



OAK RIDGE
Reservation DOE/ORO/2187

Annual Site Environmental Report Summary

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Protecting Our Legacy



Message from the Students

Dear Department of Energy Stakeholder:

We, the 2005 Communications for Life Class at Karns High School, are proud to have participated in creating such an important DOE document. When first meeting the project leaders we saw a man from DOE walk into our classroom with a wizard’s hat on. We all thought he was outrageous and goofy. The message he gave to us to kick off the project was to think “outside the box.” He told us to use our imaginations and be creative and different. Dr. Tim Joseph told us he wore the weird hat specifically to get us to put on our own creative hats, and that’s what we did.

We learned that there are many DOE activities that the local community can get involved in. We used to think that the Oak Ridge facilities only built bombs, but after our research, site visits, and having scientists come to our class, realized Oak Ridge is a spectacular place, with lots of research, and wasn’t filled with bombs. Working on the project has been very interesting and different to say the least. The most important thing we have learned is that students, teachers, and business people will amaze you if you give them a chance.

The class would like to thank Dr. Joseph of the Department of Energy, Joan Hughes from the Oak Ridge National Laboratory, and Evelyn Hammonds, our own Karns High School Communications for Life teacher. And we thank DOE for choosing us to help with this project, for we learned so much. We hope you, the public, find our document informative and of value to you.

Sincerely,

Shanda Smith
Sam Walker
Shannah Halley
Jennifer Carrick
Halley Roberts
Jessica Baldwin
Robert Millington
James
Nick Anderson
David Homer
Vanessa McKelvey
Matthew Henderson
Brittany Peck
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About the cover

Protecting Our Legacy: Standing at a precipice, gazing out over the Tennessee Valley, taking in the wonders of the environment around us, it becomes clear how fortunate we are to have been given such a gift. Too, it becomes clear that this gift must be protected. Nestled in a quiet valley is the Oak Ridge Reservation, prosperous yet fragile, a sanctuary where wildlife and research coexist in harmony. All of us, the public, private industry, and the government, must never forget the value of this endowment, and work together to maintain and improve the health of this beautiful place. — *Timothy Joseph, Ph.D.*



Contents

Credits 2

Preface 3

Oak Ridge Reservation History..... 4

Environmental Compliance..... 6

Basic Overview of Radiation..... 9

Environmental Monitoring..... 13

Environmental Management..... 16

Class Participation at the Department of Energy’s
Annual Site Environmental Report Workshop 21

Message from the Oak Ridge Operations Office Manager

It is with great pride DOE provides you, our public, with this *Annual Site Environmental Report Summary*. My special thanks go out to the hardworking students at Karns High School; Evelyn Hammonds, their teacher; and Clifford Davis, Jr., the principal. Without their skills, enthusiasm, and support, this document would not be possible. DOE appreciates the dedicated team from Karns High School, and we look forward to continuing our close partnership.



Gerald G. Boyd, Manager





Credits

Top to bottom, left to right:

Evelyn Hammonds

Joan Hughes, Timothy Joseph

Shanna Hatley

Haley Roberts, Nick Harden

Shanda Smith, Robert Millington, Drew Abner

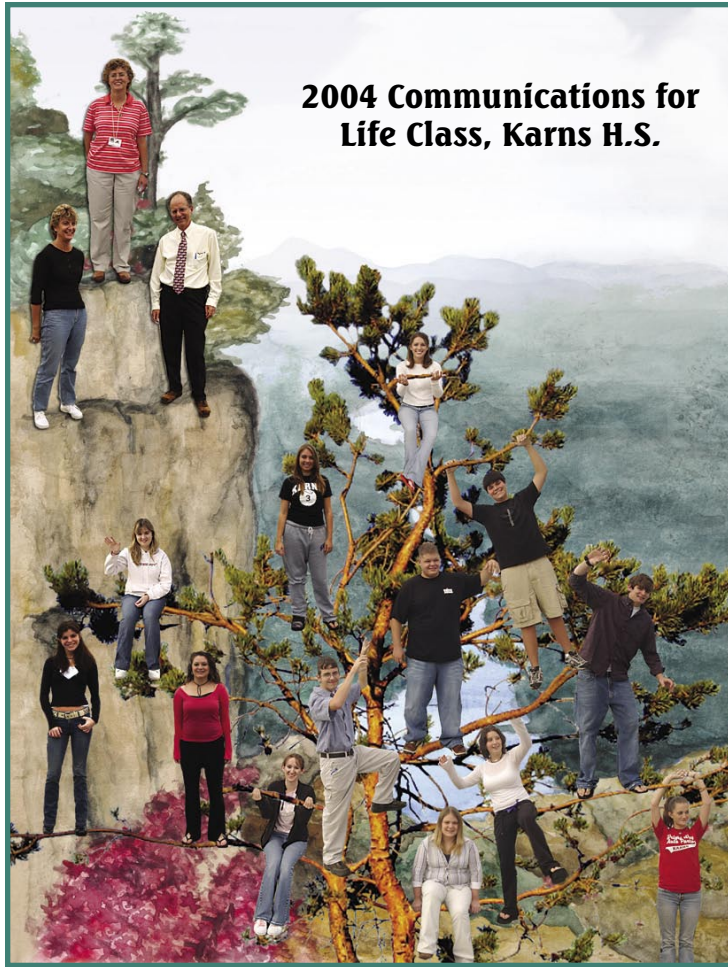
Heather Henderson, Jenna Scalf, Sam Wallen

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Vanessa McKelvey



Oak Ridge Reservation Annual Site Environmental Report Summary 2003

on the World Wide Web: <http://www.ornl.gov/aser>

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Date published: December 2004



Preface

Annual Site Environmental Report Summary 2003

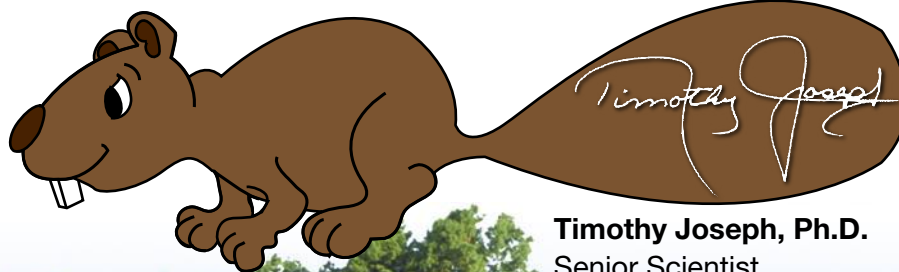
A mission of foremost importance to the Department of Energy and our contractors is to provide our stakeholders with a complete understanding of the consequences of our operations, both past and present. To do this, an extensive annual multimillion-dollar monitoring and surveillance program collects and analyzes tens of thousands of samples from air, surface and groundwater, soil, mud, plants, and animals. The results are published in a detailed *Annual Site Environmental Report* available to all. We also publish a separate data volume for those who wish to see the raw data.

Though these documents present all the facts and figures, they are long, technical, and not always easy to read. Thus, I team with a local high school each year and ask students to write an *Annual Site Environmental Report Summary* specifically for the public. These documents are perhaps the most important reports the Department of Energy produces. Why? First, they lay out the environmental monitoring programs and the consequences of Department of Energy operations in great detail to our legislators, stakeholders, and the public; second, they represent the efforts of many dedicated environmental scientists who carry out these extensive programs and work hard to protect and enhance the environment; and third, the summary is written for you, the public, our most important stakeholder, with the hope that you find it understandable and of value in gaining an accurate understanding of the Oak Ridge Reservation. All three documents can be found on the web, along with those published in previous years, at <http://www.ornl.gov/aser>.

Working with a new class each year brings new faces, new personalities, and new creative ideas. The students always amaze me with their interest and desire to produce a document the public will utilize and find of value. I personally thank the Karns High School students and their teacher, Evelyn Hammonds, for accepting my challenge in writing this public document and for thinking out of the box as I asked. Thanks also to each contributing art student and Principal Clifford Davis for his support. This class was an especially enjoyable group to work with and took off at full speed when I threw them the ball. I hope you, our public, find their efforts of value. I believe you will.

As the *Annual Site Environmental Report* program manager it is my sincere hope you find this summary useful and easy to read. I am always interested in stakeholder feedback on how we can improve the report and this summary document, for they are written for you. I invite your comments and can be reached by phone at 865-576-1582, or by email at: josepht@oro.doe.gov. Additional printed reports are available at the Department of Energy Information Center, or by calling 574-6649.

Genuine Regards,



Timothy Joseph, Ph.D.
Senior Scientist
U.S. Department of Energy
Oak Ridge Operations



Oak Ridge Reservation History

The history of the Oak Ridge Reservation is very important to the world because of its contributions to the making of the atomic age. We hope that after our synopsis is read, the history of the Oak Ridge Reservation will be better understood.

The reason for war

On December 7, 1941, the Japanese attacked Pearl Harbor. In 1942, while the world was at war, the United States government purchased an area in east Tennessee to build a plant to be a part of a secret project to create the atomic bomb. Originally, the plant site and community were collectively called the Clinton Engineer Works, and later called Oak Ridge.

Oak Ridge was chosen because of the temperate climate, because it was isolated by the surrounding mountains and ridges, and because it had access to large labor pools from the nearby city of Knoxville. The site today has approximately 33,750 acres of land in the Oak Ridge area.

During wartime, the population in Oak Ridge grew to more than 75,000. Fred Strohl, from the Oak Ridge National Laboratory, said in an interview with our class, that the city was so secret that the men and women were not allowed to play golf because there was a feeling that people might talk too much while playing. One worker on the reservation at that time, Dr. Al Brooks, said it was “very clear” that you did not talk about the mission. He also said that all of the secrecy and the project itself were worth it when a soldier thanked him for saving his life.

In addition to the work going on in Oak Ridge, teams of scientists were working on secret projects at many closely guarded sites, including a remote mesa at Los Alamos, New Mexico, and the stark, remote valley of the upper Columbia River at Hanford, Washington.



X-10



The X-10 plant, built in November 1943, housed the first full-scale nuclear reactor and support buildings for the production and chemical separation of plutonium. The Graphite Reactor was decommissioned in 1963 and is now a national landmark. The Oak Ridge National Laboratory, currently operated by UT-Battelle, is one of the world's premier scientific research centers and carries out research and development in science and technology, energy resources, environmental quality, and national security.

Y-12

The Y-12 Electromagnetic Separation Plant, completed in 1945, was designed to produce enough enriched uranium to make fissionable material for an atomic bomb. At its peak, more than 22,000 employees worked at the plant. The Y-12 National Security Complex is currently operated by BWXT. The plant, which stretches over 811 acres, contains more than 600 buildings. The primary missions of Y-12 Security Complex today are producing and refurbishing nuclear weapons components, safeguarding special nuclear material, providing the United States Navy with nuclear material for safe, effective nuclear propulsion systems, and providing support for other national security needs as required. One of the more recent projects at the plant is the development of a "hospital in a box." The neatly packaged box, when opened, is actually a fully contained surgical facility. These boxes are designed for use in military situations where soldiers do not have immediate access to hospitals.

K-25

The K-25 site was developed to separate uranium by use of the gaseous diffusion process. The plant began operating in 1945, but it only produced half of the enriched uranium initially intended. Through 1964 the plant was primarily used for production of high-grade uranium for nuclear weapons, and later production shifted to commercial-grade uranium to support the nuclear power industry. In 1987 K-25 was shut down permanently. At the site, now called the East Tennessee Technology Park, environmental management and ways to reindustrialize and reuse site assets through leasing of vacated facilities are the main activities.



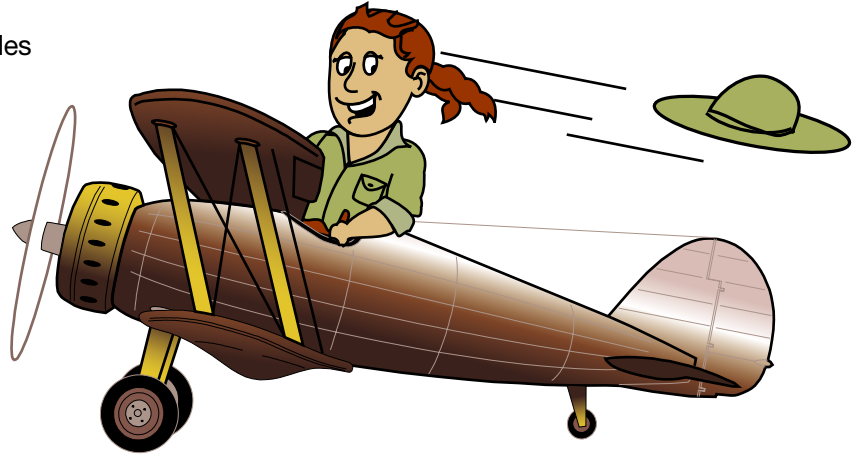
Future of the Oak Ridge Reservation

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. Therefore, environmental sampling and monitoring to ensure that the environment and public health are protected as these activities are conducted will remain high-priority activities. The site will continue to be a leading research area for the entire world.



Environmental Compliance

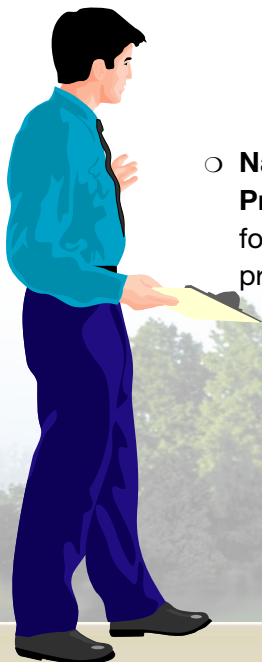
- **Federal Insecticide, Fungicide, and Rodenticide Act** provides federal control of pesticide usage, sale, and distribution. No restricted-use pesticides are used on the Oak Ridge Reservation.
- **Comprehensive Environmental Response, Compensation, and Liability Act** (also known as Superfund) ensures that the environmental impacts of past and present activities on the reservation are investigated and that measures are taken to protect the public and the environment. There were no reportable releases of hazardous chemicals from the reservation in 2003.



- **National Environmental Policy Act** requires an evaluation of environmental impacts of proposed projects, and the examination of alternatives.

On the Oak Ridge Reservation, every effort is made to conduct operations in compliance with federal, state, and local environmental protection laws to ensure the protection of environmental and public health. Except for the few instances of noncompliance discussed in this section, all Oak Ridge sites were in compliance with environmental laws and regulations in 2003.

- Each site achieved a National Pollutant Discharge Elimination System permit compliance rate greater than 99.9 percent. A summary of noncompliances is presented on page 8.



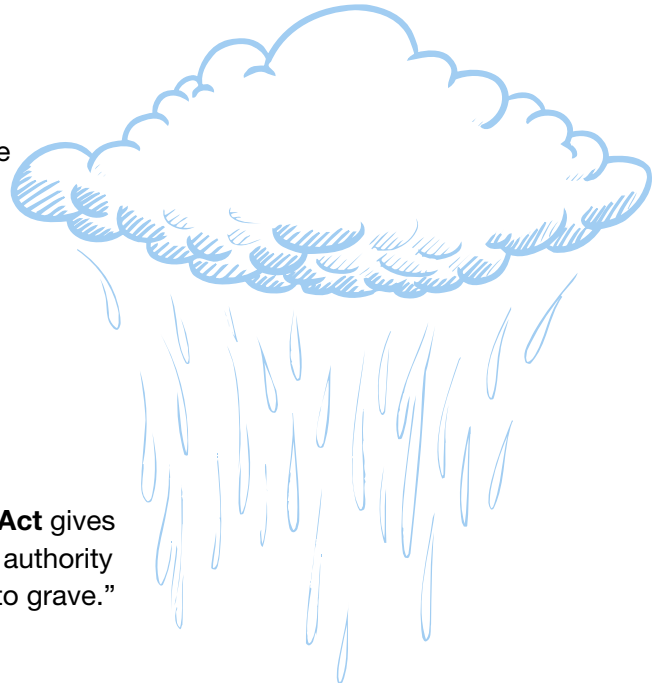
- **National Historic Preservation Act** provides for the preservation of historic properties all over the nation.



- **Safe Drinking Water Act** establishes drinking water regulations.

- **Clean Water Act** helps regulate the discharge of pollutants into the waters of the United States. The 2003 compliance rate for all three Oak Ridge sites was greater than 99.9%.

- **Clean Air Act** protects and improves air quality in the United States. It establishes a dose limit of 10 millirem per year for air emissions. The total 2003 dose from radionuclides emitted to the air from all Oak Ridge Reservation sources was 0.2 millirem.



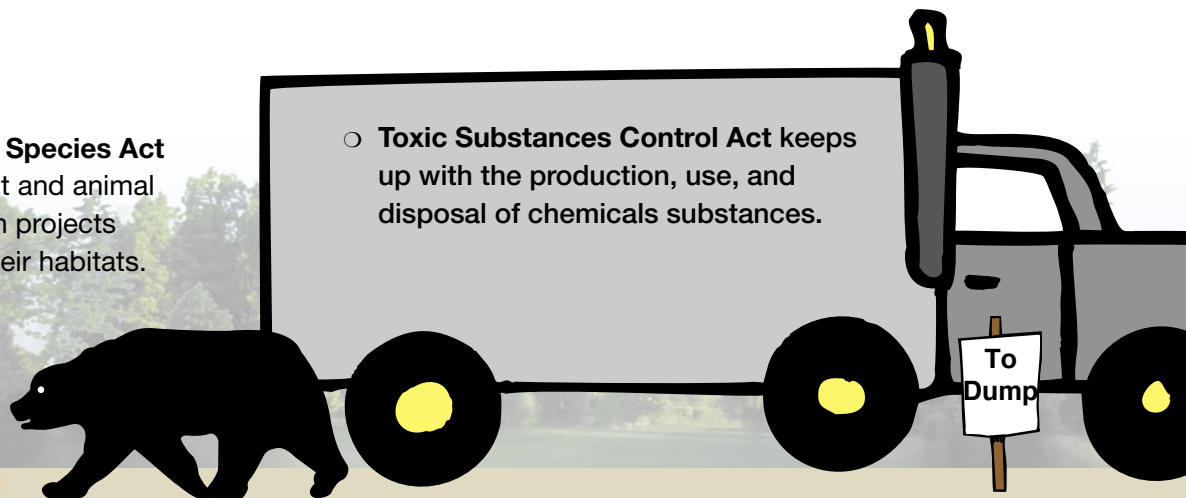
- **Resource Conservation and Recovery Act** gives the Environmental Protection Agency the authority to control hazardous waste from “cradle to grave.”

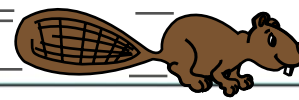
- All three Oak Ridge Reservation facilities operated in compliance with state of Tennessee regulatory dose limits for air emissions and met its emission and test procedures.
- No releases of reportable quantities of hazardous chemicals or asbestos were reported under the Comprehensive Environmental Response, Compensation, and Liability Act by any of the sites.

- **Federal Facilities Compliance Act** was passed to bring federal facilities into compliance with Resource Conservation and Recovery Act.

- **Endangered Species Act** protects plant and animal species when projects could alter their habitats.

- **Toxic Substances Control Act** keeps up with the production, use, and disposal of chemicals substances.





Summary of National Pollutant Discharge Elimination System Permit Exceedances in 2003

Y-12 National Security Complex

Description/Cause	Corrective Action
On January 22, a water sample showed an elevated chlorine level. Additional data analysis for January showed the monthly average for total residual chlorine exceeded permit limits. Cause was determined to be failure of the dechlorination system. No observed adverse affects on aquatic life.	Installed a new sodium bisulfite feed line for the raw water basin.
Two water samples taken on February 17 and 18 showed elevated mercury levels. This occurred because of heavy rains in the area.	No action was taken because problem was due to excessive rainfall and the system functioned as designed. Both samples were from the same location.
On April 15, a water sample showed an oil and grease reading above the permitted limit. Could not find the source of the oil. No observed adverse affects on aquatic life.	In the future, additional lab analysis on samples with elevated oil and grease readings will be performed on residue to find source of problem.
On November 18, three water samples an at outfall showed elevated chlorine levels. An investigation revealed that one of the tablet dechlorination units was not working properly.	Replaced the malfunctioning dechlorination unit.

East Tennessee Technology Park

Description/Cause	Corrective Action
On January 21, diesel fuel leaked from a vehicle at ETPP, causing an oil sheen in a pond.	The spilled fuel did not enter Poplar Creek; the vehicle was repaired and removed from site.
On July 29, a sanitary sewer line outside a building break room overflowed because of a blockage in the line. The water was discharged into Mitchell Branch.	The blocked line was excavated and replaced.

Oak Ridge National Laboratory

Description/Cause	Corrective Action
On January 14, there was a pH excursion. A leaking underground pipe containing sodium hydroxide is believed to have contributed to the excursion.	The leaking portion of the pipe was bypassed.
On December 16, there was a total suspended solid excursion. A combination of low flow and foam accumulation is believed to be the cause of the accumulated residue.	Sampler intake tube was relocated so the foam would not be taken into the compositor during low-flow conditions.



Basic Overview of Radiation

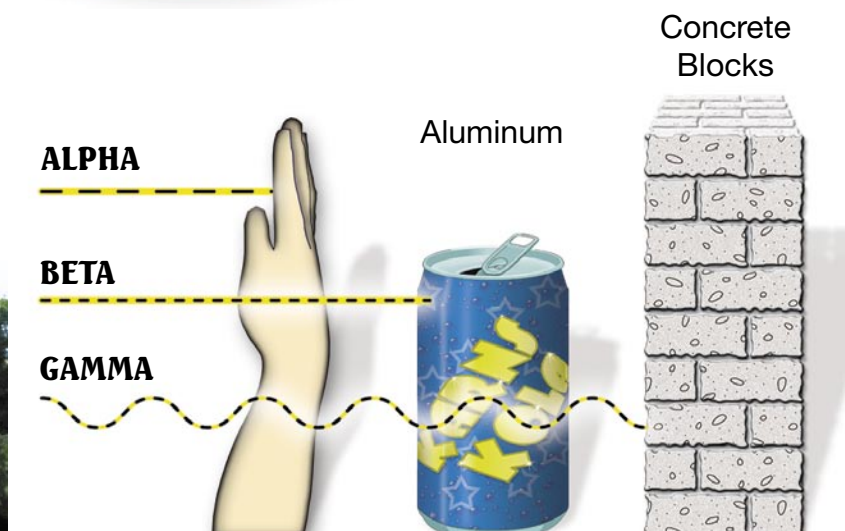
What is Radiation?

Matter is composed of chemical elements such as carbon, oxygen, or hydrogen. All elements that make up matter consist of atoms. An atom is the smallest particle of an element that can exist. Atoms are composed of three basic particles: protons, neutrons, and electrons. The protons have a positive charge, the electrons have a negative charge, and the neutrons have no charge. The number of protons and neutrons forming the nucleus determines the chemical and physical properties of an atom. Some atoms can become unstable due to an imbalance in the forces among the particles that make up the nucleus and are characterized as being radioactive. To get stable, a radioactive atom (radionuclide) releases energy from its nucleus and forms an atom of a different element. Some kinds of radiation are electromagnetic (like light) or particulate. Gamma radiation and X rays are examples of electromagnetic radiation. Alpha and beta radiation are examples of particulate radiation.

Radiation is energy in the form of waves or particles moving through space. Radiation is either natural or human made. There are several different forms of radiation. The heat that you feel from the sun is actually the most common form of radiant energy. Visible light, heat, and radio waves are also examples of radiation. Radiation is called “ionizing” or “non-ionizing,” depending on the way in which it interacts with matter. Ionizing radiation has enough energy to knock electrons from atoms. Human exposure can be dangerous because it damages the internal structure of living cells. Examples of ionizing radiation are X rays and gamma rays. Non-ionizing radiation bounces off or passes through matter without displacing electrons. Exposure to non-ionizing radiation is generally not dangerous, but there are some exceptions, such as intense ultraviolet exposure, which can cause blindness and burns to the skin.

Alpha particles are composed of two protons and two neutrons. These particles do not travel very far from their radioactive source. They cannot travel through a piece of paper, clothes, or even the layer of dead cells that normally protects the skin. Since alpha particles cannot travel through human skin, they are not considered an “external exposure hazard” (this means if the particles stay outside the body they cannot harm it). However, alpha-emitting materials can be harmful to the human body if the materials are inhaled, swallowed, or absorbed through open wounds. Therefore, alpha particles are considered to be an “internal exposure hazard.”

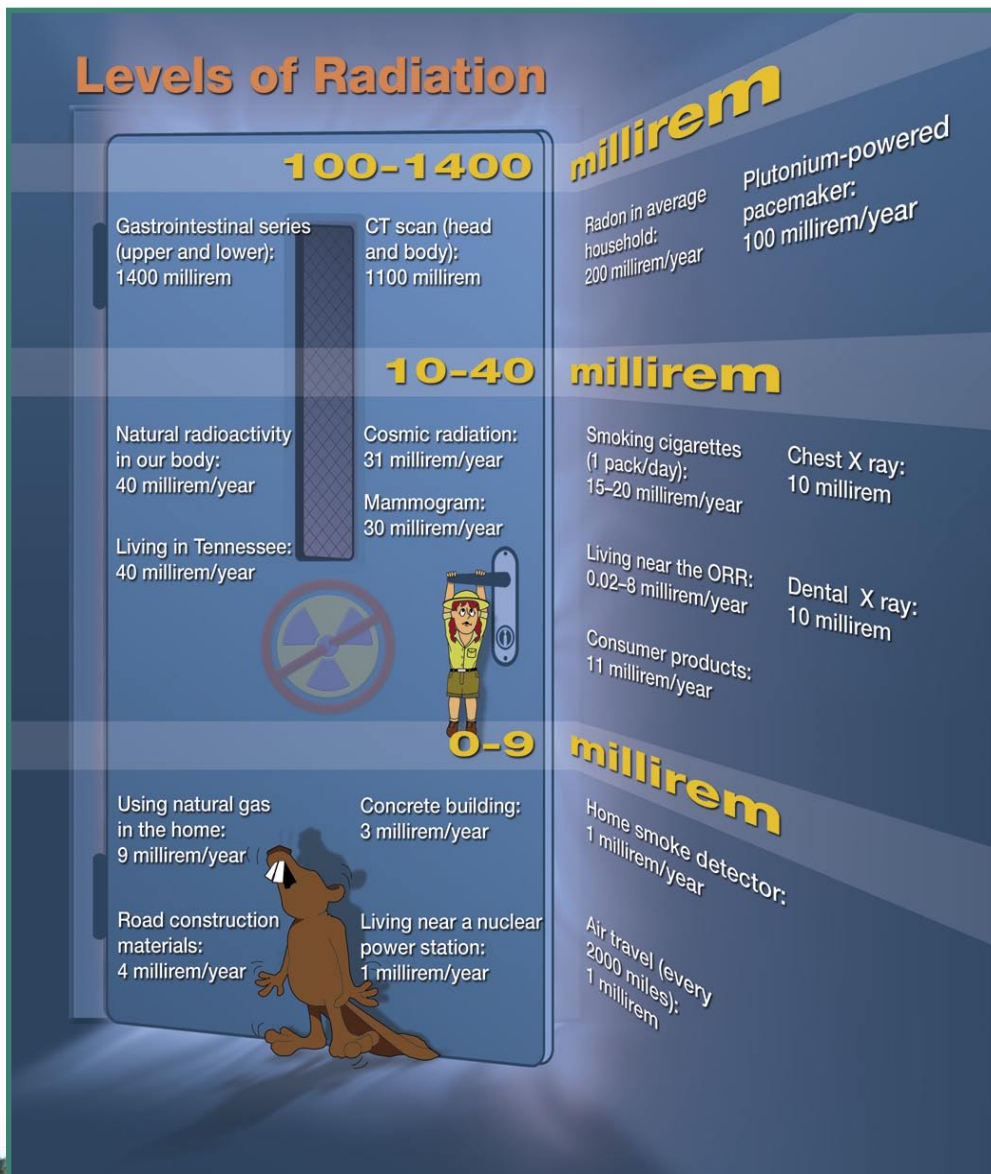
Beta particles do not travel far from their radioactive source. These particles are only moderately penetrating. They may travel a few yards in the air and about half an inch in human tissue. They are not able to travel through a book or a pad of notebook paper. Clothing may be helpful in preventing skin exposure to the beta particles. However, if matter that emits beta particles remains on the skin for a long time, it may cause skin injury.





Gamma radiation comes from the nucleus of an atom. This radiation can travel many meters in the air and may pass through the body. It is often called “penetrating radiation.” Gamma radiation and X rays can cause both external and internal hazards to the human body. Dense materials such as lead and concrete are needed for shielding gamma radiation. Clothing can protect the skin from radioactive materials but does not protect the body from penetrating radiation.

In our daily lives we are exposed to various types of radiation. We are exposed to natural radiation by cosmic rays, radioactive substances in the earth, and naturally occurring radiation in the body. Human-made sources of radiation are X-rays, building masonry, gas stoves, computer monitors, and televisions. On the average, natural radiation sources contribute about four to five times as much to an individual’s exposure as human-made sources. A lot of natural exposure is due to radon, a gas that seeps from the earth’s crust and is present in the air we breathe.



What is a Dose?

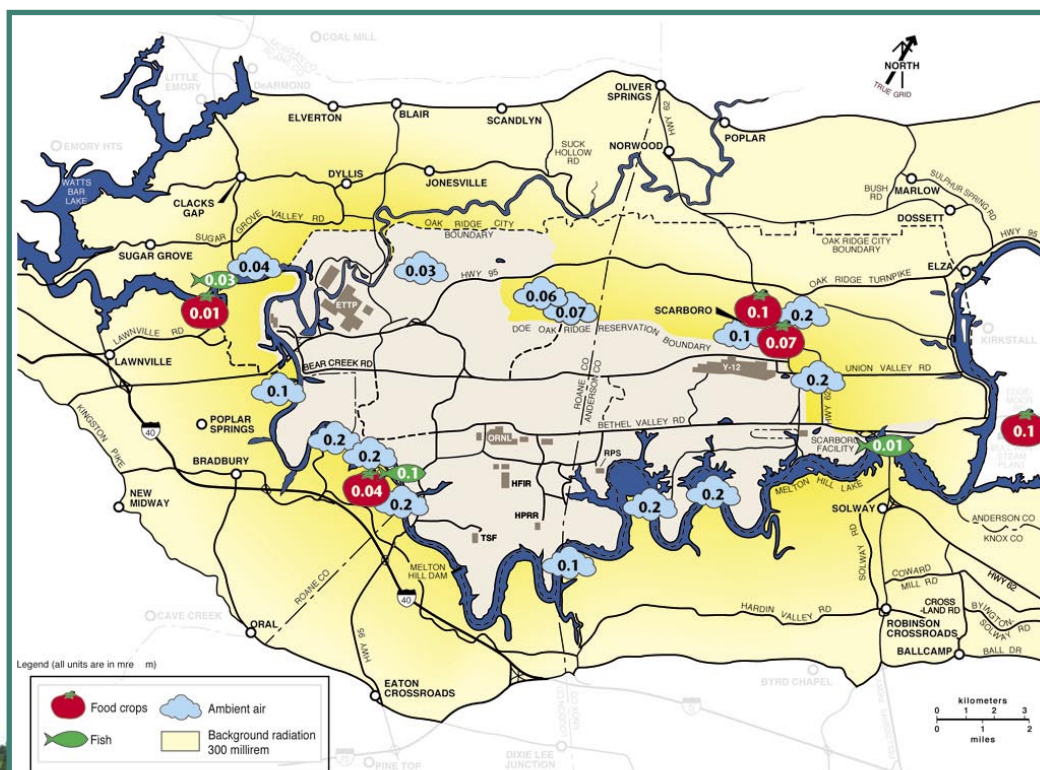
Determining a potential dose consists of combining all possible types of exposure, including direct radiation and the ingestion of food and water containing radioactive materials. “Dose” is a general term denoting the quantity of radiation or energy absorbed by the body. It is really a measure of the effect of exposure to radiation and the potential for damage rather than just the amount of the exposure. A specific dose of radiation has the same effect on people. Usually radiation dose is expressed in a unit called “rem.” There are 1,000 millirem in a rem. Radiation is a part of our daily lives.

An average person in the United States receives 360 millirem of radiation dose per year from natural sources, medical services, and consumer products. Cosmic rays from outer space are always present, and radioactive elements are found naturally in food, soil, and water. Dose is measured by the potential types of radiation. If someone received a dose of 100,000 to 200,000 millirem all at once, he or she will have signs of sickness but will most likely recover completely. A dose of 800,000 millirem or more can be fatal without treatment.

Dose Map

Everyone is exposed to radiation through everyday normal activities. An average person in the United States can receive up to 300 millirem per year from radiation from natural sources, such as cosmic rays from outer space and radioactive elements found in the soil, water, and food. Monitoring the air, water, and the wildlife around the reservation provides data that are used to confirm that doses from radiation releases from the Department of Energy activities are low and in compliance with all laws. The radiation dose varies depending on location.

Possible Radiation Doses on or near the Oak Ridge Reservation





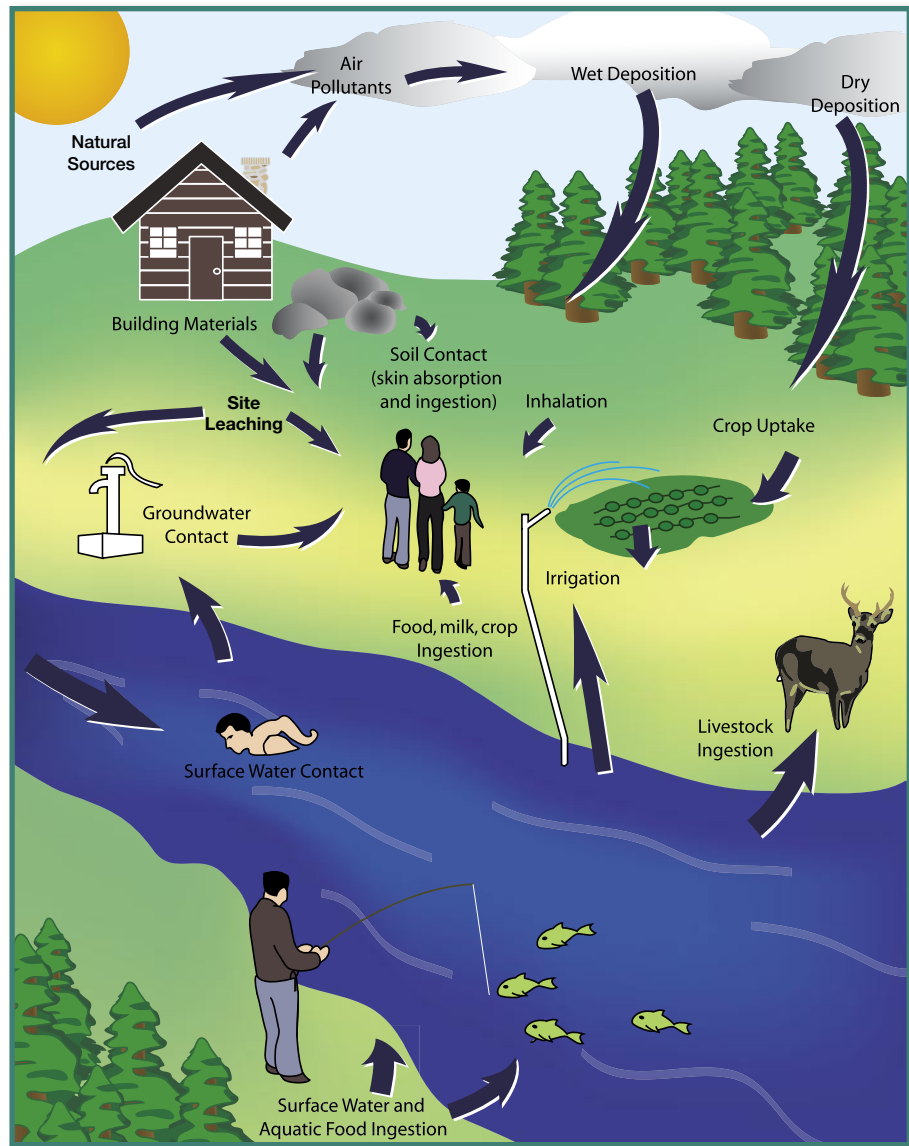
How are we exposed?

There are many ways by which we are exposed to radiation. Simply breathing the air in which particles are suspended can result in some exposure. Anytime we consume food or water we receive radiation. Bananas contain radioactive potassium, but it does not hurt us. We are exposed directly to radiation from cosmic rays and from airborne contaminants that settle on grass in pastures that cows eat. This means that our milk and meat are also exposed to natural sources of radiation. X rays give significant amounts of radiation, and CAT scans give an average amount of approximately 1200 millirem. Radiation is everywhere on the earth. Some forms of radiation can be dangerous if it is not controlled, but radiation has improved our quality of life.

Are we at Risk?

The annual amount of radiation dose to individuals living near the Department of Energy's Oak Ridge facilities is between 0.02 and 8 millirem per year. This amount is less than that from schools, stores, buildings, or homes made of concrete. Cigarette smokers can be exposed to 15 to 20 millirems per year. Radon, natural in the earth, can lead to a dose of up to 200 millirem per year in some areas.

Radiation Exposure Pathways



Environmental Monitoring

Environmental monitoring is conducted at the three major Oak Ridge Department of Energy installations. In addition, reservation-wide surveillance monitoring is performed to measure radiological parameters directly in the area adjacent to the facilities. Data from the reservation surveillance programs are analyzed to assess the environmental impact of Department of Energy operations on the entire reservation and the surrounding area.

Air

Both effluent and ambient air are sampled on or near the Oak Ridge Reservation. Effluent air flows into the environment from a source, such as an exhaust stack, and ambient air is the normal air that exists in the surrounding area. Radiological and nonradiological air emissions at the three sites and on the reservation as a whole are monitored. The 2003 results show that Oak Ridge Reservation operations have an insignificant effect on local air quality.

External Gamma Radiation

External gamma radiation monitoring is conducted to determine whether radioactive effluents from the reservation are increasing the external radiation to levels above the natural background of the area. The testing showed that the reservation's measured exposure rate was within the range of normal background levels in Tennessee. This tells us that in 2003 activities at the reservation did not increase external gamma levels above normal background levels.

Surface Water

Water that is discharged from the Department of Energy's Oak Ridge facilities directly into lakes and streams is called effluent discharge. Each of the three major sites has a permit for water discharges, and effluent surface water is monitored according to permit requirements. The compliance rate for all three sites was greater than 99.9% in 2003. In addition to the permit-required monitoring, surface water from approximately 35 other locations at the three sites and around the reservation is routinely monitored to detect any contaminant releases. Comparisons of surface water sample results from locations upstream of DOE inputs with surface water obtained downstream of DOE inputs show that there were no statistically significant differences in any of the parameters of interest. None of the locations had radionuclides detected above the reference limits.

Groundwater

Most Oak Ridge area residents do not rely on groundwater for drinking water. However, local groundwater provides for some domestic, municipal, and farm irrigation and is used for industrial purposes. It



Image by Emily Shell



Image by Noya Livine



Image by Kristina Foust



is therefore viewed as a potential pathway for exposure to hazardous wastes and as a means of transporting contaminants off the Oak Ridge Reservation. Groundwater is monitored for organic compounds, metals, and radionuclides. Contamination is found mainly in former waste sites, and there are no users of the groundwater in those locations. Groundwater monitoring programs at the Oak Ridge National Laboratory and at the East Tennessee Technology Park have not detected groundwater contamination migrating off DOE property. At the Y-12 National Security Complex, chlorinated volatile organic compounds have migrated off the Oak Ridge Reservation east of the plant into Union Valley at depths between 200 and 500 feet. Remediation is being conducted to reduce or stop the movement off the site. Meanwhile, there are no users of the groundwater, and restrictions have been established to prevent future use.



Photo by Hannah Mynatt



Image by Robert Fletcher

Canada Geese

Open hunts for Canada geese are held in counties adjacent to the Oak Ridge Reservation each year. Therefore, the consumption of Canada geese is a potential exposure pathway by which members of the public may be exposed to radionuclides released from Oak Ridge operations. Geese from on and around the reservation are rounded up each summer for live whole-body gamma screenings. The 2003 roundup was held June 24 and 25, and 95 geese were screened for radiological activity. None of these geese had radiation levels exceeding release limits.

Eastern Wild Turkeys

No wild turkey hunts were held on the reservation in 2003 due to security concerns.

Fish

Sunfish and catfish are collected annually from three locations on the Clinch River. These locations include an upstream sampling point that is not affected by Oak Ridge Reservation activities and a location downstream from all Reservation inputs. In 2003, mercury, PCBs, and radionuclides were detected in both species of fish at all locations. In addition, gamma-Chlordane, a pesticide was also detected in the catfish samples collected at all three locations. Two other pesticides (Endosulfan sulfate and Heptachlor epoxide were detected in one catfish sample at the downstream location.

Fish are collected annually from ponds and streams at the three sites. The fish are not intended for public consumption; their habitat is either inaccessible to the public or posted with fish advisories. The fish are sampled for ecological studies and to determine the level of accumulated toxins in them. In some cases, contaminant concentrations found in 2003 exceeded state of Tennessee reference levels. PCBs were detected in game fish collected at the East Tennessee Technology Park, but at



Image by Glen Palmer



Image by Eliza Shelton



Image by Laura Glandon

levels lower than normally found there. Fish taken from White Oak Creek at the Oak Ridge National Laboratory had mercury and PCB concentrations that were similar to the levels measured in past years. Sampling at the Y-12 Complex showed that mercury in fish has remained fairly constant since the late 1980s and that the average PCB concentrations were typical of the levels detected during past monitoring efforts.

Vegetables

Tomatoes, lettuce, and turnips were purchased from farmers near the Oak Ridge facilities to evaluate potential radiation doses to people consuming local produce. The locations were chosen based on availability and the likelihood of the produce being affected by routine releases from the Oak Ridge facilities. Uranium-233/234 and uranium-238 were detected in three of the six lettuce samples and in two of the six tomato samples. These radionuclides are found in the natural environment and in commercial fertilizers, and are also emitted from the Oak Ridge Reservation. Potassium-40, which is naturally occurring and found in commercial fertilizers, was detected in all but one vegetable sample. Consumers of garden vegetables in the vicinity of the reservation could have received a dose of between 0.02 and 0.1 mrem.

Deer

The annual deer hunts on the reservation were held during the final quarter of 2003. Shotgun/muzzle loader and archery hunts were held on October 18 and 19, November 8 and 9, and December 6 and 7. About 550 shotgun/muzzleloader hunters and 450 archery hunters participated in each hunt. This year's total harvest was 256 deer (89 bucks, 167 does). Of the deer harvested, two exceeded the radiological release limits and were retained for additional testing. The dose from consuming all edible meat from a white-tailed deer with average radionuclide concentrations was estimated to be 0.7 millirem.

Hay

Hay is gathered from six different locations on or adjacent to the Oak Ridge Reservation and is checked for radionuclide concentrations. None of the locations had gamma-emitting radionuclides above the minimum detectable activity except naturally occurring beryllium-7 and potassium-40. Uranium isotopes were detected at very low levels.

Milk

The 2003 milk-sampling program consisted of samples collected every other month from three locations. One is from a commercial dairy in Powell that processes milk from all over east Tennessee. The second dairy location is in Claxton, and the third is in Maryville. The Maryville location is used as a background location for comparison purposes and is not in an area that would be affected by Oak Ridge releases. Milk is analyzed for gamma-emitting radionuclides, tritium, and total radioactive strontium. Total radioactive strontium was detected in one sample each at the Claxton and Maryville locations.



Image by McKenzie Sadler

Image by Amber Davis



Environmental Management

This section will show you how you can be a part of decision making for the Oak Ridge Reservation and how you can stay informed about activities carried out by the Department of Energy.

Public Involvement

The Department of Energy Oak Ridge Operations Office encourages stakeholders to participate in decisions and to exchange information regarding remediation of contaminated areas on the Oak Ridge Reservation. Stakeholders include individual groups, host communities, and other entities in the public and private sectors that are interested in or affected by Department of Energy activities and decisions. The following sources of information are available to stakeholders and the general public.

Image by Michelle Cooper



Image by Caroline Wheeler



Image by Melanie Hane



Image by Dina Roberts



Image by Justin Daugherty



Image by Mary West



- The Oak Ridge Site Specific Advisory Board, a federally appointed citizen panel, provides advice and recommendations to Department of Energy on environmental activities (<http://www.oro.doe.gov/em/ssab>). During June 2003, the board issued the *Oak Ridge Reservation Educational Resource Guide* to introduce the concepts of radiological and chemical contamination, environmental management, and stewardship to middle and high school students.

- The Oak Ridge Reservation Health Effects Subcommittee, funded by the Department of Energy and administered through the Agency for Toxic Substances and Disease Registry, performs public health assessments for contaminants by looking at present and historical releases from the Oak Ridge Reservation and their potential impact on the health of nearby residents. Subcommittee meetings and technical work group meetings are open to the public. Anyone can be a working and voting member of the technical work groups.

- The Tennessee Department of Environment and Conservation Department of Energy Oversight Office provides independent state oversight of the Department of Energy's Oak Ridge activities (<http://www.state.tn.us/environment>).

Image by Robert Baer



Image by Carla Shoopman



Image by Kayce Baker





- The Department of Energy Information Center provides newsletters, reports, and tapes and transcripts of public meetings and Department of Energy activities (phone: 865-241-4780).
- The City of Oak Ridge Environmental Quality Advisory Board, appointed by the Oak Ridge City Council, provides counsel to the city government on environmental matters (<http://www.ci.oak-ridge.tn.us/ComDev-html/EQAB.htm>).
- A new DOE Information Center Web site was established to make information more accessible to the public (http://www.oakridge.doe.gov/info_cntr/).



Image by Tyler Blazer



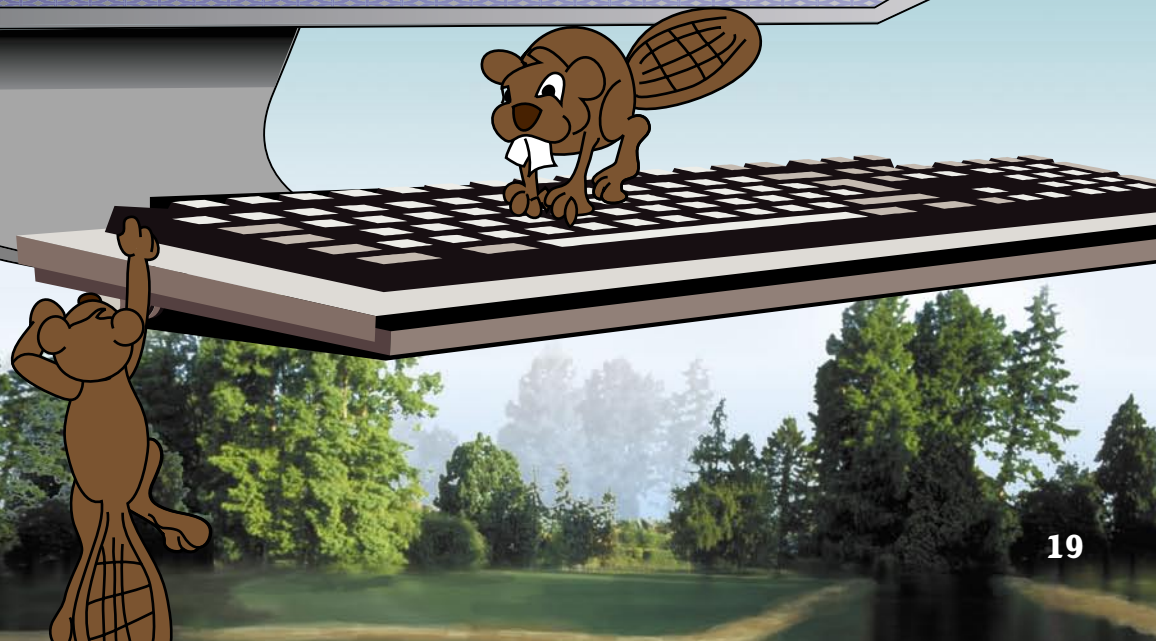
Image by Darryl Caswell



Image by Jessie Mans

Other Sources of Information About the Oak Ridge Reservation

- During July 2003, the Oak Ridge Site Specific Advisory Board launched its video lending library at the DOE Information Center, providing the community with a valuable educational resource regarding environmental management program issues.
- *The TSCA Incinerator Burn Plan for 2004 to 2006* was made available. The incinerator is tentatively scheduled to be closed in 2006.
- Fact sheets describing various Oak Ridge environmental management projects are available (http://www.bechteljacobs.com/ettp_factsheets.shtml).
- Department of Energy websites offer information on public involvement opportunities (http://www.oro.doe.gov/public_activ.html).
- Newsletters, reports, tapes, and transcripts of many public meetings are available online (<http://www.oakridge.doe.gov>).
- The schedule for upcoming public meetings is available online (<http://www.oakridge.doe.gov/meetings.html>).
- The *DOE Public Involvement Plan for CERCLA Activities at the U.S. Department of Energy Oak Ridge Reservation* and the monthly DOE publication *Public Involvement News* are also available (865-576-0885).





In addition to the various ways to obtain information concerning the reservation's activities, there are several opportunities for the community to enjoy the land maintained on the reservation. Some of these opportunities are outlined below.

- In 1996 ORNL began sponsoring guided community nature walks to allow participants to enjoy nature at its best.
- Deer hunts are held each fall. About 550 shotgun/muzzleloader hunters and 450 archery hunters participated in these hunts in 2003.
- The Oak Ridge Public Tour Program, featuring visits to all three DOE facilities in Oak Ridge, resumed in 2003.
- In 1999, DOE partnered with the state of Tennessee to set aside 3,000 acres of the Oak Ridge Reservation as a conservation and wildlife management area. The area provides an important habitat and home for numerous threatened, endangered, and rare animal species. Within the 3,000 acres there is an 80-acre recreational area known Clark Center Park. In addition, the area contains the historic Freels Cabin. This cabin was built in the 1820s and was one of the earliest settlements in the area.



Image by Michael Maxwell



Image by Luke Gamble



Image by Jordan Smith



Class Participation at the Department of Energy's Annual Site Environmental Report Workshop

Our class had a unique opportunity to share our experiences with writing the summary document and our newly found knowledge about the Oak Ridge Reservation with a nationwide audience. Each year officials from the Department of Energy in Washington, D.C., conduct a workshop to evaluate the most recent annual site environmental reports from all Department of Energy sites across the country and to provide guidance for the preparation of the next report. This year's workshop was hosted by UT-Battelle and was held at the National Transportation Research Center, just a few minutes away from Karns High School. UT-Battelle and the Department of Energy invited us to participate, and our teacher, Evelyn Hammonds, and classmate Jenna Scalf addressed the conference attendees on our behalf. Mrs. Hammonds talked about teaming with the Department of Energy from the perspective of the school and the teacher. She talked about how the class has been given the opportunity to apply writing skills in a very meaningful way—not just for a grade but for a real public document. Jenna spoke from the students' point of view and explained how much more knowledgeable we are about community history and industry and local environmental issues. As a result of Mrs. Hammonds and Jenna's sharing our experiences and successes with this project, other Department of Energy facilities around the country are making plans to team with high schools in their communities.



Dr. Timothy Joseph, Jenna Scalf, and Evelyn Hammonds

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