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DOE/ORO-2145

# CLEANUP PROGRESS

Annual Report to the  
Oak Ridge Community

FY 2002



## MESSAGE FROM THE ASSISTANT MANAGER FOR ENVIRONMENTAL MANAGEMENT



It has been an exciting year for those of us associated with the Oak Ridge Reservation Environmental Management Program. That includes DOE, our contractors, regulators, and members of the public who follow our activities and provide input to our decision-making processes. A year ago a phrase like "accelerated cleanup and closure" might draw little more than an inquisitive stare. Now that phrase is routinely bandied about and has been given meaning and substance.

A year ago in this space I discussed the potential ramifications of the Secretary of Energy's Top-to-Bottom Review. Today, we are in the midst of implementing the resulting initiatives. In order to maximize our resources to meet these new challenges, we have revamped our organization and re-prioritized our work.

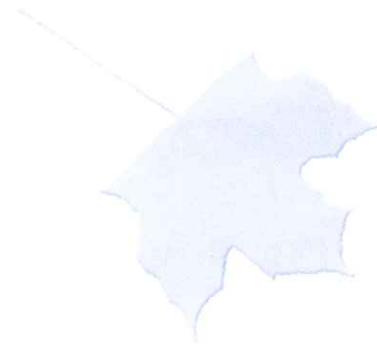
You will see as you read this third annual edition of *Cleanup Progress* that we have accomplished much during the past year. This includes the completion of the Environmental Management Waste Management Facility, a key element in our ability to realize our accelerated mission in a safe, efficient, and cost-effective manner. It opened the gates for us to aggressively pursue

remediation of a number of other sites, such as the Intermediate Holding Ponds at ORNL, Boneyard/Burnyard at Y-12 National Security Complex, and the K-1070-A burial grounds at East Tennessee Technology Park.

Since arriving here last April, I have had the opportunity to meet with many of you in a variety of settings and discuss our successes, the obstacles we still face, and our plans to overcome them. I am continually impressed by your knowledge of our programs and your proactive participation in helping us achieve our goals.

To risk repeating myself from last year, I want to again thank you for your patience during this time of transition and assure you that I look forward to continuing a productive and mutually gratifying relationship with our stakeholders. Please contact us about ways we can do a better job of keeping you informed and involved in our activities.

— Gerald G. Boyd





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If you have any comments or suggestions about this report, please contact the DOE Public Affairs Office at (865) 576-0885.

You can find out more about DOE Oak Ridge Operations at <http://www.oakridge.doe.gov>.

This document is approved for public release per review by the ETTP Classification and Information Control Office.





*The East Tennessee Technology Park (ETTP) Watershed encompasses all of the former Oak Ridge Gaseous Diffusion Plant (later called the K-25 Site and now ETTP) and the surrounding areas. ETTP is located near the northwest corner of the Oak Ridge Reservation with more than 5,000 acres. Potentially impacted areas account for roughly 2,200 acres of the 5,000 acres.*

*The potentially impacted area of ETTP currently is divided into two areas: outside the main fence (Zone 1 with 1,400 acres) and inside the main fence (Zone 2 with 800 acres). Historically, Zone 1 was used for light industrial purposes and has some open areas with waste disposal. Zone 2 is the main plant area and historically has had a heavy industrial use.*

*This site began operations in World War II as part of the Manhattan Project. Its original mission was to produce enriched uranium for use in atomic weapons. The plant also produced enriched uranium for the commercial nuclear power industry from 1965 to 1985 and was permanently shut down in 1987. Since then, restoration of the environment, decontamination and decommissioning of the facilities, and management of the legacy wastes have been major activities. Reindustrialization, which involves bringing in private companies to use the facility, began in 1996, and the site was renamed ETTP in 1997.*





## ETTP Building Demolition Continues

All buildings at ETTP are scheduled for demolition as part of the U.S. Department of Energy's (DOE) accelerated cleanup plan. However, a group of 26 facilities have been targeted for potential transfer of title under the reindustrialization program.

Buildings and facilities have been divided into two groupings: Group I, K-25 Facilities Area, and Group II, Main Plant Area Facilities. Because the Auxiliary Facilities and Main Plant Facilities removal actions are interim actions, future Comprehensive Environmental Response, Compensa-

tion, and Liability Act (CERCLA) decisions will determine the final remedy for the contaminated slabs, soils, and below-grade structures.

Buildings and other facilities that have been demolished prior to or during Fiscal Year (FY) 2002 include the following:

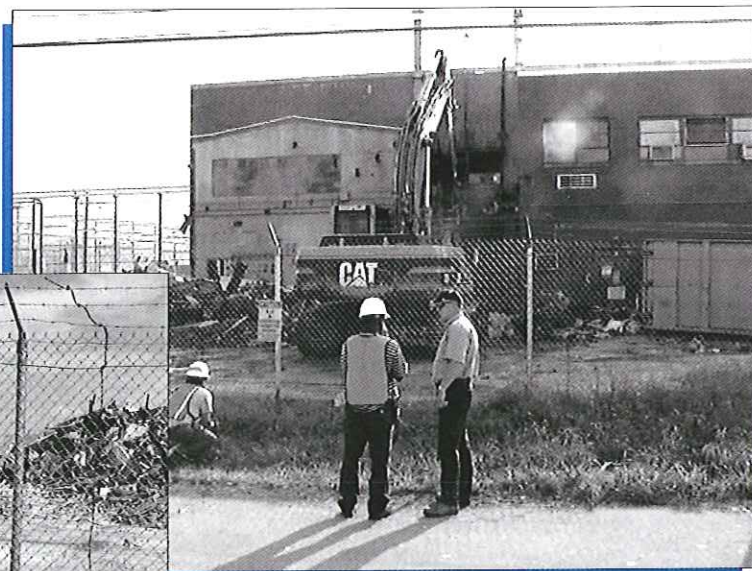
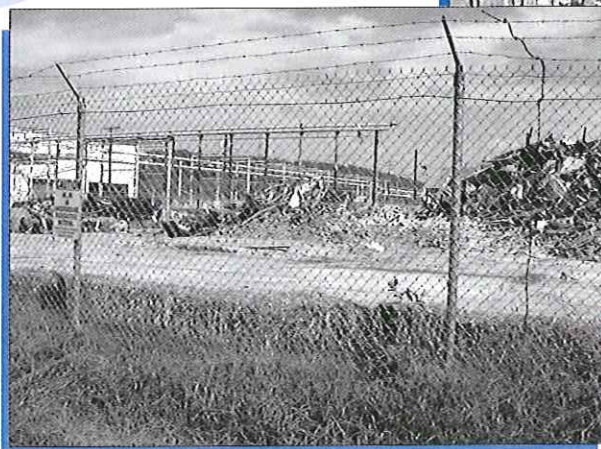
**Group I, the K-25 Auxiliary Facilities Area:** The five facilities included in the K-25 Auxiliary Facilities Area Demolition, Group I, are K-724, K-725, K-1031, K-1131, and K-1410. After demolition, the building concrete slabs were scabbled to remove fixed contamination. The K-724 slab and a large portion of the K-725 slab were successfully cleaned to unrestricted use levels. After two passes with scabbling equipment, contamination still was present on the K-1031, K-1131, and K-1410 concrete slabs. These slabs had the potential to create mobile, transferable contamination close to surface waters and storm drains. A 2-inch layer of asphalt was applied to cover the concrete slabs to stop the weathering of the fixed contamination and to

help reduce the potential for the spread of radioactive contamination. Remaining activities for this project include debris disposition.

In 2001, 945 ft<sup>3</sup> of industrial waste from this action was sent to the Oak Ridge Reservation Industrial Landfill. Disposition of the remaining low-level waste was delayed so that it can be disposed of at the Environmental Management Waste Management Facility (EMWMF), which was then under construction. Disposing of this waste at the on-site facility, rather than shipping it out of state, will save \$250,000. Low-level waste disposition is planned for FY 2003.

**Group II, Main Plant Area Facilities:** The Main Plant Project involves characterizing, sampling, hazardous material abatement, radiological decontamination, demolition, and disposal of 10 buildings on the ETTP Project Site. The facilities include K-1300, K-1301, K-1302, K-1303, K-1404, K-1405, K-1407, K-1408, K-1413, and K-1045A. Activities completed in FY 2002 are described as follows.

*All buildings at ETTP that cannot be transferred to commercial ownership will be demolished.*



**Building K-1413  
demolition**



## FY 2002 Actions

The facilities were demolished in 2002, and the slabs were removed from K-1407, K-1303, and K-1300. The slabs at K-1405, K-1301, and the lower slab of K-1407 were capped, and it is anticipated K-1413 will be as well. The waste from K-1301, K-1404, K-1405, K-1407, K-1408, and K-1045A has been disposed of. Hazardous materials abated included asbestos, radiological materials, fluorine piping, lead, polychlorinated biphenyls (PCBs), and mercury. The majority of the waste went to Envirocare of Utah, Inc., a private company that disposes of low-level radioactive and mixed waste. The uncontaminated waste went to the Oak Ridge Reservation Industrial Landfill. The disposal of the remaining waste is primarily planned for EMWMF.

## Future Actions Planned

The remaining scope for FY 2003 is the removal of the uranium hexafluoride vent lines, their disposal at the Nevada Test Site, and disposal of the remaining waste.

**K-25/K-27 Buildings:** The K-25 Building is the largest building on the Oak Ridge Reservation and covers 1,637,170 ft<sup>2</sup>. The U-shaped building was built during the Manhattan Project and contains 3,018 stages of gaseous diffusion process equipment and associated auxiliary systems, which will be removed and disposed. Each stage consists of a converter, two compressors, two compressor motors, and associated piping. The K-27 Building covers 383,000 ft<sup>2</sup> and contains 540 stages of gaseous diffusion equipment and associated auxiliary equipment.

A public information session was held in 2001 to solicit comments from the public on the Engineering Evaluation/Cost Analysis (EE/CA) developed for this project. An action memorandum for the decontamination and demolition of the K-25 and K-27 buildings was signed in February 2002. Phase 1, hazardous materials removal, started in Spring 2002 and is ongoing. Phase 1 activities primarily include the removal of asbestos-containing

building materials from the inside of the K-25 and K-27 facilities.

Phase 2, Process Equipment Removal activities in FY 2002 included the preparation of a Waste Handling Plan, which was transmitted to the regulatory agencies for review in September. Phase 2 also included the initiation of the Requests for Proposal for contracting the Phase 2 work, which involved process equipment removal and disposal action.

**Group II Buildings, Phase II Demolition Project:** DOE signed an action memorandum for the decontamination and demolition of 18 ETP facilities and the removal of scrap material on July 31, 2002. These facilities and the scrap material are primarily located in the K-1064 Peninsula Area of the ETP. Decontamination and demolition of the 18 facilities will start in FY 2003.

## Excavation Begins at K-1070-A Burial Ground

Organic compounds and radioactively contaminated wastes from 62 pits and 26 trenches at the K-1070-A Burial Ground at ETP are being excavated and disposed of at the EMWMF. The primary waste type being disposed is soil; however, there is some construction debris commingled with the soil.

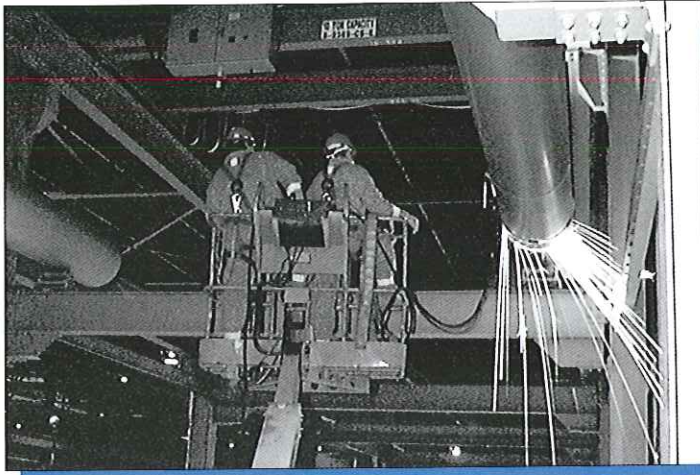
Included in the estimated 20,000 yd<sup>3</sup> of waste are as many as 500 gas cylinders and various size containers (reported in the site disposal inventory as empty). However, precaution is being taken during remediation as if all containers encountered are not empty until a determination is made. Waste characterization was completed in September 2001. Excavation began in June 2002 and is ongoing. As of the end of FY 2002, 7,964 yd<sup>3</sup> have been excavated and disposed of in the EMWMF. The volume excavated is approximately 40 percent of the total estimated waste volume.



**Excavation at K-1070-A began in June 2002.**



## ETTP Three-Building D&D Project Progressing



***BNFL workers use plasma arc cutters to slice the miles of massive piping that exists in the K-33, K-31, and K-29 gaseous diffusion plant buildings at ETTP.***

cascade units in K-31, and started on dismantlement in K-29 in FY 2002. Envirocare of Utah and DOE's Nevada Test Site received most of the material for disposal. A small amount of the concrete pedestal material was disposed of in the EMWMF. Some of the nickel material is stored within the K-33 Building for future recycling.

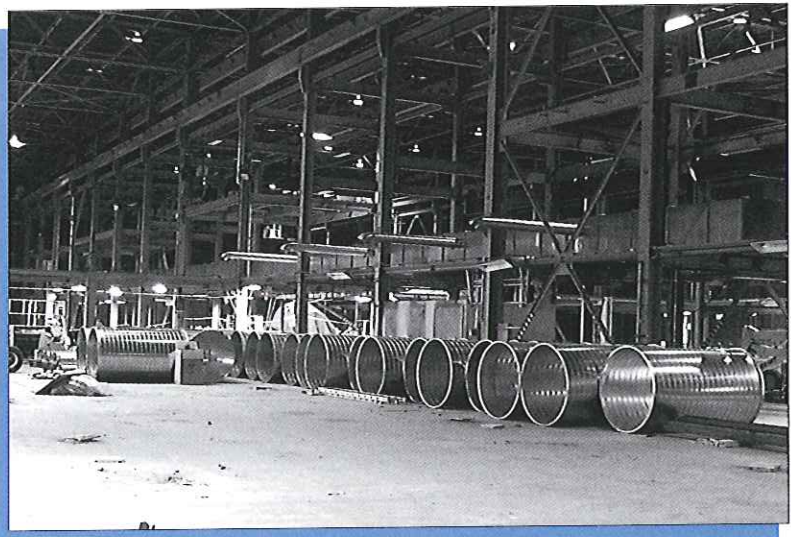
Complete dismantlement, disassembly, and disposal of five of the six cascade units in K-31 and one of the three cascade units in K-29 are expected to be completed in FY 2003. Decontamination of 60 percent of the interior of K-33 is also expected to be completed in FY 2003. The project is scheduled to be completed by the end of FY 2004.

BNFL Inc., under fixed price contract to DOE, is dismantling, removing, and dispositioning the materials and equipment within the K-33, K-31, and K-29 gaseous diffusion buildings at ETTP. The three buildings cover more than 4.89 million ft<sup>2</sup> and house more than 136,000 tons of contaminated or potentially contaminated material.

The purpose of the project is to clean out and decontaminate the three buildings to certain specifications, making them available for reuse without radiological and other safety concerns.

BNFL has dismantled, removed, and dispositioned as waste or recycled material a total of 89,670 tons of material. The project was 65 percent complete at the end of the FY 2002. BNFL completed dismantlement and disposal of the last two of the eight cascade units in K-33, 1 1/2 of the six

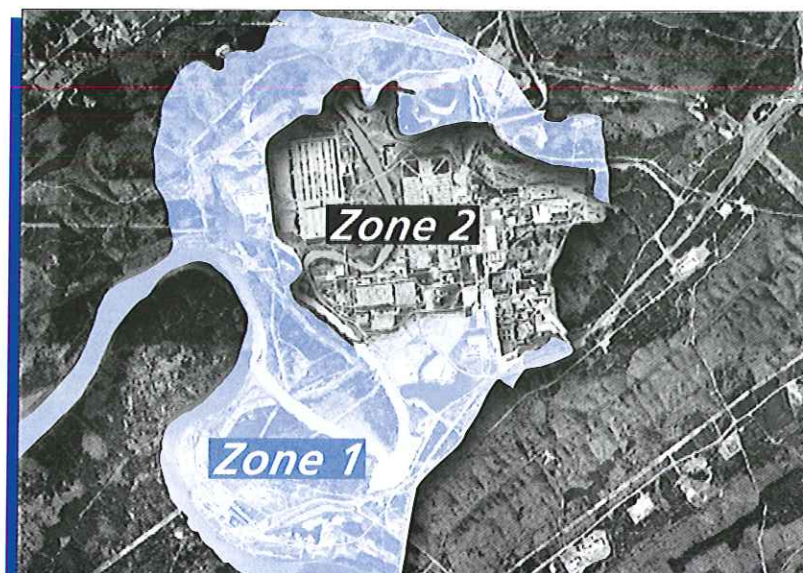
***The piping, already disassembled and removed, is now ready for compaction in BNFL's Super-compactor, the largest in the nuclear industry.***





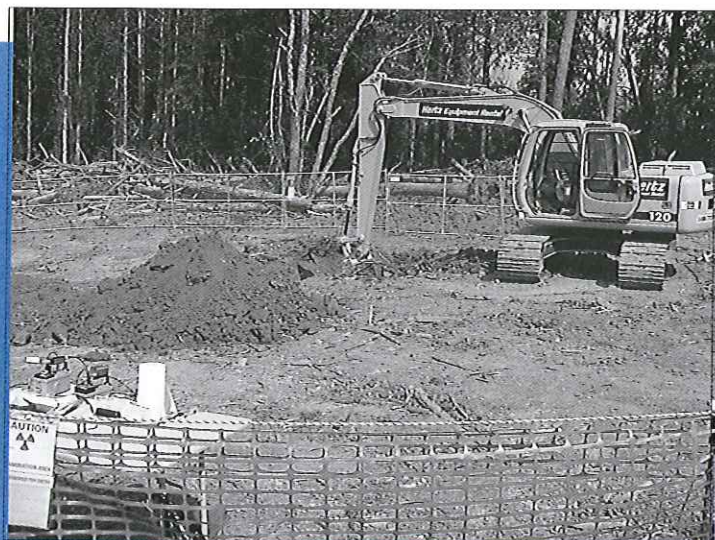
## Zone 1 Record of Decision Developed

A Record of Decision (ROD) was submitted to the U.S. Environmental Protection Agency (EPA) and Tennessee Department of Environment and Conservation (TDEC) on October 31, 2001, for the ETPP Zone 1 remediation. Zone 1 encompasses an area of approximately 1,400 acres located outside of the ETPP main fence and surrounding the former main plant production area. DOE, TDEC, and EPA have not yet signed the ROD. The ROD specifically addresses known areas of contaminated soil, Blair Quarry, scrap metal and debris in the K-770 Area, and the K-710 Sludge Beds and Imhoff tanks. In addition, it establishes remediation levels for soil and burial areas and a methodology for making action/no action determinations that will be used throughout Zone 1.



*The potentially impacted area of ETPP is divided into two areas: Zone 1 and Zone 2.*

## K-1085 Old Firehouse Drum Site Excavation Completed



*Excavation activities have been completed at the K-1085 drum burial site.*

Waste disposition of the K-1085 Old Firehouse Burn Area Drum Burial Site will occur in FY 2003. In October 2001, excavation and waste containerization activities were completed under the action memorandum for the site. This removal action included the excavation of six potential drum burial areas identified using geophysical survey results after a Tennessee Department of Transportation highway construction contractor accidentally uncovered drum fragments. The excavated material from only two of the six areas was contaminated. Identified contaminants included volatile organic compounds, polychlorinated biphenyls, and radiological material. A total of 77 m<sup>3</sup> of material was placed into waste containers and is awaiting disposition. The K-1085 Old Firehouse Burn Area Drum Burial Site is located outside the ETPP perimeter fence near State Highway 58.



## K-1070-C/D Pit and Contaminated Pad Remediation Continues

Portions of the K-1070-C/D Burial Ground were remediated in a two-phase project. Phase I consisted of excavation, segregation, characterization, and packaging of buried material in G-Pit, located in the K-1070-C/D Burial Ground, and covering of the K-1071 concrete pad, also located in the K-1070-C/D Burial Ground. Phase II of the remedial action consisted of the treatment and disposal of the excavated material from G-Pit.

During Phase I, the concrete pad was covered with approximately 2 ft of soil, over an existing plastic cover, to prevent direct contact with and provide radiation shielding at the K-1071 concrete pad area. This activity was completed in April 1999. Approximately 230 yd<sup>3</sup> of waste in G-Pit was also excavated and placed in interim storage within the K-1070-C/D Burial Ground. This waste material, which included portions of drums, was placed into interim storage and disposed in Phase II.

Approximately 70 small intact laboratory containers that held small quantities of lubricating oil (approximately 3

gallons total volume) were also excavated. These containers were placed in a 5-gallon container and disposed in the Toxic Substances Control Act Incinerator at ETPP. This activity was completed in January 2000.

During Phase II, the waste generated during Phase I was treated in a mobile low temperature thermal desorption treatment unit, for volatilization of organic compounds, to meet the disposal facility waste acceptance criteria and Resource Conservation and Recovery Act land disposal restrictions (LDRs). Treatment began in February 2001 and was completed in April 2001. After evaluation of soil sample results demonstrated that the treated soils met LDRs, the material was disposed in the Oak Ridge Reservation Industrial Landfill at Y-12 in 2002, following approval of an authorized limit request by DOE Headquarters and approval of a special waste request by TDEC. DOE planned to submit the remedial action report for regulatory review in December 2002.



**Excavation of buried material at G-Pit was one step in cleaning up the K-1070-C/D burial ground.**





*The Oak Ridge National Laboratory (ORNL) Watershed encompasses two distinct geographic regions: Bethel Valley and Melton Valley. Past ORNL operations have resulted in contamination at these sites. Bethel Valley occupies about 1,700 acres, including the main area of ORNL. Melton Valley occupies about 1,000 acres in the southern portion of ORNL. Contaminants of concern include low-level radioactive wastes, transuranics, metals, and PCBs.*





## Main Plant Surface Impoundments Remediation Continues

The Main Plant Surface Impoundments consisted of four impoundments (3513, 3524, 3539, and 3540), located in the south-central portion of the ORNL main plant in Bethel Valley. These impoundments served as intermediate collection, storage, and mixing basins for liquid process wastes. DOE signed a ROD in August 1997, specifying that the impoundment sediment be removed and disposed.

Sediment was transferred from impoundments 3539 and 3540 to 3513 in 1998. Sediment was transferred from

3524 to 3513 in 2000. Following sediment transfer, impoundments 3524, 3539, and 3540 were backfilled with rock, and grout was added to the rock to fill empty spaces. Gravel pads were installed over the backfilled impoundments to provide space for the construction and operation of a sediment treatment system and to provide a staging area for treated waste forms prior to shipment for disposal. The treatment system became operational in late 2001 and 150 yd<sup>3</sup> of consolidated sediment from 3513 was treated, converted to 22 waste forms, and staged for future shipment for disposal. In 2002, 3,550 yd<sup>3</sup> of sediment was treated and converted to 540 waste forms, which were staged for future shipment to an appropriate waste disposal facility. The project will be completed in 2003 after decontamination and decommissioning of the treatment facility.

**ORNL**

*encompasses*

*two distinct*

*geographic*

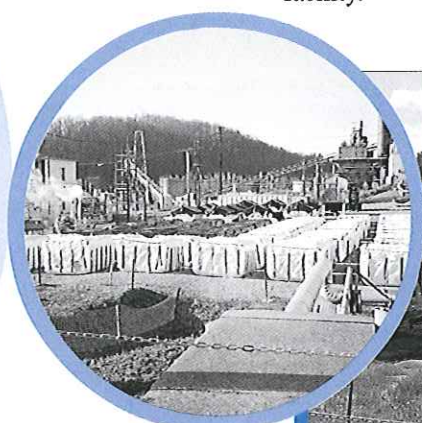
*regions:*

*Bethel Valley*

*and*

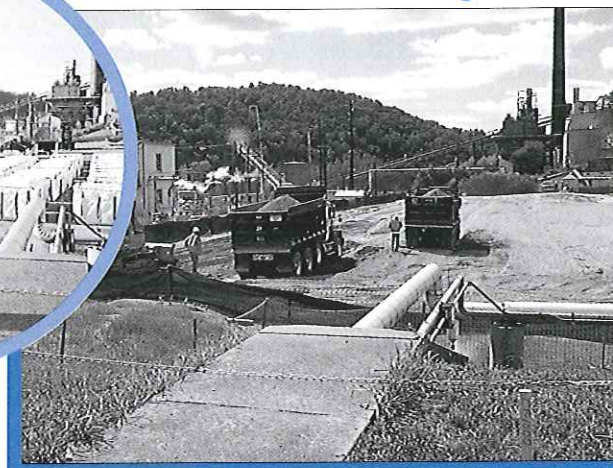
*Melton*

*Valley.*

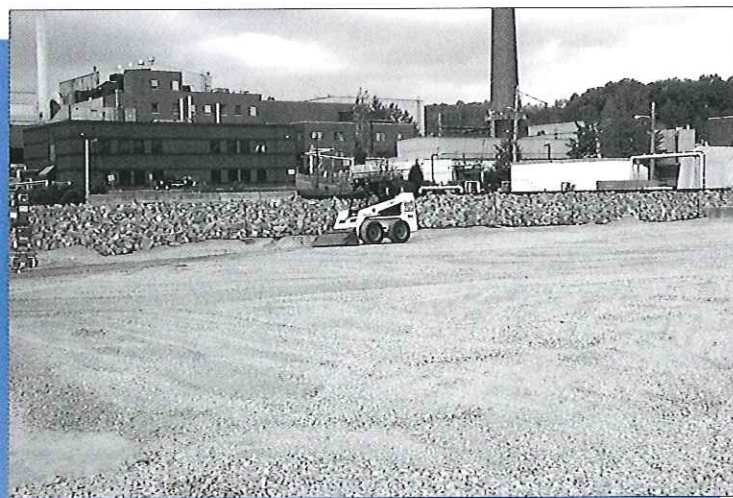


**Solidified sediment is awaiting final transport to a disposal facility.**

**Impoundment 3524 is shown being backfilled.**



## Metal Recovery Facility Waste Disposition Continues



**The Metal Recovery Facility was removed after decontamination and decommissioning.**

The Metal Recovery Facility in Bethel Valley was a one-story, metal-sided building that was used for small-scale nuclear fuel reprocessing between 1952 and 1960. This facility was demolished, and most of the waste was sent for disposal to Envirocare in FY 2001. In FY 2002, management of the remaining demolition waste has continued. The remaining waste consisted of two High Efficiency Particulate Air (HEPA) filter units, ten 55-gallon drums of transuranic waste, and three 55-gallon drums of lead debris. The HEPA filters were boxed and sent to Envirocare. The drums of waste were placed in permitted storage in preparation for treatment to meet waste acceptance criteria and final disposal.



## Bethel Valley Cleanup Record of Decision Approved

The Federal Facility Agreement parties signed the Bethel Valley Record of Decision for Interim Actions (BV ROD) in May 2002. The BV ROD presents the selected remedy for environmental remediation of various contaminated areas within the ORNL Bethel Valley area.

The scope includes buildings and other facilities designated for decontamination and decommissioning, buried waste, underground liquid low-level waste (LLLW) tanks, accessible underground pipelines, accessible

contaminated surface and subsurface soil, contaminated sediment and surface water, and monitoring wells no longer needed for monitoring. The scope does not include active facilities and infrastructure at ORNL that have vested, ongoing missions, nor does it include contaminated media or sources that are considered inaccessible due to the presence of the active facilities and infrastructure.

A final groundwater decision is not part of this remedy. Interim actions are included to treat contaminated groundwater that is impacting surface

water in Bethel Valley. Final environmental remediation will be accomplished through a combination of responses that includes containment, stabilization, removal, treatment, monitoring, and interim land use controls (LUCs).

DOE submitted a draft LUC implementation plan (LUCIP) for Bethel Valley to TDEC and EPA for review and comment. This LUCIP specifies what actions must be taken to implement and maintain the required LUCs.

## Bethel Valley Groundwater Engineering Study Initiated

The BV ROD specified that a groundwater engineering study be conducted to satisfy data needs for the design of several remedial actions related to groundwater, including: (1) deep groundwater extraction at the Corehole 8 Plume, (2) in situ biodegradation at the East Bethel Valley volatile organic compound plume, (3) groundwater monitoring in West Bethel Valley, and (4) soil excavation at known leak sites to minimize impacts to groundwater. Planning for the groundwater engineering study was summarized in a draft engineering study work plan (ESWP) for groundwater actions in Bethel Valley, issued for regulatory agency review and comment in 2002.

The ESWP includes an evaluation of existing, relevant data from previous characterization activities; identifies data gaps; and provides the soil, groundwater, surface water, and storm water sampling requirements necessary to fill those gaps. The data from this engineering study will supplement data from the previous characterization efforts to provide the basis for designing groundwater and soil remedial actions under the ROD.

*Environmental  
remediation will  
be accomplished  
through  
a combination  
of responses.*

## Fuel and Flush Salt To Be Removed from MSRE Facility

Startup testing and initial operator training were conducted on fuel salt removal equipment for the Molten Salt Reactor Experiment (MSRE) facility in FY 2002.

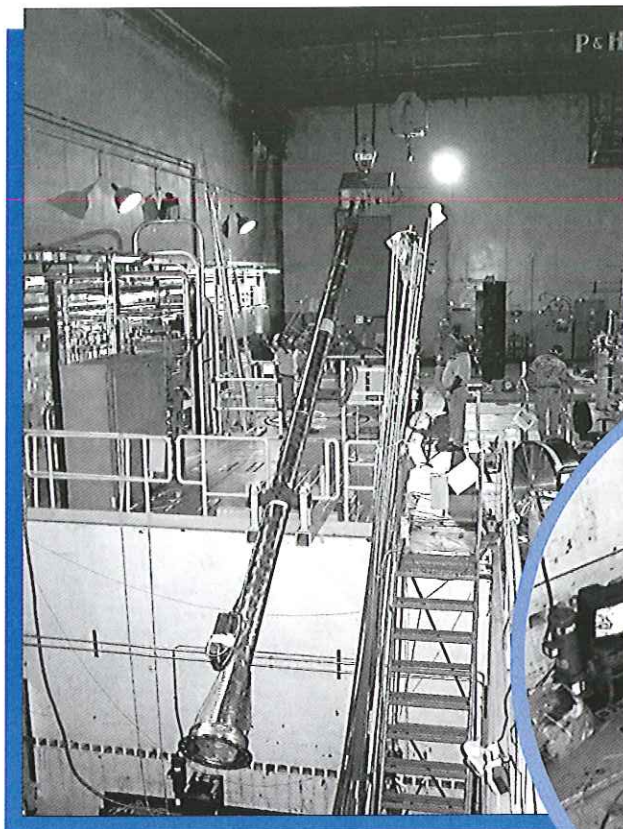
The MSRE operated from 1965 to 1969 to test the molten salt concept. Unlike most current commercial reactors that have fuel confined to

fuel rods, MSRE was fueled by molten salt that flowed through the reactor chamber where the nuclear chain reaction produced heat.

The molten salt that circulated in MSRE consisted of a mixture of lithium fluoride, beryllium fluoride, zirconium fluoride, and uranium fluoride. A small amount of plutonium

fluoride was also added to the salt. When the reactor was shut down, the molten saltfuel was drained into two fuel salt storage tanks, where it solidified. A flush salt, similar in composition to the fuel salt but without the uranium, was recirculated through the reactor and drained into a third storage tank and solidified. All three storage tanks are located in an





***Salt melting probe prior to installation.***



***The salt melting probe is being installed over the MSRE Fuel Flush Tank. It assists in the in situ pool melting of the solidified fuel and flush salts.***

underground, concrete-shielded drain tank cell adjacent to the reactor cell.

Surveillance activities in 1987 indicated elevated radiation levels in off-gas lines connected to the three drain tanks. Samples of the off-gas taken in March 1994 revealed the presence of fluorine and uranium fluoride gas, which was caused by interaction of radiation and salt. After these gases were detected, various removal actions were taken to reduce the risk and safely manage the fuel and flush salts in their respective drain tanks.

In 1998, DOE signed a ROD for interim action to remove fuel and flush salts from the MSRE. The selected remedy includes:

- separation of the uranium from the fuel and flush salts;
- removal of the fuel and flush salts from the drain tanks;
- disposition of the uranium material as a more stable form;
- stabilization/repackaging of the residual salt; and
- placement of the residual salt in interim storage until an end-point location is selected for final disposition.

Design, procurement, fabrication, and installation of fuel salt removal equipment were also completed in FY 2002. The testing included the use of depleted uranium and a cold trap system, which captures and solidifies vapor uranium hexafluoride to demonstrate functionality of fuel salt disposition. Well inserts were designed, fabricated, and installed in six wells in Solid Waste Storage Area (SWSA) 5 North in Melton Valley to facilitate storage of spent sodium fluoride traps following uranium material disposition.



## Preparations for Spent Nuclear Fuel Shipment Completed

Spent nuclear fuel at ORNL was repackaged in FY 2002 in preparation for shipment off-site.

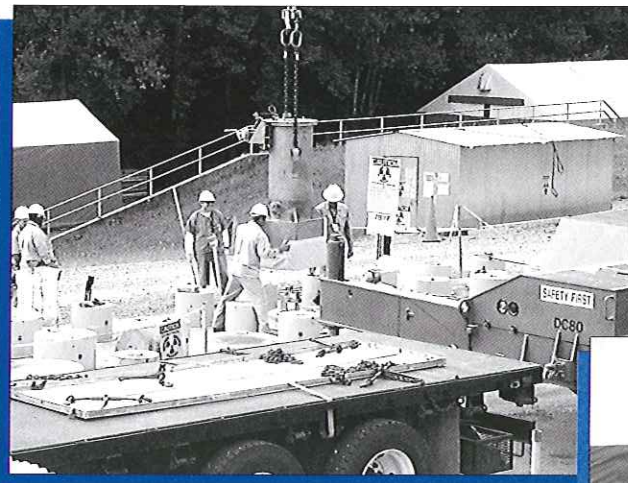
Research and development programs related to nuclear reactor fuel have historically been a part of ORNL's mission. Many of these programs involved the post-irradiation examination and testing of spent nuclear fuel (SNF) from various types of reactors. After these programs were completed, the remaining SNF was collected and placed into on-site storage facilities, primarily during the 1970s. SNF was stored in below-grade storage positions in facilities 7823A, 7827, and 7829, which are located in SWSA 5 North. In addition, one package of SNF, the Keuring van Electrotechnische Materialen (KEMA) fuel, was placed in SWSA 6 in Melton Valley.

With the issuance of the Programmatic Environmental Impact Statement (PEIS) ROD for SNF in 1995, smaller sites, like Oak Ridge, were directed to ship aluminum-clad SNF to the Savannah River Site (SRS) and non-aluminum-clad SNF to the Idaho National Engineering and Environmental Laboratory (INEEL). Following the issuance of the ROD for the PEIS, an Environmental Assessment (EA) was prepared for the Oak Ridge SNF activities, and a Finding of No Significant Impact was issued.

Aluminum-clad SNF was retrieved, repackaged, and shipped to SRS in three shipments in October, November, and January of FY 1998. These shipments consisted of 11 canisters with a total of 0.019 metric tons of heavy metal.

Retrieval and repackaging of non-aluminum-clad SNF was completed in FY 2002 with the repackaging of the KEMA fuel. Repackaged SNF is in temporary storage, pending shipment to INEEL. Five shipments, containing 62 canisters and nine intact Peach Bottom Reactor fuel assemblies with a total of 0.221 metric tons of heavy metal, are planned from Oak Ridge to INEEL in FY 2003.

*Spent nuclear  
fuel at ORNL  
has been  
repackaged and  
awaits shipment  
to Idaho.*



**A shielded carrier is used to individually transfer the spent nuclear fuel to storage.**



**A worker is using a winch to lower a spent nuclear fuel canister into an interim storage position.**





## Melton Valley Remediation Under Way

The Federal Facility Agreement parties signed the Melton Valley Record of Decision (MV ROD) in September 2000. Regulators approved a remedial design work plan in May 2001, with the approval of the Land Use Control Implementation Plan still outstanding. Remediation work mandated by the MV ROD has been ongoing and will continue for several more years.

In FY 2002, DOE sought to modify the MV ROD by adding four additional waste management units to the scope work. These units are the Tumulus I, Tumulus II, Interim Waste Management Facility (IWMF), and Wastewater Triad Project (WTP) process systems. The Tumulus facilities and IWMF utilized the tumulus disposal technology developed by the French nuclear industry for disposal of solid low-level radioactive waste. Disposal at Tumulus I took place from 1988 to 1990, in Tumulus II from 1990 to 1992, and at IWMF from 1991 to 1998. The WTP, which includes Building 7877 and associated process systems, was part of the integrated tank waste management plan at ORNL and focused on reducing the volume of radioactivity or liquid low-level waste stored in the Melton Valley Storage Tanks. It is anticipated that the WTP process equipment will be removed and disposed of. Building 7877 will be demolished, and the Tumulus buildings and IWMF will be capped. This additional scope is detailed in a supplemental document called an Explanation of Significant Differences.

Specific FY 2002 projects within the Melton Valley Watershed include hydrofracture wells plugging and abandonment (P&A), SWSA 4 remediation, and decontamination and decommissioning of the Old Hydrofracture Facility.

## Hydrofracture Wells Plugging and Abandonment Continues



**Plugging and abandonment of hydrofracture wells at ORNL continued in FY 2002.**

Between the 1960s and mid-1980s, the process of deep injection of waste was used at Oak Ridge National Laboratory to dispose of radioactive liquids and sludge in mixtures of waste with cement-based grout and various additives. Two test injection wells were constructed along with boreholes and wells to observe the behavior of the injected grout in the injection zone bedrock. At these two sites, small quantities of radionuclides were added to the injected grout to make the grout sheets detectable using gamma detectors. The third and fourth injection wells, called the Old Hydrofracture Facility, and New Hydrofracture Facility, were constructed for large-scale waste disposal. More than 5 million gallons of liquid waste-grout mix, containing approximately 1.4 million curies of activity, were injected into artificially induced fractures in a shale formation at depths of 300 to 1,000 ft. All large-

scale disposals were at depths greater than 780 ft. Contamination levels in hydrofracture monitoring wells have been reported as high as 97 million picocuries per liter gross beta, which could potentially migrate up an unplugged well bore. To prevent this migration, a remedial action was initiated in 2001 to plug and abandon the four injection wells and 107 associated monitoring wells. Thirty-three monitoring wells were plugged and abandoned (P&Aed) in FY 2001, and 32 monitoring wells were P&Aed in FY 2002. Forty-six wells, including the four injection wells, remain to be P&Aed in FY 2003.

## SWSA 4 Remediation Continues

Work on the SWSA 4 project includes the hydrologic isolation of the SWSA 4 burial ground, Liquid Waste Disposal Pit 1, the Pilot Pits Area, and the 7819 Decontamination Area, as well as the excavation of the Interme-

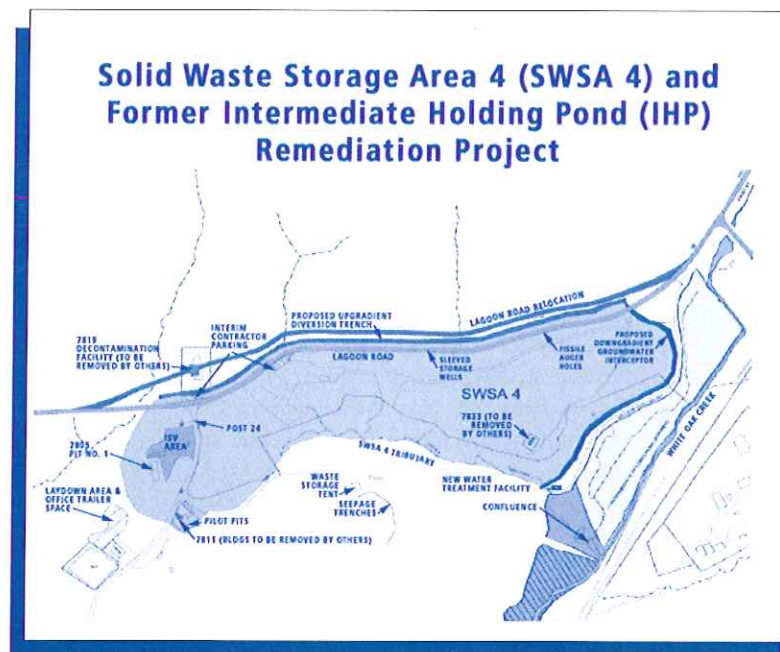
diate Holding Pond. Hydrologic isolation includes the installation of a multilayer cap, up gradient storm flow diversion trenches, and down gradient collection trenches. To facilitate cap installation, this project also includes

P&A of unneeded, shallow, non-hydrofracture wells within the cap boundary, developing a borrow area and associated haul roads, and relocating Lagoon Road.



From 1951 to 1959, DOE used SWSA 4 for disposing various liquid and solid radioactively contaminated wastes in unlined trenches and auger holes. SWSA 4 contains approximately 20,000 curies of radioactive wastes and contributes approximately 27 percent of the total risk in surface water to a hypothetical resident at White Oak Dam.

Pit 1 was constructed in 1951 to test the feasibility of disposing liquid waste into pits excavated in the natural clays in Melton Valley. Pit 1 received liquid waste from August to October 1951. In 1981, Pit 1 was backfilled and covered with an asphalt cap. In 1991, a portion of the wastes disposed in Pit 1 were stabilized as part of an in situ vitrification technology demonstration. In situ vitrification is a process that uses electrical power to heat and melt contaminated soil, fusing the soil and waste into a glass-like solid.



**More than 21,000 tons of contaminated soil has been excavated at the Intermediate Holding Pond.**

The remedial design report/remedial action work plan for this project was approved in May 2002. Bridge and haul road upgrades, borrow area development, and the P&A of 167 shallow wells has been completed. Approximately 21,200 tons (15,000 yd<sup>3</sup>) of contaminated soil from the Intermediate Holding Pond has been excavated and disposed of in the EMWMF. The IHP is currently being backfilled and reseeded.



## Waste Processing Facility Under Construction

The mission of the Oak Ridge TRU Program is to provide cost-effective, safe, and environmentally compliant treatment and disposal of all TRU waste located at ORNL. In FY 2002, the TRU Program continued the construction of the Waste Processing Facility (WPF). The scope of the WPF is to treat and dispose of 900 m<sup>3</sup> of Remote-Handled (RH) TRU sludge, 550 m<sup>3</sup> of RH-TRU/Alpha Low-Level Waste (LLW) solids, 1600 m<sup>3</sup> of RH-LLW supernate, and 1,000 m<sup>3</sup> of Contact-Handled (CH)-TRU/Alpha LLW solids currently stored in Melton Valley.

Construction for the WPF is currently scheduled to be completed in June of 2003. Facility operations will begin for the supernate waste stream in March of 2003 and will be followed by CH solid processing in January of 2004.



## Old Hydrofracture Facility D&D Completed

The decontamination and decommissioning (D&D) of the Old Hydrofracture Facility (OHF) was completed in FY 2002. Inactive buildings, surplus aboveground structures, and equipment items at the OHF site were demolished to ground level. Subsurface structures encountered during remediation were filled using concrete or other inert and stable material. Structures and equipment addressed included the OHF Building-7852, pump house and valve pits, above-grade portions of Waste Pit T-4, and abandoned tank remediation equipment and miscellaneous debris.

Remaining waste disposition was expected to be completed by the end of December 2002. The injection well will be plugged and abandoned in FY 2003.

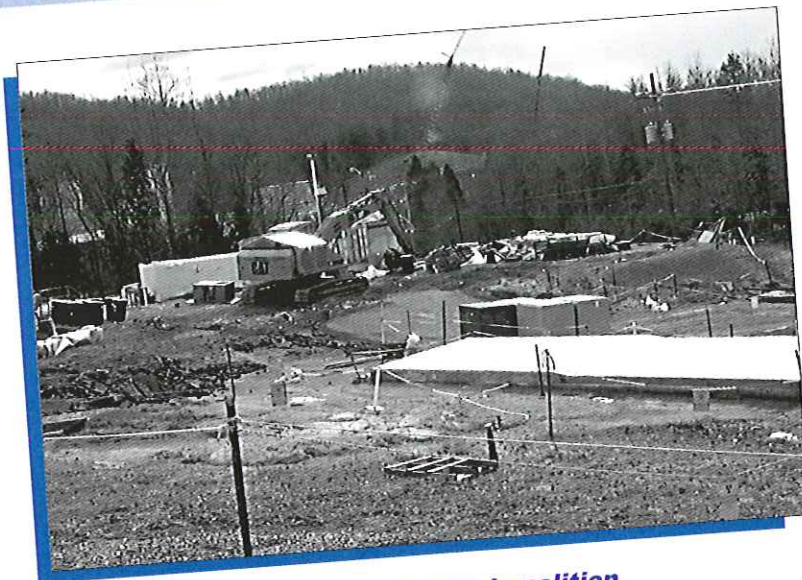
The OHF site was used from 1964 to 1979 for permanent disposal of liquid radioactive waste in shale formations at depths greater than 780 feet. Various facilities were required to support the waste disposal operations. These included five underground tanks used for storing liquid waste before mixing it with grout; surface structures for storing, mixing, and

handling the grout/liquid waste mixture; and an impoundment (OHF Pond) and waste pit (T-4 Waste Pit) for emergency storage of liquid waste in case of system failures.

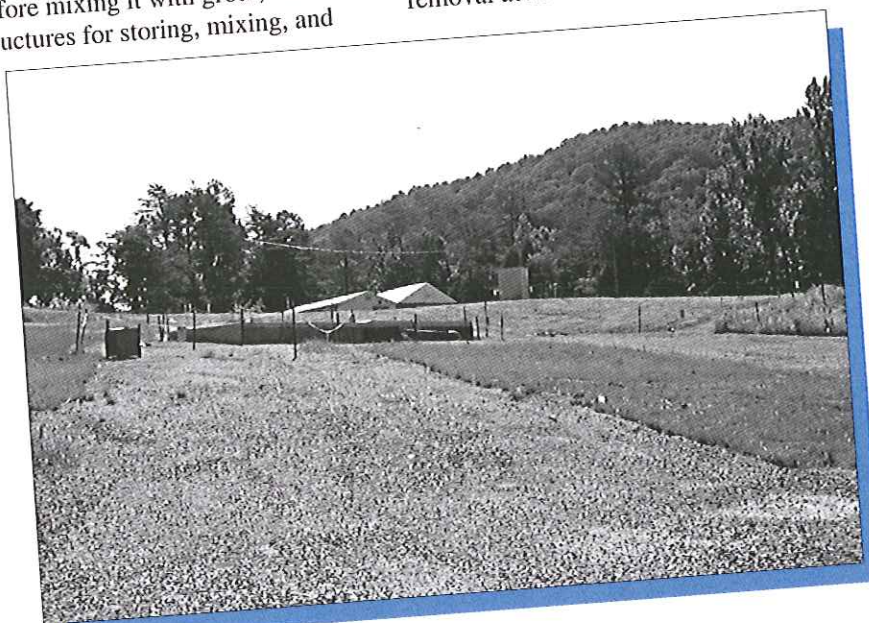
Operations were terminated in 1980, leaving approximately 50,000 gallons of transuranic waste in the five underground storage tanks. This waste was removed and transferred to the Melton Valley Storage Tanks for processing and disposal as a 1998 removal action.

An additional removal action was conducted in 2000 that used grout to stabilize the OHF Pond, the five storage tanks, and the T-4 Waste Pit.

This CERCLA remedial action, which is part of the MV ROD, addressed the D&D of the OHF structures and equipment, which must be accomplished prior to installing the SWSA 5 cap.



**Old Hydrofracture Facility during demolition**



**Old Hydrofracture Facility site after demolition. Approximately 50,000 gallons of transuranic waste were removed from the Old Hydrofracture Facility underground storage tanks.**





*The Y-12 Watershed consist of two main geographic areas: Bear Creek Valley and Upper East Fork Poplar Creek. The 4,500-acre Bear Creek Valley contains burial grounds, oil landfarms, and settling ponds, where waste from Y-12 was disposed. UEFPC includes the main Y-12 National Security Complex, which is located south of Oak Ridge and covers approximately 800 acres. The complex has played a pivotal role in the enrichment of uranium for nuclear weapons. Its current mission involves the dismantling of nuclear weapons components, providing support for ORNL research programs, and serving as a manufacturing technology and demonstration center. Contaminants of concern include mercury, radionuclides, and volatile organics in groundwater, surface water, and sediments.*





## Steps Taken to Reduce S-3 Pond Releases

DOE is taking additional steps to stem contaminant releases from four unlined disposal ponds, called the S-3 Ponds, at the west end of the Y-12 National Security Complex. These ponds, constructed in 1951, were used to store various liquid wastes containing uranium and nitrate from Y-12 operations. The ponds were closed and capped, but because they are located on a shallow groundwater and surface water divide, contaminants have been migrating from the site. The contaminants seep into groundwater that eventually discharges into Bear Creek and its associated tributaries.

Three primary pathways of groundwater flow have been identified on the western side of the ponds. Pathways 1 and 2 are shallow-flow regimes that discharge into the

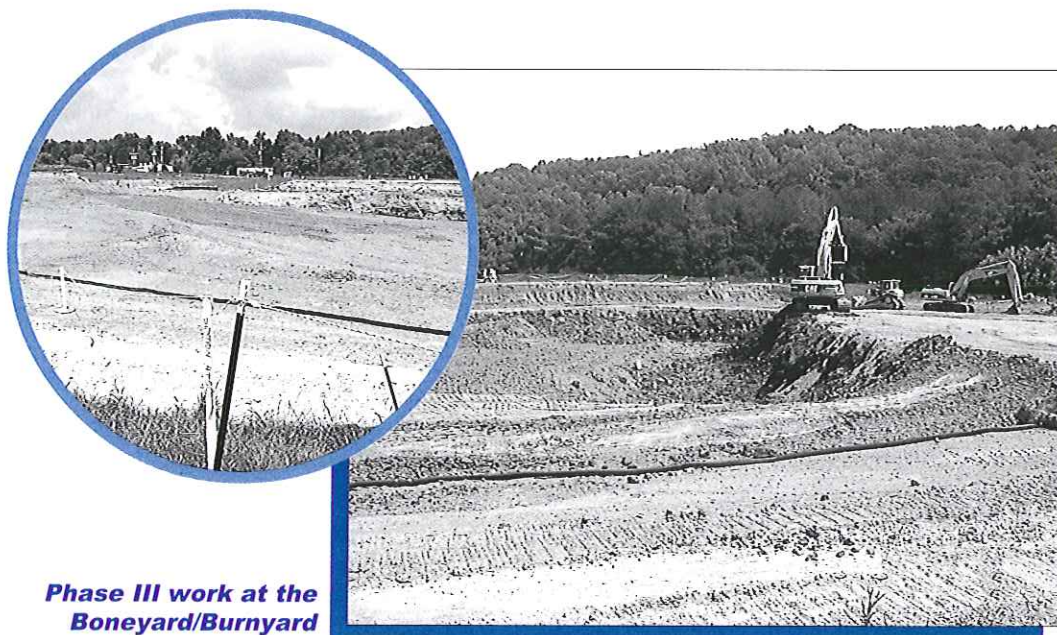
main stem of Bear Creek. Both pathways are contaminated primarily with uranium. Pathway 3 is deeper and travels through the bedrock, discharging nitrate- and cadmium-contaminated groundwater to two tributaries of Bear Creek. DOE is capturing and treating contaminated groundwater from these pathways so that risk to human health and the environment are reduced.

Modifications were completed for the Pathway 1 and Pathway 2 systems to improve performance. Continuous operation of the modified system began in December 2000. During 2001, more than 2 million gallons of contaminated groundwater were treated by the system. A treatment system for Pathway 3 is under development.

## Remediation of Boneyard/Burnyard Reducing Contaminant Releases

Some of the first wastes that were disposed of in Oak Ridge began in 1943 at a waste site called the Boneyard/Burnyard (BY/BY). Both radiological and nonradiological wastes were disposed at this site, which continued receiving wastes until 1970. DOE is now cleaning up portions of the site to reduce the release of contaminants into Bear Creek and its tributaries.

Three release sites are associated with the BY/BY remediation project: Oil Landfarm (OLF) Soils Containment Pad; Hazardous Chemical Disposal Area (HCDA); and BY/BY, including Bear Creek Tributary 3 Floodplain Soils. The OLF Soils Containment Pad structure was a below-grade storage pad that contained approximately 570 yd<sup>3</sup> of PCB-contaminated soils excavated during closure of the OLF. The HCDA was historically used to dispose of chemicals that were deemed to be hazardous to plant workers, including acids, bases, and miscellaneous liquids. The area was covered in the late 1980s with an engineered cap, similar to what is required under the Resource Conservation and Recovery



**Phase III work at the  
Boneyard/Burnyard**



Act (RCRA). The BY/BY was used for the disposal of combustible wastes, including uranium turnings, which were placed either on the surface or in unlined trenches and set on fire. The area was also used for storing abandoned equipment, which resulted in surface contamination. These wastes are now leaching from the BY/BY to shallow groundwater, which then discharges to surface water.

Remedial actions have been divided into three phases. Phase I consisted of the remedial design. Phase II included the hydraulic isolation at the BY/BY to reduce the contaminant flux

entering Bear Creek and to dry the site in preparation of the Phase III work, as well as the removal of the OLF Soils Containment Pad structure and disposal of the soils at an off-site facility. Phase III consists of excavation and disposal of BYBY wastes.

Phase III field activities at the BY/BY began in May 2002. This final phase of the remedial action includes excavation of the waste material with the highest concentrations of uranium contamination and disposal of the material in the newly constructed EMWMF. By the close of FY 2002, approximately 49,000 yd<sup>3</sup> of BY/BY

wastes had been excavated and disposed in the new facility. Material with lower levels of contamination that is not in contact with groundwater is being excavated and consolidated on-site and will then be covered with a low-permeability clay cap. After excavation and capping are completed in early FY 2003, the stream channel of North Tributary 3 of Bear Creek will be restored with natural meanders and gradients to reduce erosion of the bank and to more efficiently transport surface water and sediment load through the site. DOE has scheduled field activities to be completed by the end of December 2002.

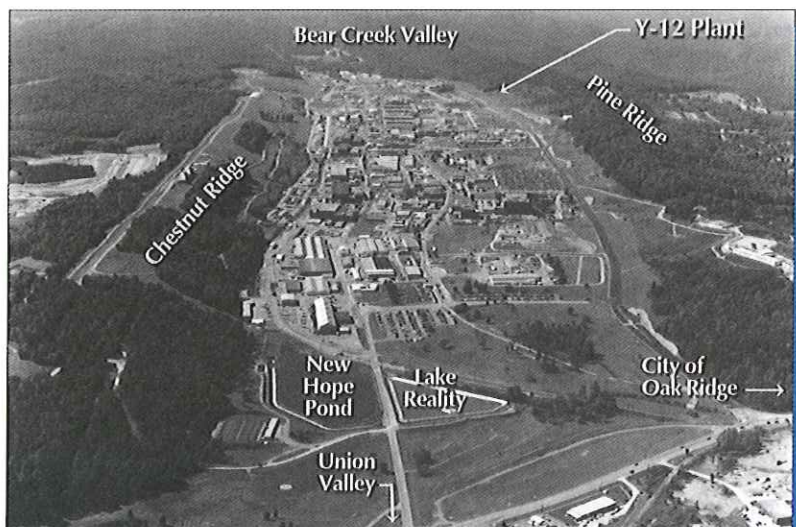
## Interim Source Controls Selected for Upper East Fork Poplar Creek

DOE, EPA, and TDEC signed the ROD for Phase 1 Interim Source Control Actions in Upper East Fork Poplar Creek area on May 2, 2002. This ROD focuses on remediation of mercury-contaminated surface water.

The remedy includes treatment of mercury-contaminated groundwater that discharges to surface water, hydraulic isolation of the West End Mercury Area by repairing storm sewers and capping, and by removal of contaminated sediments and bank soils from Upper East Fork Poplar Creek and Lake Reality. Institutional controls will also be provided to prevent exposure to contaminated soils and ingestion of contaminated fish in Lower East Fork Poplar Creek.

This remedy will be implemented with an effort to minimizing disruption of the continuing mission and modernization of the Y-12 National Security Complex. Subsequent RODs

will address additional soil remedial actions, additional surface water actions as necessary, building decontamination and decommissioning, and groundwater actions.



**Upper East Fork Poplar Creek**





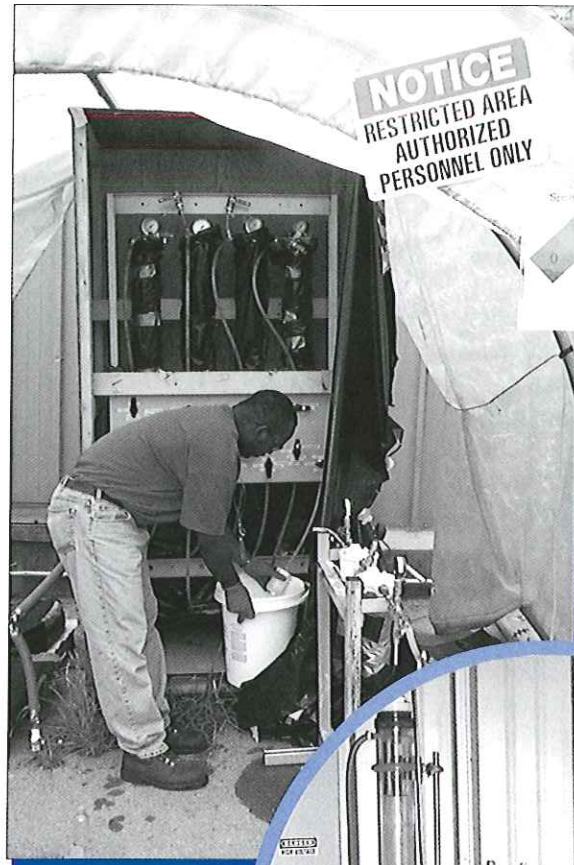
## Building 9201-2 Water Treatment System To Be Constructed

To mitigate the mercury being released to Upper East Fork Poplar Creek, the Building 9201-2 Water Treatment System will be designed and constructed as the first action following the approval of the ROD for Phase 1 Interim Source Control Actions in the Upper East Fork Poplar Creek Characterization Area.

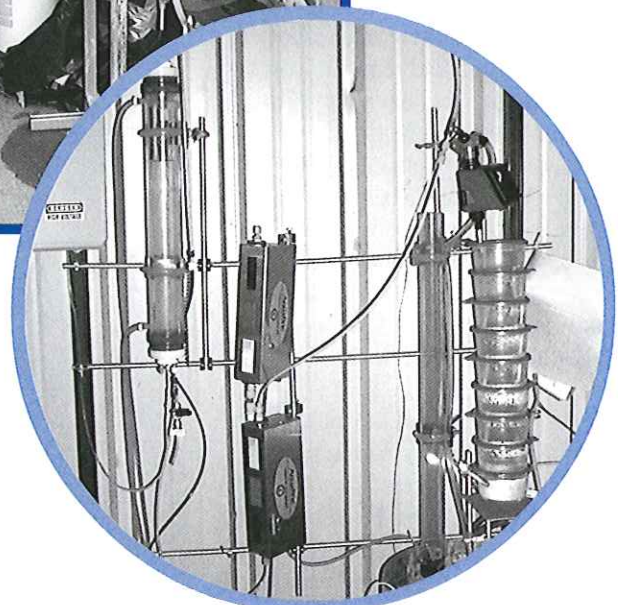
The new 300-gallon-per-minute water treatment system will remove mercury from groundwater discharged from Outfall 51 in addition to the groundwater collected in the basement sumps of Building 9201-2. The discharge from Outfall 51 is attributed to a large natural spring that was filled over and piped to Upper East Fork Poplar Creek during the construction of Y-12.

The East End Mercury Treatment System, which will be replaced by the new system, is currently treating the groundwater from the Building 9201-2 basement sumps. The water treatment system will be designed using best available technology and is anticipated to reduce mercury to the 200 parts per trillion (ppt) interim mercury goal minimum in the system discharge. Additional methods for removal of mercury, potentially bringing levels to the ambient water quality criteria of 51 ppt, are being evaluated as part of a pre-design study.

The pre-design study, conducted in spring and summer of 2002, investigated the applicability of various treatment technologies for reducing mercury at Outfall 51. The approach to the pre-design study was to evaluate a traditional technology and then compare to other innovative technologies to determine the feasibility of achieving the concentration of total mercury in water to 51 ppt.

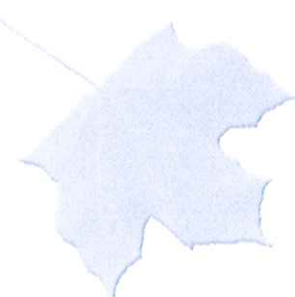


**Pilot Carbon Column System at Outfall 51**



**Pilot Ozone/UV/Air Stripping System at Outfall 51**

The studies have been operated in two phases: the first with only activated carbon adsorption and the second with an ozone/ultraviolet/air stripping treatment system identified as a potential technology during the bench-scale, laboratory studies. Both systems have provided consistent results below 100 ppt. An ongoing technical and cost/benefit comparison is being preformed to determine which technology will be employed in the design of the system.





## Bear Creek Burial Ground D-East Revegetated

Additional soil and vegetative cover were placed over the Bear Creek Burial Ground D-East site in September 2002 to mitigate the potential for future radiation exposures or releases to the environment.

Burial Ground D-East is a non-permitted waste disposal unit that is part of the Bear Creek Burial Grounds, located approximately 2 miles west of the Y-12 National Security Complex. The site was used between 1962 and 1989 for disposal of uranium chips, scrap metal, and oxide wastes in a series of trenches ranging in depth from 14 to 25 ft. The site is approximately 350 ft by 200 ft and consists of two terraced areas running east to west, roughly parallel to one another and separated by a slope.

Burial Ground D-East was originally covered with a layer of soil and then seeded with grass. During May 2001, uranium metal chips were observed at the ground surface at the site. It appeared that surface water runoff and soil erosion had removed some of the existing soil and vegetation from the site, resulting in the exposure of contaminants at the surface. Radiological surveys were conducted and the posting of the site was upgraded to a Contamination Area, requiring more stringent access controls through the use of a Radiation Work Permit.

Prior to placement of topsoil, erosion controls (silt fencing and hay bales) were placed in strategic locations around the perimeter of the site. An additional 6- to 12-inch layer of soil cover was placed over the areas of concern and compacted sufficiently to stabilize the area. An elevation survey confirmed the thickness of the additional soil cover. Grass seed, fertilizer, and mulch were spread over the area using hydroseeding equipment. Additional seed was spread over the area after heavy rainfall over the weekend of September 21 and 22, 2002. Surveillance and maintenance of the site will continue until the area is completely stabilized and then repeated semiannually thereafter.



**Additional soil and vegetative cover were placed over the Bear Creek Burial Gound D-East site in FY 2002.**



# **WASTE MANAGEMENT** Technology Development

*Waste Management involves the treatment, storage, and disposal of the by-products of operating or cleaning up the facilities of the Oak Ridge Reservation. Wastes managed include wastewater, contaminated groundwater, sanitary wastes, industrial wastes, classified (national security) wastes, gases, construction or demolition wastes, and earthen materials. Any such wastes may include or be contaminated with radioactivity or hazardous materials. Waste management is regulated by various federal and state regulations and DOE Orders for radioactive only waste, the regulation application is determined by the waste contaminants, its origin, or both. Treatment and disposal take place on-site and at appropriately certified commercial or federal off-site facilities.*





## Operations Start at CERCLA Waste Management Facility

Construction of the Environmental Management Waste Management Facility (EMWMF), also known as the CERCLA Waste Management Facility, was completed in early May 2002. The EMWMF, located in East Bear Creek Valley near the Y-12 Complex, is an on-site waste facility that is being used to contain the waste generated during cleanup of the Oak Ridge Reservation and associated sites in Tennessee. Final elements of the facility completed in FY 2002 include:

- Installation of the multi-layer liner system, including the 3-ft thick clay liner, the primary liner, leachate detection system, secondary liner, and leachate collection system;
- Installation of the liner system soil protective layer;
- Installation of security features, such as fencing and lighting;
- Completion of the leachate storage area, including five 30,000 gallon tanks and associated piping;
- Installation of four 450,000 gallon contact water ponds with synthetic liners;
- Installation of the administration buildings;
- Installation of the truck scale and regrading of access roads; and
- Installation of the waste off-loading ramp.

Following internal and independent readiness evaluations (including a mock waste placement exercise) to ensure the subcontractor operating the facility was ready to operate,



**Environmental Management Waste Management Facility**

the EMWMF accepted its first waste shipment in May 2002. By the end of FY 2002, 104,720 tons of solid and debris waste was disposed of in the facility. Projects contributing waste in FY 2002 included the following:

- BY/BY Remedial Action Project near the Y-12 Complex;
- Intermediate Holding Pond Remedial Action Project at ORNL;
- K-1070A Remedial Action Project at ETTP;
- K-25/27 Demolition Project at ETTP; and
- BNFL Decontamination Project at ETTP.

## Millions of Gallons of Wastewater Treated in FY 2002

Many millions of gallons of wastewater were treated in FY 2002 at the Oak Ridge Reservation.

The Environmental Management Program treated 22.4 million gallons of liquid waste at the Groundwater Treatment Facility, East End Mercury Treatment System, Central Mercury Treatment System, and the East End Volatile Organic Compound System.

The West End Treatment Facility and a Central Pollution Control Facility at the Y-12 National Security Complex processed about 600,000 gallons of wastewater, primarily in support of National Nuclear Security Administration operation activities. This wastewater included hazardous materials such as PCBs, cyanide, mercury, cadmium, chromium, and uranium. The hazardous materials end up in the sludge that results from wastewater treatment. A total of 1.2 million kg of sludge (about 1,320 tons) was treated and shipped for off-site disposal in compliance with Site Treatment Plan milestones. The remaining sludge inventory will be treated and disposed of by the end of FY 2004.



At East Tennessee Technology Park, the Central Neutralization Facility (CNF) treated more than 27 million gallons of wastewater in FY 2002. CNF is ETTP's primary wastewater treatment facility and processes both hazardous and nonhazardous waste streams arising from multiple waste treatment facilities and remediation projects. The facility removes heavy metals and suspended solids from the wastewater, adjusts pH, and discharges the treated effluent into the Clinch River. Sludge from the treatment facility is treated, packaged, and disposed off-site.



***ETTP's Central Neutralization Facility treated more than 27 million gallons of wastewater in FY 2002.***

## **Waste Stockpile Continues to Diminish**

Operations at the Oak Ridge Reservation (ORR) produce wastes that frequently contain radionuclides. Such wastes are characterized as either low-level waste or transuranic (TRU) wastes. Mixed low-level wastes (MLLW) are those that contain materials deemed hazardous and are regulated under the Resource Conservation and Recovery Act.

TRU wastes from throughout the DOE complex are to be disposed of at the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico. Before shipping TRU wastes to WIPP, however, they must be treated and packaged to meet the waste acceptance criteria.

DOE awarded a contract to Foster Wheeler Environmental Corporation in 1998 to build and operate a transuranic waste treatment facility on the ORR. In FY 2001, an ~1000-ft extension to the access road from White Wing Road (State Route 95) and fencing of the ~20-acre site was completed. Waste processing at the Transuranic Waste Treatment Facility begins in 2003.

ORR has the largest inventory of legacy low-level waste in the DOE complex. In addition, active DOE missions at Y-12 and ORNL produce newly generated low-level waste that must be managed and disposed of safely and efficiently. The Reservation also has a large inventory of MLLW, but most mixed waste has been dispositioned since the Site Treatment Plan agreement was signed in 1995.

The ORR MLLW inventory was reduced by more than 3,500 m<sup>3</sup> in FY 2002, which included 1 million kilograms of STP mixed waste and approximately .5 million kilograms of PCB waste. With less than 20 percent of the mixed waste inventory remaining, more than nine acres of waste storage area have been closed across the Reservation since April 1998.

Also in FY 2002, 793 items of potentially shock-sensitive chemicals were treated and safely disposed. A total of 1,000 m<sup>3</sup> of low-level waste was disposed off-site in FY 2002.



## **TSCA Incinerator Continues Hazardous Waste Treatment**

The Toxic Substances Control Act (TSCA) Incinerator, located at ETTP in Oak Ridge, plays a key role in treatment of radioactive PCB waste and hazardous waste (mixed waste) from the ORR and other DOE facilities.

The TSCA Incinerator continued to be responsive to the treatment needs of Oak Ridge projects as well as serve as a national resource, burning waste from seven out-of-state sites.

The Incinerator treated 767,971 pounds of liquid and solid waste in FY 2002. More than 50 percent of the total was out-of-state waste.



**TSCA Incinerator**

## **Improved Technologies Being Used for Cleanup**

The mission of the Environmental Technology Program is to provide the scientific foundation, new approaches, and new technologies to bring about significant reductions in risk, cost, and schedule for completion of the EM cleanup mission. The need for real time technology solutions has been made even more urgent with the renewed emphasis on site closure.

In FY 2002, the DOE Oak Ridge Operations (DOE-ORO) Environmental Technology Program focused on several key problem areas at the five DOE-ORO sites.

The Y-12 National Security Complex has had historical releases of mercury from four main process buildings. The loss of an estimated 2 million pounds of mercury to soil and surface waters

has created a mercury management problem involving contamination of numerous sumps and outfalls. The Environmental Technology Program supported three mercury treatability studies for the in situ treatment of mercury in soils. One study evaluated an amalgamation stabilization process, the second an electrochemical process, and the third a specialized grout. Another process,



still in the research and development phase, is investigating phytoremediation for the stabilization and transpiration of mercury. Additionally in FY 2002, development and testing of a microcantilever sensor for the detection of mercury in water at the parts-per-trillion level was initiated.

The reliability and maintainability of reactive barrier systems is an important consideration in the long-term treatment of contaminated groundwater. In FY 2002, the Environmental Technology Program funded the study of a number of operating barriers, including those at the Y-12 S-3 ponds. The purpose of the study was to understand how the barriers function over time. Additionally, new reactive media were developed and tested in FY 2002, including biogenic apatite (Apatite II) sorbent for removal of metals from Y-12 groundwater.

Recent proposed rules for limiting heavy metal releases in stack emis-

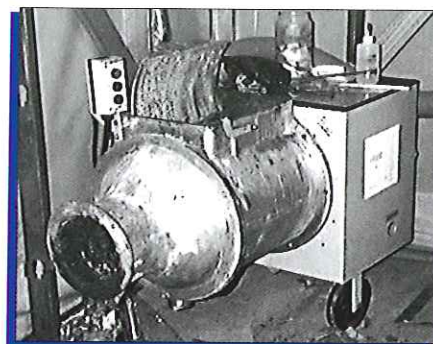
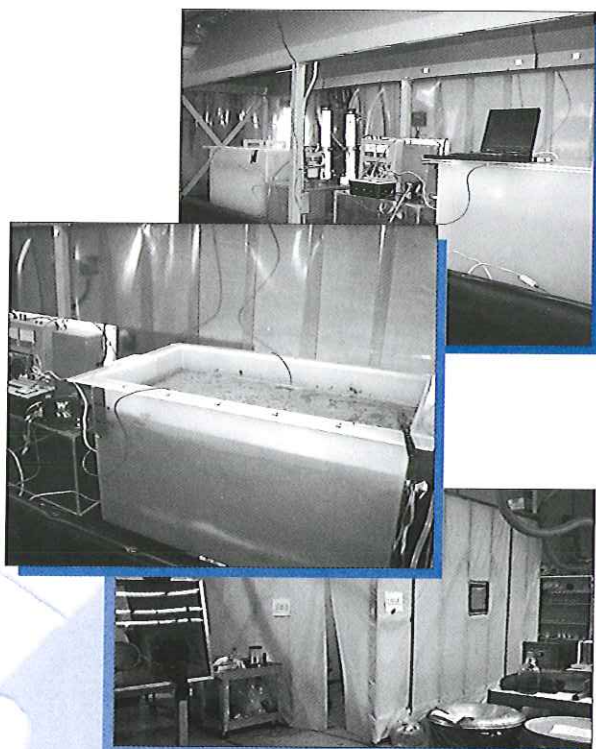
sions include provisions for use of continuous emission monitors (CEM). In some cases, the implementation of a suitable CEM could enable the operator of the incinerator to use higher release standards and employ a more verifiable means of monitoring compliance with regulations. In FY 2002, the TSCA Incinerator at ETTP, in conjunction with the EPA Environmental Technology Verification Program, tested and evaluated several mercury CEMs for performance and reliability. Results of this study will be published in FY 2003.

Bioremediation continued to be evaluated as a viable treatment process for groundwater contaminated with volatile organic compounds. Bioremediation studies continued for the Y-12 Upper East Fork Poplar Creek carbon tetrachloride plume.

ORNL has a mixture of TRU organic ion-exchange resin and sludge stored in two inactive underground storage tanks (the T1 and T2 tanks) and

radioactive sludge and resin with TRU constituents in the High Flux Isotope Reactor tank. This waste must be retrieved and treated prior to disposal to meet the Federal Facility Agreement and achieve accelerated closure of the site by 2006; however, the waste does not meet the waste acceptance criteria for any existing treatment/storage facilities. The waste must be pretreated to destroy the organic resins prior to solidification at the Oak Ridge TRU Waste Treatment Facility and disposal at the WIPP.

In FY 2002, the Environmental Technology Program focused efforts on developing a process to chemically destroy the ion-exchange resin using Fenton's Reagent (hydrogen peroxide and a ferrous iron catalyst), which oxidizes the resin to carbon dioxide and ammonium sulfate. The process has been successfully tested using both simulated and actual waste.





# PUBLIC Involvement

*DOE encourages public involvement in the decision-making process. Effective public involvement and good community relations rest on a foundation of positive relationships. Methods used to encourage public involvement vary and may include informal conversations, electronic communication, scheduled meetings and workshops, legally required hearings, and stakeholder advisory groups. Public participation activities allow DOE and the community to better understand each other's views.*





## Accelerating Cleanup of the Oak Ridge Reservation Primary Focus of Public Involvement

The primary focus of public involvement for FY 2002 was the new accelerated cleanup process. The introduction of this new cleanup concept garnered much interest of local stakeholders and became the primary focus of public involvement meetings for the year.

In February 2001, with the release of the FY 2002 President's budget, the Administration announced a planned Top-To-Bottom Review for the U.S. Department of Energy Environmental Management (EM) Program. The purpose of the review was to evaluate more efficient methods to complete cleanup in the national EM program. Results of the Top-To-Bottom Review, which were released in February 2002, underscored the need to refocus EM cleanup work on risk reduction, not risk management; to reduce mortgage costs; and to execute the work expeditiously.

In response to the Top-To-Bottom Review, on March 11, 2002, DOE-ORO Oak Ridge submitted a Comprehensive Cleanup Proposal to accelerate the closure of the Oak Ridge EM Program by six years (2021 to 2015) and to reduce the planned baseline cost by more than \$2 billion. Public comments on the proposal were incorporated into the DOE Performance Management Plan (PMP) and Life Cycle Baseline.

An initial public meeting was held in June 2002 to provide stakeholders with an overview of the PMP and to answer any questions they might have regarding the document. A second meeting was held in September to define the Life Cycle Baseline for the planned work to be performed to meet the requirements stated in the PMP.

In another step to keep the public informed, DOE established an accelerated cleanup Web page. This public Web page contains key documents associated with the new way of doing business and describes the public involvement strategy and opportunities for providing input. A public involvement schedule is also provided. The Web page can be accessed from the DOE Oak Ridge Operations Web site at <http://www.oakridge.doe.gov>.

While accelerated cleanup was the primary focus of public

involvement for the year, additional opportunities for public involvement also were provided. In February 2002 DOE, in conjunction with the Oak Ridge Site Specific Advisory Board, provided an update of the EM FY 2002 budget. This meeting provided a forum for stakeholders to ask questions regarding the budget.

DOE also held a ribbon-cutting ceremony in June 2002 for the EMWMF. The opening of the EMWMF was a major step in the safe, effective remediation of contaminated sites on the Oak Ridge Reservation. Waste from cleanup activities can now be safely disposed of in the state-of-the-art disposal cell, saving DOE millions of dollars in transportation and other costs, plus avoiding potential safety hazards associated with transporting waste across the country.

In July 2002, DOE took a major step in providing information to the public by opening the DOE Information Center. The DOE Information Center brings together information and documents previously housed in two separate DOE public access document centers in Oak Ridge. The new facility now provides a single, convenient location for a broad range of documents and information about DOE ORO. This will become a tremendous resource for area stakeholders who are interested in DOE programs and activities. The Information Center also provides offices for the Oak Ridge Site Specific Advisory Board officers and serves as a consistent meeting location for DOE public meetings.

Other EM-related activities that involved the public included:

- TSCA RCRA Permit Reapplication public meeting, March 26, 2002;
- Federal Compensation Act public meeting, with the U.S. Department of Labor, June 3, 2002; and
- RCRA Postclosure Permit Application for SWSA 6 public meeting, July 16, 2002.





The Oak Ridge Site Specific Advisory Board (ORSSAB) made significant progress this year in its mission to provide advice and recommendations to DOE on its Oak Ridge EM Program and to involve the public in environmental decision-making. ORSSAB is an independent, volunteer, federally appointed citizens' panel formed in 1995.

- The board provided 16 recommendations to DOE, EPA, and the State of Tennessee this year on a variety of EM topics, including:

— the Oak Ridge Performance Management Plan;

- Toxic Substances Control Act Incinerator closure issues; and
- deletion of milestones for mixed transuranic wastes from the *Site Treatment Plan for Mixed Wastes on the DOE Oak Ridge Reservation*.

Reservation. ORSSAB agreed with DOE that this will result in the most expeditious disposal of the material and that it will result in a considerable cost savings to taxpayers.

- ORSSAB sponsored a public meeting with Helen Belencan, Low-Level Waste and Mixed Low-Level Waste Program Manager for the DOE Headquarters Office of Integration and Disposition, to discuss her analysis of DOE complex-wide incineration needs and the pending decision regarding the planned closure of the TSCA Incinerator. The meeting gave local stakeholders a forum to express their views on incineration and led to an ORSSAB recommendation to DOE regarding continued incinerator operations.

aggressive outreach program, which included:

- delivering several presentations about the board and the DOE cleanup program to area schools;
- developing a teacher resource kit to foster education about environmental cleanup; and

All ORSSAB meetings are open to the public and are announced in newspaper advertisements, in the *Federal Register*, through the board's 24-hour information line (865-576-4750), and on the board's Web site at <http://www.oakridge.doe.gov/em/ssab>. Information also is available by calling the ORSSAB support office at (865) 241-3665 or (800) 382-4582.





# Information Resources

## DOE Information Center

475 Oak Ridge Turnpike  
Oak Ridge, Tennessee 37830  
Phone: (865) 241-4780  
Fax: (865) 574-3521  
Hours 8 a.m. to 5 p.m., Monday – Friday

## Telephone Numbers

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DOE Public Affairs Office  
(865) 576-0885

DOE-ORO Public Information Line  
1-800-382-6938

Oak Ridge Site Specific Advisory Board  
(865) 241-3665

Local Oversight Committee  
(865) 483-1333

Tennessee Department of Environment  
and Conservation  
(865) 481-0995

Environmental Protection Agency;  
Region IV  
1-800-241-1754

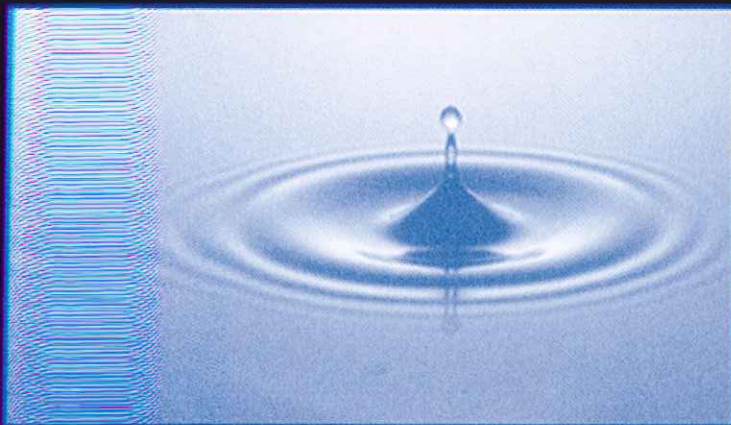
Agency for Toxic Substances and  
Disease Registry  
1-888-422-8737  
Oak Ridge Office:  
(865) 220-0295

## Internet Sites

DOE Main Web Site	<a href="http://www.energy.gov">www.energy.gov</a>
DOE-ORO Home Page	<a href="http://www.oakridge.doe.gov">www.oakridge.doe.gov</a>
DOE-ORO Environmental Management Program	<a href="http://www.oakridge.doe.gov/em">www.oakridge.doe.gov/em</a>
Oak Ridge Site Specific Advisory Board	<a href="http://www.oakridge.doe.gov/em/ssab">www.oakridge.doe.gov/em/ssab</a>
Oak Ridge Accelerated Cleanup	<a href="http://www.bechteljacobs.com/doeclean/">www.bechteljacobs.com/doeclean/</a>
Agency for Toxic Substances and Disease Registry	<a href="http://www.atsdr.cdc.gov">www.atsdr.cdc.gov</a>
Environmental Protection Agency	<a href="http://www.epa.gov/region4/">www.epa.gov/region4/</a>
Tennessee Department of Environment and Conservation	<a href="http://www.state.tn.us/environment/doe">www.state.tn.us/environment/doe</a>
DOE Information Center	<a href="http://www.oakridge.doe.gov/Foia/_Public_Reading_Room.htm">www.oakridge.doe.gov/Foia/_Public_Reading_Room.htm</a>

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