3. Environmental Management and Reservation Activities

Much of the work accomplished by the DOE Oak Ridge Office of Environmental Management (DOE-EM) on the ORR is performed as a result of the requirements of the Federal Facility Compliance Act and CERCLA. The 1992 Federal Facility Compliance Agreement requires that all DOE facilities manage and dispose of mixed waste in accordance with their respective site treatment plans. Bechtel Jacobs Company LLC has established programs to address the storage, transportation, treatment, disposal, and recycling of legacy and newly generated waste from the ORR. Bechtel Jacobs LLC manages the TSCA Incinerator, wastewater treatment facilities, landfill operations, and certain other treatment and recycle facilities that also contribute to meeting the requirements of the Federal Facility Compliance Agreement and other EM milestones.

Another large portion of the DOE-EM work conducted at ORR is performed according to the requirements of CERCLA, which is implemented by the 1991 Federal Facility Agreement. The Federal Facility Agreement, signed by DOE, TDEC, and EPA, addresses contamination resulting from past activities of DOE operations that remain in structures, buildings, facilities, soil, groundwater, surface water, or other environmental media.

Much of the information in this chapter has been previously published in *Cleanup Progress Report FY 2006 Annual Report to the Oak Ridge Community* (DOE 2006a). Where noted, some quantitative data is based upon a fiscal, rather than a calendar, year.

3.1 Introduction

For more than half a century, one of the primary missions of DOE and its predecessor agencies was the production of nuclear weapons for the nation's defense. Production of materials for nuclear weapons, which began in 1943, produced hazardous and radioactive waste and resulted in contamination of facilities, structures, and environmental media. Two laws passed by Congress included requirements to address these problems. These two laws are the Federal Facility Compliance Act and CERCLA. The Federal Facility Compliance Agreement, made in accordance with the Federal Facility Compliance Act, requires that all DOE facilities manage and dispose of waste in accordance with their respective site treatment plans. The Waste Disposition and Waste Operations projects address waste stored, treated, disposed of, or recycled on the ORR in accordance with the Site Treatment Plan. The DOE Environmental Management (EM) program also operates and maintains waste treatment, storage, disposal, and recycling facilities at each of the three Oak Ridge sites (ETTP, ORNL, and the Y-12 Complex). These activities are included in the Waste Operations Project.

CERCLA addresses any environmental contamination resulting from past industrial operations, not just those performed at federal facilities. CERCLA requires that sites requiring cleanup actions be placed on the National Priorities List. Once on the list, the responsible entities are required to investigate and remedy abandoned or uncontrolled hazardous waste sites where a release has occurred or may occur. The ORR was placed on the National Priorities List in 1989. In 1990, DOE Headquarters (DOE-HQ) established DOE-EM, making DOE-ORO responsible for cleanup of the reservation. CERCLA also requires public involvement to ensure that citizens will be informed of cleanup decisions that may affect them or the area in which they live.

The following sections highlight some of the EM activities for 2006 and some related activities carried out to ensure good stewardship of the reservation.

3.2 East Tennessee Technology Park

3.2.1 Decontamination and Decommissioning

ETTP was built as part of the World War II–era Manhattan Project. The primary mission of the ETTP for most of its history was the enrichment of uranium for weapons and fuel. The site consists of hundreds of buildings and other facilities, ranging from small monitoring stations to the K-25 Building, which has more than 1.6 million ft^2 of floor space. Twenty-six of these buildings are scheduled to be transferred to private-sector ownership for reuse. All of the other facilities are scheduled to be demolished. As of 2006, six buildings have been transferred and seven others are at various stages in the process. The demolition process 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 CERCLA Zone 1 and Zone 2 decisions will determine the final remedy for the contaminated slabs, soils, and below-grade structures.

3.2.1.1 K-25/K-27 Facilities Decontamination and Decommissioning

The three-story, U-shaped K-25 Building was built during the Manhattan Project and contained 3018 stages of gaseous diffusion process equipment and associated auxiliary systems. Each stage consists of a converter, compressors, motors, and associated piping. The K-27 Building covers 383,000 ft^2 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 the slab and that the associated waste be disposed of. 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 3.5-year period, 944 waste shipments, comprising approximately 621,000 ft^3 of waste, were transported to the EMWMF, a CERCLA disposal facility located near the Y-12 National Security Complex.

Process equipment removal is under way with the shipment of 115 loose converters to the Nevada Test Site and EMWMF for disposal, 75 of which were shipped in 2005. Excess materials are also being removed from the buildings. Excess materials consist of nonprocess items, such as laboratory equipment, laboratory samples, office equipment, tools, wooden pallets and crates, and drums of chemicals. In 2006, 441 waste shipments, containing approximately 217,000 ft^3 of waste, were transported to the EMWMF for disposal.

At the end of 2005, removal of fixed process equipment was awaiting completion of the Operational Readiness Review and transmittal of the Notice to Proceed from DOE-HQ. Approximately 1500 stages in the K-25 Building have been purged of residual process gas in preparation for fixed process equipment removal.

K-25 Building demolition continued in 2006 with the removal of approximately 4,000 ft^2 of transite panels from the exterior of the building and removal of transite enclosures from about half of the 150 interior stairways. The building demolition waste-handling plan was approved in FY 2005.

The memorandum of agreement regarding historical preservation of the K-25 Building was ratified on March 28, 2005. The memorandum allows the east and west wings of the K-25 Building to be demolished but retains the north wing for historic preservation purposes. It 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 a historic landmark.

3.2.1.2 K-29 Building Demolished

One of ETTP's former gaseous diffusion facilities, the K-29 Building, was demolished in

2006. The facility was part of a series of 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. The 524 × 560 ft building was composed of two floors of approximately 290,000 ft^2 each.

After liquid and hazardous materials were removed from the building, excavators were used to rip through the concrete and steel structural elements that comprised the building's roof, walls, and floors. The demolition was completed in July 2006; the final volume of waste was disposed of in September 2006. The demolition debris, totaling 892,634 ft^3, was disposed of at EMWMF; 567 ft^3 of other material associated with the demolition was shipped to off-site vendors for disposition.

Uranium-processing equipment and other materials had been removed previously under an AM, signed by DOE 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. DOE continues to try to identify a future use for K-31 and K-33.

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

The Group II Buildings, Phase II Buildings (otherwise referred to as the K-1064 Peninsula area facilities) are located in the northwest sector of ETTP and are bounded on three sides by Poplar Creek. In 2006, the last two of the remaining 19 facilities were demolished, The demolition debris and other waste dispositioned on the project included 8,864 ft^3 disposed of at the EMWMF, 42,046 ft^3 disposed of at the Y-12 Construction/Demolition Landfill, and 575 ft^3 shipped to off-site vendors for disposition.

3.2.1.4 Remaining Facilities

In September 2003, DOE signed the Remaining Facilities Action Memorandum to demolish the approximately 500 remaining facilities at ETTP. The demolition of the facilities covered by this removal action is being accomplished by grouping similar facilities into various different subprojects (e.g., the Poplar Creek Facilities project, the Laboratory Facilities Project). In 2006, demolition was complete on 54 of the facilities; the following are some highlights of those activities.

- The Laboratory Area facilities were centrally located in the southern portion of ETTP and were used to provide analytical services and R&D support to the uranium enrichment process as well as other activities that occurred at ETTP. Demolition of the Laboratory Area facilities, completed in August 2006, resulted in 455,402 ft^3 of demolition debris disposed of at the EMWMF, 161,585 ft^3 of demolition debris disposed of at the Y-12 Construction/Demolition Landfill, 30,064 ft^3 of concrete used as on-site fill, and 6,641 ft^3 shipped for off-site disposition.
- Building K-1420 was built in 1953. Its uses included converter conditioning and recovery, parts disassembly and cleaning, uranium recovery, aluminum leaching, and laboratory analysis. Demolition of K-1420, completed in December 2006. resulted in 195,989 ft^3 of demolition debris disposed of at the EMWMF, 509 ft^3 of demolition waste burned at the TSCA Incinerator, 7,651 ft^3 of demolition debris disposed of at the Y-12 Construction/Demolition Landfill, and 9,186 ft^3 shipped for off-site disposition.
- The Centrifuge Equipment Removal project continued. Most of the machines were removed and were sent for final disposition, and 69,000 lb of process equipment were removed and were shipped to the Nevada Test Site for disposal.
- Demolition of the Building K-1401 began in 2006 and is expected to continue through 2007.
- Characterization and utility deactivation continued in 2006 in preparation for other facility demolition work in 2007.

3.2.1.5 Building Transfers Continue Under the Reindustrialization Program

Building transfers to CROET under DOE's Reindustrialization Program are part of DOE's effort to transform ETTP into a private-sector industrial park. CROET is a not-for-profit corporation established to foster diversification of the regional economy by reutilizing DOE property for private-sector investment and job creation. DOE transferred two additional ETTP buildings

to CROET in FY 2006, bringing the total number of buildings transferred to six. The buildings, K-1036 and K-1400, offer an additional total of approximately 93,000 ft^2 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 ft^2) 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 corporate office and manufacturing occupancy for several CROET tenant businesses.
- Building K-1400 (13,000 ft^2) 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. Seven additional buildings at ETTP are in various stages of the transfer process.

3.2.1.6 ETTP Soil Remediation

The soil at ETTP will be remediated to protect a future industrial workforce and to protect 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 TDEC, and the EPA in November 2002. Zone 1 is the 567-hectare 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 324 hectares). In 2006, work was completed on the characterization of the K-1007 area, the Powerhouse area, the K-901-A area, and the Duct Island area. Phased construction completion reports were completed and were submitted to TDEC and EPA for approval. Seven areas requiring additional remediation were identified, and the completion of Blair Quarry was documented in the reports. In Zone 2, the characterization of 6 of 44 exposure units was documented in a phased construction completion report. The 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 building slabs.

3.2.1.7 ETTP Site-Wide ROD Project Under Way

The ETTP site-wide ROD addresses contamination in groundwater, surface water, and sediment for the protection of human health and the environment. In addition, it will determine whether additional soil action is necessary to protect the environment. The geographic areas included in this decision are Zone 1 (outside the main plant) and Zone 2 (inside the plant fencing).

After a series of data-quality-objective workshops focusing on groundwater, surface water, sediment, and soil actions were held, a work plan for additional investigations was developed and was submitted to EPA and TDEC for approval. Fish sampling and aquatic community surveys were conducted as stated in the work plan. Additionally, the three Federal Facility Agreement parties developed a detailed schedule of the ensuing activities to allow for signature of the ROD in early 2007.

3.2.1.8 ETTP Scrap Removal Project

The ETTP Scrap Removal Project began shipping contaminated scrap from the K-770 Scrap Yard to the EMWMF on July 26, 2004. Approximately 41.3 million lb of contaminated scrap metal were disposed at EMWMF during 2006 under the ETTP Scrap Removal Project. The project is responsible for disposing of approximately 47,000 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. The project will be completed in early 2007.

3.2.1.9 ETTP Outdoor Legacy Waste

The ETTP Outdoor Legacy Waste is composed of 6209 containers of LLW that were the result of past operations at the site. This waste has been characterized to support disposal and shipment to the EMWMF, which is in progress.

3.2.1.10 UF_6 Cylinders Being Shipped Off Site

In December, 2,006 the last of 7,200 cylinders have been shipped off site for disposal or processing. The project was completed three years ahead of the schedule. Most (approximately 6,000) of the cylinders contained UF_6 and were shipped to the Portsmouth Site for disposition. Approximately 1,200 cylinders contained residual amounts of other materials and had earlier been shipped to the Nevada Test Site for disposal. These steel cylinders hold approximately 10 to 14 tons of depleted UF_6. More than 118 million lb of UF_6 were shipped with no accidents or significant incidents.

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

3.2.1.11 Plan Submitted for Groundwater Remediation

In 2006, a remedial investigation/feasibility study and proposed plan for groundwater remediation 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 and Mitchell Branch, and for the protection of ecology. The plan will be the basis for the final decision for ETTP. The documents are being reviewed by the EPA and TDEC, and a final ROD is planned for 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 2006. A public meeting will be held, and the Action Memorandum will be prepared in 2007.

3.2.1.12 Native Grasses and Wildflowers

In the fall of 2006 a project began to replace the fescue and weeds currently covering the nonpaved portions of the ETTP with native grasses and wildflowers. Native grasses are much less maintenance intensive than fescues, and the resultant savings in labor, mowing expenses, and gasoline are expected to save several thousand dollars annually and to reduce gas-burning emissions. In addition, native grasses and wildflowers provide better habitat and forage for wildlife.

3.2.1.13 TSCA Incinerator Hazardous Waste Treatment

The TSCA Incinerator, located at ETTP, treated 700,000 lb of liquid waste and 200,000 lb of solid waste in 2006. Plans are in place to increase the throughput at the incinerator to ensure cost-effective operations in support of the DOE complex's cleanup mission. In 2007, approximately 3.1 million lb of waste are planned for incineration. The incinerator 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.

In 2006 TDEC released *Air Dispersion Modeling and Risk Assessment of the TSCA Incinerator* (TDEC 2006), a study to determine the risks, if any, to area residents and local environment from operations of the TSCA Incinerator. The study included analyses of major components of the effluent and potential pathways of exposure, including air, surface water, soil, and food-chain effects. The results of the evaluation were that the incinerator operations posed an insignificant hazard to both human health and the environment.

3.2.1.14 Central Neutralization Facility

The Central Neutralization Facility (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 sus-

pended solids from the wastewater, adjusts pH, and discharges the treated effluent in accordance with NPDES requirements into the Clinch River. Sludge from the treatment facility is treated, packaged, and disposed of off site. The CNF treated approximately 16.3 million gal of wastewater in 2006.

3.3 Oak Ridge National Laboratory

3.3.1 Melton Valley Remedial Actions

Work was completed on the second of three major milestones of the Melton Valley Project in September, with the completion of the 7841 Scrapyard Project. It was the final field task in an overall cleanup project responsible for capping 145 acres of waste sites, demolishing and disposing of 6000 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; and
- retrieving 204 casks, 8 boxes, and 1,500 ft^3 of loose waste as part of the Transuranic Waste Retrieval Project.

3.3.2 New Hydrofracture Facility Decontamination and Decommissioning

The New Hydrofracture Facility was built at ORNL between 1979 and 1982 and operated from 1982 to 1984. It replaced the Old Hydrofracture Facility, which operated between the late 1950s to the mid-1970s. The New Hydrofracture Facility was designed to facilitate the injection of a mixture of radioactive waste solutions and grout into an impermeable shale formation at depths between 700 and 1,000 ft below grade. The hydrofracture process is essentially a batch process in which the waste-grout mixture is pumped down a tubing string in the injection well and out into the shale formation. The high injection pressure of approximately 3,000 psi fractures the subsurface shale and forces the waste-grout mixture into the fractures, where it hardens into "grout sheets."

Most of the New Hydrofracture Facility was demolished in previous years. The final three reinforced concrete rooms, or cells, of the main structure were demolished to 2 ft below grade in 2006, along with all remaining slabs. The New Hydrofracture Facility site was restored by placing a clean stone mix over the building footprint. A 100 × 80 ft ventilated enclosure over the building footprint was left in place in support of future activities planned for the site. 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 of in 2006.

3.3.3 SWSA Hydrologic Isolation

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 SWSA 4, SWSA 5, SWSA 6, and Seepage Pits and Trenches was completed in 2006, and all the caps were transferred to operations and maintenance. 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 LLW from 1943 to 1986, when improved disposal technologies were implemented. Early burial procedures used unlined trenches and auger holes for containment. The trenches and holes 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 TRU elements. More than 850 trenches and 1500 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 (LLLW) from 1951 to 1966. As intended, the LLLW 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 LLLW.

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

- multilayer 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
- 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 nonhydrofracture 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.

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

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

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

In situ grouting is a treatment process in which 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 hydraulic conductivity. the change to in situ grouting 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.

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

The completed hydrologic isolation project meets all regulatory performance objectives.

3.3.4 Homogeneous Reactor Experiment Ancillary Facilities

The HRE ancillary facilities consist of 11 separate structures external to the HRE reactor building and provided support capabilities (e.g., waste management, storage) during reactor operation. The ancillary facilities include a liquid waste evaporator, a charcoal absorber that cleaned up gaseous effluents prior to discharge to the atmosphere, a decontamination pad and storage shed, an office building, and other miscellaneous structures. D&D of three of the ancillary facilities was completed in 2005. The remaining eight facilities at three different locations were demolished in 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.

3.3.5 Shielded Transfer Tanks

The shielded transfer tanks 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, waste characterization activities performed in preparation for emptying, grouting, and disposal of the tanks identified potential issues with the waste categorization. It was decided that a Waste Incidental to Reprocessing determination

was required by DOE Order 435.1 prior to disposal of the tanks. Due to the extended documentation and review period associated with the Waste Incidental to Reprocessing determination process, DOE has proposed to remove the shielded transfer tanks from the scope of the ROD and to address the disposal of the grouted tanks and contents under a NEPA process to be completed by September 30, 2008, following the completion of the Waste Incidental to Reprocessing determination. EPA and TDEC have concurred with the proposal.

3.3.6 Liquid Low-Level Waste Pumping Stations

Two separate LLLW pumping stations, Buildings 7567 and 7952, were constructed during the 1960s to support the collection and transfer of LLLW from the HFIR facility, the Radiochemical Engineering Development Center (REDC), the 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 2006.

3.3.7 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 2006, each item was characterized, reduced in size or otherwise prepared for disposal, and disposed of. 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.

3.3.8 Miscellaneous Storage Buildings

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

3.3.9 Molten Salt Reactor Experiment Fuel and Flush Salts Removal

The MSRE operated from 1965 to 1969 to test the molten salt concept. MSRE differed from traditional reactors (that have fuel contained within fuel rods) in that its fuel was contained in molten salts. The salt flowed through the reactor chamber, where the fission occurred to produce heat. At the conclusion of the experiment, the fuel laden salt was drained into two storage tanks, where it cooled and solidified. The reactor was flushed with fresh (but not laden with uranium) salt, and the flush salt went into a third tank. Much of the salt was removed in 2005 and 2006. In December 2005 work was initiated to process Fuel Drain Tank 2, but in May 2006 a fluorine release caused a temporary cessation of the project. Recovery operations to complete the Tank 2 salt removal and preparations to remove the salt from Tank 1 occupied the remainder of 2006.

3.3.10 22-Trench Area Transuranic Waste Retrieval

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

During the 1970s, packages of TRU waste were retrievably stored in unlined earthen 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 ORR. 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.

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.

3.3.11 Soils and Sediments Remediation

The Melton Valley Closure Soils and Sediments Project completed its work in FY 2006. The following examples were among the accomplishments.

- Excavation of the HFIR impoundments. The 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 has been restored. Remediation consisted of removing standing water and excavating and disposing of the contaminated sediment at the EMWMF.
- Remediation of the HRE Cryogenic Pond. The pond received contaminated condensate from the HRE waste evaporator and from discarded shielding water. It 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 cleanup of Three Mile Island. The solidified waste forms were removed in 1996 and were transported to another DOE facility for processing and disposal. The lysimeters and remaining contaminated soil were removed and disposed of at the EMWMF in 2006.
- 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 of 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 postremediation 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 of in the EMWMF. Material excavated from the Melton Valley Pumping Station, Engineering Test Facility, Lysimeters, and Facility 7848 was disposed of 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.

3.3.12 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) 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 LLLW 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.

3.3.13 Decontamination and Decommissioning Projects

A number of structures and facilities, including ancillary HRE facilities, the 7841 Equipment Storage Area, and Shielded Transfer Tanks, will undergo D&D. The remedial design report/remedial action work plans for these activities were approved by the regulators in 2004. Field mobilization was completed, and processing of material from the 7841 Equipment Storage Area began during 2005. D&D of five of the HRE ancillary facilities was completed in 2005. The HRE ancillary facilities consist of 11 separate structures external to the HRE reactor building, which provided support capabilities (e.g., waste management, storage) during reactor operation. The ancillary facilities include a liquid waste evaporator, a charcoal absorber that cleaned up gaseous effluents prior to discharge to the atmosphere, a decontamination pad and storage shed, an office building, and other miscellaneous structures. Planning and characterization of the remaining facilities was performed. D&D is scheduled to be completed in coming years.

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

Three inactive underground LLLW storage tanks identified as Tanks T-1 and T-2, and the HFIR Tank contained liquids and a mixture consisting primarily of spent TRU ion-exchange resin and sludge.

In 2005, the liquid waste from the HFIR tank was transferred into the ORNL LLLW system for treatment. The HFIR Tank and remaining sludge were stabilized in place with grout. The waste in Tanks T-1 and T-2 was mixed with liquid by using a pulse-jet system. The resulting slurry was transferred to the active ORNL LLLW system. Approximately 3,000 gal 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 were closed in place. Associated equipment was removed from the site and either transferred to other projects for reuse or disposed of at the EMWMF along with the remaining secondary waste.

3.3.15 In Situ Grouting of Trenches 5 and 7

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

In situ vitrification 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 in situ vitrification. After further evaluation, DOE proposed in a ROD amendment that in situ grouting be substituted as the remedial action.

In situ grouting 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.

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

The completed project meets all regulatory performance objectives.

3.3.16 Bethel Valley Remediation

The Bethel Valley ROD, signed by the Federal Facility Agreement parties in May 2002, presents the remedy selected for environmental remediation of various contaminated areas within the ORNL Bethel Valley area. Higher-risk sites will be addressed first. Remediation work mandated by the Bethel Valley ROD will continue through FY 2014. The first three projects to be performed under the ROD are the Bethel Valley Groundwater Engineering Study; remediation of the T-1, T-2, and HFIR Tanks; and partial remediation of the Hot Storage Garden.

3.3.17 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 deep groundwater extraction at the Core Hole 8 Plume, in situ biodegradation at the East Bethel Valley volatile organic compound (VOC) plume, groundwater monitoring in West Bethel Valley, and 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 includes 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. The components 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 were approved by the regulatory agencies in 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.

3.3.18 Core Hole 8 Transuranic Waste Removal

The Core Hole 8 contaminated groundwater 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 gal per year of contaminated groundwater migrating toward First Creek and removing a significant portion of the source (i.e., 90% 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, in 2001, addressed the contaminant source that contributed to the plume by removing a significant portion of the soil surrounding Tank W-1A.

The waste removal was a CERLCA removal action 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. Because there is no disposal facility that could accept soil at those levels, the soils and the tank were left in place.

In preparation for the upcoming completion of the removal action, in which the remaining 100 yd^3 of soil will be removed, the project team obtained additional soil samples around the tank and submitted them for detailed analysis. This characterization effort will determine how much of the soil meets the definition of TRU waste and will 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 is expected to be performed in 2007; the removal action is currently planned to begin in 2008. The TRU soil will be containerized and stored until the waste disposal facility (the Waste Isolation Pilot Plant [WIPP]) is ready to receive it. The low-level soil is expected to be disposed of at EMWMF.

3.4 Y-12 National Security Complex

3.4.1 Upper East Fork Poplar Creek

Remediation of the Upper East Fork Poplar Creek 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, the major contaminated area in the Upper East Fork Poplar Creek Watershed. Decisions regarding final land use and final goals for surface water, groundwater, and soils will be addressed in future decision documents.

During 2006, regulators provided comments on the draft proposed plan for Phase 2 interim remedial actions for accessible soil, buried waste, or subsurface structures that contribute significantly to contamination above acceptable risk levels in Upper East Fork Poplar Creek. The Phase 2 ROD was finalized and approved in April 2006.

3.5 Off-Reservation Activities

3.5.1 David Witherspoon Inc. 901 Site Cleanup

The David Witherspoon, Inc., (DWI) 901 Site, located on Maryville Pike in Knoxville, Tennessee, consists of a 3.4-hectare parcel formerly owned and operated as the DWI Recycling Center and a 0.2-hectare parcel owned by CSX Transportation, Inc. 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. The scope of the project was to decontaminate and demolish the main building, a metal office building, the incinerator, the magnet house, the compactor house, the control house, the scale house and scale, the bailer house, and the breaker house. Contaminated soils were excavated and disposed of in the EMWMF as radioactive PCB mixed waste.

As of the end of 2006, all contaminated material at the site was excavated and disposed of, 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, approximately 5,650 truckloads of soil were shipped to the EMWMF, and 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.

3.6 Waste Treatment and Disposal

3.6.1 Tons of Wastes Placed in the EMWMF and Other Landfills

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

wastes generated during cleanup of the ORR and associated sites in Tennessee. It is an engineered landfill that accepts both low-level and hazardous wastes in accordance with specific waste acceptance criteria under agreement with state and federal regulators. The EMWMF accepted its first waste shipment in May 2002. Since then, projects from all over the ORR have shipped waste to EMWMF for disposal. In FY 2006, approximately 151,219 tons of waste were disposed of at the EMWMF. This included 12,117 truckloads of waste from such projects as

- DWI 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 Surface Impoundments Operable Unit 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.

The EMWMF operation also collected, analyzed, and disposed of more than one million gal of leachate and contact water at the ORNL Liquids and Gases Treatment Facility during FY 2006. The operations also effectively controlled site erosion and sediments.

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

3.6.2 EMWMF Expansion

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

3.6.3 Haul Road Completed

It became apparent in early 2004 that removing shipments of ETTP waste bound for the EMWMF from public roads would better serve project and public interests. Conceptual design work to identify feasible routes to construct a haul road between ETTP and the EMWMF was initiated in early summer. The road enhances public safety by eliminating the hazards presented by large trucks mixing with passenger vehicles on public roads. It also reduces cleanup costs by decreasing the cycle time for each load of ETTP waste that is disposed at the EMWMF. Construction was completed in January 2006, just in time for the start of the intensive waste-hauling campaign from the ETTP cleanup.

3.6.4 Millions of Gallons of Wastewater Treated in 2006

During FY 2006, the EM Program treated 20.8 million gal of contaminated groundwater 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 approximately 0.8 million gal of wastewater in FY 2006, primarily in support of NNSA operational activities. The 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. These sludges are disposed of off site.

The Big Spring Water Treatment System processed about 107.7 million gal, and about 1 million gal of methanol-contaminated groundwater and sump water was put into inventory in the West End Tankage during FY 2006.

At ETTP, the CNF treated approximately 16.3 million gal of wastewater in 2006. The facility is ETTP's primary wastewater treatment facility and processes both hazardous and non-hazardous 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 of off site.

At ORNL, 148 million gal of wastewater was treated and released at the Process Waste Treatment Complex. The LLLW evaporator at ORNL also treated 141,000 gal of waste. A total of 2.3 billion m^3 of gaseous waste was also treated at the ORNL 3039 Stack Facility. These important waste treatment activities supported both EM and Office of Science mission activities in a safe and compliant manner.

3.6.5 TSCA Incinerator Hazardous Waste Treatment Continues

The TSCA Incinerator, located at ETTP, treated 700,000 lb of liquid waste and 200,000 lb of solid waste in 2006. The TSCA Incinerator successfully demonstrated compliance with the MACT standards for Hazardous Waste Combustors in 2005. In 2007, approximately 3.1 million lb 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 from other facilities across the DOE complex, thus facilitating compliance with regulatory and site closure milestones.

3.6.6 Transuranic, Low-Level, and Mixed Waste Operations

Operations at the ORR produce wastes that frequently contain radionuclides. Such wastes are characterized as either LLW or TRU wastes. Mixed low-level wastes (MLLWs) are those that contain materials deemed hazardous and are regulated under RCRA.

TRU wastes from throughout the DOE complex are to be disposed of at the WIPP, near Carlsbad, New Mexico. Before being shipped to the WIPP, however, TRU wastes must be treated, packaged, and certified to meet its waste acceptance criteria. 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 to construct, operate, decontaminate, and decommission a waste processing facility (now called the TRU Waste Processing Center). Construction of the facility was completed in 2004.

The facility was designed and constructed to treat and dispose 900 m^3 of remote-handled TRU sludge, 550 m^3 of remote-handled TRU/alpha LLW solids, 1600 m^3 of remote-handled LLW supernate, and 1000 m^3 of contact-handled TRU/alpha LLW solids currently stored in Melton Valley. The forecast for waste quantities to be processed at the center has been updated to include the latest estimates: 2000 m^3 of remote-handled TRU sludge, 700 m^3 of remote-handled TRU solids, and 1,500 m^3 of contact-handled TRU solids.

Supernate processing was completed in 2004. Since the start of 2005, the Foster Wheeler Environmental Corporation has been preparing the facility, safety documentation, and procedures for contact-handled TRU waste processing. In 2005 Foster Wheeler contracted with EnergX LLC to operate and manage the project. Processing of contact-handled TRU waste started December 2005. Approximately 120 m^3 was processed in FY 2006.

On September 12, 2006, a new cost-plus-fixed-fee contract was signed. Due to many uncertainties about the waste characteristics and changing requirements, that type of contract is deemed more suitable. The new contract includes initiation of processing and packaging for the two remaining waste streams, remote-handled solids/debris and remote-handled TRU sludge, stored at ORNL, for transportation to and disposal at the WIPP.

Acceptance of the two remote-handled 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 remote-handled TRU disposal at WIPP was signed by the state of New Mexico on October 16, 2006.

The ORR has the largest inventory of legacy LLW (i.e., waste from historic reservation operations) in the DOE complex. In addition, active DOE missions at the Y-12 Complex and ORNL produce newly generated LLW that must be managed and disposed of safely and effi-

ciently. In 2004, DOE shipped 40 legacy LLW monoliths (2161 yd^3) to the Nevada Test Site for disposal. The inventory of MLLW has been steadily declining through the use of on-site facilitated (e.g., the TSCA Incinerator) and off-site commercial treatment, storage, and disposal facilities.

3.7 Public Involvement

3.7.1 Public Input on EM Initiatives

3.7.1.1 Public Involvement Plays Key Role in Cleanup Decisions

Most remediation projects on the ORR have moved from the decision-making phase to actual fieldwork. However, DOE is still seeking public involvement in many decisions affecting cleanup of the reservation. Public input was sought in 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, and
- 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.

3.7.1.2 Oak Ridge Site Specific Advisory Board

In 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.

3.7.1.2.1 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.

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, and in 2005 the board recommended that DOE standardize its language for land with notices of contamination to ease searches in 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.

3.7.1.2.2 Educators Learn About Stewardship at ORSSAB Two-Day Workshop

In February 2006 ORSSAB sponsored a two-day workshop using 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 lessons in the kit are not just for teachers and students; they are 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.

3.7.1.2.3 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 D&D in preparation for eventual demolition. However, 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.

3.7.1.2.4 Eleven Recommendations Provided to DOE

In 2006 the ORSSAB 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 ETTP.

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

ORSSAB also worked with the chairs of the other six site-specific advisory boards in the national EM site-specific advisory board 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 are incorporated in policies that ultimately will guide closure at other EM sites.
- Recommendation 3 asked that the development of EM budgets include site-specific advisory board participation to assist in establishing priorities and requested budgets for environmental actions.

3.7.1.3 DOE Information Center

The DOE Information Center, located at 475 Oak Ridge Turnpike, Oak Ridge, Tennessee, 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 information. During FY 2006, the center received more than 3,078 visitors and has responded to 2,717 requests for information. A web site for the Information Center is available at www.oakridge.doe.gov under the "Public Activities" tab.