

## **3. ENVIRONMENTAL PROGRAM INFORMATION**

### **3.1 SUMMARY**

Environmental Restoration activities in 2008 included installation of additional groundwater extraction wells and monitoring wells in and around the X-749 Landfill in Quadrant I, continued oxidant injections in the X-701B area in Quadrant II, and oxidant injections in the X-740 area in Quadrant III. Five-year reviews of the remedial actions implemented for the X-749/X-120 groundwater plume, Peter Kiewit (PK) Landfill, Quadrant I Groundwater Investigative Area, X-611A Prairie, and X-734 Landfills were also completed by DOE and approved by Ohio EPA in 2008.

In 2008, more than 17.7 million pounds of waste from DOE PORTS were recycled, treated, or disposed at off-site facilities. Activities undertaken by the Waste Minimization, Pollution Prevention, Training, Inactive Facilities Removal, and Public Awareness programs are also discussed in this chapter.

Chapter 2, Section 2.3.6, provides information on DOE Order 450.1 and implementation of the DOE PORTS EMS.

### **3.2 ENVIRONMENTAL RESTORATION PROGRAM**

The DOE established the Environmental Restoration Program in 1989 to identify, control, and remediate environmental contamination at PORTS. The Environmental Restoration Program addresses inactive sites through remedial action and deals with soil and groundwater associated with active facilities through eventual D&D. Options for correcting or mitigating the contaminated sites and facilities include removal, containment, and treatment of contaminants. Because PORTS is a large facility, it is divided into quadrants (Quadrant I, II, III, and IV) to facilitate the cleanup process.

The Environmental Restoration Program was established to fulfill the cleanup requirements of the Ohio Consent Decree and U.S. EPA Administrative Consent Order. As required by these enforcement actions, DOE PORTS Environmental Restoration Program activities are conducted in accordance with the RCRA corrective action process, which consists of the following:

- *Description of current conditions* – to provide knowledge of the groundwater, surface water, soil, and air.
- *RCRA facility assessment* – to identify releases of contaminants and determine the need for further investigation.
- *RCRA facility investigation* – to determine the nature and extent of any contamination.
- *Cleanup alternatives study/corrective measures study* – to identify and evaluate remedial alternatives to address contamination identified during the RCRA facility investigation.
- *Corrective measures implementation* – to implement the selected remedial alternative(s).

DOE PORTS has completed the description of current conditions, RCRA facility assessment, RCRA facility investigation, and cleanup alternatives study/corrective measures study for each quadrant. Following the approval of the final cleanup alternative study/corrective measure study, the Ohio EPA

selects the remedial alternatives that will undergo further review for determining the final remedial actions for each quadrant (the Preferred Plan). Upon concurrence from the U.S. EPA and completion of the public review and comment period, the U.S. EPA and Ohio EPA select the final remedial actions for each quadrant. The Ohio EPA issues a decision document to select the final remedial actions.

Implementation of remedial actions is underway in each quadrant. Remedial actions are described for each quadrant in the sections presented below. Table 3.1 lists completed activities for the groundwater monitoring areas at PORTS, which include remedial actions required by decision document and other actions. Remedial actions required by a decision document are reviewed by Ohio EPA on a schedule agreed upon by Ohio EPA and DOE (approximately every five years) to ensure that the remedial actions are performing as intended by the decision document and are protective of human health and the environment. In 2008, five-year reviews were completed for the X-749/X-120 phytoremediation system, PK Landfill, Quadrant I Groundwater Investigative Area, X-611A Prairie, and X-734 Landfills.

The Ohio EPA has deferred further investigation and/or remedial action for certain areas known as “deferred units.” Deferred units are areas that are in or adjacent to current production and operational areas such that remedial activities would interrupt operations, or are areas that could become recontaminated from ongoing operations. The Ohio EPA has deferred investigation/remedial action of soil and groundwater associated with these units until D&D of PORTS or until the unit no longer meets the requirements for deferred unit status.

In 2008, DOE Headquarters continued the planning process for D&D of the PORTS gaseous diffusion facilities and associated buildings. DOE submitted the *Draft Deferred Units Strategic Plan*, which outlines DOE’s strategic approach for dealing with the deferred units, to Ohio EPA in January 2007. DOE and Ohio EPA continue to work together to develop the path forward for investigation of the deferred units during D&D of PORTS.

### **3.2.1 Quadrant I**

The *Quadrant I Cleanup Alternative Study/Corrective Measures Study* was approved by the Ohio EPA in 2000. The Ohio EPA issued the Decision Document for Quadrant I in 2001, which provided the required remedial actions for the X-749/X-120 groundwater plume and the Quadrant I Groundwater Investigative Area (the Five-Unit Groundwater Investigative Area and X-231A/X-231B Oil Biodegradation Plots). Remedial actions required for the PK Landfill were provided in separate Decision Documents issued by Ohio EPA in 1996 and U.S. EPA in 1997. The following sections discuss the remedial actions required for the X-749/X-120 groundwater plume, PK Landfill, and the Quadrant I Groundwater Investigative Area. Soil and groundwater associated with the deferred units in Quadrant I will be addressed during D&D of PORTS.

#### **3.2.1.1 X-749/X-120 groundwater plume**

The remedial actions identified for X-749/X-120 groundwater plume include phytoremediation of the groundwater plume, installation of a barrier wall around the eastern and southern portion of the X-749 Landfill, and continued operation of the groundwater collection trenches installed at the PK Landfill and X-749 Landfill.

**Table 3.1. Remedial actions completed at PORTS**

Quadrant/monitoring area	Remedial action/year completed
Quadrant I X-749/X-120 plume	X-749 multimedia cap – 1992 X-749 barrier wall (north and northwest sides of landfill) – 1992 X-749 subsurface drains and sumps – 1992 South barrier wall – 1994 X-120 horizontal well – 1996 X-625 Groundwater Treatment Facility – 1996 X-749 barrier wall (east and south sides of landfill) – 2002 Phytoremediation (22 acres) – 2002 & 2003 Injection of hydrogen release compounds – 2004 X-749 South Barrier Wall Area extraction wells – 2007 Two additional extraction wells in the groundwater collection trench on the southwest side of the X-749 Landfill – 2008
Quadrant I PK Landfill (X-749B)	Relocation of Big Run Creek – 1994 Groundwater collection system – 1994 Groundwater collection system expansion – 1997 PK Landfill Subtitle D cap – 1998
Quadrant I Quadrant I Groundwater Investigative Area (Five-Unit Groundwater Investigative Area)	Groundwater extraction wells (3) – 1991 X-622 Groundwater Treatment Facility – 1991 (upgraded in 2001) Interim soil cover at X-231B – 1995 X-231A/X-231B multimedia caps – 2000 Groundwater extraction wells (11) – 2002
Quadrant I X-749A Classified Materials Disposal Facility	Cap – 1994
Quadrant II Quadrant II Groundwater Investigative Area (Seven-Unit Groundwater Investigative Area)	Operation of X-700 and X-705 building sumps – 1989 X-622T Groundwater Treatment Facility – 1992 Removal of X-720 Neutralization Pit – 1998 Removal of X-701C Neutralization Pit – 2001 Removal of contaminated soil near X-720 Neutralization Pit – 2001 X-627 Groundwater Treatment Facility – 2004 (replaced the X-622T facility)
Quadrant II X-701B Holding Pond	X-237 Groundwater Collection System – 1991 X-624 Groundwater Treatment Facility – 1991 (upgraded 2006) Extraction wells (3) – 1993 X-623 Groundwater Treatment Facility – 1993 X-701B sump – 1995 Groundwater remediation by oxidant injection Phase I oxidant injections – 2005 Phase IIa oxidant injections – 2006 Phase IIb and IIc oxidant injections – 2007 Phase IId, IIe, and II f oxidant injections – 2008
Quadrant III X-740 Waste Oil Handling Facility	Phytoremediation – 1999 Oxidant injections – 2008

**Table 3.1. Remedial actions completed at PORTS (continued)**

Quadrant/monitoring area	Remedial action/year completed
Quadrant IV X-611A Former Lime Sludge Lagoons	Soil cover – 1996 Prairie vegetation planted – 1997
Quadrant IV X-735 Landfills	Cap on northern portion – 1994 Cap on southern portion – 1998
Quadrant IV X-734 Landfills	Cap on X-734B Landfill (Phase I) – 1999 Cap on X-734 and X-734A Landfills (Phase II) – 2000

Phytoremediation is a process that uses plants to remove, degrade, or contain contaminants in soil and/or groundwater. Phytoremediation at the X-749/X-120 groundwater plume was installed in two phases during 2002 and 2003. The *Preliminary Evaluation Report for the X-749/X-120 Phytoremediation System*, completed in January 2008, provided a preliminary evaluation of the phytoremediation system. The trees selected for the phytoremediation system have just begun to develop sufficient leaf area (approximately equal to root volume) so that groundwater is transpired through the trees; therefore, a complete system evaluation could not be completed. Water level data and tree core sampling results indicate that contaminated groundwater is being transpired by the trees; however, the current volume of contaminated groundwater uptake by the trees is uncertain. Continued operation of the phytoremediation system is recommended in order for the trees to grow and develop a more extensive root system. Ohio EPA approved the report on March 31, 2008. The next review of the remedial actions implemented at the X-749/X-120 groundwater plume will be submitted to Ohio EPA in 2011.

In 2008, implementation of activities proposed in the *Work Plan for the X-749/X-120 Groundwater Optimization Project* continued to address the groundwater plume in the X-749 South Barrier Wall area and enhance remedial activities in the X-749/X-120 area. Two additional extraction wells were installed in the groundwater collection trench on the southwest side of the X-749 Landfill and began operating in January 2008. The new extraction wells, combined with the existing sump, more effectively remove contaminated groundwater from the landfill. Seven additional monitoring wells were installed within and around the X-749 Landfill during 2008 and were sampled for the first time in the fourth quarter of 2008. The wells are intended to monitor contaminant concentrations within the landfill and the performance of the barrier walls around the landfill. Chapter 6, Section 6.4.1.4, provides 2008 groundwater monitoring results for the X-749/X-120 groundwater plume.

### **3.2.1.2 PK Landfill**

The remedial actions required by the PK Landfill Decision Documents consisted of the continued operation of the eastern groundwater collection system installed in 1994 and construction of an engineered cap that meets the RCRA Subtitle D and related requirements. In addition, the southeastern groundwater collection system was constructed in 1997 to contain surface seeps, groundwater from the southern slope of the PK Landfill, and the groundwater plume migrating toward Big Run Creek from the X-749 Landfill.

The second five-year review for the PK Landfill was completed in 2008. This report, the *Second Five-Year Review for the X-749B Peter Kiewit Landfill*, found that the remedial actions implemented at the PK Landfill (the groundwater collection systems and landfill cap) are achieving remedial action objectives by eliminating exposure pathways and reducing the potential for contaminant transport. Concentrations of many of the contaminants detected in the PK Landfill wells, sumps, and manholes have

decreased significantly from 1999 to 2007. Contaminants detected in the PK Landfill wells, sumps, and manholes have not been detected in surface water samples collected from Big Run Creek adjacent to or downstream from PK Landfill. Based on these data, construction of a barrier wall on the upgradient sides of the PK Landfill does not appear to be necessary. Ohio EPA approved the report on March 24, 2008. The next review of the remedial actions implemented at the PK Landfill will be submitted to Ohio EPA in 2013.

Chapter 6, Section 6.4.1.3, provides 2008 groundwater monitoring results for the PK Landfill area.

### **3.2.1.3 Quadrant I Groundwater Investigative Area**

Remedial actions identified for the Quadrant I Groundwater Investigative Area (also called the Five-Unit Groundwater Investigative Area) are: 1) installation of multimedia caps over the X-231A and X-231B Biodegradation Plots ;and 2) installation of 11 additional groundwater extraction wells to extract contaminated groundwater for treatment in the X-622 Groundwater Treatment Facility. The caps were constructed in 2000 and operation of the groundwater extraction wells began in 2002. Table 3.1 lists the remedial actions completed for the Quadrant I Groundwater Investigative Area.

A five-year review of both the groundwater extraction system for the Quadrant I Groundwater Investigative Area and the multi-layered caps for the X-231A and X-231B Oil Biodegradation Plots was completed in 2008. This report, the *First Five-Year Review for the Five-Unit Groundwater Investigative Area and X-231A/X-231B Oil Biodegradation Plots*, found that the remedial actions have eliminated potential exposure pathways to contaminants and reduced concentrations of trichloroethene in the groundwater, although more slowly than expected. At the end of 2008, activities were underway to install an additional extraction well south of the X-326 Process Building to control and remediate a newly identified source of trichloroethene beneath the building. Ohio EPA approved the report on May 7, 2008. The next review of the remedial actions implemented at the Quadrant I Groundwater Investigative Area and X-231A/B Oil Biodegradation Plots will be submitted to Ohio EPA in 2013.

Chapter 6, Section 6.4.2.3, provides information on the groundwater monitoring completed in the Quadrant I Groundwater Investigative Area during 2008.

### **3.2.2 Quadrant II**

The *Quadrant II Cleanup Alternative Study/Corrective Measures Study* was approved by the Ohio EPA on March 26, 2001. After approval of the document, however, the Ohio EPA requested an amendment to the approved study to address additional remedial alternatives for the X-701B area. Amendments were submitted in 2001 and 2002. In January 2003, the Ohio EPA informed the DOE that a separate Preferred Plan and Decision Document would be prepared for the X-701B area. The Ohio EPA issued the X-701B Preferred Plan in September 2003 and the X-701B Decision Document in December 2003.

Remedial actions required for soil in the X-701B area include removal of contaminated soil in the western portion of the area and consolidation of the soil under two landfill caps to be constructed over the X-701B Holding Pond/East Retention Basin and the West Retention Basin. Two landfill caps will be constructed so that an existing storm water drainage pipe will not be covered. Groundwater remediation will be accomplished by injection of a chemical oxidant followed by phytoremediation, if necessary.

Phase I field activities for the X-701B groundwater remediation began in September 2005 to determine operating parameters for the oxidant injection system including injection methodology, rate, pressure and spacing; reagent concentration; and reagent volume. Based on the results of the Phase I field

activities, DOE developed a work plan for the completion of the groundwater remediation at X-701B, which was approved by Ohio EPA in September 2006. The first phase of oxidant injections was completed during October 2006, with Phase II injections completed in April 2007 and August 2007. In 2008, additional Phase II injections were completed in April, June/July, and October. Following the October oxidant injections, DOE PORTS requested an independent review of the X-701B project by DOE Headquarters to evaluate remediation results to date and provide recommendations for a path forward. The review was in progress at the end of 2008.

Soil and groundwater associated with the deferred units in Quadrant II will be addressed during D&D of PORTS. A number of deferred units are in the groundwater plume in the Quadrant II Groundwater Investigative Area. In 2008, DOE PORTS agreed to develop a work plan for the Quadrant II Groundwater Investigative Area (also known as the Seven-Unit Area) to identify potential source areas that may be contributing to the groundwater plume. DOE and Ohio EPA were working together to finalize the work plan at the end of 2008.

Chapter 6 provides 2008 groundwater monitoring results for the following areas in Quadrant II that require groundwater monitoring: X-701B Holding Pond, Quadrant II Groundwater Investigative Area, and X-633 Pump House/Cooling Towers Area (a deferred unit).

### **3.2.3 Quadrant III**

The *Quadrant III Cleanup Alternative Study/Corrective Measures Study* was approved by the Ohio EPA in 1998. The Decision Document for Quadrant III required phytoremediation of the groundwater plume near the X-740 Waste Oil Handling Facility. Soil and groundwater associated with the deferred units in Quadrant III will be addressed during D&D of PORTS.

Over 700 hybrid poplar trees were planted on a 2-6-acre area above the X-740 groundwater plume in 1999. In 2003, a five-year review was completed for the X-740 groundwater plume to evaluate the effectiveness of the phytoremediation system. The report, entitled *Five-Year Evaluation Report for the X-740 Phytoremediation Project*, indicated that the trees in the phytoremediation system did not noticeably affect the overall groundwater flow in the Gallia at this area, although the trees did appear to influence water levels in individual wells. Concentrations of trichloroethene in the X-740 groundwater plume had not decreased appreciably.

Upon review of the 2003 Five-Year Evaluation Report, the Ohio EPA required another evaluation of this area in three years to determine if the phytoremediation system was effective in remediating the groundwater plume. Additional data collected for this evaluation included soil moisture at specified depths below ground surface, wind speed/direction, rainfall, air/soil temperature, tree growth rates, and sap flow measurements. The *Supplemental Evaluation to the Five-Year Evaluation Report for the X-740 Phytoremediation System*, submitted to Ohio EPA in January 2007, found that the phytoremediation system had not performed as expected to remove trichloroethene from groundwater in this area.

In response to Ohio EPA comments on this report, DOE submitted a work plan for additional remedial activities for the X-740 area. Three rounds of oxidant injections were completed in May, June/July, and September of 2008 to remove trichloroethene from the groundwater. The effectiveness of the oxidant injections in removing trichloroethene from groundwater was under review at the end of 2008.

Chapter 6 provides 2008 groundwater monitoring results for the following areas in Quadrant III that require groundwater monitoring: X-616 Chromium Sludge Surface Impoundments and X-740 Waste Oil Handling Facility.

### 3.2.4 Quadrant IV

The *Quadrant IV Cleanup Alternative Study/Corrective Measures Study* was approved by the Ohio EPA in 1998. The DOE received the Decision Document for Quadrant IV in 2000. No new remedial actions were required in Quadrant IV (remedial actions had already taken place at the X-344D Hydrogen Fluoride Neutralization Pit, X-735 Landfills, X-611A Former Lime Sludge Lagoons, and X-734 Landfills). Soil and groundwater associated with the deferred units in Quadrant IV will be addressed during D&D of PORTS.

Ohio EPA and U.S. EPA issued a Decision Document for the X-611A area in 1996, which required a soil cover over the former lagoons and establishment of a prairie habitat. The soil cover and planting of the prairie were completed in 1997. The *Second Five-Year Review for the X-611A Prairie* was submitted to Ohio EPA in 2008. The report found that the soil cover and prairie habitat are continuing to meet the remedial action objectives for this unit by eliminating exposure pathways to the contaminants in the sludge at this area. Ohio EPA approved the report on December 24, 2008. The next review of the remedial actions implemented at the X-611A area will be submitted to Ohio EPA in 2013.

Ohio EPA issued a Decision Document for the X-734 Landfills in 1999. Remedial actions required by the Decision Document included construction of a multimedia cap over the northern portion of the landfills and a soil cap over the southern portion of the area. These caps were installed in 1999 and 2000.

The *First Five-Year Review for the X-734 Landfill Area* was submitted to Ohio EPA in 2008. The report found that construction of the caps on the landfills has achieved remedial action objectives by isolating contaminants in soil and sediment from potential receptors. The caps are preventing contaminants in soil and sediment from migrating to groundwater and surface water. Ohio EPA approved the report on December 24, 2008. The next review of the remedial actions implemented at the X-734 Landfills will be submitted to Ohio EPA in 2013.

Chapter 6 provides 2008 groundwater monitoring results for the following areas in Quadrant IV that require groundwater monitoring: X-611A Former Lime Sludge Lagoons, X-735 Landfills, X-734 Landfills, and X-533 Switchyard Area (a deferred unit).

## 3.3 WASTE MANAGEMENT PROGRAM

The DOE PORTS Waste Management Program directs the safe storage, treatment, and disposal of waste generated by past and present operations and from current Environmental Restoration projects. DOE PORTS also stores USEC-generated waste in the RCRA Part B permitted storage areas. Waste managed under the program is divided into the following seven categories, which are defined below:

- *Low-level radioactive waste* – radioactive waste not classified as high level or transuranic waste.
- *Hazardous (RCRA) waste* – waste listed under RCRA or waste that exhibits one or more of the four RCRA hazardous characteristics: ignitability, corrosivity, reactivity, and toxicity. Universal waste, which includes common items such as batteries and light bulbs, is a subset of RCRA waste that is subject to reduced requirements for storage, transportation, and disposal or recycling.
- *PCB wastes* – waste containing PCBs, a class of synthetic organic chemicals. Disposal of PCB-contaminated materials is regulated under TSCA.

- *RCRA/low-level radioactive mixed waste* – waste containing both hazardous and radioactive components. The waste is subject to RCRA, which governs the hazardous components, and to the Atomic Energy Act that governs the radioactive components.
- *PCB/low-level radioactive mixed waste* – waste containing both PCB and radioactive components. The waste is subject to TSCA regulations that govern PCB components, and to the Atomic Energy Act that governs radioactive components.
- *PCB/RCRA/low-level radioactive mixed waste* – waste containing PCB and radioactive components that is also a RCRA hazardous waste. The waste is subject to RCRA regulations, TSCA regulations that govern PCBs, and to the Atomic Energy Act that governs radioactive components.
- *Solid waste* – Waste that includes construction and demolition debris, industrial waste, and sanitary waste, as defined by Ohio regulations. These wastes can include waste from construction or demolition activity and office waste. Waste contaminated with asbestos may also be included in this category if it is not included in any of the categories listed above (PCB, RCRA, and/or low-level radioactive waste).

In 2008, more than 17.7 million pounds of waste from PORTS were recycled, treated, or disposed at off-site facilities (see Table 3.2).

Waste management requirements are varied and are sometimes complex because of the variety of waste streams generated by DOE PORTS activities. DOE Orders, Ohio EPA regulations, and U.S. EPA regulations must be satisfied to demonstrate compliance for waste management activities. Additional policies have been implemented for management of radioactive, hazardous, and mixed wastes. These policies include the following:

- minimizing waste generation;
- characterizing and certifying wastes before they are stored, processed, treated, or disposed;
- pursuing volume reduction (such as blending and bulking) as well as on-site storage in preparation for safe and compliant final treatment and/or disposal; and
- recycling.

### **3.4 ENVIRONMENTAL SUSTAINABILITY PROGRAM**

DOE PORTS is committed to reducing environmental risks, costs, wastes, and future liability by effectively integrating environmental sustainability principles into DOE PORTS activities in a cost effective and environmentally conscious manner. The DOE PORTS Environmental Sustainability Program is a balanced, holistic approach that links planning, budgeting, measuring, and improving PORTS overall environmental performance to specific goals and outcomes. The DOE PORTS approach is described in the *Environmental Sustainability Plan* and integrates the tenets of an EMS. The PORTS Environmental Sustainability Program includes elements of pollution prevention, waste minimization, affirmative procurement, sustainable design, and energy and water efficiency.



**Table 3.2. Waste Management Program off-site treatment, disposal, and recycling accomplishments for 2008**

Waste type	Waste stream	Quantity (pounds)	Treatment, disposal, or recycling facility
RCRA	Soil, plastics, and other wastes	1112	PermaFix
LLW <sup>a</sup>	Waste oil	88	Diversified Scientific Solutions
LLW	Scrap metal, alumina, concrete, and other solids	2,717,675	Energy Solutions
LLW	Converter shells, depleted uranium metal, scrap metal, solidified sludges, and other solids	14,874,502	Nevada Test Site
PCB	Light ballasts and capacitors contaminated with PCBs	12,147	PermaFix
PCB/LLW	Light ballasts	538	Permafix
PCB/LLW	Empty containers and other wastes contaminated with PCBs	8368	Materials & Energy Corp
PCB/LLW	Solids and liquids contaminated with PCBs	3612	Energy Solutions
PCB/LLW	Scrap metal and other solids contaminated with PCBs	69,560	Nevada Test Site
PCB/LLW/ RCRA	Lab wastes, waste oils, clean-up materials, and other materials	8125	Energy Solutions
PCB/LLW/ RCRA	Lab wastes, waste oils, clean-up materials, light fixtures, and other materials	13,146	Materials & Energy Corp
RCRA/LLW	Waste oils, acids, lab wastes, and other materials contaminated with solvents and/or metals	30,185	Diversified Scientific Solutions
RCRA/LLW	Soil, gravel, paper, plastic, and other materials contaminated with solvents and/or metals	17,455	Energy Solutions
RCRA/LLW	Clean-up materials and other solids contaminated with solvents and/or metals	2272	PermaFix
RCRA/LLW	Flammable liquids, waste oils, floor sweepings, and other solid or liquid material	18,530	Materials & Energy Corp
Universal waste	Incandescent and fluorescent light bulbs	568	PermaFix
Universal waste	Batteries	132	PermaFix
Universal waste	Mercury lamps and thermostat	113	PermaFix
Industrial waste	Circuit boards	119	PermaFix

<sup>a</sup>Low-level radioactive waste.

DOE PORTS is committed to minimizing and/or eliminating the amounts and types of wastes generated and to achieving reduced life cycle costs for managing and dispositioning property and wastes during all of DOE PORTS projects and activities.

Effective environmental sustainability management begins with an integrated strategy. In order to achieve the objectives and targets of the Environmental Sustainability Program, DOE PORTS has developed and implemented a well-defined strategy for setting, updating, and achieving PORTS objectives and targets in line with the EMS and in conjunction with DOE pollution prevention goals. The broad objectives are core elements of the DOE PORTS Environmental Sustainability Program. These objectives, presented below, are both qualitative and quantitative and reduce the life cycle cost and liability of DOE PORTS programs and operations:

- eliminating, minimizing, or recycling wastes that would otherwise require storage, treatment, disposal, and long-term monitoring and surveillance;
- eliminating or minimizing use of toxic chemicals and associated environmental releases that would otherwise require control, treatment, monitoring, and reporting;
- maximizing the use (procurement) of recycled-content materials and environmentally preferable products and services, thereby minimizing the economic and environmental impacts of managing by-products and wastes generated in the conduct of mission-related activities; and
- reducing the life-cycle cost of managing personal property at PORTS.

In 2008, DOE contractors won the DOE Office of Environmental Management Pollution Prevention and Environmental Stewardship Award for High Achievement for the X-749/X-120 Area Groundwater Optimization Project. The project included installation of seven new groundwater monitoring wells near and within the X-749 Landfill. Direct push technology was used to install the wells instead of conventional drilling methods. The volume of waste generated by the project was reduced from approximately 35 drums to less than 1 drum with a cost saving of approximately \$30,000.

Additional highlights of the DOE PORTS Environmental Sustainability Program in fiscal year 2008 include the following accomplishments:

- recycling approximately 392 tons of iron and steel, 39 tons of miscellaneous scrap metal, 12 tons of tin, and 15,744 tons of concrete/asphalt that were generated during demolition of the X-744T and X-744U Warehouses;
- transferring approximately 85,000 pounds of Freon to the Department of Defense for reuse;
- recycling approximately 17,640 pounds of office and mixed paper, 8820 pounds of cardboard, 110 pounds of aluminum cans, and 1170 pounds of plastic; and
- recycling or reusing computer hard drives, desktop computers, and monitors.

In addition, DOE PORTS continued energy reduction programs focused on accomplishing the goals of Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, and DOE Order 430.2A, *Departmental Energy and Utilities Management*. In 2008, DOE PORTS purchased 24,000 megawatt hours of electricity from renewable energy sources. DOE PORTS

also continued use of 80/20 biodiesel in on-site tractors and mowers and purchased E85 fuel for all flexible fuel vehicles.

### 3.5 INACTIVE FACILITIES REMOVAL

DOE continued demolition of a number of inactive, surplus PORTS facilities during 2008. Table 3.3 lists the facilities removed from 2006 (when the removals began) through 2008.

**Table 3.3 Inactive facilities removed from DOE PORTS  
2006 – 2008**

Facility	Year removed	Location (Quadrant)
X-744T Lithium Storage Warehouse	2008	I
X-744U Lithium Storage Warehouse	2008	I
X-770 Mechanical Testing Facility	2007	I
X-230J8 Environmental Storage Building	2006	I
X-230J1 Environmental Monitoring Station	2006	II
X-701D Water Deionization Building	2006	II
X-720A Maintenance & Stores Gas Manifold Shed	2006	II
X-105 Electronic Maintenance Building	2006	II
X-740 Waste Oil Storage Facility	2006	III
X-106B Old Fire Training Building	2006	III
X-616 Liquid Effluent Control Facility	2006	III
X-615 Old Sewage Treatment Plant	2006	III
X-344C Hydrogen Fluoride Storage Building	2006	IV
X-344E Gas Ventilation Stack	2006	IV
X-344F Safety Building	2006	IV
X-342C Waste Hydrogen Fluoride Neutralization Pit	2006	IV

The X-770 Mechanical Testing Facility, a deferred unit with potentially contaminated soils, was demolished during 2007. This facility is located in the northern portion of the Quadrant I Groundwater Investigative Area (see Section 3.2.1.3 and Chapter 6, Section 6.4.2). In 2008, DOE developed and implemented a work plan to investigate the soil beneath and around the former building. Two rounds of soil sampling were completed in September/October and December of 2008. Based on the results of this investigation, DOE and Ohio EPA are working together to develop a plan to remove the concrete pad associated with the building and soil from around the area of the former X-770 Mechanical Testing Facility.

In 2008, DOE began the planning process to conduct additional D&D activities as non-time-critical removal actions under CERCLA. Four facilities were determined to be excess to the DOE PORTS mission and were authorized for final disposition through the DOE real property management program: the X-746 Building, X-533 Switchyard Area, X-633 Recirculating Cooling Water Complex, and X-760 Chemical Engineering Building. Planning for D&D of these facilities was in progress at the end of 2008.

### **3.6 ENVIRONMENTAL TRAINING PROGRAM**

DOE PORTS provides environmental training to increase employee awareness of environmental activities and to enhance the knowledge and qualifications of personnel performing tasks associated with environmental assessment, planning, and restoration. The program includes on- and off-site classroom instruction, on-the-job training, seminars, and specialized workshops and courses. Environmental training conducted or prepared by DOE PORTS includes hazardous waste training required by RCRA and numerous Occupational Safety and Health Administration training requirements.

### **3.7 PUBLIC AWARENESS PROGRAM**

A comprehensive community relations and public participation program is in place at PORTS. The purpose of the program is to foster a spirit of openness and credibility between PORTS officials and local citizens, elected officials, business, media, and various segments of the public. The program also provides the public with opportunities to become involved in the decisions affecting environmental issues at PORTS.

In 2008, the DOE established a federally-chartered Site Specific Advisory Board under the Environmental Management Program at PORTS. Twenty citizens from the local area were appointed to the board by the DOE to reflect the diversity of gender, race, occupation, views, and interests of persons living near PORTS. The board provides public input and recommendations to the DOE on environmental remediation, waste management, and related issues at PORTS. Additional information about the board can be obtained at [www.ports-ssab.org](http://www.ports-ssab.org) or by calling 740-289-5249.

DOE PORTS also maintains a public Environmental Information Center to provide public access to documents used to make decisions on remedial actions being taken at PORTS. The Information Center is located just north of PORTS at the Ohio State University Endeavor Center (Room 207), 1862 Shyville Road, Piketon, Ohio 45661. The email address is [eic@wems-llc.com](mailto:eic@wems-llc.com). Hours for the Information Center are 9 a.m. to noon Monday and Tuesday, noon to 4 p.m. Wednesday and Thursday, or by appointment (call 740-289-8898). The latest Annual Environmental Report and other information can also be obtained from the PORTS web site at [www.pppo.energy.gov](http://www.pppo.energy.gov) or the LPP web site at [www.lppports.com](http://www.lppports.com).

Public update meetings and public workshops on specific topics are also held to keep the public informed and to receive their comments and questions. Periodically, fact sheets about major projects are written for the public. Additionally, notices of document availability and public comment periods, as well as other communications on the program, are regularly distributed to those on the community relations mailing list, neighbors within 2 miles of the plant, and plant employees.

Points of contact have been established for the public to obtain information or direct questions regarding the Environmental Management Program. The DOE Site Office may be contacted at 740-897-5010. The LPP Office of Public Affairs (740-897-2336) also provides information on the program.