations that could be affected by DOE activities and at a reference location not within the potential impact area of ORR activities. Data from this ambient air monitoring are used to assess the impact of DOE operations on local air quality. The sampling systems consist of a high-volume air sampler used to collect particulates on a glass fiber filter and a column of silica gel used to collect water vapor containing tritium. Laboratory analyses are performed to determine the concentrations of radionuclides, and the results are compared to DOE reference levels known as derived concentration guides. In 2008, all radionuclide concentrations were less than 1% of the applicable derived concentration guides, indicating that DOE activities did not have a significant impact on local air quality.

External Gamma Radiation Monitoring – External gamma radiation monitoring is conducted to determine whether radioactive emissions from the ORR are increasing external radiation levels and to compare results from year to year. Exposure rates are recorded weekly at six ambient air stations. The average ORR exposure rate for 2008 was within the range of normal background levels in Tennessee, indicating that activities on the ORR do not increase external gamma levels in the area above normal background levels.

Surface Water – Surface water is a possible route for contaminants to move from the ORR into areas that could be accessed by the public. In 2008, surface water samples were collected from three locations on the Clinch River in addition to the samples collected to meet the requirements of the NPDES permits and other site-specific monitoring programs at the three major operating facilities. The samples were analyzed for metals, radioactivity, water quality parameters, and in some cases volatile organic compounds and PCBs. In 2008, there were no radionuclides detected in the Clinch River samples above 4% of the DOE derived concentration guide or the 4-millirem EPA limit. The DOE guideline is sometimes used for radionuclide comparisons because it is roughly equivalent to the dose limits for ingestion of drinking water that EPA uses to establish radionuclide drinking water standards. These results indicate that Oak Ridge activities are not adversely affecting the water quality of the Clinch River.

Food Crops – Another possible route for contaminants from the ORR to reach the public is through the consumption of food crops grown off-site in areas that could potentially be affected by DOE activities. In 2008, samples of tomatoes, lettuce, and turnips were collected from gardens or fields near the reservation and were analyzed for gross alpha, gross beta, gamma emitters, and uranium isotopes. The results were at background levels and were consistent with historical values, indicating that DOE activities in Oak Ridge do not significantly affect the radionuclide concentrations in locally grown produce.



artist: Jenny Ewing



artist: Katie Filipowicz



artist: Angel Turbyville





artist: Elayana Siebert



artist: Darla Turpin



artist: Justin Miller

Fish – Fish from three locations on the Clinch River are collected annually to ensure that members of the public are not exposed to contaminants from Oak Ridge activities by consuming fish from the river. Sunfish and catfish are collected at each location, filleted, frozen, and sent to a laboratory for analyses for selected metals, pesticides, PCBs, tritium, gross alpha, gross beta, gamma-emitting radionuclides, and total radioactive strontium. Consumption of fish from the Melton Hill and Watts Bar reservoirs, including areas that are not affected by ORR activities, is limited by an advisory issued by TDEC for PCBs. PCBs are found in water bodies all over the United States, and the local advisories are for the entire Melton Hill Reservoir and the Clinch River arm of Watts Bar Reservoir, not just areas that could potentially be affected by the Oak Ridge DOE facilities. This advisory is applicable to atypical consumers such as pregnant or nursing women, children, and subsistence fishermen. Consistent with this advisory, PCBs were detected in both species at all locations in 2008.

White-Tailed Deer – Three weekend deer hunts were held on the Oak Ridge Wildlife Management Area, which is part of the ORR, during November and December 2008. These annual deer hunts were managed by the Tennessee Wildlife Resources Agency and DOE. Shotgun/muzzleloader and archery hunts yielded a total harvest of 483 deer (284 bucks and 199 does), which were screened for radioactivity prior to release to the hunter. Seven deer were retained by officials for exceeding administrative release limits. This is consistent with retention rates from previous years.

Canada Geese – Open hunts for Canada geese are held each year in counties adjacent to the ORR. In addition, in September 2008 a Canada goose hunt was held in the Solway and Freels Bend area of the ORR with hunters being allowed to take wood duck and teal on one of the hunt days. To determine the potential impact of consuming geese that could have accessed areas affected by DOE facilities in Oak Ridge, 227 geese were captured on the ORR during June 2008. Whole-body gamma scans were conducted to determine concentrations of gamma-emitting radionuclides accumulated by these waterfowl. No geese exceeded administrative limits.

Turkey – Two wild turkey hunts were held on the reservation in April 2008. Hunting was open for both shotguns and archery. Twenty-one turkeys were harvested; none exceeded administrative release limits established for radiological contamination.

In addition to the ORR-wide environmental monitoring described in this section, site-specific monitoring is conducted at the three major Oak Ridge DOE installations.

–Contributors:

*Matt Ward, Justin Knight, Derrick Menn,
Joshua Hinkle, Jonathon Fehl*



Site-Specific Environmental Monitoring

Y-12 National Security Complex

At the Y-12 National Security Complex, an EMS modeled on the international standard ISO 14001:2004 is used as a tool to manage, control, and minimize or eliminate potential environmental impacts associated with site activities. The EMS is designed to help improve environmental performance, provide for compliance with the law, improve efficiency and effectiveness, and promote stewardship. Protection of the environment includes monitoring of water, air, soil, and biota as well as measuring progress in achieving environmental performance goals.

Surface streams and wastewater discharges are regulated by TDEC under a site-wide NPDES permit. This permit covers more than 65 outfalls and storm water monitoring locations. More than 3,200 data points were generated from field and analytical samples in 2008. During 2008 the Y-12 NPDES compliance rate was greater than 99.9%. There was one NPDES permit excursion reported when a total residual chlorine data point (0.68 milligram per liter) exceeded the permit limit (0.50 milligram per liter). Monitoring of the discharges of sanitary wastewater to the city of Oak Ridge's publicly owned treatment works indicated four exceedances of permit limits (two for copper and two for flow).

Air emissions from 36 emission sources and more than 100 air emission points at the Y-12 Complex are regulated by Title V permit. More than 3,000 data points were collected and reported under the Title V operating permit every 6 months, and there are five continuous monitors for criteria pollutants as well as numerous continuous samplers for radiological emissions. There were no noncompliances as a result of monitoring activities. An estimated 0.0071 Ci (0.6 kilogram) of uranium was released into the atmosphere from Y-12 activities in 2008. The resulting total ED of 0.1 millirem is significantly less than the DOE limit of 10 millirems. The Y-12 Steam Plant burns coal and natural gas and is a primary source of criteria pollutants at Y-12. All monitored results were in compliance with the Title V permit in 2008.

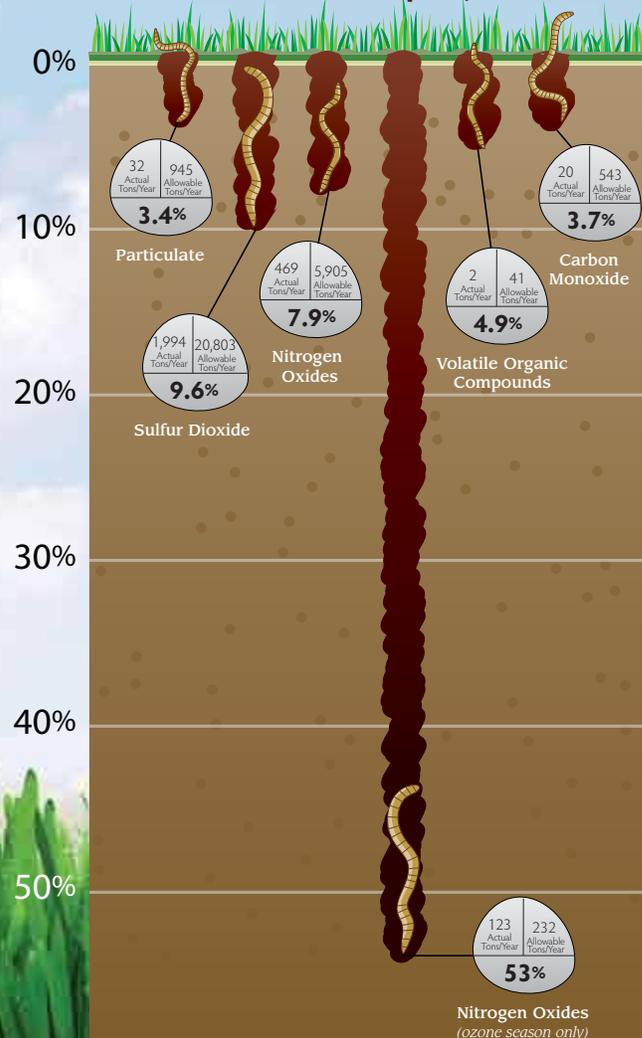
More than 700 samples from groundwater wells and springs were collected in 2008, and results from more than 33,500 analyses were reported. Results were consistent with past sampling data. Primary contaminants in groundwater are nitrate, volatile organic compounds, metals, and radionuclides. Of these, volatile organic compounds are most widespread. In general, groundwater contamination trends are stable or decreasing.

Eight environmental audits/inspections by outside regulatory agencies (TDEC and the city of Oak Ridge) were conducted at the Y-12 National Security Complex during 2008. There were no regulatory noncompliances identified as a result of these audits.

There were no releases of hazardous substances exceeding reportable quantities and no fish kills at Y-12 during 2008; there was one reportable oil sheen.

As a means to measure progress in continual environmental performance improvement, B&W Y-12 establishes environmental objectives and targets (or goals) and tracks performance during the year. In 2008, Y-12 achieved 11.9 of 12 goals (99%) that resulted in overall environmental improvements. Significant among these improvements were reducing both the legacy low-level waste and mixed waste inventories by more than 70%, reducing the quantity of hazardous materials and chemicals on site, and reducing the number of outdoor storage areas by 18%.

actual vs. allowable air emissions
from Y-12 steam plant, 2008

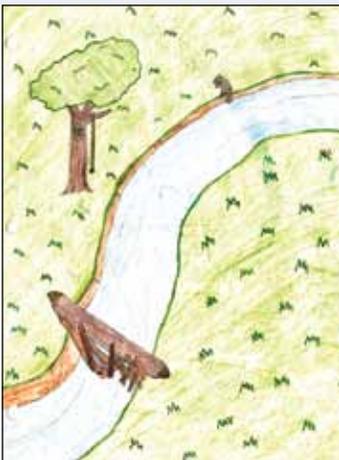




artist: Kaleb Jarman



artist: Trey Ferguson



artist: Daniel Barry

Oak Ridge National Laboratory

UT-Battelle and other DOE contractors performing work at ORNL use EMSs modeled after the international standard ISO 14001:2004 to measure, manage, and control environmental impacts of DOE activities on the site. These EMSs are implemented through high-level policies that clearly state expectations for continual improvement, pollution prevention, and compliance with regulations and other requirements. Through conformance to the standard, UT-Battelle demonstrates compliance with environmental requirements and a commitment to achieve environmental excellence. In 2008, an internal audit and an external surveillance audit were conducted; these confirmed conformance to ISO 14001:2004.

EnergX has also implemented an ISO 14001–registered EMS to measure, manage, and control the environmental impacts of its activities at the TWPC on the western boundary of ORNL. No nonconformances or issues were identified during the EnergX assessment, and several significant practices were noted.

During 2008 UT-Battelle implemented 30 pollution prevention initiatives that resulted in a reduction of more than 58 million kilograms of waste and an associated cost avoidance of more than \$3.5 million. Over the last several years, UT-Battelle’s Pollution Prevention Program has been repeatedly recognized by EPA, and in 2008, the program received the DOE Office of Science Pollution Prevention–Best in Class Award, two DOE Pollution Prevention Star Awards, and a White House “Closing the Circle” Award.

The UT-Battelle Energy Management and Conservation Program also continued to recognize continuous improvements during 2008.

UT-Battelle energy conservation efforts between 2003 and 2008 have exceeded levels established in the 2005 Energy Policy Act.

In 2008, significant strides were made related to a massive effort to revitalize the ORNL site and to replace or upgrade expensive-to-maintain facilities with modern, energy-efficient facilities that will provide the infrastructure needed for continuing the world-class science and technical research programs carried out at ORNL. Over the past several years, the average age of ORNL facilities has decreased from 42 to 31 years, and during 2008 significant modernization activities were completed in keeping with UT-Battelle’s commitment to develop a sustainable campus.

Comprehensive environmental monitoring and sampling programs were conducted by UT-Battelle in 2008 to demonstrate compliance with regulations and to provide a means of verifying that releases to the environment from UT-Battelle activities are as low as reasonably achievable. Compliance with the NPDES permit was determined by approximately 4,000 laboratory analyses on water samples and field observations in 2008. The 2008 NPDES compliance rate was nearly 100%, with only six measurements exceeding numeric NPDES permit limits. The noncompliances occurred at the former ORNL Coal Yard Runoff Treatment Facility, now known as the Steam Plant Wastewater Treatment Facility. Three of these noncompliances occurred in February 2008, when results of measurements for copper exceeded daily maximum limits. The copper measurements resulted in a third, calculated exceedance of a monthly average limit. Similarly, in July 2008 daily maximum limit exceedances of silver and iron also resulted in a third, calculated exceedance of a monthly average iron limit. The February 2008 exceedances were attributed to a pump discharge line that froze and broke; the pump was promptly repaired. The July 2008 exceedances were investigated and were not attributable to any operational event. None of these six exceedances resulted in any discernable ecological impact. Two fish kills occurred in White Oak Creek at ORNL in 2008, one on July 1 and one on September 15. Each resulted in the death of about 180 aquatic organisms, including fish and other aquatic species. The kills were attributed to excessive chlorinated water discharges; improved dechlorination systems are being installed to guard against a recurrence.

Several surface-water monitoring points and 49 groundwater wells at ORNL were also sampled by UT-Battelle during 2008, and all data were consistent with historical monitoring results, which continues to demonstrate that ongoing UT-Battelle operations are not having

significant impacts on the local environment. Airborne discharges from ORNL, both radioactive and nonradioactive, are subject to regulation by EPA and the TDEC Division of Air Pollution Control. Radioactive airborne discharges at ORNL consist primarily of ventilation air from radioactively contaminated or potentially contaminated areas, vents from tanks and processes, and ventilation for hot-cell operations and reactor facilities. The calculated dose to the maximally exposed off-site individual from all radiological airborne release points at ORNL during 2008 was 0.4 millirem, well below the NESHAPs standard of 10 millirems. UT-Battelle holds a Title V permit for 10 emission sources, all of which operated in full compliance with permit conditions during 2008.

ORNL did not receive any NOVs or penalties from regulators during 2008, and there were no releases of hazardous materials exceeding reportable quantities at ORNL during 2008. Several environmental audits/inspections by outside agencies were conducted at ORNL during 2008. Assessors included TDEC; NSF Strategic Registrations, Ltd.; and the Radiological Assessment Corporation. No NOVs were issued as a result of these audits and inspections.

EnergX has also implemented an ISO 14001-registered EMS to measure, manage, and control the environmental impacts of its activities at the TWPC on the western boundary of ORNL. The EnergX EMS was registered to the ISO 14001:2004 Standard by NSF International Strategic Registrations, Ltd., in May 2008. No nonconformances or issues were identified during this assessment, and several significant practices were noted.

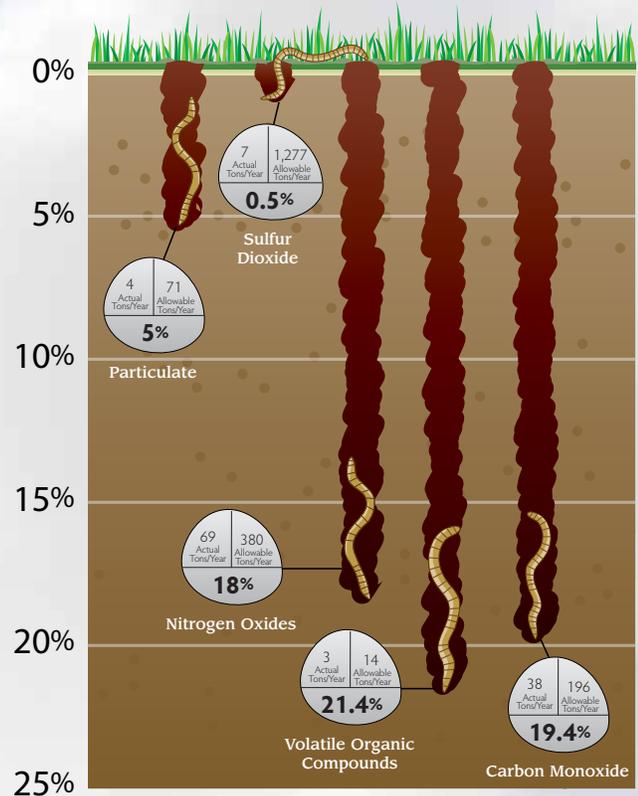
The EnergX EMS and Integrated Safety Management System are integrated to provide a unified strategy for the management of resources; the control and reduction of risks; and the establishment and achievement of the organization's environment, safety, and health goals. EnergX has a well-established recycling program at the TWPC and continues to expand the types and volumes of materials included in the program. In addition, EnergX was successful in procuring over \$70,000 in environmentally preferable materials in 2008.

East Tennessee Technology Park

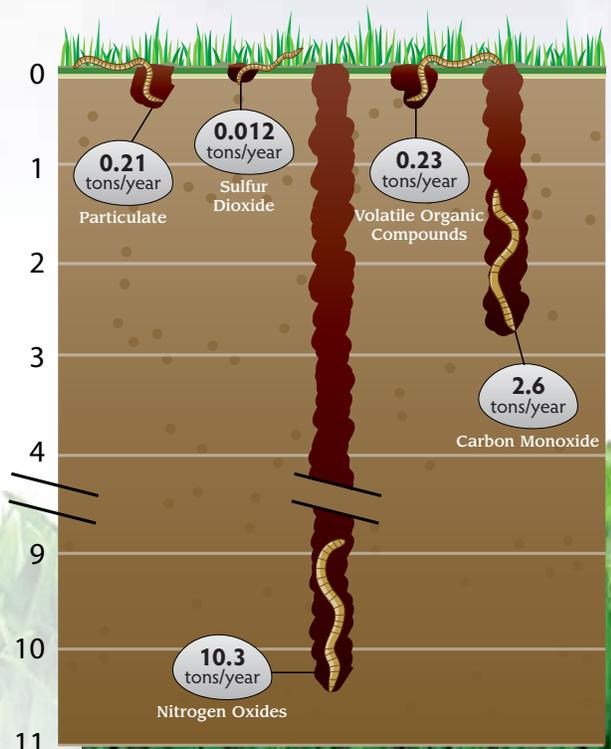
The original mission of ETPP was to enrich uranium. When that mission ended, the emphasis at ETPP shifted to managing and disposing of the mountains of waste left over from decades of operation. In the 1990s, reindustrialization (leasing buildings to private companies for various commercial ventures) was chosen as a mechanism to find new uses for the now-idle facilities and to provide new jobs. Buildings and facilities that could not be leased are being decontaminated and demolished. Cleaning up and decommissioning these facilities now make up the largest single effort at ETPP.

Regulators from both EPA and the state of Tennessee have worked with DOE to determine appropriate measures to manage wastes and control discharges from ETPP operations, often through the use of permits. Regulators inspected the ETPP site several times during the year to make sure that the conditions of the permits continued to be met. In addition, BJC, the prime contractor at ETPP, also conducts inspections and monitoring. During 2008, thousands of samples and field measurements were taken at air, surface water, groundwater, and biological monitoring locations. In 2008, both airborne and liquid effluent discharges from ETPP were 100% compliant with the terms of the permits. Caged clams and game fish from several locations were analyzed for PCBs. The results of these studies indicate that PCBs are present at various levels in some of the water bodies on and around ETPP. A major remediation project to isolate PCBs in the K-1007-P1 Pond was planned in 2008 and was executed in 2009. This remediation effort used innovative bioremediation techniques to sequester the PCBs from the food chain,

actual vs. allowable air emissions from ORNL steam plant, 2008



actual emissions of criteria pollutants from permitted ETPP sources, 2008





while at the same time enhancing the ecological value of the wetlands around the pond. Benthic macroinvertebrate and fish communities on Mitchell Branch were studied. Toxicity tests were conducted at several Mitchell Branch locations and associated storm water outfalls. Data from these studies indicate that while past operations at ETP have negatively impacted the aquatic environment, changes in operations and remedial actions have begun to heal the damage and the aquatic environment has begun to recover.

“What they do now at ETP is mostly recovery and decon. They measure their own pollution and clean up old trash left over.” – Matt Ward

Dose estimates based upon results from monitoring air emissions in 2008 demonstrate levels well below the NESHAPs limit of 10 millirems. In 2008, the maximally exposed individual at ETP was estimated to have received a dose of approximately 0.05 millirem from airborne discharges. No direct monitoring of nonradiological air contaminants is required at ETP. Instead, monitoring of key process and air pollution control device parameters is performed to ensure compliance with permit limits.

In 2008 both, the state of Tennessee and EPA inspected waste storage and other operations at ETP. There was one NOV issued related to underground storage tanks. The two corrective actions associated with this issue were satisfactorily completed, and the tanks are now in compliance with the appropriate requirements.

–Contributors:

Matt Ward, Justin Knight, Derrick Menn, Joshua Hinkle, Jonathon Fehl

Office of Environmental Management

The Office of Environmental Management (EM) is a section of DOE that runs the environmental cleanup programs on the ORR. Due to more than 60 years of energy research and weapons production, there are numerous buildings and areas contaminated with radiological and chemical constituents on the reservation. The goal of the EM program is to do everything possible to clean up the ORR, including decommissioning and demolishing old buildings, cleaning water, or even just disposing of trash more efficiently. Safety is a key consideration in these efforts, and experts oversee all the cleanup activities to ensure that the public and the workers are not exposed to harmful levels of chemicals or radionuclides as a result of EM projects.

Completed EM projects include cleaning 145 acres of Melton Valley, removing and disposing of containers of waste left over from past research, demolishing several facilities and buildings, planning and preparing for further demolition projects, and removing the last of 6,000 depleted uranium hexafluoride cylinders. Currently, the major challenge facing EM is the K-25 building at ETP, which served as a large gaseous diffusion plant where uranium was enriched during the Manhattan Project. Taken off-line in 1964, it covers 44 acres under a single roof.

–Contributor: *Matt Ward*

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:

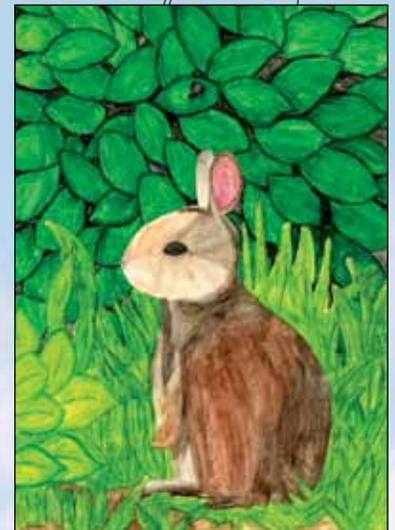
- an environmental assessment that evaluated the potential impacts of advancing the technology transfer mission at ORNL by establishing the Oak Ridge Science and Technology Project;
- a hazardous waste permit to allow a storage facility at ETPP to continue storing and treating hazardous waste;
- a hazardous 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 TWPC;
- 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.

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 Oak Ridge Site-Specific Advisory Board (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. Click on "Public Activities," and select the "Online Catalog" to begin the search.



artist: Matthew Ray



artist: Lindsey Seymour

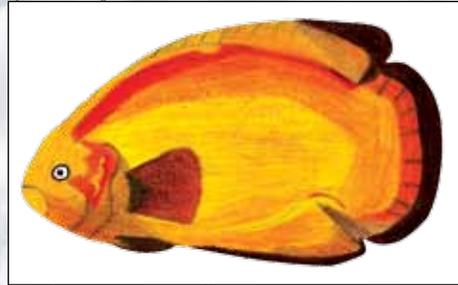


artist: Jordan Reed





artist: Bryce Gibson



artist: Katlyn Castle



artist: Tommy Weiler



artist: Sydney Stinson



artist: Shayna Smith

Other Information Sources

- The ORSSAB is a federally appointed citizens' panel that provides independent advice and recommendations to DOE on its EM program in Oak Ridge. Information on the ORSSAB is available at www.oro.doe.gov/em/ssab.
- 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. 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 may be contacted at www.local-oversight.org or at 865.483.1333.
- TDEC's DOE Oversight Office provides independent state oversight of DOE's Oak Ridge activities. Information is available at 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 www.yso.doe.gov.
- A monthly calendar of meetings and announcements is highlighted on the web at 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 annual *Remedial Effectiveness Report* contains information on the progress and status of DOE EM programs conducted on the ORR and is available at the DOE Information Center or at www.oro.doe.gov/PAODOEIC/Uploads/A.0100.064.1943.pdf.
- 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 www.amse.org.

Other Information Resources Available via Internet Sites or Telephone

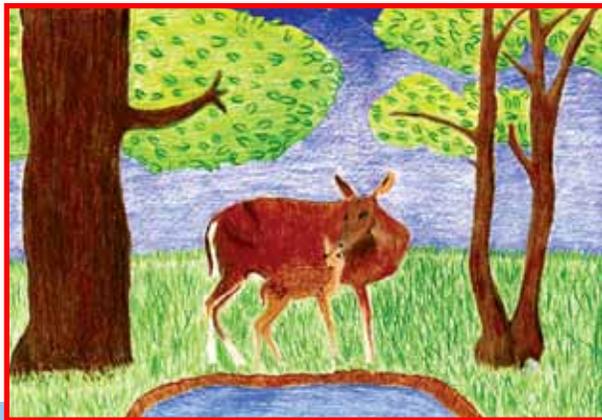
- DOE Oak Ridge Office public information line: 1.800.382.6938
- DOE: www.energy.gov
- DOE Oak Ridge Office: www.oakridge.doe.gov
- DOE Environmental Management Program: www.oakridge.doe.gov (click on "Programs," then select "Environmental Management")
- Oak Ridge Accelerated Cleanup: www.bechteljacobs.com/doeclean
- ORNL: www.ornl.gov
- B&W Y-12: www.y12.doe.gov

MEANWHILE....



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ORR ASER SUMMARY 2008
ORNL 2009-G00601