DOE/OR-2223

Cleanup Progress FY 2006

Annual Report to the Oak Ridge Community

Message from the Manager, DOE Oak Ridge Office

Gerald Boyd

Fiscal Year 2006 was another year of great progress in the Oak Ridge Environmental Management Program. This program continues to support the success of Department of Energy programs in Science, National Security, and Nuclear Energy on the Oak Ridge Reservation by safely cleaning up contaminated land and facilities. I want to recognize the Environmental Management federal and contractor staff for their work this year under the day-to-day leadership of Stephen McCracken.

We are seeing positive changes at Oak Ridge National Laboratory. As old, outdated buildings are being torn down, new cutting-edge buildings are being constructed that will help our Science mission to continue as one of the best in the country. This year we completed construction on two new facilities – the Spallation Neutron Source and the Center for Nanophase Materials Sciences.

At East Tennessee Technology Park, the reuse of old buildings enables new life at the facility and creates new jobs through our Reindustrialization Program. And at the Y-12 National Security Complex, modernization initiatives are helping to better continue the mission of the plant.

By cleaning up land or tearing down old buildings constructed during World War II and later years, we are making parts of the Reservation usable again. This is something that I am excited to see as we continue through the early 21st century. This enables East Tennessee to play a critical role in supporting Energy Department mission needs.

Specific accomplishments included the demolition of the K-29 Building, the first gaseous diffusion building to be demolished in the United States. Another project that has been important to both DOE and the surrounding community is the completion of the Haul Road from ETTP to the Environmental Management Waste Management Facility. By using this road, we keep many of our trucks off roadways used by the general public.

Other projects include the completion of field work in Melton Valley, shipment of more than 6,000 Depleted Uranium Hexafluoride cylinders offsite, and completion of field work at the David Witherspoon Inc. 901 Site in South Knoxville, which you can read about in this *Cleanup Progress*.

One item that I also want to mention is that our citizen group, the Oak Ridge Site Specific Advisory Board, received a prestigious award this year from the Environmental Protection Agency. They received the Citizens Excellence in Community Involvement Award, which is a national honor that is given once a year. This group has provided us with knowledgeable and useful advice and recommendations in our cleanup mission.

With all of this important work being performed, we first and foremost emphasize safety and expect our employees to complete their tasks in a safe manner. I appreciate your interest in our program and look forward to continuing this important work in the months ahead.

Definitions

CERCLA: The Comprehensive Environmental Response, Compensation and Liability Act of 1980 established prohibitions and requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for hazardous waste releases at these sites, and established a trust fund to provide cleanup when no responsible party could be identified. The law authorizes two kinds of response actions: short-term removals, where actions may be taken to address releases or threatened releases requiring prompt response, and long-term remedial actions, which permanently and significantly reduce the dangers associated with releases or threats of releases. Long-term actions can be conducted at sites on the Environmental Protection Agency's (EPA's) National Priorities List, a listing of the nation's most hazardous waste sites. The Oak Ridge Reservation was added to that list in 1989.

East Tennessee Technology Park: The former K-25 Gaseous Diffusion Plant.

Explanation of Significant Differences: An Explanation of Significant Differences documents necessary changes to an existing Record of Decision.

Federal Facility Agreement: Cleanup activities are performed in accordance with state and federal laws, and CERCLA requires an interagency agreement to facilitate the interaction between state and federal entities (for the DOE Oak Ridge Office, that would be DOE, EPA, and the Tennessee Department of Environment and Conservation). The Federal Facility Agreement for Oak Ridge was initiated in January 1992 to satisfy the interagency agreement requirement.

Record of Decision: Under the CERCLA process, a Record of Decision formally documents the selection of a preferred cleanup method at Superfund sites after a series of steps, including a Remedial Investigation/Feasibility Study. After a preferred cleanup alternative is selected, it is presented to the public for comment in a Proposed Plan. EPA, the state, and the lead agency then select a remedy and document it in the Record of Decision.

Removal Actions: Some cleanup activities on the Oak Ridge Reservation are conducted as Removal Actions under CERCLA. These actions provide an important method for moving sites more quickly through the CERCLA process. When a site presents a relatively time-sensitive, non-complex problem that can and should be addressed, a Removal Action would be warranted.

Contents

Introduction

Environmental Management is the largest DOE program in Oak Ridge, with cleanup programs under way to correct the legacies remaining from 50 years of energy research and weapons production. The program includes an aggressive effort to complete the majority of environmental cleanup by 2009, including the East Tennessee Technology Park (ETTP) site. Significant progress has already been made in cleaning up large gaseous diffusion plant buildings and other facilities at this site. Reservation-wide, DOE has accelerated the completion of the Oak Ridge Environmental Management Program while significantly reducing costs.

K-29 demolition

ETTP demolition debris disposal

Because of past practices, portions of land and facilities on the Oak Ridge Reservation are contaminated with radioactive elements, mercury, asbestos, polychlorinated biphenyls, and industrial wastes. The Oak Ridge Reservation is on the Environmental Protection Agency's National Priorities List and is being cleaned up under a Federal Facility Agreement with the U.S. Environmental Protection Agency and the State of Tennessee.

DOE Oak Ridge's Accelerated Cleanup Program includes three major programs—Melton Valley, ETTP, and Balance of Reservation. The Melton Valley Project was completed in 2006, ETTP completion is expected in 2009, and the project closure date for Balance of Reservation activities is 2015. Within the Balance of Reservation Program, one major milestone was accomplished in 2005—the removal of low-level and mixed low-level legacy wastes from the Oak Ridge Reservation.

Trench 7 at Melton Valley

East Tennessee Technology Park

The former K-25 Site began operations during World War II as part of the Manhattan Project. Its original mission was to produce enriched uranium for use in atomic weapons. The plant was permanently shut down in 1987 and is undergoing transformation into a private-sector industrial park. Restoration of the environment, decontamination and decommissioning of facilities, and disposition of wastes are currently the major activities at the site.

K-29 Building Demolished

Workers have successfully demolished one of ETTP's former gaseous diffusion facilities, the K-29 Building.

The facility was part of a series of mammoth buildings to enrich uranium for weapons and fuel for nuclear power plants. The building went into operation in 1951 and was shut down in 1987. It was 524 feet by 560 feet and was composed of two floors of approximately 290,000 square feet each. This size equates to 6 1/2 football fields under one roof.

Huge excavators were brought in by Bechtel Jacobs Company (BJC), DOE's cleanup contractor for the Oak Ridge Reservation, to rip through the concrete and steel structural elements that comprise the building's walls and floors. The demolition was completed in July 2006, with all debris removed in August 2006.

Uranium processing equipment and other materials had been removed previously under an Action Memorandum DOE signed in 1997 to decontaminate and remove equipment from the K-29, K-31, and K-33 gaseous diffusion buildings. The contractor, BNG America, completed that work in FY 2005. K-29 was then turned over to BJC, and DOE continues to try to find some future use for K-31 and K-33.

Before demolition

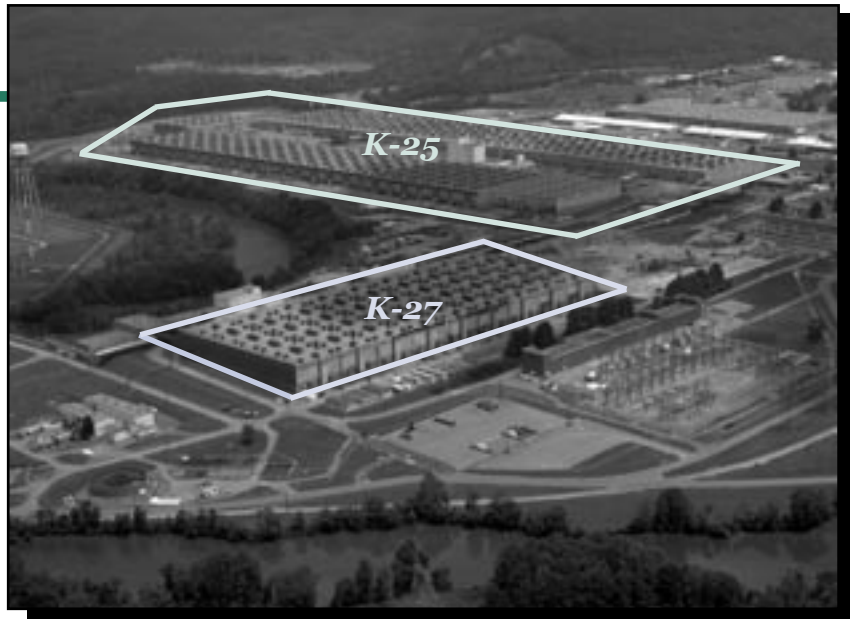
K-29 site after demolition

ETTP Landscape Continues to Change

All buildings at the East Tennessee Technology Park (ETTP) are scheduled for demolition as part of DOE's accelerated cleanup plan except for 26 facilities. These facilities are targeted for potential title transfer to private sector organizations under a reindustrialization program. As of the end of FY 2006, six buildings had been transferred, and seven additional buildings are in various stages of the transfer process. Building demolition is being performed through several projects: (1) K-25/K-27 Buildings, (2) K-25 Auxiliary Facilities (Main Plant), (3) Group II, Phase II Buildings (K-1064 Peninsula), and (4) Remaining Facilities.

Because these are interim removal actions, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Zone 1 and Zone 2 decisions will determine the final remedy for the contaminated slabs, soils, and below-grade structures.

K-25/K-27 Buildings



The three-story, U-shaped K-25 Building, built during the Manhattan Project, covers 1.64 million ft² and contains 3,018 stages of gaseous diffusion process equipment and associated auxiliary systems. Each stage consists of a converter, two compressors, two compressor motors, and associated piping. The K-27 Building covers 374,000 ft² and contains 540 stages of gaseous diffusion equipment and associated auxiliary equipment.

An action memorandum (AM) for the demolition of the K-25 and K-27 Buildings was signed in February 2002. The AM stipulates that the buildings be demolished to slab and the associated waste disposed. The first phase of the demolition, hazardous materials removal, started in December 2001 and was completed in June 2005. Hazardous materials removal primarily included the removal of asbestos-containing building material, such as transite panels and insulation, from inside the K-25 and K-27 Buildings. During the three-and-a-half-year period, a total of 944 waste shipments containing approximately 621,000 ft³ of waste were transported to the Environmental Management Waste Management Facility (EMWMF), a CERCLA waste facility located near the Y-12 National Security Complex.

During FY 2006, a new plan for demolishing the K-25 and K-27 Buildings was developed that will better protect workers from deteriorated conditions in the buildings by reducing the number of workers and hours in the buildings. The new plan involves removing high-risk components, unbolting and removing motors and compressors, and then demolishing the building from the outside using heavy equipment. The DOE Headquarters Operational Readiness Review for the new plan was initiated in FY 2006.

Also in FY 2006, process system stabilization by foaming was started, the removal and segmentation of high-risk components began, the removal of transite panels continued, and the shipment of converters off site for disposal continued.

Converter removal and shipment from the K-25 Building

The Memorandum of Agreement (MOA) regarding historical preservation of the K-25 Building was ratified on March 28, 2005. This MOA allows the east and west wings of the U-shaped K-25 Building to be demolished, but retains the north wing for historic preservation purposes along with selective components and equipment set aside for use in historical displays. The MOA also allows the placement of concrete rubble within the vaults of the east and west wings. The vault walls of the east and west wings along the interior of the "U" will be preserved. Filling and grading of the vault areas will leave the upper portion of the wall available for use by others to portray the history of Oak Ridge (e.g., murals). The footprint of the K-25 Building will be preserved and nominated as an historic landmark.

Foam injection into K-25 piping to stabilize the contents

Transite removal from the K-25 Building

ETTP Auxiliary Facilities (Main Plant)

In FY 2000, DOE signed an AM to demolish the ETTP main plant facilities. This project began in August 2000 and was completed in December 2003. In FY 2004, the work was completed, and the Removal Action Report was prepared.

Group II Buildings, Phase II Buildings (K-1064 Peninsula)

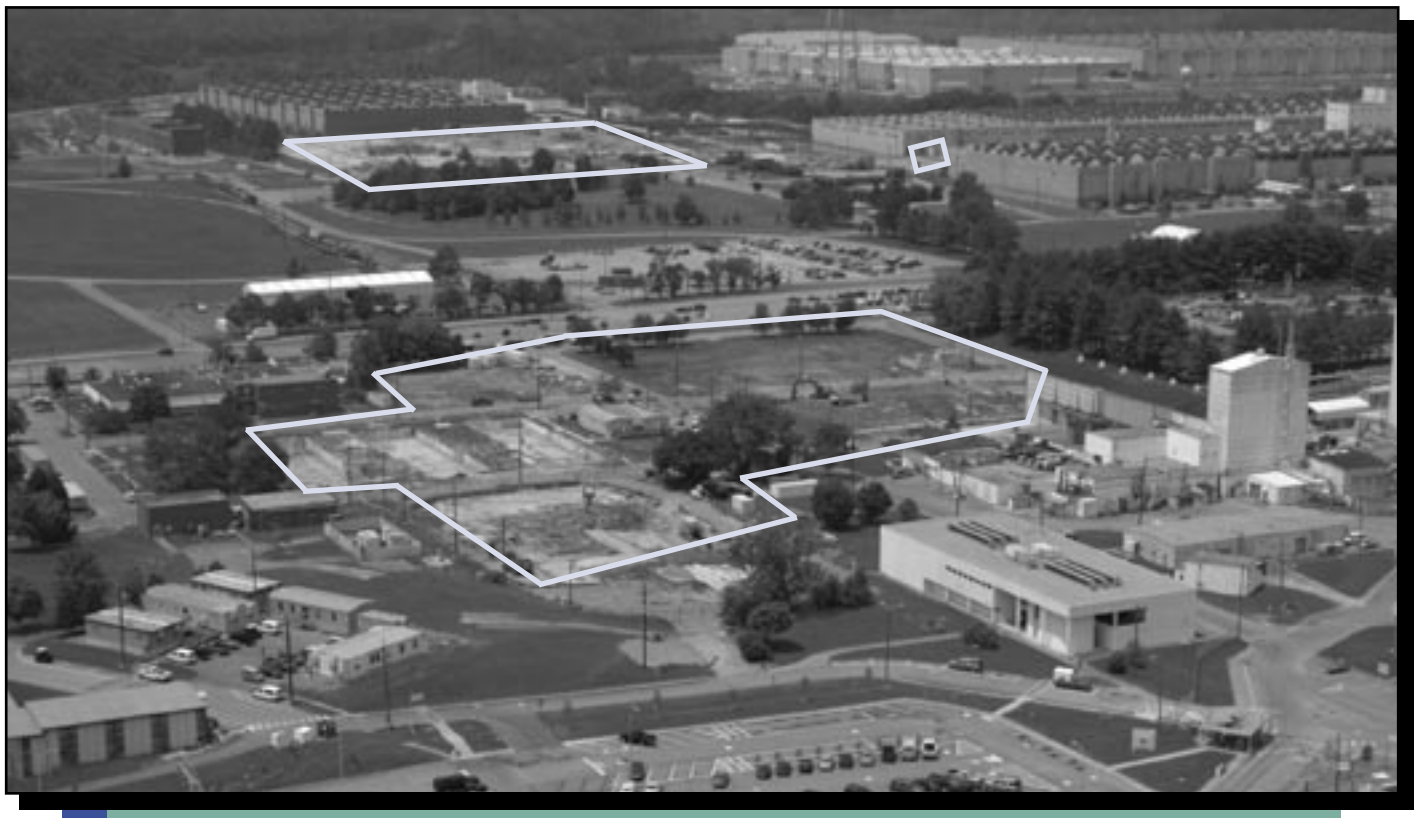
DOE signed an AM in July 2002 for the demolition of facilities and the removal of scrap material located in the K-1064 peninsula area. During FY 2004 and 2005, 17 of the 19 facilities were demolished. Demolition of the remaining facility and removal of the scrap were completed in FY 2006.

Remaining Facilities

In September 2003, DOE signed an AM to demolish the approximately 500 remaining facilities. In 2006, 23 predominantly uncontaminated facilities, 21 low-risk/low-complexity facilities, and 10 facilities in a grouping called "Balance of Site - Laboratories Group" were demolished, transferred, or sold. The K-29 Building was demolished and disposal of all the generated waste completed. In preparation for FY 2007, characterization and utility deactivation continued for planned demolition work; demolition work was started in K-1401 and K-1420; and waste handling plans were approved for the Poplar Creek facilities and Building K-1037.

The centrifuge project processed 128 out of 129 machines in Building K-1220 and shipped 60 to the Nevada Test Site and 12 to EMWMF for disposal. Additionally, 69,000 pounds of process equipment removed from the buildings were shipped to the Nevada Test Site for disposal.

Demolition of Building K-1401 (right) began in August 2006 and of K-1420 (below) in September 2006



ETTP demolition areas where buildings once stood (additional demolition activities took place at other plant locations not pictured)

K-1004L

K-1501 stack demolition

Building Transfers Continue Under the Reindustrialization Program

DOE's Reindustrialization Program transferred two additional ETTP buildings to the Community Reuse Organization of East Tennessee (CROET) in FY 2006, bringing the total number of buildings transferred to six. The transfers are part of DOE's effort to transform ETTP into a private sector industrial park.

The buildings, K-1036 and K-1400, offer an additional total of approximately 93,000 square feet of available space for private sector use. The buildings were previously leased to CROET and are fully occupied by private sector companies.

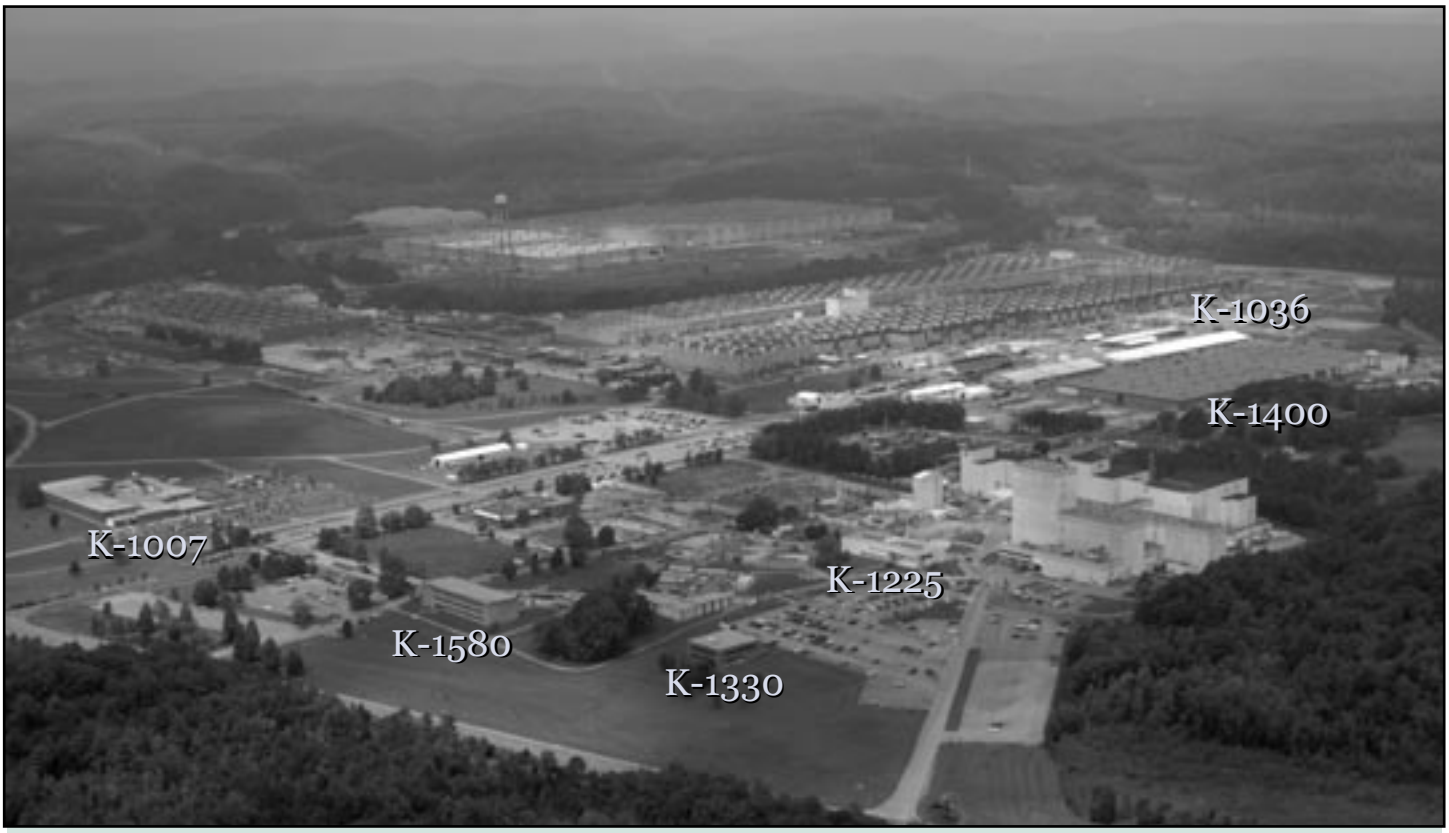
Building K-1036 (80,000 ft²) was constructed in 1945 and served as the distribution center for the entire K-25 Site until it was leased to CROET in 1998. Building K-1036 now provides for corporate office and manufacturing occupancy for several CROET tenant business.

Building K-1400 (13,000 ft²) was constructed in 1954 and was used as an administrative office building. It was leased to CROET in 2001 and is being used as the local corporate headquarters for OMI as well as other private sector companies.

Previous transfers to CROET include Buildings K-1225, K-1330, K-1580, and K-1007.

CROET is a not-for-profit corporation established to foster diversification of the regional economy by re-utilizing DOE property for private sector investment and job creation.

Seven additional buildings at ETTP are in various stages of the transfer process.



Locations of ETTP buildings transferred to CROET

ETTP Soil Remediation Planned

The soil at ETTP is to be remediated to a level that protects a future industrial work force and the underlying groundwater. Two RODs have been signed that address soil, slabs, subsurface structures, and burial grounds.

The Zone 1 ROD was signed by DOE, the Tennessee Department of Environment and Conservation (TDEC), and the Environmental Protection Agency (EPA) in November 2002. Zone 1 is the 1,400-acre area surrounding ETTP outside the fence. The Zone 2 ROD was signed by DOE, TDEC, and EPA in April 2005. Zone 2 includes the area within the main fence of ETTP (approximately 800 acres).

Work associated with characterization of the K-1007 Powerhouse area, K-901 area, and Duct Island area in Zone 1 was completed in FY 2006, and the Phased Construction Completion Reports (PCCRs) were submitted to EPA and TDEC for approval. Seven areas requiring additional remediation were identified, and the completion of Blair Quarry was documented in these PCCRs. In Zone 2, the characterization of 6 of 44 Exposure Units was documented in a PCCR. This Report cleared 93 acres and identified two areas requiring remedial actions. Remediation in the Balance of Site–Laboratories area was initiated with the removal of slabs.

Workers load the last shipment of waste for disposal at the K-1064 Scrap Yard. The scrapyard contained approximately 3,300 tons of contaminated material.

Thousands of Tons of Scrap Metal Removed

All of the scrap was removed from the K-1064 Scrap Yard and 16,000 tons of scrap were removed from the K-770 Scrap Yard during FY 2006. The ETTP Scrap Removal Project has disposed of a total of almost 33,000 tons of scrap metal from the K-770 Scrap Yard, K-1131 Area, K-1064 Scrap Yard, K-1300 Area, and K-1066-G Maintenance Yard at the Environmental Management Waste Management Facility. The project is scheduled for completion in FY 2007.

UF_6 Cylinders Shipped Off Site

Approximately 7,200 cylinders at ETTP have been shipped off-site for disposal, most of them going to the Portsmouth Site. Most of the disposed cylinders contained depleted uranium hexafluoride (UF_6). Each steel cylinder could hold up to 10 to 14 tons of depleted UF_6. They were stored in storage yards in aisles and stacked two high. A total of 363 of these cylinders were shipped in FY 2006, bringing the total shipped to 7,043 at the end of FY 2006. This project was completed early in FY 2007.

Natural UF_6 was used as feed material during the gaseous diffusion process to enrich uranium at the former K-25 Site. The percentage of uranium-235 was increased from the original feed material in the process (i.e., enriched). The remaining material is depleted UF_6. It is stored as a white, crystalline solid that is slightly less radioactive than natural uranium.

More than 1,200 empty and near-empty cylinders containing residual uranium compounds other than depleted UF_6 were disposed at the Nevada Test Site, with that phase of the project being completed in FY 2003.

UF_6 cylinder being loaded for transport

Plan Submitted for Groundwater Remediation

In FY 2006, a Remedial Investigation/Feasibility Study and Proposed Plan were submitted to EPA and TDEC. The Remedial Investigation/Feasibility Study discusses the nature and extent of groundwater contamination and ecological concerns and evaluates alternatives for remediation. The Proposed Plan proposes the selected remedial alternative for remediation of groundwater, Mitchell Branch, and for the protection of ecology. This will be the basis for the final decision for ETTP. These documents are being reviewed by the EPA and TDEC, and a final Record of Decision is planned for FY 2007 following the public review period for the Proposed Plan.

Remediation of the K-1007 Holding Ponds, K-901-A Holding Pond, K-720 Slough, and K-770 Embayment is planned as a removal action. The Engineering Evaluation/Cost Analysis was prepared in FY 2006. A public meeting will be held, and the Action Memorandum will be prepared in FY 2007.

Melton Valley

More than 50 years of operation, production, and research activities at Oak Ridge National Laboratory (ORNL) have produced a legacy of contaminated inactive facilities and waste disposal areas. Many of the wastes and facilities are located in Melton Valley, which occupies approximately 1,000 acres in the southern portion of ORNL. Wastes in Melton Valley reside at a variety of locations, including trenches, tanks, landfills, pipelines, surface structures, and impoundments.

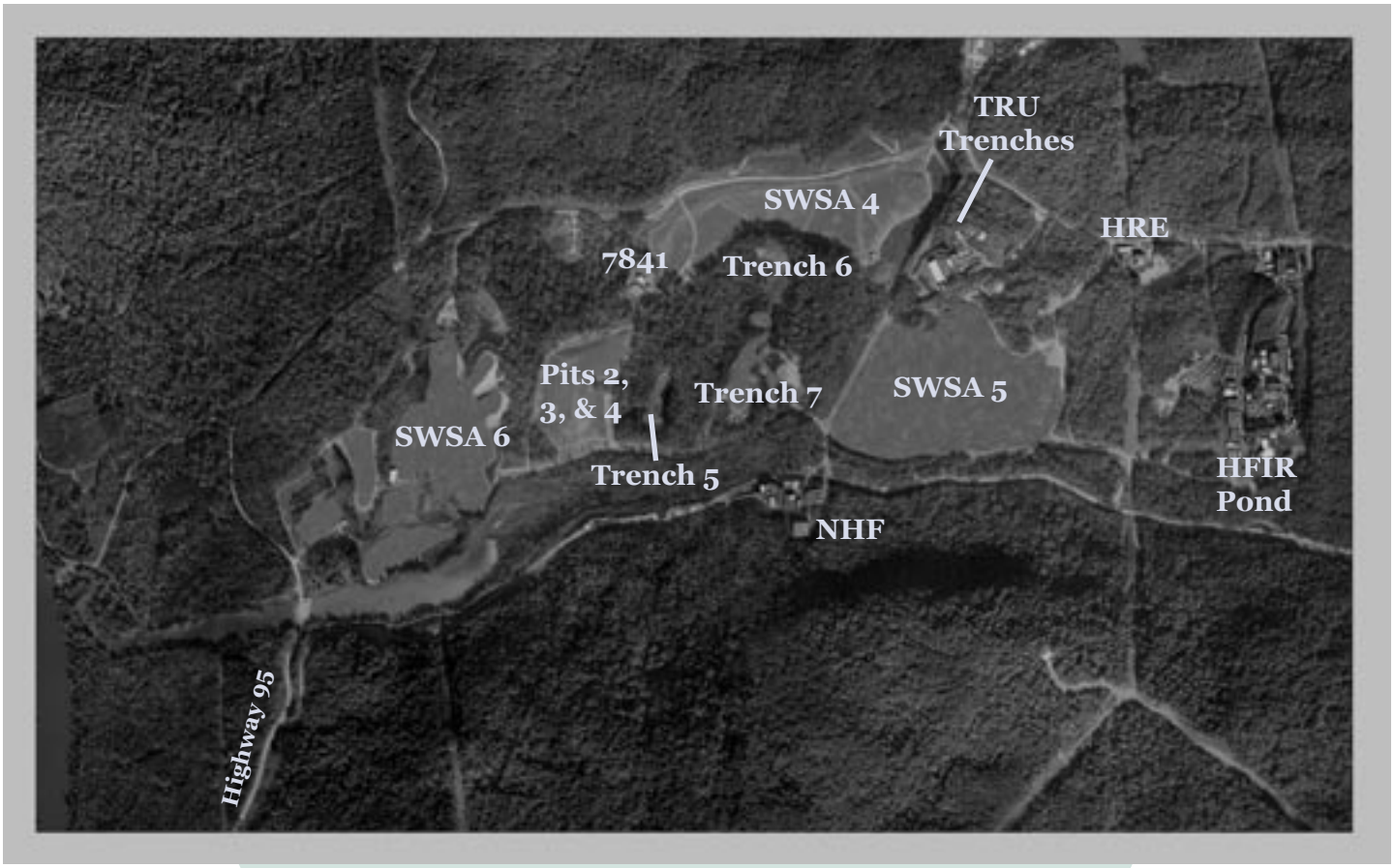
Melton Valley Cleanup Project Completed

Bechtel Jacobs Company has completed all the physical work on the second of three major milestones in its cleanup contract with DOE.

The Melton Valley Project wrapped up in September with completion of the 7841 Scrapyard project. That was the final field task in an overall cleanup project responsible for capping 145 acres of waste sites, demolishing and disposing of 6,000 ft^2 of various buildings, and excavating 50,000 yd^3 of soil. Other project achievements include:

- grouting and stabilizing 30,000 ft of pipelines
- performing in situ grouting of Trenches 5 and 7
- retrieving 204 casks, 8 boxes, and 1,500 ft^3 of loose waste as part of the Transuranic (TRU) Waste Retrieval Project.

The following articles detail the scope of work accomplished in Melton Valley.



Melton Valley project sites (all work completed)

Hydrologic Isolation Will Protect Environment

Work has been completed on a hydrologic isolation project to decrease the rainwater infiltration to waste associated with the Melton Valley burial grounds, pits, and trenches.

Construction of 13 separate caps covering 145 acres in Solid Waste Storage Area (SWSA) 4, SWSA 5, SWSA 6, and Seepage Pits and Trenches was completed in FY 2006 with all of the caps completed and transferred to operations and maintenance of the caps. Collection and treatment of groundwater from Seepage Pits, Trench 7, SWSA 4, and SWSA 5 has been initiated and is now an ongoing process.

SWSAs 4, 5, and 6 were the principal waste burial sites in Melton Valley. Shallow land burial was used routinely at ORNL for disposal of solid low-level waste (LLW) from 1943 to 1986, when improved disposal technologies were implemented. Early burial procedures used unlined trenches and auger holes for containment, which were then covered by soil from the trench excavation or by a combination of concrete caps and soil. The concrete caps were used for disposal of high-activity wastes or wastes with transuranic elements. More than 850 trenches and 1,500 auger holes exist in the three main Melton Valley burial grounds.

Four seepage pits (Pits 1, 2, 3, and 4) and three trenches (Trenches 5, 6, and 7) were used for the disposal of liquid LLW from 1951 to 1966. As intended, liquid LLW seeped into the surrounding clay soil. The seepage pits and trenches were excavated in clayey soils to take advantage of the clay's low permeability and high sorption capacity for some radionuclides in the liquid LLW.

The hydrologic isolation actions consisted of a combination of the following:

- multi-layer caps over the waste units to minimize rainfall infiltration and to lower the water table;
- stormflow diversion trenches located along the uphill edge of the waste units to intercept and divert shallow groundwater before it flows into the waste units; and

Liner being placed at SWSA 5 (above), and SWSA 6 (below) after remediation (June 2006)

- groundwater collection trenches located along the downhill side of the waste units to collect groundwater contaminated by leachate before the groundwater discharges to nearby streams. (Contaminated groundwater collected by the drains will be treated before it is released.)

The total capped area is about 145 acres. To facilitate cap installation, the project included a subproject to plug and abandon approximately 1,000 unnecessary, shallow non-hydrofracture wells; the development and closure of a 33-acre soil borrow area; relocation of Lagoon Road; construction of haul roads; demolition of any structures situated within the cap boundaries; and rerouting of several power lines.

Small Facilities D&D Completed

The remediation of several inactive facilities, buildings, and structures in Melton Valley were addressed under the Melton Valley Decontamination and Demolition (D&D) Project. The D&D project involved demolishing surface structures to slab or below grade; decontamination; removal and/or stabilizing subsurface structures in place; waste characterization, transportation and disposal; and site restoration. Stabilization of subsurface structures was preceded by removal or fixation of transferable contamination.

The buildings and structures addressed by the D&D Project included:

- New Hydrofracture Facility (NHF),
- Homogeneous Reactor Experiment (HRE) ancillary facilities,
- Shielded Transfer Tanks,
- Liquid LLW pumping stations,
- Equipment Storage Yard,
- Miscellaneous storage buildings, and
- Hydrofracture Well Plugging and Abandonment (P&A).

New Hydrofracture Facility

The NHF was the last of two facilities built during the 1970s to perform hydrofracture operations in Melton Valley. The NHF operated from 1982 to 1984 and was designed to facilitate the injection of wastes mixed with grout into a deep underground shale formation. The high-injection pressure fractured the subsurface shale and forced a waste/grout mixture into the fractures, where it hardened into grout sheets.

The majority of the NHF was demolished in previous years. The final three reinforced concrete rooms, or cells, of the main NHF structure were demolished to two feet below grade in FY 2006, along with all remaining slabs. The NHF site was restored by placing clean stone mix over the building footprint. The 100 ft x 80 ft ventilated enclosure over the building footprint was left in place in support of future planned activities at the site.

HRE Ancillary Facilities

The HRE ancillary facilities consisted of eleven separate structures, external of the main HRE reactor building, which provided support capabilities (e.g., waste management, storage, etc.) during reactor operation. The ancillary facilities include a liquid waste evaporator, charcoal absorber that cleaned up gaseous

NHF demolition

effluents prior to discharge, decontamination pad and storage shed, office building, and miscellaneous structures.

D&D of three of the HRE ancillary facilities was completed in FY 2005. The remaining eight facilities at three different locations were demolished in FY 2006. including the HRE Waste Evaporator, the most highly contaminated of the ancillary facilities. Each location was restored by placing clean stone mix over the building footprint.

Shielded transfer tanks

Shielded Transfer Tanks

The shielded transfer tanks (STTs) are five shipping casks that were originally used during the 1950s and 1960s to transport high specific activity radionuclide solutions by rail from Hanford to ORNL for further processing. Following approval of the Melton Valley ROD and the Remedial Design Report/Remedial Action Work Plan (RDR/RAWP), waste characterization activities performed in preparation for emptying, grouting, and disposal of the STTs identified potential issues with the waste categorization. It was decided that a Waste Incidental to Reprocessing (WIR) determination was required by DOE Order 435.1 prior to disposal of the STTs. Due to the extended documentation and review period associated with the WIR process, DOE has proposed to remove the STTs from the scope of the ROD and address the disposal of the grouted tanks and contents under a National Environmental Policy Act process to be completed by September 30, 2008, following the completion of the WIR determination. EPA and TDEC have concurred with this proposal.

Liquid LLW Pumping Stations

Two separate liquid LLW pumping stations, Buildings 7567 and 7952, were constructed during the 1960s to support the collection and transfer of liquid LLW from the High Flux Isotope Reactor (HFIR) facility, Radiochemical Engineering Development Center, HRE, and the Molten Salt Reactor Experiment (MSRE). D&D of Building 7567, including decontamination and stabilization of the below-grade pump vault, was completed in early FY 2006.

Equipment Storage Yard

The 7841 Equipment Storage Yard was a fenced facility with an area of less than 1 acre used to store a wide variety of surplus items. The inventory of items in the 7841 area included shielded carriers, drums, high integrity containers, shields, tanks, and nearly 200 pieces of specialized equipment ranging from fuel casks and storage cabinets to tanker trailers.

In FY 2006, each item was characterized, size-reduced, or otherwise prepared for disposal, and disposed. The storage yard was restored by placing clean stone mix over the original footprint. The ventilated enclosure used during characterization was left in place in support of future planned activities at the site.

Miscellaneous Storage Buildings

Two miscellaneous facilities, Buildings 7802F and 7831A, had been used for the storage of well drilling cores and other sampling-related materials, and as a waste repack facility, respectively. Demolition of both of these facilities was completed in FY 2006.

Hydrofracture Well P&A

The previously grouted injection well at the New Hydrofracture Facility, HF-4, was cut off at 4 ft below grade and the wellhead was disposed in FY 2006.

Retrieval of Buried TRU Waste Completed

Transuranic (TRU) wastes that have been stored in the 22-Trench Area in SWSA 5 North were removed in 2006. A total of 204 concrete casks were retrieved, overpacked, and staged during FY 2006.

The six waste packages with the highest radiological inventory have been relocated to Building 7883. Retrieval and overpacking of all of the concrete casks, along with loose waste and other containers, was completed in FY 2006.

During the 1970s, packages of TRU waste were retrievably stored in unlined earth trenches in the 22-Trench Area. Radionuclides in the TRU waste containers represent some of the most toxic and longest-lived radioisotopes stored on the Oak Ridge Reservation. DOE signed a consent agreement with the State of Tennessee in September 2000 committing to retrieve the TRU waste from the 22-Trench Area. Surrounding soil exceeding remediation levels designated in the Melton Valley ROD, as well as debris waste associated with excavation, were disposed at the EMWMF or at another appropriate facility. After retrieval, the overpacked TRU waste packages were staged pending transport to the TRU Waste Processing Facility, where the wastes will be further characterized and repackaged for off-site disposal.

A significant pyrophoric reaction occurred on August 8, 2005, as DOE's contractors were attempting to retrieve the containers in Trench 13. The containers in Trench 13 included carbon steel and stainless steel drums. Several of the drums were damaged and the carbon steel drum had deteriorated, revealing inner contents of glass mason jars. Based on historical records, the jars contained metallic carbides of uranium and plutonium that are pyrophoric.

TRU waste retrieval

The excavation activity apparently broke a jar from a damaged or deteriorated drum, exposing some material to air. Methane is believed to have accumulated in the headspace of the jar and was ignited when the pyrophoric material reacted.

On July 28, 2006, DOE proposed to the regulators to maintain Trench 13 in interim in situ storage, pending further efforts to identify treatment and disposition pathways. DOE proposed that final disposition of the Trench 13 pyrophoric material be addressed in the future, prior to September 30, 2009. On August 11, 2006, TDEC acknowledged DOE's effort to retrieve drums containing jars of pyrophoric metallic carbides of uranium and plutonium with methane, and agreed to the temporary storage approach as proposed by DOE.

Work Concludes on Trenches 5 and 7

In situ grouting (ISG) of Seepage Trenches 5 and 7, former waste disposal sites in Melton Valley, was completed in June 2006. ISG of the HRE Fuel Wells, adjacent to Trench 5, was also completed.

In situ vitrification (ISV) had been the initial remedial action selected for these trenches in the Melton Valley ROD. However, during a 2003 field investigation and procurement for design and construction services, new information resulted from these activities and prompted a reassessment.

The new information included the presence of standing water in the trenches and a higher-than-expected cost for ISV. After further evaluation, DOE proposed in a ROD amendment that ISG be substituted as the remedial action.

Workers are driving sleeve pipes at Trench 7

ISG is a treatment process where materials, such as cement-based or chemical grouts, are injected at low pressures into the subsurface (or waste unit) to isolate the waste through reduction of the hydraulic conductivity. This remedy change proposed in the ROD amendment was approved in 2004. The trenches were treated by the permeation grouting method, utilizing Portland cement-based grouts injected under low pressure into the crushed limestone trench material.

The soil adjacent to the trench walls was treated with a solution grout (e.g., polyacrylamide) to reduce migration of contaminants away from the trench by sealing off seepage pathways.

ISG of the waste units was performed with a cement-based grout mix. Approximately 200 yd^3 of grout was used at Trench 7 and approximately 346 yd^3 at Trench 5.

This completed project is meeting all regulatory performance objectives.

Remediation of T-1, T-2, and HFIR Tanks Completed

Three inactive underground liquid LLW storage tanks identified as Tanks T-1 and T-2, and the High Flux Isotope Reactor (HFIR) Tank contained liquids and a mixture consisting primarily of spent TRU ion-exchange resin and sludge.

In FY 2005, the liquid waste from the HFIR tank was transferred into the ORNL liquid LLW system for treatment. The HFIR Tank and remaining sludge was stabilized in place with grout. The waste in Tanks T-1 and T-2 was mixed with liquid using a pulse-jet system and the resulting slurry transferred to the active ORNL liquid LLW system. Approximately 3,000 gallons of sludge was transferred from the tanks and will undergo treatment at the TRU Waste Processing Facility prior to final disposal. The empty tanks were filled with grout and closed in place. Associated equipment was removed from the site and either transferred to other projects for reuse or disposed at the EMWMF along with the remaining secondary waste.

Contaminated Soils and Sediments Removed

The Melton Valley Closure Soils and Sediments Project completed its work in FY 2006. Among the accomplishments were:

- **Excavation of the HFIR Impoundments.** These four unlined impoundments, located at the HFIR facility, received liquid process waste streams mostly from floor and laboratory drains, steam condensates, and pressure vessel cooling waters. Remediation of the surface impoundments has been completed and the site restored. Remediation consisted of removing standing water and excavating and disposing the contaminated sediment at the EMWMF.
- **Remediation of the HRE Cryogenic Pond.** This pond received contaminated condensate from the HRE waste evaporator and from discarded shielding water. The pond was taken out of service and backfilled. This backfilled pond later served as a demonstration for cryogenic stabilization in which soil around the pond was frozen to form a barrier to groundwater for several years. The cryogenics system was shut down in February 2004 in preparation for system dismantling and pond excavation. Excavation of the pond, backfill, and cryogenics material has been completed.
- **Remediation of the EPICOR-II Lysimeters.** Five stainless steel lysimeters near SWSA 6 were used for a 10-year study of the in situ leaching properties of solidified waste forms from the clean-up of Three Mile Island. The solidified waste forms were removed in 1996 and transported to another DOE facility for processing and disposal. The lysimeters and remaining contaminated soil were removed and disposed at the EMWMF in 2006.

HFIR impoundments during excavation

HFIR Impoundments after excavation

- **Excavation of the Engineering Test Facility.** Nine test trenches were excavated and filled with compactible LLW in a study of disposal techniques in the early 1980s. The trench wastes and associated contaminated soils were excavated and disposed at EMWMF.

- **Removal of contaminated soil.** Six sites contaminated as a result of pipeline leaks or hydrofracture experiments were excavated. As a result of verification walkover surveys and sampling, 25 additional contamination areas were identified and excavated.
- **Final Verification.** The project includes a final verification activity designed to confirm that all of Melton Valley has been cleaned up sufficiently to meet the remediation levels. Walkover surveys and sampling have been conducted on more than 500 acres of the watershed that lie outside the footprint of the hydrologic isolation caps. Data collected from the Final Verification activities are being used to confirm that the post-remediation conditions in Melton Valley are compatible with the anticipated future land uses for Melton Valley.

The soil contamination sites were cleaned up to remediation levels designated in the Melton Valley ROD. These remediation levels are based on specific risk reduction and exposure limit goals derived from reasonably anticipated future land uses for Melton Valley. The designated land uses are a waste management area for the western two-thirds of the watershed addressed in the Melton Valley ROD and a controlled industrial area in the eastern third.

Sediment and soils from the HFIR surface impoundments and HRE Cryogenic Pond were disposed in the EMWMF. Material excavated from the Melton Valley Pumping Station, Engineering Test Facility, Lysimeters, and Facility 7848 was disposed at EMWMF. Selected soils from the remaining sites—generally containing only minor amounts of contamination—were used as contour fill beneath one of the hydrologic isolation caps.

Pipeline Grouting

In addition to the remediation of contaminated soils, the Melton Valley Soils and Sediment Project completed stabilizing and isolating inactive liquid waste transfer pipelines throughout Melton Valley. The inactive waste pipeline system consists of a complex series of buried waste pipelines and appurtenances (e.g., vents, valve pits, pump vaults, etc.) historically used to transport liquid process waste and LLW between generator facilities in Melton Valley, storage and disposal sites in Melton Valley, and storage/treatment facilities in Bethel Valley. The selected remedy in the ROD for inactive process and liquid LLW transfer pipelines is isolation, removal, or stabilization. A total of 27,736 linear ft of pipeline was grouted, and another 11,721 ft was isolated. In addition, more than 5,000 ft^3 of void space was grouted in the various valve boxes, manholes, and pump pits associated with the inactive pipeline system.

More than 27,000 linear feet of pipeline have been grouted.

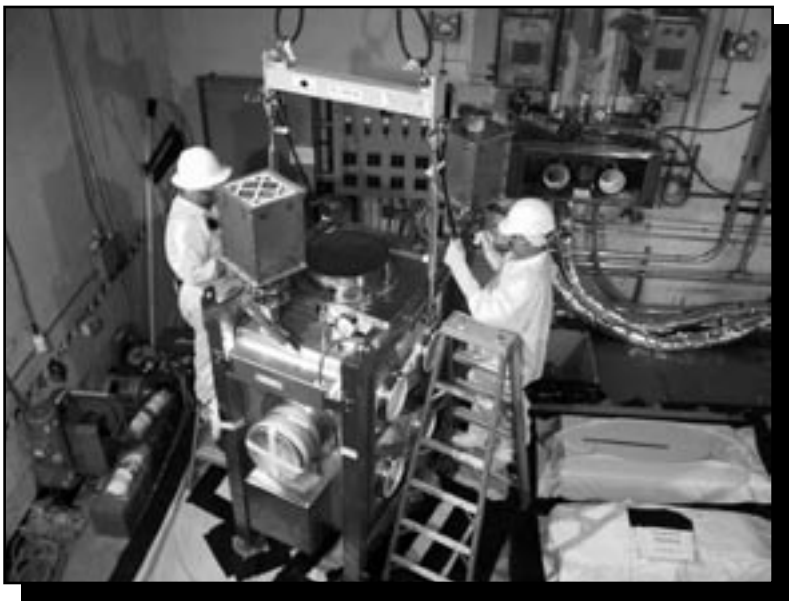
Balance of Reservation

The remaining Reservation sites are categorized into one grouping known as the "Balance of Reservation Closure Project." This project encompasses cleanup activities in Bethel Valley at ORNL, sites associated with the Y-12 National Security Complex, Bear Creek Valley sites, and remedial actions for the remainder of the Reservation. It also includes off-site projects: Atomic City Auto Parts in Oak Ridge, which has been completed, and two David Witherspoon Inc. sites in Knoxville. Only a few of the high-profile activities have been addressed recently as attention and funding have been directed to ETTP and Melton Valley.

Processing of Initial MSRE Flush Salt Tank Completed

The Molten Salt Reactor Experiment (MSRE) facility operated from 1965 to 1969 to test the molten salt concept. Unlike most current commercial reactors that have fuel confined to fuel rods, the MSRE was fueled by molten salt that flowed through the reactor chamber, where the nuclear chain reaction produced heat.

When the reactor was shut down, the molten salt 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 re-circulated through the reactor and drained into a third storage tank and solidified. All three storage tanks are located in an underground, concrete-shielded drain tank cell adjacent to the reactor cell.



Workers removing probe glove box from over the Fuel Flush Tank

In 1998, DOE signed a ROD for interim action to remove the fuel and flush salts to address the presence of fluorine and uranium fluoride gas. 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, storage 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 final disposition.

Processing of the initial flush salt tank at the MSRE was initiated in December 2004 and completed in June 2005, with recovered uranium transported to an onsite storage facility. However, a salt plug blockage in a small pipe prevented removal of the flush salts from the flush salt tank. An alternate method of salt removal has been designed to allow flush salt removal after completion of the two fuel salt drain tanks.

Processing of Fuel Drain Tank 2 was initiated in December 2005. Operations were halted in May due to a fluorine release. Recovery activities are progressing to allow processing of this tank to be completed. Completing removal activities for Fuel Drain Tank 2, relocating equipment to process Fuel Drain Tank 1, and completing salt removal from the Fuel Flush Tanks are scheduled for completion in FY 2007.

Following issuance of the MSRE ROD, DOE initiated planning for processing of the total U-233 inventory in storage in Building 3019 at ORNL. The U-233 inventory includes UF_6-laden sodium fluoride (NaF) traps from a previously completed MSRE removal action and will also include additional UF_6-laden NaF traps from the current MSRE remedial action. DOE, with agreement of the regulators, placed the MSRE uranium conversion actions on hold pending completion of the planning for the processing of the total 3019 U-233 inventory. Based on the status of this planning, DOE proposed to modify the MSRE ROD requirements from conversion of the separated U-233 to an oxide and storage to storage of the MSRE U-233 material at 3019. This change was documented with an Explanation of Significant Differences, and DOE issued the draft version of that document on June 27, 2006.

About the U-233 Building 3019 Project

The U-233 Building 3019 Project has been developed by DOE to resolve legacy safety and security issues associated with the inventory and its storage facility, including the safety issues that were identified by the Defense Nuclear Facilities Safety Board in Recommendation 97-1, "Safe Storage of Uranium-233." Blending down this material will support national non-proliferation goals by making the material unsuitable for use in weapons and reducing security costs at ORNL.

Witherspoon 901 Site Cleanup Completed

At the David Witherspoon Inc. (DWI) site, grass is now growing where contaminated buildings and piles of debris once were located. As of the end of FY 2006, all contaminated material at the site, located on Maryville Pike in Knoxville, Tenn., was excavated and disposed, and the site was 95% restored. A small area of the site, less than one acre, where the office trailers were located, remained to be backfilled and restored once sampling verification results were received from the laboratory.

During FY 2006, 5,650 truckloads of soil were shipped to the EMWMF. More than 550,000 truck miles were logged without any incident. The DWI 901 Site has been backfilled with 50,000 yd^3 of clean fill, contoured for proper drainage, and seeded to establish erosion control.

The site is a former scrap metal and recycling facility that housed, among other things, waste from DOE operations. It was taken over by the Tennessee Division of Superfund in 1993.

Debris removal at the DWI 901 Site

Below: before and after shots of the DWI 901 Site

Bethel Valley Groundwater Engineering Study Fieldwork Completed

The Bethel Valley 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 Core Hole 8 Plume, (2) in situ biodegradation at the East Bethel Valley volatile organic compound (VOC) plume, (3) groundwater monitoring in West Bethel Valley, and (4) soil excavation at known leak sites to minimize impacts to groundwater.

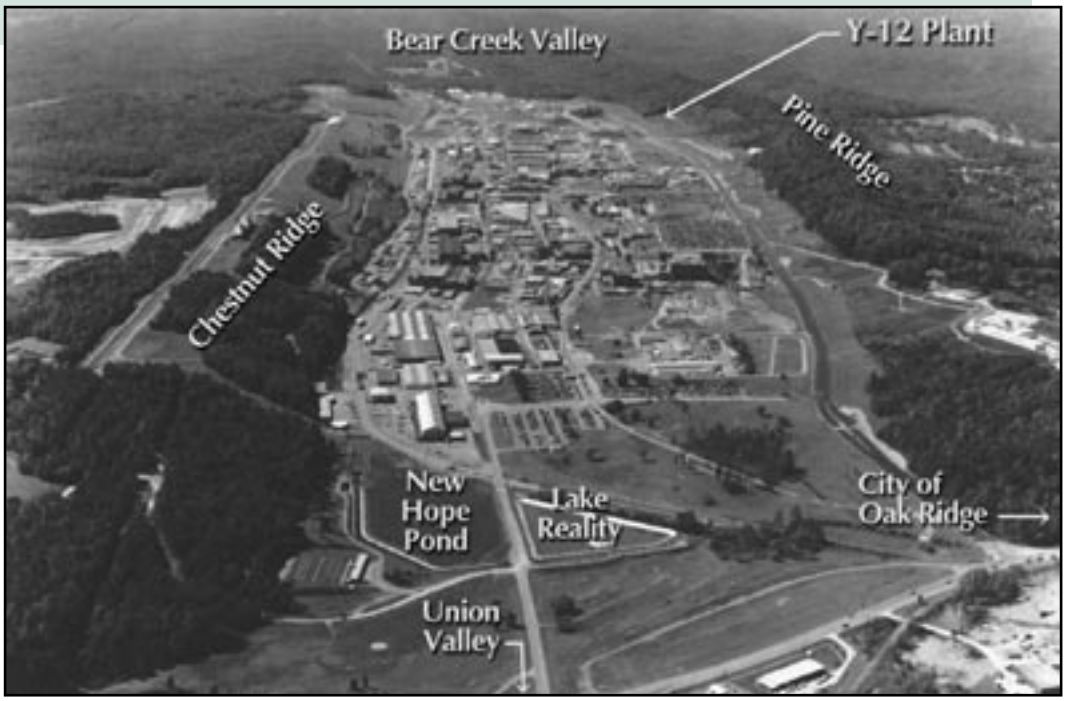
Planning for the groundwater engineering study was summarized in the Engineering Study Work Plan for Groundwater Actions in Bethel Valley, issued as a final document in 2003.

The work plan included an evaluation of existing, relevant data from previous characterization activities and defines the scope of work to be performed to design groundwater and soil remedial actions under the ROD.

In 2005, the Bethel Valley Groundwater Engineering Study completed the remaining components of the required fieldwork. This included an additional 48 soil push probes to make a total of 283 locations with approximately 450 soil samples collected and analyzed. Fifteen monitoring wells were installed and sampled.

The data from the soil samples, process lines, storm sewer lines, surface water, and monitoring wells were received and evaluated. The results were published in comprehensive Engineering Study Report and approved by the regulatory agencies in FY 2006. The data and recommendations have determined the necessary soil/groundwater-related remediation activities to be performed as part of the signed Bethel Valley ROD.

Upper East Fork Poplar Creek ROD for Phase II Signed



UEFPC watershed

Remediation of the Upper East Fork Poplar Creek (UEFPC) Watershed is being conducted in stages using a phased approach. Phase 1 addresses interim actions for remediation of mercury-contaminated soil, sediment, and groundwater discharges that contribute contamination to surface water. The focus of the second phase is remediation of the balance of contaminated soil, scrap, and buried materials within the Y-12 Complex. Decisions regarding final land use and final goals for surface water, groundwater, and soils will be addressed in future decision documents.

During FY 2006, the regulators provided comments on the draft ROD for Phase 2 interim remedial actions for accessible soil, buried waste, or subsurface structures that contribute significantly to contamination above acceptable risk levels in UEFPC. The Phase 2 ROD was finalized and approved by all parties in April 2006.

Core Hole 8 Action Will Remove TRU Waste

An area of groundwater contamination, called the Core Hole 8 plume, and its source were the focus of early actions taken by DOE at ORNL. The plume is located in the central portion of the ORNL main plant area. The plume emanates from contaminated soil surrounding Tank W-1A in the North Tank Farm and migrates westward to First Creek. The principal plume contaminants are strontium-90 and uranium isotopes. Since late 1994, DOE has been implementing various coordinated actions to minimize the release of contaminants, including

- intercepting, collecting, and treating approximately six million gallons per year of contaminated groundwater migrating toward First Creek; and
- removing a significant portion of the source (i.e., 90 percent of the contaminated soil surrounding Tank W-1A).

The first action implemented by DOE was to install a groundwater interceptor on the western part of ORNL to reduce contaminant discharge to First Creek. The next action was the construction of a groundwater interceptor trench near the existing Core Hole 8 plume interceptor system. A third action was implementation of hydraulic controls on the plume by pumping groundwater from an existing monitoring well. The last action was in 2001 that addressed the contaminant source that contributed to the plume by removing a significant portion of the soil surrounding Tank W-1A.

This CERLCA Removal Action was performed under an AM. Approximately 900 yd^3 of the soil were removed. However, during excavation of soil adjacent to the tank, analytical results from grab samples of soil indicated that approximately 100 yd^3 of soil around and under the tank contained very high concentrations of TRU radionuclides. Since there is no disposal facility that could accept soil at these levels, these soils and the tank were left in place.

In preparation for the upcoming Removal Action completion that will remove the remaining 100 yd^3 of soil, the project team obtained additional soil samples around the tank and submitted for detailed analysis. This characterization effort will determine how much of the soil meets the definition of TRU waste and provide radiological contaminant data. It will also provide characterization data on the soil that does not meet the definition of the TRU waste (low-level). Planning for the removal will be performed in FY 2007 with the removal action beginning early FY 2008. The TRU soil will be containerized and stored until the waste disposal facility—the Waste Isolation Pilot Plant—is ready to receive. The low-level soil is expected to be disposed at EMWMF.

Soil sampling activities at Core Hole 8, located in the central portion of the ORNL main plant area

Waste Management

EMWMF, Other Landfills Receiving Tons of Waste

The Environmental Management Waste Management Facility (EMWMF), located in Bear Creek Valley, is used for disposal of waste resulting from CERCLA cleanup actions on the Oak Ridge Reservation.

The ROD for this facility was signed in November 1999. The EMWMF is an engineered landfill that accepts low-level radioactive and hazardous wastes in accordance with specific Waste Acceptance Criteria under an agreement with state and federal regulators. The EMWMF accepted its first waste shipment in May 2002.

During FY 2006, EMWMF operations collected, analyzed, and dispositioned more than 1 million gallons of leachate and 189,000 gallons of contact water at the ORNL Liquids and Gases Treatment Facility. An additional 4.5 million gallons of contact water was collected and analyzed, and after determining that the volumes of contact water met the release criteria, this contact water was released to the sediment basin. The operations also effectively controlled site erosion and sediments.

The EMWMF received 12,117 truckloads of waste accounting for 151,219 tons during FY 2006. Projects that have disposed of waste at the EMWMF include the following:

- David Witherspoon 901 Site Remedial Action Project;
- ETTP Scrap Removal Project;
- ETTP Main Plant Facilities, including K-1064 Peninsula Facilities D&D;
- Melton Valley Soils and Sediments Project, Intermediate Holding Pond Project, Intermediate Holding Pond Remedial Action Project, and SIOU Remedial Action Project at ORNL;
- K-25/K-27 D&D Project;
- MSRE D&D Project at ORNL;
- ORNL D&D Project;
- K-29/31/33 D&D Project;
- K-1420 D&D Project; and
- Centrifuge D&D Project.

Concurrent with the activities at the EMWMF, DOE also operates solid waste disposal facilities located near the Y-12 Complex, called the Oak Ridge Reservation Sanitary Landfills. In FY 2006, more than 143,000 yd^3 of industrial, construction/demolition, classified, and spoil material waste were disposed.

To keep landfill capacity ahead of the demand for landfill airspace, construction of Area IV at Construction Demolition Landfill VII began in March 2006. When approved by TDEC Division of Solid Waste in September, an additional 336,000 yd^3 of capacity was available to support the Accelerated Cleanup Program, as well as the other sanitary waste generators on the Oak Ridge Reservation.

The EMWMF and Oak Ridge Reservation Landfills are serving the disposal needs of the ORR cleanup program as well as the active missions of the Y-12 Complex and ORNL.

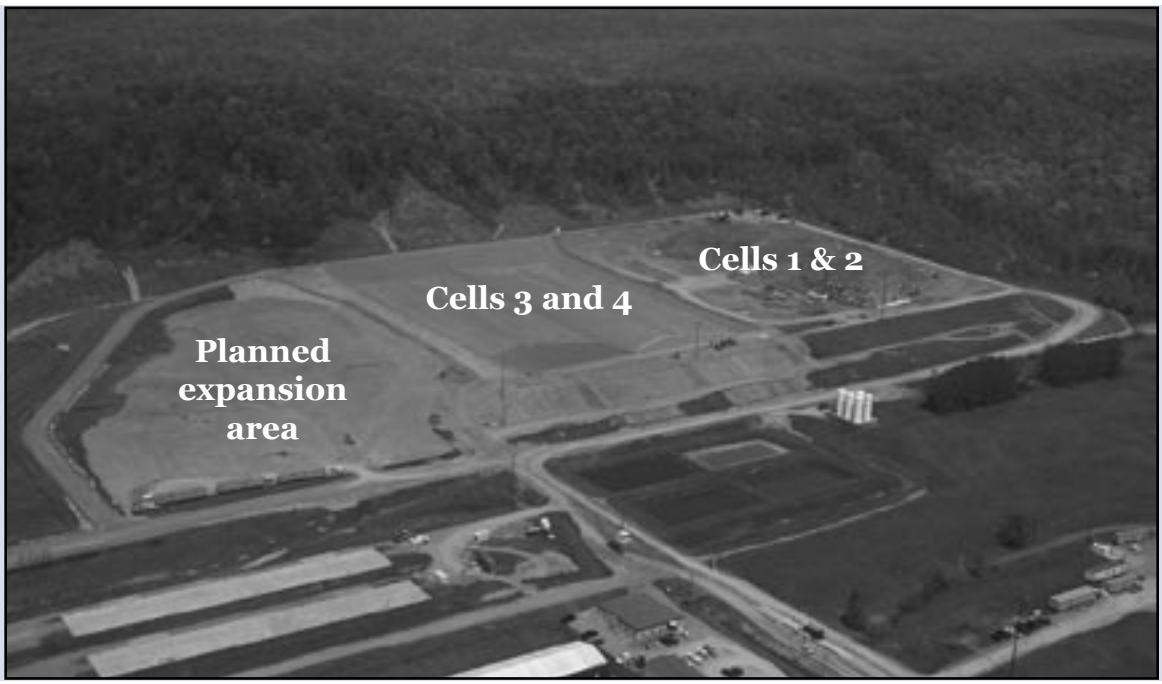
Workers spray water on a load of waste being placed in EMWMF to suppress dust.

EMWMF Expansion Planned

As waste disposal operations commenced in the newly constructed Cell 3 during FY 2006, the design/construction project's focus shifted to the future and the final build-out of EMWMF. The design for Cell 5 was completed and sent to the regulators for approval.

This cell will add 500,000 yd^3 of capacity to the previous 1,200,000 yd^3 capacity to bring the total airspace at EMWMF to the ROD-approved limit of 1,700,000 yd^3. The design incorporates the lessons learned from both of the previous design/construction efforts. Timing for the start of Cell 5 construction will depend on how quickly the existing capacity is consumed as the Accelerated Cleanup ramps up.

Total capacity with planned expansion: 1,700,000 yd^3



The first shipments of waste on the haul road began in January 2006.

Haul Road Begins Operation

The first quarter of FY 2006 was an extremely busy and critical time for the Haul Road project. As winter weather approached, construction of the final segments of the road started, as did construction of bridges over State Routes 58 and 95, and Bear Creek. Construction was completed early in the second quarter on January 17, 2006, and the first waste shipments traveled the 8-mile road the next day.

For the balance of FY 2006, nearly 5,500 loads of waste were shipped in straight body dump trucks, in side dump tractor-trailer tandems, in intermodal containers, and on flat bed trucks and trailers to EMWMF on the Haul Road instead of public roads.

Millions of Gallons of Wastewater Treated in FY 2006

During FY 2006, the National Nuclear Security Administration Program at the Y-12 Complex treated 20.8 million gallons of liquid waste at the Groundwater Treatment Facility, East End Mercury Treatment System, Central Mercury Treatment System, and East End VOC System.

The West End Treatment Facility and the Central Pollution Control Facility at the Y-12 Complex processed about 0.8 million gallons of wastewater, primarily in support of National Nuclear Security Administration operational activities. This wastewater included hazardous materials such as PCBs, cyanide, mercury, cadmium, chromium, and uranium. The hazardous materials end up in the sludge that is generated from wastewater treatment. These sludges are disposed off-site.

Central Neutralization Facility

The Big Spring Water Treatment System processed about 107.7 million gallons and about 1 million gallons of methanol contaminated ground/sump water was put into inventory in the West End Tankage.

At ETTP, the Central Neutralization Facility treated more than 18 million gallons of wastewater in FY 2006. The facility 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. Plans are currently under way to close this facility during FY 2007.

At ORNL, approximately 145 million gallons of wastewater were treated and released at the Process Waste Treatment Complex. In addition, the liquid LLW evaporator at ORNL treated 139,000 gallons of such waste. A total of 2.3 billion m^3 of gaseous waste were treated at the ORNL 3039 Stack Facility. These waste treatment activities supported both EM and Office of Science mission activities in a safe and compliant manner during FY 2006.

TSCA Incinerator Hazardous Waste Treatment Continues

The Toxic Substances Control Act (TSCA) Incinerator, located at ETTP, treated 864,000 pounds of waste in FY 2006. The TSCA Incinerator successfully demonstrated compliance with the Maximum Achievable Control Technology standards for Hazardous Waste Combustors in FY 2005. In FY 2007, approximately 1.5 million pounds of waste are planned for incineration.

The TSCA Incinerator is a one-of-a kind thermal treatment unit in the United States. It plays a key role in treatment of radioactive PCB and hazardous wastes (mixed wastes) from the ORR, as well as other facilities across the DOE complex, thus facilitating compliance with regulatory and site closure milestones. DOE will continue to operate the incinerator up to three years past FY 2006.

TSCA Incinerator

Waste Processing Facility Preparing for CH TRU Processing

The mission of the Oak Ridge TRU Program is to provide cost-effective, safe, and environmentally compliant treatment and disposal of all TRU waste stored at ORNL.

In 1998, DOE entered into a fixed-price privatization contract with Foster Wheeler Environmental Corporation (FWENC) to construct, operate, decontaminate, and decommission a Waste Processing Facility (WPF). Construction of the facility was completed in FY 2004.

The facility was designed and constructed to treat and dispose 900 m^3 of remote-handled (RH) TRU sludge, 550 m^3 of RH TRU/alpha LLW solids, 1,600 m^3 of RH LLW supernate, and 1,000 m^3 of contact-handled (CH) TRU/alpha LLW solids currently stored in Melton Valley. The forecast for waste quantities to be processed at the WPF has been updated to include the latest estimates: 2,000 m^3 of RH TRU sludge, 700 m^3 of RH TRU solids, and 1,500 m^3 of CH TRU solids.

Supernate processing was completed in FY 2004. Since the start of FY 2005, FWENC has been preparing the facility, safety documentation, and procedures for CH TRU waste processing. Early in FY 2006 FWENC contracted with EnergX LLC to operate and manage the project. CH TRU processing started December 2005. By September 30, 2006, approximately 120 m^3 had been processed.

On September 12, 2006, a new cost-plus-fixed-fee contract was signed. Due to many uncertainties about the waste characteristics and changing requirements, this type of contract is deemed more suitable. The new contract includes initiation of processing and packaging for the two remaining waste streams, RH solids/debris and RH TRU sludge, stored at ORNL, for transportation to and disposal at the Nevada Test Site or the Waste Isolation Pilot Plant (WIPP) in New Mexico.

Acceptance of the two RH TRU waste streams at the WIPP up to now has been pending the outcome of permitting actions by DOE with the state of New Mexico. The revised permit approving RH TRU disposal at WIPP was signed by the state of New Mexico on October 16, 2006.

The WPF is now being called the TRU Waste Processing Center.

Drum load-out and size reduction operations at the TRU Waste Processing Facility

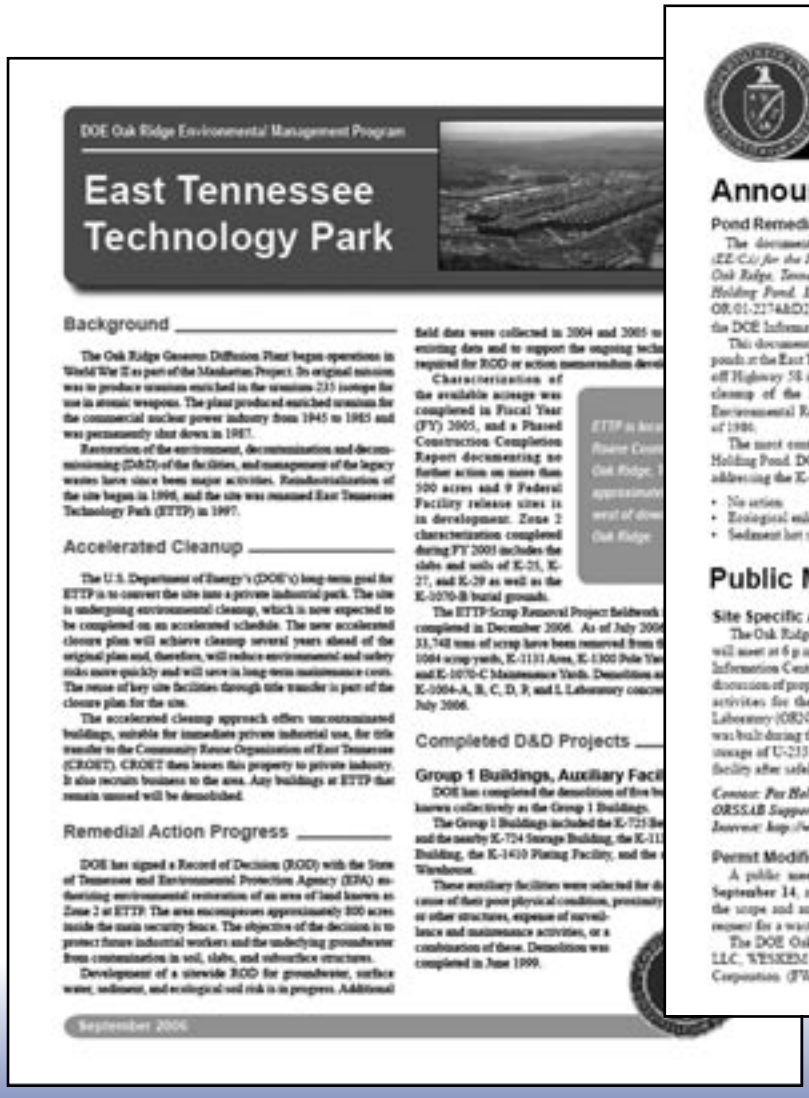
Public Involvement

Public Involvement Plays Key Role in Cleanup Decisions

Most remediation projects on the Oak Ridge Reservation have moved from the decision-making phase to actual fieldwork. However, DOE is still seeking public involvement in many decisions affecting Reservation cleanup. Public input was sought in FY 2006 on a variety of initiatives, including the following:

- ETTP Parking Lot Expansion at Portal 5
- Engineering Evaluation/Cost Analysis for the demolition and disposal of the Central Pollution Control Facility at the Y-12 National Security Complex
- Covenant Deferral Request for the Transfer of Building K-1652 to the City of Oak Ridge
- Engineering Evaluation/Cost Analysis for remediation of contaminated ponds at ETTP

Other Public Involvement initiatives included the monthly distribution of *Public Involvement News*, distribution of the FY 2005 version of *Cleanup Progress*, and updates of project fact sheet that are made available at the DOE Information Center and other venues.



DOE Oak Ridge Environmental Management Program

East Tennessee Technology Park

Background

Accelerated Cleanup

Remedial Action Progress

Completed D&D Projects

Group 1 Buildings, Auxiliary Faci

September 2006

Public Involvement News

U.S. Department of Energy • Oak Ridge Office September 2006

Announcements

Pond Remediation Document Available

Public Meetings

Site Specific Advisory Board Meeting

Permit Modification Meeting Planned

ORSSAB Posts Several Accomplishments

In FY 2006, the Oak Ridge Site Specific Advisory Board (ORSSAB) posted several accomplishments in its mission to provide informed advice and recommendations to DOE on its Oak Ridge EM program and to involve the public in environmental decision-making.

ORSSAB Wins National EPA Award

In June 2006 ORSSAB and its Stewardship Committee were presented with the Citizens Excellence in Community Involvement Award. The national honor is given annually by EPA to recognize an individual or community group for outstanding achievement in the field of environmental protection. The award was presented at EPA's 2006 Community Involvement Conference in Milwaukee, Wisconsin.

ORSSAB is an independent, volunteer, federally appointed citizens' panel formed in 1995.

The award recognizes two major achievements by the ORSSAB Stewardship Committee between October 2004 and September 2005.

The first achievement was development of the Stewardship Education Resource Kit, which was created to provide local educators with materials to teach students about environmental cleanup and long-term stewardship issues.

The second achievement focuses on maintaining information about contaminated land. In 2004, the Stewardship Committee worked with Anderson County to test a system where plat maps of contaminated land would be placed in the county geographical information system. The test was successful, so in 2005 the board recommended that DOE standardize its language for land with notices of contamination so they could be easily found by anyone doing land searches in the county land records. DOE adopted the recommendation and is standardizing its language when filing notices of contamination with Anderson County. The county also sends the same information to the City of Oak Ridge.

Susan Bodine, assistant administrator for EPA, said this was a notable award from the agency. "We want to recognize citizens and the role they play in the Superfund cleanup process," she said in a telephone call to the board during its June meeting. "I thank you for volunteering your time so your community is fully engaged in the Superfund cleanup process."

Congratulations for the award came from high within DOE Headquarters. "This is a major achievement on a national scale," said Assistant Secretary for EM James Rispoli. "EPA's recognition of ORSSAB's work validates what we have known for years—the board and its committees are committed to much more than providing advice and recommendations on the EM program. ORSSAB is dedicated to educating and serving the public on the issues of environmental cleanup and waste disposition."

Tennessee Governor Phil Bredesen sent his congratulations as well. "I realize such recognition has been earned by a great deal of hard work and dedication. I am certainly pleased to hear how the ORSSAB is providing resources that assist federal officials, local school systems, and others on the importance of toxic waste cleanup and maintenance."

Kerry Trammell, Heather Cothron, and EPA's Suzanne Wells following presentation of the Citizen Excellence in Community Involvement Award at the EPA 2006 Community Involvement Conference in Milwaukee.

Area high school teachers search the Internet for information related to stewardship of lands containing hazardous or radioactive wastes.

Educators Learn About Stewardship at ORSSAB Two-Day Workshop

In February 2006 ORSSAB sponsored a two-day workshop on how to use the board's Stewardship Education Resource Kit in the classroom. The event was attended by twenty-four ecology and environmental science teachers representing public and private high schools in Knox and Anderson counties.

The kit, which was completed in March 2005, contains lesson plans, videos, a fictional case study based on actual cleanup operations, an appendix of supporting materials, and a video CD on the background and use of the kit.

During the workshop, ORSSAB members and facilitators from the University of Tennessee explained how to use each lesson, showed videos included with the kit, and demonstrated the use of support materials and related Internet sites. The teachers participated in group activities and listened to a panel discussion on stewardship that included representatives from ORSSAB, DOE, and the state of Tennessee.

"The DOE EM Program in Oak Ridge couldn't be happier with the success of the kit and the teacher's workshop," said Pat Halsey, the board's Federal Coordinator. "We totally support this concept and encourage its incorporation into the local school systems' curricula."

The lessons in the kit are not just for teachers and students; they're available to everyone. Individuals can access the kit materials on the ORSSAB web site (www.oakridge.doe.gov/em/ssab/stewardship-kit/kit.htm). Organizations that have an interest in stewardship and the environment may request a version of the kit.

More information about the kit and ORSSAB is available at the board's web site at www.oakridge.doe.gov/em/ssab or by calling (865) 241-4583 or 241-4584.

ORSSAB EM Committee Holds Public Meeting on K-25/K-27 Demolition

The former gaseous diffusion plants K-25 and K-27 at ETTP are undergoing decontamination and decommissioning in preparation for eventual demolition. But an accident that seriously injured a worker led DOE to reevaluate its method of accomplishment for taking the buildings down.

In July 2006 the board's EM Committee used its meeting as a public forum for DOE and its prime contractor, Bechtel Jacobs Company, to explain the new method of accomplishment and how it will be safer for workers involved in the project. A large group of interested citizens attended the meeting and asked numerous questions.

Eleven Recommendations Provided to DOE

In FY 2006 the board generated several recommendations on cleanup-related issues, such as:

- the Integrated Facilities Disposition Project,
- long-term stewardship of contaminated sites,
- the Natural Resources Damage Assessment process, and
- independent verification of cleanup activities at the East Tennessee Technology Park.

Complete text of all the board's recommendations is available on online at www.oakridge.doe.gov/em/ssab/recc.htm.

ORSSAB also worked with the chairs of the other six SSABs that comprise the national EM SSAB to draft joint recommendations to

DOE. This year the chairs developed recommendations on three important topics:

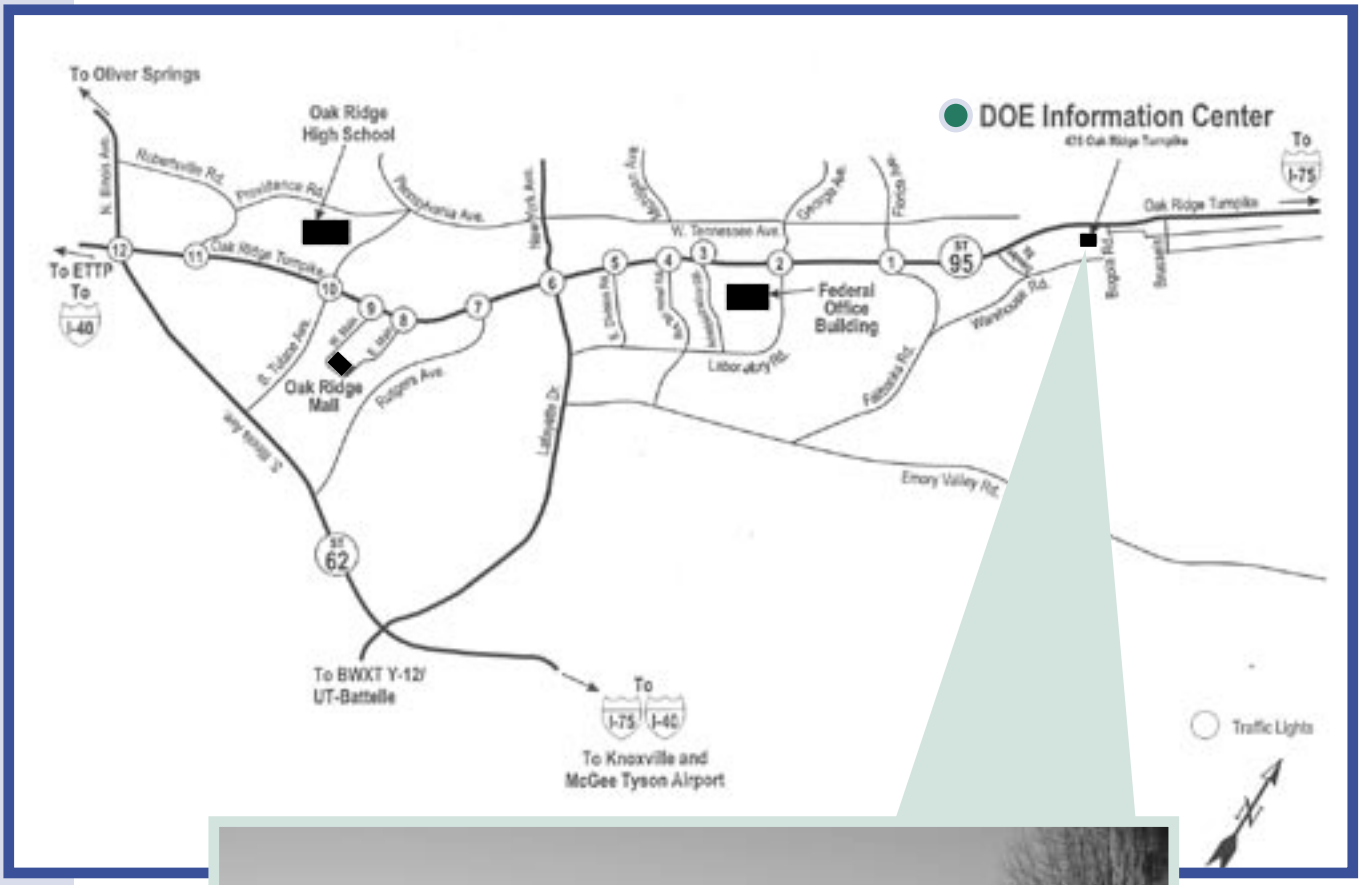
- Recommendation 1 was a follow-up to a recommendation made last year that DOE convene a national stakeholder workshop on waste disposition—the goal of which is to formulate solutions to overcome the barriers to disposition.
- Recommendation 2 requested that EM ensure that the lessons learned from the site closure process at Fernald, Ohio, and Rocky Flats, Colorado, are considered and incorporated in policies that ultimately will guide closure at other EM sites.
- Recommendation 3 asked that the development of EM budgets include SSAB participation to assist in establishing priorities and requested budgets for environmental actions.

Advisory Board Members

FY 2006 ORSSAB members, liaisons, and student representatives. Seated, left to right: Sarah Lewis (Student Representative), Wade Johnson, Norman Mulvenon, Pat Halsey (Federal Coordinator), Ron Murphree, Sean Purdy (Student Representative). Second row, left to right: Sondra Sarten, Sandy Reagan, Gloria Mei, Donna Campbell, Heather Cothron, Lance Mezga, Martha Berry (EPA Region 4), Rhonda Bogard, Steve Stow. Third row, left to right: Darryl Bonner, Steve Dixon, Steve Douglas, Kevin Westervelt, Bob Olson, Dave Adler (DOE Liaison), John Owsley (TDEC Liaison), Ben Adams. Not pictured: Steve McCracken (Deputy Designated Federal Official), Tim Myrick.

DOE Information Center

The DOE Information Center, located at 475 Oak Ridge Turnpike, Oak Ridge, Tenn., is a one-stop information facility that maintains a collection of more than 40,000 documents involving environmental activities in Oak Ridge. The Center hosts various meetings, including the ORSSAB meetings, relevant to cleanup activities in Oak Ridge. Staff are available Monday through Friday, 8 a.m. to 5 p.m., to assist with your information needs. For FY 2006, the Center has received more than 3,078 visitors and responded to 2,717 requests for information. A web site is now available for users to search for information at the Center. Go to www.oakridge.doe.gov and click on "Public Activities." Select the "Online Catalog" to begin the search.



Phone: (865) 241-4780 Web: www.oakridge.doe.gov/info_cntr

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

DOE Public Affairs Office
(865) 576-0885

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

Oak Ridge Site Specific Advisory Board
(865) 576-1590
1-800-382-6938

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

U.S. Environmental Protection Agency
Region IV
1-800-241-1754

Agency for Toxic Substances and Disease Registry
1-888-422-8737

Internet Sites

DOE Main Web Site	www.energy.gov
DOE-ORO Home Page	www.oakridge.doe.gov
DOE-ORO Environmental Management Program	www.oakridge.doe.gov/external (Click on "Programs," then select "Environmental Management")
Oak Ridge Site Specific Advisory Board	www.oakridge.doe.gov/em/ssab
Oak Ridge Accelerated Cleanup	www.bechteljacobs.com/doeclean/
Agency for Toxic Substances and Disease Registry	www.atsdr.cdc.gov
U.S. Environmental Protection Agency	www.epa.gov/region4/
Tennessee Department of Environment and Conservation	www.state.tn.us/environment/doe
DOE Information Center	www.oakridge.doe.gov/info_cntr

Acronyms

AM	action memorandum
CDL	Construction Demolition Landfill
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CH	contact-handled
D&D	decontamination and demolition
DOE	U.S. Department of Energy
DWI	David Witherspoon Inc.
EM	Environmental Management
EMWMF	Environmental Management Waste Management Facility
EPA	U.S. Environmental Protection Agency
ESD	Explanation of Significant Difference
ETTP	East Tennessee Technology Park
FWENC	Foster Wheeler Environmental Corporation
FY	fiscal year
HFIR	High Flux Isotope Reactor
HRE	Homogenous Reactor Experiment
ISG	in situ grouting
ISV	in situ vitrification
LLW	low-level waste
LLLW	liquid low-level waste
MLLW	mixed low-level waste
MOA	Memorandum of Agreement
MSRE	Molten Salt Reactor Experiment
NHF	New Hydrofracture Facility
NTS	Nevada Test Site
OHF	Old Hydrofracture Facility
ORNL	Oak Ridge National Laboratory
ORR	Oak Ridge Reservation
ORSSAB	Oak Ridge Site Specific Advisory Board
P&A	plugging and abandonment
PCB	polychlorinated biphenyl
PCCR	Phased Construction Completion Report
PP	Proposed Plan
RAWP	Remedial Action Work Plan
RDR	Remedial Design Report
RH	remote-handled
ROD	Record of Decision
STTs	shielded transfer tanks
SWSA	Solid Waste Storage Area
TDEC	Tennessee Department of Environment and Conservation
TRU	transuranic
TSCA	Toxic Substances Control Act
UEFPC	Upper East Fork Poplar Creek
UF6	uranium hexafluoride
VOC	volatile organic compound
WIPP	Waste Isolation Pilot Plant
WIR	waste incidental to reprocessing
Y-12 Complex	Y-12 National Security Complex

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For more information, contact the DOE Public Affairs Office at (865) 576-0885.