

### 3. ENVIRONMENTAL PROGRAM INFORMATION

#### 3.1 SUMMARY

Environmental Restoration activities in 2007 included installation of new groundwater extraction wells and off-site monitoring wells in the southern portion of the X-749/X-120 groundwater plume in Quadrant I and implementation of the first phase of remedial actions required for the X-701B area in Quadrant II. The remedial actions for the X-701B area include construction of landfill caps in the western portion of the area, groundwater treatment through injection of a chemical oxidant, and phytoremediation, if necessary.

In 2007, more than 9 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 Environmental Management System.

#### 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 active facilities through eventual decontamination and decommissioning. 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.

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 for these units until D&D of PORTS or until the unit no longer meets the requirements for deferred unit status.

In 2007, DOE Headquarters initiated 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 Peter Kiewit (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. Deferred units in Quadrant I will be addressed during decontamination and decommissioning 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.

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. A preliminary five-year review of the phytoremediation system will be submitted to Ohio EPA in 2008.

**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
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 (NP) – 1998 Removal of X-701C Neutralization Pit – 2001 Removal of contaminated soil near X-720 NP – 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
Quadrant III X-740 Waste Oil Handling Facility	Phytoremediation – 1999

**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

A monitoring plan entitled *Comprehensive Monitoring Program for the X-749 and Peter Kiewit Landfill Areas for the Portsmouth Gaseous Diffusion Plant* was developed and implemented in 2003 to provide additional data to monitor the effect of the new X-749 barrier wall on groundwater quality and movement in the northern area of the X-749 plume and at the PK Landfill. Data were collected for this monitoring program throughout 2004, and an annual summary report was submitted to the Ohio EPA in December 2004. The report [*Annual (2004) Summary Report of the Comprehensive Monitoring Plan Data for the X-749/Peter Kiewit Landfill Area*] found that the barrier wall on the south and east sides of the X-749 Landfill, installed in 2001 through 2002, was impeding additional contamination from flowing out of the landfill, and that the groundwater collection system and sump pump in the southwestern corner of the X-749 Landfill was removing water from the landfill.

A project was begun in 2004 to remediate volatile organics at the southern edge of the X-749/X-120 groundwater plume in the area of the X-749 South Barrier Wall (an interim remedial measure constructed in 1994) and the DOE property boundary. Hydrogen release compounds, which act as an accelerant to the natural microbial process that breaks down volatile organics into nontoxic compounds, were injected into the soil in over 150 locations during March and April 2004. Additional sampling monitored the concentrations of volatile organics, gases, and other breakdown products in the groundwater. Based on data collected from 2004 through 2006, optimal breakdown of the volatile organics was briefly achieved in the treatment zones, but is no longer occurring due to depletion of the hydrogen release compounds. Additional hydrogen release compounds will not be injected because of the short duration of this remedial technique.

In 2007, activities proposed in the *Work Plan for the X-749/X-120 Groundwater Optimization Project* were begun to address the groundwater plume in the X-749 South Barrier Wall area and enhance groundwater monitoring and remedial activities in the X-749/X-120 area. Four new groundwater extraction wells were installed in the X-749 South Barrier Wall area and began operation on June 29, 2007. Additional off-site sampling was also completed and three new off-site groundwater monitoring wells were installed to monitor the portion of the X-749 plume that has moved off site. Chapter 6, Section 6.4.1.4, provides 2007 groundwater monitoring results for the X-749/X-120 groundwater plume, including the new off-site groundwater monitoring wells.

### 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 Contaminated Materials Disposal Facility.

A five-year review was completed for the PK Landfill in 2002 to evaluate the effectiveness of the remedial actions implemented at this area (the groundwater collection systems and landfill cap). The U.S. EPA and Ohio EPA approved the report contingent upon additional evaluation and monitoring at PK Landfill. A monitoring plan entitled *Comprehensive Monitoring Program for the X-749 and Peter Kiewit Landfill Areas for the Portsmouth Gaseous Diffusion Plant* was developed and implemented in 2003 to provide additional data to evaluate the performance of the groundwater collection systems and landfill cap for the PK Landfill and to monitor the effect of the new X-749 barrier wall on groundwater quality and movement in the northern area of the X-749 plume and at the PK Landfill. Data were collected for this monitoring program throughout 2004, and an annual summary report was submitted to the Ohio EPA in December 2004.

The report [*Annual (2004) Summary Report of the Comprehensive Monitoring Plan Data for the X-749/Peter Kiewit Landfill Area*] found that the PK Landfill cap was performing adequately to impede surface water from percolating through landfill waste and potentially contaminating groundwater. Construction of a barrier wall on the upgradient (west and north) sides of the PK Landfill did not appear to be necessary based on evaluation of the PK Landfill cap, construction of the X-749 barrier walls, and evaluation of monitoring data. The second five-year review for the PK Landfill will be submitted to Ohio EPA in 2008.

Chapter 6, Section 6.4.1.3, provides 2007 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. A five-year review of these remedial actions will be submitted to Ohio EPA in 2008. Table 3.1 lists the remedial actions completed for the Quadrant I Groundwater Investigative Area.

Operation of the groundwater extraction wells is affecting the concentrations of contaminants detected in some of the wells in the groundwater plume. Chapter 6, Section 6.4.2.3, provides information on the groundwater monitoring completed in this area during 2007.

### **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 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 the second and third phases completed in April 2007 and August 2007, respectively. The *Work Plan for the Groundwater Remediation of the X-701B Solid Waste Management Unit* and the *Phase IIc Report for the Groundwater Remediation of the X-701B Solid Waste Management Unit* provide additional information, including sampling results associated with the injections. The results show that the oxidant injections have been effective in removing trichloroethene contamination from the area. Additional injections are planned for 2008.

Deferred units in Quadrant II will be addressed during decontamination and decommissioning of PORTS. In 2003, the DOE agreed to conduct an annual review of all deferred units at PORTS to confirm that the status of the units has not changed. The annual update to the Deferred Unit Plan was submitted to the Ohio EPA in January 2007. A number of deferred units are in the groundwater plume in the Quadrant II Groundwater Investigative Area. The DOE has evaluated existing Quadrant II monitoring data for deferred units to determine whether actions could be taken to reduce or eliminate sources of contamination; however, operation of the sumps in buildings X-700 and X-705 appears to be sufficient to control groundwater contamination in this area.

Chapter 6 provides 2007 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 Pumphouse/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. Deferred units in Quadrant III will be addressed during decontamination and decommissioning of PORTS.

Over 700 hybrid poplar trees were planted on a 2.6-acre area above the X-740 groundwater plume in 1999. Groundwater monitoring of both the elevation of groundwater in the aquifer and the concentration of contaminants in the groundwater plume is used to monitor the system. Chapter 6, Section 6.4.7.1, provides information about the groundwater monitoring completed for this area in 2007.

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 is effective in remediating the groundwater plume. Additional data to be 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 has not performed as predicted by groundwater modeling included in the *Quadrant III Cleanup Alternative Study/Corrective Measures Study*. Ohio EPA is requiring DOE to evaluate other remedial alternatives to be implemented in conjunction with the current remedy. Evaluation of other remedial alternatives took place throughout the remainder of 2007.

Chapter 6 provides 2007 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). Deferred units in Quadrant IV will be addressed during decontamination and decommissioning 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. In 2002, a five-year review was completed for the X-611A Former Lime Sludge Lagoons to evaluate the effectiveness of the corrective measures implemented at this area. The report found that the soil cover and prairie habitat constructed at the X-611A Former Lime Sludge Lagoons is meeting the objectives for this unit by eliminating exposure pathways to the contaminants of concern present in the sludge located beneath the soil cover in this area. The second five-year review for the X-611A Former Lime Sludge Lagoons will be submitted to Ohio EPA in 2008.

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. A review of this remedial action will be submitted to Ohio EPA in 2008.

In 2007, DOE conducted an investigation of potential sources of PCBs in the Little Beaver Creek drainage area, which focused on the X-533 Switchyard area (a deferred unit in Quadrant IV). Sediment and surface water were sampled from Little Beaver Creek and associated tributaries, drainage ditches, and storm sewers. Soil sampling in the X-533A Switchyard did not reveal any pervasive high concentrations of PCB contamination, although low concentrations of PCBs were detected in soil in the vicinity of several transformers and an associated drainage line. Ohio EPA stated that although releases of PCBs have occurred in the switchyard, it does not appear to be the sole source of PCB contamination found in Little Beaver Creek. The *Investigation of Potential Sources of PCB Contamination in Little Beaver Creek* provides additional information and results from this investigation.

Chapter 6 provides 2007 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 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 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 2007, more than 9 million pounds of waste from PORTS were recycled, treated, or disposed at off-site facilities (see Table 3.2). Future waste management projects include continuing shipments for disposal of low-level radioactive waste and mixed waste, and the treatment of mixed and PCB/mixed waste at off-site commercial facilities.

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;



**Table 3.2. Waste Management Program off-site treatment, disposal, and recycling accomplishments for 2007**

Waste type	Waste stream	Quantity (pounds)	Treatment, disposal, or recycling facility
RCRA	Waste soldering materials, floor stripper, and other wastes	805	PermaFix
LLW <sup>a</sup>	Empty drums, wastewater, and waste oil	14,456	Diversified Scientific Solutions
LLW	Floor sweepings, empty containers, scrap metal	19,979	Materials & Energy Corp
LLW	Empty containers, scrap metal, burnables, and other solids	660,099	Energy Solutions
LLW	Scrap metal, alumina waste, and other solids	3,983,936	Nevada Test Site
LLW	Various chemicals, cleaners, used oil, and other solutions	36,090	PermaFix
LLW	Gauge with radionuclide source (returned to lab for recycling)	125	Troxler Laboratories
PCB	Light ballasts and other materials contaminated with PCBs	6801	PermaFix
PCB/LLW	Capacitors, empty containers, and other PCB wastes	4978	Materials & Energy Corp
PCB/LLW	Scrap metal, plastics, rags, sludges, and other solids	174,872	Energy Solutions
PCB/LLW	Transite siding, scrap metal, and other solids	3,244,891	Nevada Test Site
PCB/LLW/ RCRA	Circuit boards, batteries, scrap metal, plastics, and other materials contaminated with metals	11,093	Energy Solutions
PCB/LLW/ RCRA	Lab wastes and other materials	12,689	Materials & Energy Corp
PCB/LLW/ RCRA	Water solutions and other materials	21,637	TSCA incinerator
PCB/LLW/ RCRA	Excess samples, absorbents, and other debris contaminated with solvents and/or metals	248	PermaFix
RCRA/LLW	Waste oils, other wastewater, and sludges contaminated with solvents and/or metals	11,874	Diversified Scientific Solutions
RCRA/LLW	Solids contaminated with solvents from X-624 tanks and other solid debris contaminated with metals	6534	Energy Solutions
RCRA/LLW	Decontamination solutions and carbon wastes	221,984	TSCA incinerator
RCRA/LLW	Filter ash, waste oils, alumina, and other materials contaminated with solvents and/or metals	530,017	Materials & Energy Corp

**Table 3.2. Waste Management Program off-site treatment, disposal, and recycling accomplishments for 2007 (continued)**

Waste type	Waste stream	Quantity (pounds)	Treatment, disposal, or recycling facility
RCRA/LLW	Liquids and solids contaminated with metals and solvents, flammable liquids, and waste paint/paint sludge	37,390	PermaFix
Industrial waste	Used oil	2038	Diversified Scientific Solutions
Industrial waste	Batteries, circuit boards, and light bulbs	2435	Materials & Energy Corp
Industrial waste	Flux, silver plating powder, and other materials	33	PermaFix
Industrial waste	Lead sheets for recycling	41,706	Roane Metals Group

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

- 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 WASTE MINIMIZATION AND POLLUTION PREVENTION 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 environmental management system. The PORTS Environmental Sustainability Program includes elements of pollution prevention, waste minimization, affirmative procurement, sustainable design, and energy and water efficiency.

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 environmental management system 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.

Highlights of the DOE PORTS Environmental Sustainability Program in fiscal year 2007 include the following accomplishments:

- recycling approximately 13,669 pounds of office and mixed paper, 11,905 pounds of cardboard, and 750 pounds of plastic;
- recycling 758 pounds of batteries, 1437 pounds of fluorescent light tubes, and 2205 pounds of toner cartridges;
- providing approximately 150 gallons of excess paint to the local Boy Scouts and the Civil Air Patrol for reuse in the community;
- recycling or reusing computer hard drives, desktop computers, and monitors;
- recycling 18,000 pounds of Freon;
- purchasing excess equipment from and providing excess equipment to other DOE facilities and private companies rather than purchasing new equipment or disposing of old equipment; and
- continuing use of 80/20 biodiesel in on-site tractors and mowers (began in 2006).

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 2007, a dry pipe sprinkler system was installed in a DOE pumphouse to eliminate the need to heat the pumphouse during the winter to keep the pipes from freezing, which is expected to save approximately \$350,000 in electrical costs annually. The boilers for the Recirculating Heating Water System that heated former DOE buildings (transferred to USEC beginning September 29, 2007) were shut down from June through September saving \$175,000 in natural gas. DOE PORTS also purchased 24,000 megawatt hours of electricity from renewable energy sources.

### **3.5 INACTIVE FACILITIES REMOVAL**

DOE continued demolition of a number of inactive, surplus PORTS facilities during 2007. Table 3.3 lists the facilities removed in 2006 (when the removals began) and 2007.

**Table 3.3 Inactive facilities removed from DOE PORTS  
2006 – 2007**

Facility	Year removed	Location (Quadrant)
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 3.2.1.2 and Chapter 6, Section 6.4.2). The DOE and Ohio EPA are working together to develop a plan to investigate the soil beneath the X-770 Mechanical Testing Facility.

### **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.

DOE PORTS opened a public Environmental Information Center in February 1993 to provide public access to all documents used to make decisions on remedial actions being taken at the plant. The Information Center is located just north of PORTS at the Ohio State University Endeavor Center (Room 220), 1862 Shyville Road, Piketon, Ohio 45661. The email address is [eic@falcon1.net](mailto:eic@falcon1.net). 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 or email [eic@falcon1.net](mailto:eic@falcon1.net)). The latest Annual Environmental Report and other information can also be obtained from the PORTS web site at [www.lpports.com](http://www.lpports.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. The *Portsmouth Environmental Bulletin* is distributed to more than 4,000 recipients, including those on the community relations mailing list, neighbors within 2 miles of the plant, plant employees, and plant retirees.

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.

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