DOE/EA-1346

DRAFT

ENVIRONMENTAL ASSESSMENT

REINDUSTRIALIZATION PROGRAM AT THE PORTSMOUTH GASEOUS DIFFUSION PLANT PIKETON, OHIO

May 2001

U.S. Department of Energy
Oak Ridge Operations Office
Oak Ridge, Tennessee

APPROVED FOR RELEASE BY:

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for
Public Review

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May 9, 2001
EM-97-0022

U.S. DOE Environmental Information Center
3930 U.S. Rt. 23
P.O. Box 693
Piketon, Ohio 45661

To Whom It May Concern:

DRAFT ENVIRONMENTAL ASSESSMENT

Enclosed for your review and comment is the U.S. Department of Energy's (DOE) Draft Environmental Assessment that evaluates potential impacts of transferring by lease and/or disposal, land and facilities located at the Portsmouth Gaseous Diffusion Plant (PORTS) in Piketon, OH as part of a reindustrialization program. Under the proposed action, DOE would transfer land and facilities to a community reuse organization or to other entities, should DOE determine them suitable.

DOE has prepared this Draft Environmental Assessment (EA) to present the public with information on the proposed activities and to ensure that potential environmental impacts are considered in this decision making process.

Please send any written comments to Mike Dabbert, U.S. Department of Energy, P.O. Box 700, Piketon, Ohio 45661 by close of business June 11, 2001.

Sincerely,

Sharon J. Robinson
Site Manager
Portsmouth Site Office

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SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

contributed to the preparation of this document and should not be considered an eligible contractor for its review.

CONTENTS

APPENDICES

FIGURES

TABLES

ABBREVIATIONS AND ACRONYMS

ALARA	as low as reasonably achievable
AMSL	above mean sea level
bgs	below ground surface
BJC	Bechtel Jacobs Company LLC
BMP	best management practice
CAA	Clean Air Act of 1970
CAS/CMS	Cleanup Alternatives Study/Corrective Measures Study
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CEQ	Council on Environmental Quality
CFR	*Code of Federal Regulations*
Ci	curie
CWA	Clean Water Act of 1972
CX	Categorical Exclusion
dBA	A-weighted decibels
D&D	decontamination and decommissioning
DOE	U.S. Department of Energy
EA	environmental assessment
EDE	effective dose equivalent
EPA	U.S. Environmental Protection Agency
FONSI	Finding of No Significant Impact
FY	fiscal year
GCEP	Gas Centrifuge Enrichment Plant
GDP	gaseous diffusion plant
ha	hectare
HEU	highly enriched uranium
km/h	kilometers per hour
L/d	liters per day
MGD	million gallons per day
mph	miles per hour
MW	megawatt
MOA	Memorandum of Agreement
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act.
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
NRCE	National Register Criteria for Evaluation
NRHP	National Register of Historic Places
OAI	Ohio Archaeological Inventory
ODNR	Ohio Department of Natural Resources
ODOD	Ohio Department of Development
OHI	Ohio Historic Inventory
OHPO	Ohio Historic Preservation Office
OSHA	Occupational Safety and Health Act of 1970
OVEC	Ohio Valley Electric Corporation
PCB	polychlorinated biphenyl
pCi/L	picocuries per liter

1	PORTS	Portsmouth Gaseous Diffusion Plant
2	PRG	preliminary remediation goal
3	PSD	prevention of significant deterioration
4	psi	pounds per square inch
5	RCRA	Resource Conservation and Recovery Act of 1976
6	RCW	recirculating cooling water
7	RIMS II	Regional Input-Output Modeling System
8	ROI	region of influence
9	ROW	right-of-way
10	SAR	Safety Analysis Report
11	SHPO	State Historic Preservation Officer
12	SODI	Southern Ohio Diversification Initiative
13	SOMC	Southern Ohio Medical Center
14	SWU	separative work unit(s)
15	TCE	trichloroethene
16	TSCA	Toxic Substances Control Act of 1976
17	USACE	U.S. Army Corps of Engineers
18	USEPA	U.S. Environmental Protection Agency
19	UF_6	uranium hexafluoride
20	USEC	United States Enrichment Corporation
21	USFWS	U.S. Fish and Wildlife Service
22	VOC	volatile organic compound
23	WWH	Warmwater Habitat

EXECUTIVE SUMMARY

The U.S. Department of Energy (DOE) proposes to transfer real property (i.e., underutilized, surplus, or excess Portsmouth Gaseous Diffusion Plant [PORTS] land and facilities) by lease and/or disposal (e.g., sale, donation, transfer to another federal agency, or exchange) via a reindustrialization program. Using the program, DOE would transfer the real property to a community reuse organization, to other federal agencies, or to other interested persons and entities, should DOE determine them suitable. Additionally, DOE may choose to transfer excess and, in some cases, non-excess personal property as part of the proposed action. Personal property is defined as movable items—property that is not permanently affixed to, or considered integral to, a building. Computers, furniture, drill presses, and removable laboratory equipment are examples of personal property.

DOE has prepared this Environmental Assessment (EA) to present the public with information on the proposed activities and to ensure that potential environmental impacts are considered in the decision-making process.

The purpose of the proposed DOE action is to offset potential economic losses resulting from DOE and United States Enrichment Corporation (USEC) workforce restructuring at PORTS and to diversify the economic base of the region for the future by making PORTS land and facilities available for economic development. The need for DOE action is driven by the ongoing workforce restructuring, which is having negative impacts on jobs and the economy in Piketon, Ohio, and surrounding communities. DOE also has a programmatic need to reuse underutilized or excess facilities in order to accelerate environmental cleanup and reduce operational and maintenance costs at PORTS. DOE also recognizes that transferring land and facilities for local economic development purposes can benefit the federal government by reducing or eliminating DOE's landlord costs.

Under the program, transferred land and facilities would be developed or utilized for a range of industrial and commercial uses. Potential leases would include restrictions of use to ensure that the tenants would comply with all applicable local, state, and federal regulations and would be responsible for seeking, obtaining, and complying with all required permits. For transfers involving disposal instead of leasing, DOE may include restrictions in the deed, including restrictions to protect sensitive resources. However, DOE control over the types of development that might occur on disposed land would generally be limited. DOE's mission needs would determine the PORTS land and facilities actually available for transfer and which areas would remain under DOE control.

Environmental impacts also were evaluated for the no-action alternative. If no action were taken, the underutilized, surplus, or excess PORTS land and facilities would not be developed or utilized, and the current land use would continue including environmental restoration, waste management, and decontamination and decommissioning activities. In addition, potential jobs and revenue that would result from reindustrialization would not be realized, and projected job losses because of downsizing and USEC shutdown of uranium enrichment operations at PORTS would continue.

Three alternatives were dismissed by DOE from further analysis: (1) transfer of facilities only within the industrialized portion of PORTS; (2) transfer of land only from the undeveloped areas of PORTS with access to on-site utilities; and (3) transfer of PORTS land and facilities by lease only. These alternatives were dismissed from further consideration because they would not serve to meet the purpose and need of the proposed action.

Because the actual future uses of PORTS land and facilities are not currently known, a "bounding" analysis was used to estimate potential impacts. The bounding analysis evaluates the potential impacts

from surrogate industries and commercial uses that are likely to be developed and provides a conservative upper bound of the potential impacts. The upper bound includes projections for potential emissions, effluents, waste streams, services and infrastructure, and project activities. Source terms (e.g., emission rates of gases from an industrial process) of activities proposed by future tenants may differ from those characterized and analyzed in this EA. Prior to completing each transfer agreement, DOE, as property owner, would review each action to be undertaken by a proposed lessee or purchaser, and all source terms associated with the proposed uses. If the proposed uses and their potential impacts were not consistent with the uses and bounding analysis evaluated in this EA, DOE would determine the appropriate level of National Environmental Policy Act (NEPA) documentation to evaluate impacts and would conduct such a review.

Under the proposed action, land use impacts would include a change in the use and visual character of the land from a more natural to a more developed environment typical of other regional industrial parks. In addition to development of PORTS land parcels, existing facilities within the industrialized portion of PORTS would also be utilized.

Potential air quality impacts are expected to be minimal. Localized temporary increases in fugitive particulate levels during construction could occur. Operational emissions of criteria pollutants would be below threshold levels defining "major sources" and would not exceed National Ambient Air Quality Standards. Because of the type of commercial and industrial uses proposed for PORTS reindustrialization, potential emissions of radionuclides and other hazardous pollutants would be minimal. Any regulated operations, including those with the potential to have air quality impacts, would be required to apply for, obtain, and comply with all permits and licenses. Potential emissions would not be expected to exceed current emissions from ongoing operations, result in a violation of air quality standards, have an adverse impact on air quality, or be detrimental to human health.

Through the use of best management practices and with the implementation of appropriate mitigation measures, potential adverse environmental impacts to soils, water resources, and ecological resources would be expected to be minimal. Potential impacts to soils include soil disturbance and topsoil loss. Consultation has been initiated with the Natural Resources Conservation Service to determine if any prime farmland would be adversely impacted by the proposed action. Surface waters could be impacted by soil erosion, runoff, sedimentation, and potential fuel or waste spills. Impacts to ecological resources include direct disturbance of habitat and wildlife including direct injury and mortality of some individual species. No threatened and/or endangered species are known to be present within any areas proposed for development, and floodplains, streams, and wetland areas would be avoided to the extent practical. Actions within these areas, if necessary, and their associated unavoidable impacts would be undertaken via permitted processes, as appropriate.

To ensure that the potential effects of individual transfer proposals are thoroughly considered, and until a Programmatic Agreement is established for PORTS, notification and consultation with the Ohio State Historic Preservation Officer (SHPO) would be conducted on a proposal-by-proposal basis. Where a DOE review of a proposal results in a determination that the proposed undertaking (e.g., lease) would have an adverse effect on a cultural resource(s), a step-by-step review of the undertaking, up to and including preparation of a Memorandum of Agreement between DOE and the Ohio SHPO, would be conducted.

Socioeconomic impacts would depend on the success in recruiting businesses and industries to locate at PORTS. During a 10-year period, approximately 2600 direct jobs could be created from reindustrialization activities depending on the marketing success and the types of development attracted. Since reindustrialization would only partially offset the recent and continuing reductions in DOE-related jobs and associated population loss, no appreciable increase in housing demand is expected. Also, there

should be no subsequent increases in demand for education, residential water and sewer services, hospitals, and police and fire protection. Protective and emergency services are expected to be adequate for the expected development. Reindustrialization would have the positive impact of generating additional revenue for local governments through the state income tax and local taxes paid on purchases made within the region of influence. Based on the absence of minority tracts relative to PORTS, disproportionate impacts to minority populations would not occur. Although many low-income populations are located in Pike County, no disproportionately high and adverse human health or environmental impacts to these populations are expected. DOE would review each transfer proposal prior to approval to ensure that unacceptable impacts would not occur.

Adverse transportation and noise impacts would be minimal. Any additional traffic that would result from PORTS reindustrialization would likely be offset by continued job losses at the site. No sensitive noise receptors are located within or near PORTS.

Workers at PORTS construction sites would be subject to safety hazards common to any construction site. Future lessees or purchasers would be required by state and federal regulators to have appropriate environmental permits with limitations designed to protect public and worker health and safety. Operations of industries such as those evaluated in this EA are not expected to have major radiological and chemical emissions. Pursuant to the transfer instrument (i.e., lease or deed), all activities would comply with applicable environmental occupational safety and health regulations. If applicable, industries located within PORTS would be required to have an emergency response plan should a release of hazardous materials (to any environmental medium—air, surface water, groundwater, and soil) occur. Resources would be available for response to an event (such as a release off-site) through agreements with the on-site emergency response units and the surrounding communities.

1. INTRODUCTION

1.1 PURPOSE AND NEED FOR U.S. DEPARTMENT OF ENERGY ACTION

The proposed action evaluated in this environmental assessment (EA) is the transfer by lease and/or disposal (e.g., sale, donation, transfer to another federal agency, or exchange) of U.S. Department of Energy (DOE) land and facilities located at the Portsmouth Gaseous Diffusion Plant (PORTS) as part of a reindustrialization program. The purpose of the proposed DOE action is to offset potential economic losses resulting from DOE and United States Enrichment Corporation (USEC) workforce restructuring at PORTS and to diversify the economic base of the region for the future by making PORTS land and facilities available for economic development.

The need for DOE action is driven by the ongoing workforce restructuring, which is negatively impacting jobs and the economy in Piketon, Ohio, and surrounding communities. DOE also has a programmatic need to reuse underutilized or excess facilities in order to accelerate environmental cleanup and reduce operational and maintenance costs at PORTS. DOE also recognizes that transferring land and facilities for local economic development purposes can benefit the federal government by reducing or eliminating DOE's landlord costs. DOE has a need for flexibility in the transfer of property through leasing and/or disposal for both land and facilities located at PORTS. Other reindustrialization initiatives have demonstrated that this flexibility is necessary to attract and retain the widest range of businesses and to maximize the potential for reuse and economic development opportunities.

The proposed action could help to accelerate environmental cleanup by leasing facilities to potential tenants who could choose to decontaminate and remediate them (at their expense) as part of a lease agreement. Lessees also could agree to clean up areas other than their lease space to receive favorable lease terms. In this way, DOE expenditures for environmental restoration and operational costs would be reduced by private expenditures. Other cost savings, such as reducing utility costs and other overhead services, would be realized as well. Additionally, as an incidental benefit, federal revenue from payroll taxes would be generated through private job creation.

1.2 BACKGROUND

PORTS is one of the only two federally owned, privately operated uranium enrichment facilities in the United States. The uranium enrichment production and operations facilities at the site are owned by the DOE and leased to USEC. DOE's managing and integrating contractor is responsible for environmental restoration, waste management, and operation of non-leased facilities (facilities not leased to USEC) (DOE 1999a).

PORTS is located in a rural area of Pike County in south central Ohio, on a 9.3-km^2 (5.8-mile^2) site (Figs. 1.1 and 1.2). The nearest residential center in this area is Piketon, which is about 8.1 km (5 miles) north of the plant on U.S. Route 23. The county's largest community, Waverly, is about 16.1 km (10 miles) north of the plant. Additional population centers within 80.5 km (50 miles) of the plant are Portsmouth, 43.5 km (27 miles) south; Chillicothe, 43.5 km (27 miles) north; and Jackson, 45.1 km (28 miles) east.

1.2.1 PORTS History

PORTS has been in operation since the early 1950s as an active uranium enrichment facility supplying enriched uranium for government and commercial use. Initially, PORTS was needed to provide

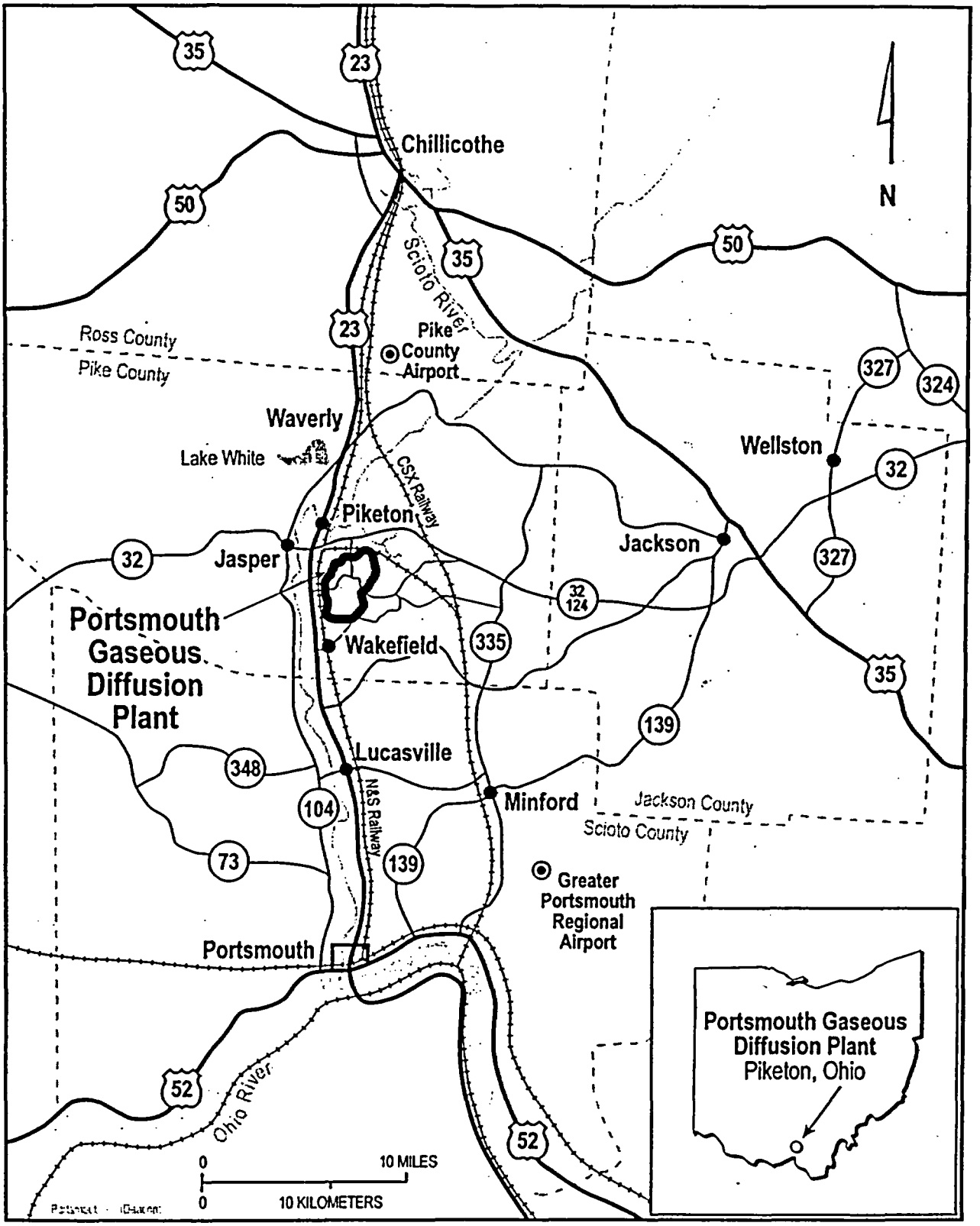

Fig. 1.1. Location of PORTS in relation to the geographic region.

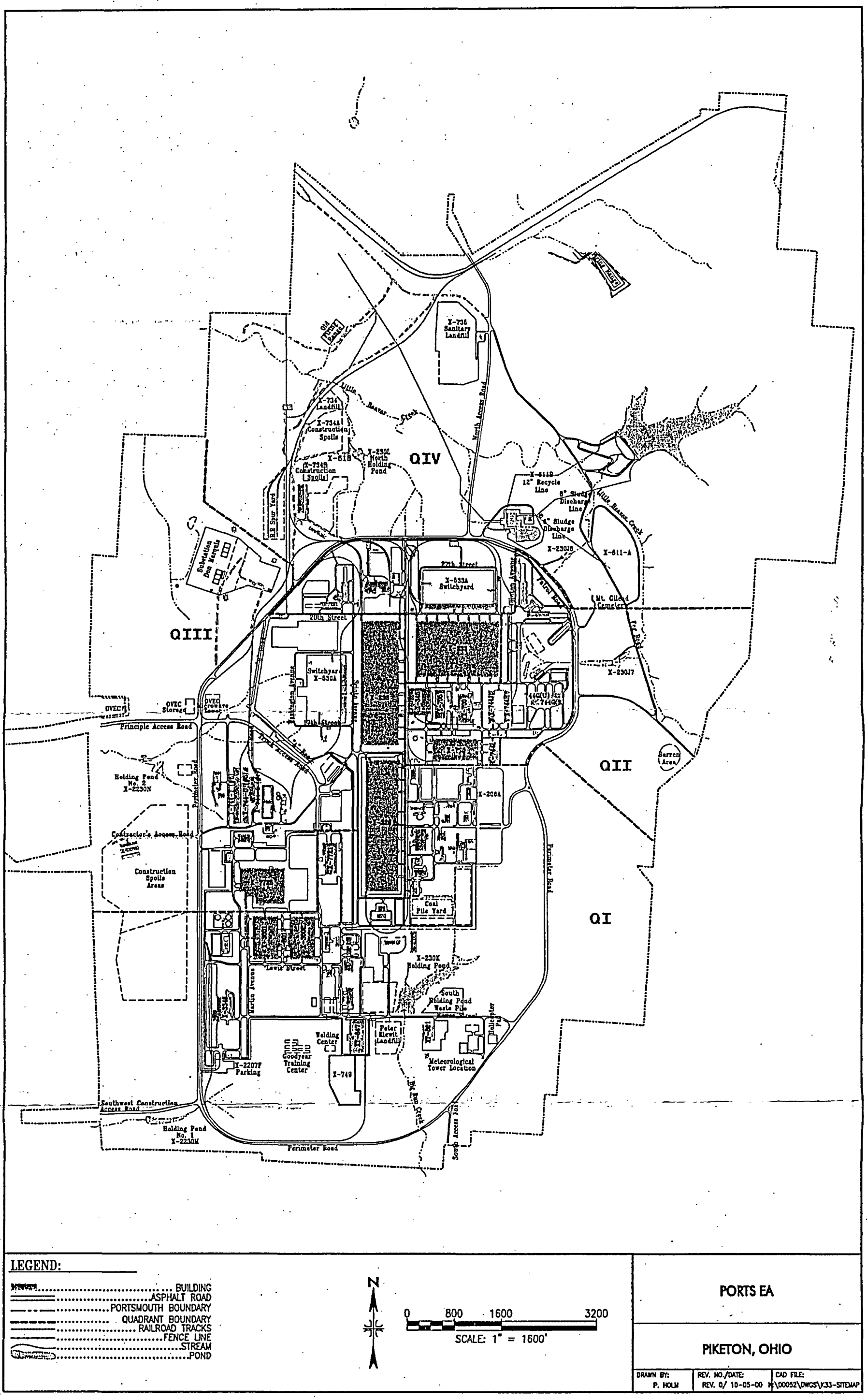

Fig. 1.2. PORTS environmental assessment area.

^{235}U at assays above those of the other production facilities at Oak Ridge, Tennessee, and Paducah, Kentucky. In the late 1970s, PORTS was chosen as the site for a new enrichment facility using gas centrifuge technology. Construction of the Gas Centrifuge Enrichment Plant (GCEP) began in 1979 but was halted in 1985 because the demand for enriched uranium decreased. Additionally, laser technology promised to be a more efficient and economical supply of enriched uranium for the future. In 1991, DOE announced the suspension of production of highly enriched uranium (HEU) at PORTS for the U.S. Navy. The plant continues to produce only low-enriched uranium for use by commercial nuclear power plants (DOE 1999a; ORNL 1999).

In accordance with the Energy Policy Act of 1992, USEC, a newly created government corporation, assumed full responsibility on July 1, 1993, for uranium enrichment operations at PORTS. However, DOE retains certain responsibilities for decontamination and decommissioning (D&D), waste management, depleted uranium hexafluoride (UF_6) cylinders, and environmental remediation. USEC subsequently became a publicly held private corporation on July 28, 1998 (DOE 1999a; ORNL 1999).

Martin Marietta Energy Systems, Inc., and its successor company Lockheed Martin Energy Systems, Inc., were the management contractors for DOE from November 1986 through March 1998. On April 1, 1998, Bechtel Jacobs Company LLC (BJC) assumed responsibility as the environmental management contractor for DOE. BJC is responsible for environmental restoration, waste management, and operation of non-leased facilities (facilities that are not leased to USEC) at PORTS.

1.2.2 Uranium Enrichment Activities at PORTS

The uranium enrichment production and operations facilities at PORTS are leased to USEC and take place on approximately 259 hectares (ha) (640 acres) within the 1503-ha (3714-acre) DOE reservation. In addition to the three gaseous diffusion process buildings, extensive support facilities are required to maintain the diffusion process. The support facilities include administration buildings, a steam plant, electrical switchyards, cooling towers, cleaning and decontamination facilities, water and wastewater treatment plants, fire and security headquarters, maintenance, warehouse, and laboratory facilities.

On June 21, 2000, USEC announced that it would cease uranium enrichment operations at PORTS starting in June 2001 (USEC 2000). Since USEC's announcement, DOE has proposed placing the gaseous diffusion plant (GDP) in cold standby. USEC also would continue to operate its transfer and shipping facilities at PORTS for approximately 5 years after the current enrichment operations cease. These actions are discussed further in Sect. 2.2.

1.2.3 Environmental Restoration at PORTS

The DOE-PORTS Environmental Restoration Program was developed in 1989. A primary law for cleanup at the site is the Resource Conservation and Recovery Act (RCRA) of 1976, amended in 1984 by the Hazardous and Solid Waste Amendments. Other applicable laws include the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, amended in 1986, Toxic Substances Control Act of 1976 (TSCA), Clean Water Act of 1972 (CWA), and Clean Air Act of 1970 (CAA). Oversight of cleanup activities at PORTS is conducted by the Ohio Environmental Protection Agency (EPA) and U.S. Environmental Protection Agency (USEPA) under the directive of a Consent Decree between the State of Ohio and DOE, issued on August 29, 1989, and an Administrative Consent Order between DOE, Ohio EPA, and the USEPA, issued on September 29, 1989 (amended in 1994 and 1997) (DOE 1999a). The site is divided into quadrants based on groundwater flow patterns to facilitate the investigation and cleanup. In 1998, DOE submitted a Cleanup Alternatives Study/Corrective Measures Study (CAS/CMS) for two of the quadrants. The Ohio EPA and USEPA approved the CAS/CMS for Quadrant III on July 13, 1998, and Quadrant IV on October 18, 1998. The Quadrant I

CAS/CMS was approved on June 12, 2000, and the draft final study for Quadrant II was submitted in August 2000.

1.2.4 Waste and Materials Management at PORTS

DOE-PORTS, through its Waste Management Program, oversees the management of waste generated from plant operations and from environmental restoration projects. Under the USEC lease agreement, USEC pays DOE for storage of some waste generated by plant operations. However, USEC is responsible for waste treatment and disposal. Waste management requirements are varied and often complex because of the variety of wastes generated by DOE-PORTS activities, including radioactive, hazardous (chemical), polychlorinated biphenyls (PCBs), asbestos, industrial, and mixed (radioactive and hazardous) wastes. All waste management activities are conducted in compliance with state and federal regulations. Supplemental policies also have been implemented for waste management. They include:

- minimizing waste generation;
- characterizing and certifying wastes before they are stored, processed, treated, or disposed;
- pursuing volume reduction and use of on-site storage (when safe and cost effective) until a final treatment and/or disposal option is identified; and
- recycling.

1.2.5 Reindustrialization Program

Several ongoing initiatives are underway at PORTS in coordination with the Southern Ohio Diversification Initiative (SODI), the recognized community reuse organization for PORTS. DOE's Office of Worker and Community Transition established community reuse organizations to minimize the negative effects of workforce restructuring at DOE facilities that have played an historic role in the nation's defense. These organizations provide assistance to the neighboring communities negatively affected by changes at these sites.

SODI was established in August 1995 and was incorporated as a non-profit organization in July 1997. The purpose of the organization is to create job opportunities within the four counties most affected by PORTS downsizing—Pike, Ross, Jackson, and Scioto. SODI members represent business, industry, education, economic development, government, DOE, BJC, and USEC. A Community Transition Plan was completed in 1997 and contains a series of initiatives designed to create the human and physical infrastructure necessary to decrease dependency on the DOE facility, diversify the economy, create high-wage jobs, strengthen the tax base, and improve the quality of life in the area.

DOE has provided $10 million dollars through grants to SODI for economic development projects and has committed an additional $2.95 million for fiscal year (FY) 2000–2001. SODI has invested this money primarily in the development of industrial parks in each of the four counties. In addition, SODI actively promotes the reuse of DOE property by private industry. The first lease between DOE and SODI was signed on April 1, 1998, for 2.4 to 3.2 ha (6 to 8 acres) of land on the north side of the PORTS property. The tract was used as a right-of-way (ROW) for a railroad spur to connect with the existing DOE north rail spur. A portion of this property was then subleased by SODI to the Mead Corporation for access to the rail line for a new wood grading operation. This action was covered under a National Environmental Policy Act (NEPA) Categorical Exclusion (CX) No. CX-POR-522 completed in 1997. A second lease between DOE and SODI was signed on October 13, 2000, for 4.9 ha (12 acres) of land

adjacent to the area of the first lease. This tract will be used for additional railroad spurs and use of existing rail facilities. This action was covered under CX-PORTS-538.

Additional DOE real estate outgrants that have recently occurred at PORTS include the following:

- ROW easement for a waterline and sewer line,
- license for non-federal use of property for concurrent road usage,
- recreational license to Scioto Township for development of a community park,
- greenway licenses to Scioto Township and Seal Township, and
- lease/license (short-term) for use of parking lots by SODI.

1.3 SCOPE OF THIS EA

DOE has prepared this EA to present the public with information on the potential impacts associated with the proposed transfer of land and facilities and to ensure that environmental impacts are considered in the decision-making process. DOE is required to assess the potential consequences of its activities on the human environment in accordance with the Council on Environmental Quality (CEQ) regulations [40 *CFR* Parts 1500–1508][1] implementing NEPA and DOE NEPA Implementing Procedures (10 *CFR* 1021). If the impacts associated with the proposed action are not identified as significant as a result of this EA, DOE shall issue a Finding of No Significant Impact (FONSI) and will proceed with the action. If impacts are identified as significant, an Environmental Impact Statement will be prepared.

This EA (1) describes the existing environment at PORTS relevant to potential impacts of the proposed action and alternatives; (2) analyzes potential environmental impacts including those from development of a range of industrial and commercial uses; (3) identifies and characterizes cumulative impacts that could result from PORTS reindustrialization in relation to other ongoing or proposed activities within the surrounding area; and (4) provides DOE with environmental information for use in prescribing restrictions to protect, preserve, and enhance the human environment and natural ecosystems.

1.3.1 Level of Detail

Certain aspects of the proposed action have a greater potential for creating adverse environmental impacts than others. For this reason CEQ regulations (40 *CFR* 1502.1 and 1502.2) recommend a "sliding-scale" approach so that those actions with greater potential effect can be discussed in greater detail in NEPA documents than those that have little potential for impact.

Some aspects of the proposed action evaluated in this EA are similar to other reindustrialization actions in which DOE is involved. Some of the analysis contained in the NEPA documentation completed for those actions has been summarized and referenced in this EA to reduce excessive paperwork as recommended by the CEQ regulations (40 *CFR* 1500.4 and 1502.21).

1.3.2 Bounding Analysis

Because the actual future uses of land and facilities at PORTS are not currently known, a "bounding" analysis was used to estimate potential impacts. In this EA, reasonably foreseeable land use scenarios and their associated environmental effects are addressed. Actual approvals would be contingent upon receipt of necessary permits, licenses, and individual environmental reviews.

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[1] *Code of Federal Regulations.*

The bounding analysis is based on several assumptions. First, various types of industries and commercial uses were identified as compatible with existing PORTS land and facilities. This was based on the types of industries and businesses that are currently operating in industrial parks in the region around PORTS and the results of a target industry analysis provided by SODI that identifies the types of industries most likely to locate to or expand in Southern Ohio. SODI also provided information on several industries that have expressed an interest in reusing some PORTS facilities. Based on information about these facilities (including discussions with operators), realistic assumptions were made, and an upper bound was defined. The upper bound includes projections for potential emissions, effluents, waste streams, services and infrastructure, and project activities (Sect. 2.1.3). Finally, technical experts analyzed the potential for adverse impacts from a bounding scenario and defined commonly used measures that could be used to mitigate potential impacts.

Source terms (e.g., emission rates of gases from an industrial process) of activities proposed by a potential purchaser or lessee may differ from those characterized and analyzed in this EA. To ensure that the proposed activities fall within the bounding analysis in this EA, DOE, as property owner, would review each transfer proposal, including all source terms associated with the proposed uses. If the proposed uses and their potential impacts were not consistent with the uses, bounding analysis, and associated impacts evaluated in the EA, DOE would determine the appropriate level of NEPA documentation to evaluate impacts and would conduct such a review.

2. DESCRIPTION OF ALTERNATIVES

2.1 PROPOSED ACTION

DOE proposes to transfer real property (i.e., underutilized, surplus, or excess PORTS land and facilities) by lease and/or disposal (e.g., sale, donation, transfer to another federal agency, or exchange) via a reindustrialization program. Using the program, DOE would transfer the real property to a community reuse organization, to other federal agencies, or to other interested persons and entities, should DOE and the regulators determine them suitable. The land and facilities would be developed or utilized for a range of industrial and commercial uses. DOE's mission needs would determine which PORTS land and facilities would actually be available for transfer and which areas would remain under DOE control. Additionally, DOE may choose to transfer excess personal property (e.g., equipment, furniture, etc.) as part of the proposed action.

Potential tenants could choose to decontaminate and remediate certain facilities (at their expense) as part of a lease agreement. Lessees also could agree to clean up areas other than their lease space to receive favorable lease terms. Even though potential tenants may choose to clean up certain PORTS facilities as part of their lease agreement, no facilities would be transferred by DOE if estimated total excess cancer risks are above USEPA's excess cancer risk target range of 10^{-6} to 10^{-4}. Non-cancer hazards also could not exceed acceptable limits (i.e., hazard index greater than 1). Facilities could be cleaned up by DOE or DOE contractors to acceptable levels and then transferred. However, special restrictions and administrative controls may still be required.

Additionally, DOE may choose to transfer excess and, in some cases, non-excess personal property as part of the proposed action. Release of personal property may be required to enhance the marketability of a facility, and potential businesses may be interested in a facility because of the equipment it holds. Personal property is defined as movable items—property that is not permanently affixed to or considered integral to a building. Computers, furniture, drill presses, and removable laboratory equipment are examples of personal property. A description of the personal property transfer process is presented in Sect. 2.1.2.

Additional definitions associated with personal property include the following:

- Accountable Property – all property that requires an inventory tracking system and assigned custodians.
- Non-Accountable Property – personal property that does not require an inventory tracking system.
- Capital Property – property with an acquisition value of $25,000 or greater and an expected service life of more than 2 years.
- High-risk Property – property that, because of its particular nature and its potential impact upon public health and safety, on the environment, on security interests, or on proliferation concerns, must be handled, controlled, cleared, and disposed of in other than the normal manner.
- Consumable Property – personal property that is consumed or expended in normal use.

Lease agreements would define lessee/sublessee responsibilities, agreements, and lease restrictions, including compliance with federal, state, and local laws, regulations, and ordinances; decontamination; access to utilities and services at PORTS; and security measures. Decontamination of facilities either by

DOE or its designee, or by a prospective tenant or its designee, would vary in degree, depending on the proposed use of a facility and contractual and regulatory requirements. Leases would not be effective until all NEPA and other statutory and regulatory requirements were met.

In the event a lease or sublease is terminated or revoked, appropriate language would exist within the lease documents to provide for return of the leased facility(s) or land. Necessary restorations, including but not limited to the return of all unimproved land to the same state of environmental cleanliness, are described in the lease. All costs associated with determining the environmental status and remedies to bring about this condition and state of environmental cleanliness would be the responsibility of the lessee.

At the end of the lease or sublease period, the facility(s) or land would either be made available by DOE for further use by another tenant or be used again by DOE to support mission requirements. If no further uses were identified, the facility(s) would likely be scheduled for D&D. Returned land would either remain the property of DOE or be declared excess, making it eligible for disposal. The disposition of any structures or improvements on the property would depend on the specific conditions of the lease or sublease. DOE as the landlord could take possession of any structures or improvements or the commercial business could be allowed to remove equipment and possibly any temporary or prefabricated structures.

For transfer proposals involving disposal instead of leasing, DOE may include restrictions in the deed, including restrictions to protect sensitive resources (i.e., floodplains, wetlands, archaeological sites, and sensitive habitats or species). However, DOE control over the types of development that might occur on disposed property would generally be limited.

2.1.1 Real Property Transfer Process

The process for transferring real property at defense nuclear facilities for economic development is described in a DOE-issued interim final rule, "Transfer of Real Property at Defense Nuclear Facilities for Economic Development" (10 *CFR* Part 770). The rule became effective on February 29, 2000 (65 *Federal Register* 10685). The *Federal Register* notice of the rule is provided in Appendix A. Leasing for purposes of economic development would be under the statutory authority of Section 3154 of the Fiscal Year 1994 National Defense Authorization Act [42 U.S.C. 7256(c)], commonly referred to as the "Hall Amendment." Transfer of PORTS real property also is authorized under Section 161g of the Atomic Energy Act [42 U.S.C. 2201 (g)].

The transfer process would be initiated when a potential purchaser or lessee prepares and provides a proposal for the transfer of real property at PORTS. DOE would then review the proposal and other site-specific information on the property proposed for transfer, and make a decision whether or not to proceed with development of a transfer agreement.

Prior to transfer, DOE would assess the condition of a facility or land parcel and determine if any classification issues exist. DOE would also prepare a report that establishes a baseline environmental condition of the property and identifies hazardous materials that are present, stored, or have been released at the facility or land area proposed for transfer. The report also would include information on prior property ownership, past and present property use, as well as past and present activities on adjacent properties. Depending upon the review of historic records, environmental sampling may be conducted. Radiological surveys, consistent with established reindustrialization protocols, such as are used at the DOE-Oak Ridge, Tennessee, facilities would also be conducted. The resultant data would be used in an environmental baseline report. A Screening-Level Human Health Risk Assessment also may be prepared, depending on facility history, contaminant information, etc.

An Environmental Review Checklist and Hazard Evaluation Worksheet would be completed prior to any transfer of land or facilities. These documents would record details about the operations proposed by the potential purchaser or lessee; potential emissions, effluents, and wastes expected to be generated by these activities; proposed handling, treatment, transport, and disposal of wastes; materials to be stored and used on-site; utility and infrastructure requirements; and other relevant information. Examples of the Environmental Review Checklist and the Hazard Evaluation Worksheet are provided in Appendix B. DOE would use this information in its review of each proposal and to document whether or not additional NEPA analysis would be needed. Proposals for uses that exceed the bounds of the impact analysis in this EA would require separate NEPA review before the transfer could be completed.

2.1.2 Personal Property Transfer Process

Disposition and reuse of personal property is governed by Federal Property Management Regulations as well as DOE regulations. Under the reindustrialization program, account executives would identify all personal property to be transferred from DOE. An environmental review, similar to what would be required for the transfer of real property (see Sect. 2.1.1), would be performed. DOE would use this information in its review of the personal property transfer proposal. Upon review, if it was determined that the proposal exceeded the bounds of the impact analysis in this EA, additional NEPA review would be completed or the proposal would not be approved. All personal property would be required to have a radiological evaluation to ensure that there is no removable radioactive contamination present above the appropriate release guidelines, and that appropriate controls are in place to reduce exposure to fixed radioactive contamination to below DOE guidelines. Health physics personnel would be consulted as survey practices and requirements may vary depending upon the particular piece of property and the environment to which it has been subjected. The reindustrialization account executives would work with the appropriate property organization to conduct a high-risk property review for all identified property, and the property would be listed as accountable versus non-accountable. The account executives would also work with the DOE Assets Manager to determine if the property would be offered to DOE local prime contractors before the property was made available to other entities. A listing of the accountable property would be included in, or as an attachment to, the lease agreement. Lessees or sublessees would not be allowed to move accountable property off the PORTS property without prior approval from DOE.

2.1.3 PORTS Use Scenarios and Assumptions

Since specific commercial and industrial uses of land and facilities at PORTS would not be known until proposals for transfer have been reviewed, DOE has developed reasonably foreseeable scenarios and uses to bound the impacts analysis. Scenarios identify potential tenants, utilities and infrastructure, areas to be excluded from development, and a range of emissions, effluents, and wastes that could result from commercial and industrial activities.

2.1.3.1 General industrial and commercial use

Processing and light to medium manufacturing, storage and warehousing, research and testing, business offices, raw material storage facilities, and commercial businesses could reside at PORTS. Specific uses may include:

- Processing, light to medium manufacturing, assembly, and fabrication plants. Typically these industries use processed or previously manufactured materials. However, some enterprises may produce products from raw materials. These types of industries also are generally capable of operating in such a manner as to control or minimize the external effects of the manufacturing process, such as smoke, noise, soot, dirt, vibration, and odor, etc.

- Storage, warehousing, wholesaling, and distribution facilities, including truck and rail service terminals and related facilities.

- Research and testing facilities including industrial and scientific research laboratories.

- Offices, administrative, technical, and professional. These are often associated with on-site manufacturing facilities.

- Storage facilities for coal, coke, building material, sand, gravel, stone, lumber, and open storage of construction contractors' equipment and supplies, etc.

- Commercial uses including retail stores; bulk cleaning and laundry plants; cold storage lockers; furniture and carpet warehouses; broadcasting, publishing, and recording; car washes; equipment and appliance repair; and vehicle service centers.

Table 2.1 provides generic information on characteristics of typical industries and commercial businesses that could occupy available land and facilities at PORTS.

2.1.3.2 Location of land and facilities potentially available for transfer

Land and facilities presently available for transfer occupy approximately 526.1 ha (1300 acres) or about 35% of the 1503 ha (3714 acres) of PORTS. For the most part, this area is comprised of previously industrialized areas, infrastructure corridors, roads, loading and parking areas, and open and forested buffer areas. Appendix C provides a list of the current facilities located within PORTS and their current status (i.e., leased to USEC or retained by DOE). Facilities currently leased to USEC might become available for transfer after the USEC lease period ends on July 1, 2004. However, DOE's mission needs and other considerations (e.g., contamination) would determine which PORTS land and facilities would actually become available for transfer and which areas would remain under DOE control.

The industrial and commercial uses listed in Sect. 2.1.3.1 would be located within the following five land use categories (Fig. 2.1):

- *Rail/Industrial*—These areas are located in the north and northeast sections of Quadrant IV and would be targeted for companies that require access to a rail yard, offering the potential for inter-modal linkages. The proximity of this area to the north entry gate, as well as to Routes 32 and 23, would reduce truck traffic through the main portion of PORTS. Sites in this area would range from 6.48 to 22.66 ha (16 to 56 acres). The majority of the area has existing road frontage. Roadways likely would, however, have to be upgraded for truck traffic. Approximately 113.3 ha (280 acres) would have rail frontage. Total development in this area could be between 1.16 to 1.74 million m^2 (3.8 and 5.7 million ft^2).

- *Large-scale Office/Industrial*—This area is located along Perimeter Road within Quadrants I and II. This type of property would be targeted toward large users such as industrial, manufacturing, and warehousing. Parcels would range from 24.28 to 58.28 ha (60 to 144 acres). With an average development density of 3048 to 4572 m^2 per 0.4 ha (10,000 to 15,000 ft^2 per acre), these parcels could support facilities ranging in size from 0.18 to 0.61 million m^2 (0.6 to 2 million ft^2) in size. All of the parcels in this area would have roadway frontage along Perimeter Road. Development could require the installation of a rail spur. Water and sewer service would also need to be extended. Total development for this area could reach 2.3 million m^2 (7.5 million ft^2).

Table 2.1. Characteristics of typical businesses and industries that could use PORTS land and facilities

Industry	Emissions	Effluents	Wastes	Comments
Food manufacturing: • Soft drink bottlers • Dairy products • Fruit and vegetable canning	Minor air emissions that typically would not require an air quality permit. Facility may require state air permit for oil or natural gas combustion.	Wastewater pretreated on-site and discharged to sewer in accordance with wastewater discharge permit restrictions.	Solid waste is recycled or sent to a permitted county landfill.	Size of facility may require compliance with state and federal storm water runoff regulations.
Apparel and finished fabrics: • Fabricated textiles • Footwear • Luggage	Minor air emissions, such as ketones, toluene, methanol, ammonia, and xylenes, controlled through the use of engineering controls and regulated under a state air quality permit.	Wastewater pretreated on-site and discharged to sewer in accordance with wastewater discharge permit restrictions.	Solid waste is recycled or sent to a permitted county landfill. RCRA hazardous wastes would be treated, stored, and disposed of according to state and federal regulations.	Size of facility may require compliance with state and federal storm water runoff regulations.
Lumber and wood products: • Millwork • Prefabricated wood buildings and manufactured homes • Wood containers and pallets	Minor air emissions, such as particulates, VOCs, CO, CO_2, NO_x, formaldehyde, and phenol, controlled through the use of engineering controls and regulated under a state air quality permit.	Wastewater discharged to sewer in accordance with wastewater discharge permit restrictions.	Solid waste is recycled or sent to a permitted county landfill. RCRA hazardous wastes would be treated, stored, and disposed of according to state and federal regulations.	Size of facility may require compliance with state and federal storm water runoff regulations.
Furniture and fixtures: • Household and institutional furniture • Mattresses and bedsprings • Showcases, partitions, shelving, and lockers	Minor air emissions that typically would not require an air quality permit. Facility may require state air permit for oil or natural gas combustion.	Wastewater discharged to sewer in accordance with wastewater discharge permit restrictions.	Solid waste is recycled or sent to a permitted county landfill. RCRA hazardous wastes would be treated, stored, and disposed of according to state and federal regulations.	Size of facility may require compliance with state and federal storm water runoff regulations.

Table 2.1. (continued)

Industry	Emissions	Effluents	Wastes	Comments
Paper and allied products: • Paperboard containers • Sanitary paper products • Paper bags and coated and treated papers	Minor air emissions that typically would be controlled through the use of engineering controls and not require an air quality permit. Facility may require state air permit for oil or natural gas combustion.	Wastewater pretreated on-site and discharged to sewer in accordance with wastewater discharge permit restrictions.	Solid waste is recycled or sent to a permitted county landfill.	Size of facility may require compliance with state and federal storm water runoff regulations.
Chemicals and allied products: • Plastics and rubber products • Paints, coatings, and adhesives • Pharmaceuticals	Emissions, such as VOCs, inorganics, particulates, NO_x, and SO_2, from processing chemicals, synthetic perfumes, and plasticizers would be minimized through the use of engineering controls and regulated under a state air quality permit.	Wastewater pretreated on-site and discharged to sewer in accordance with wastewater discharge permit restrictions.	Solid waste is recycled or sent to a permitted county landfill. RCRA hazardous wastes would be treated, stored, and disposed of according to state and federal regulations.	Size of facility may require compliance with state and federal storm water runoff regulations.
Stone, clay, glass, cement, and concrete products: • Cement and concrete products • Glass and glass products • Pottery, ceramics, and plumbing fixtures	Emissions, such as VOCs, NO_x, SO_2, silicates, metals, and fugitive dust, would be minimized through the use of engineering controls and regulated under a state air quality permit.	Wastewater pretreated on-site and discharged to sewer in accordance with wastewater discharge permit restrictions.	Solid waste is recycled or sent to a permitted county landfill. RCRA hazardous wastes would be treated, stored, and disposed of according to state and federal regulations.	Size of facility may require compliance with state and federal storm water runoff regulations.
Primary metals: • Aluminum sheet, plate, and foil • Steel product manufacturing from purchased steel	Minor emissions of particulates, VOCs, NO_x, SO_2, and metals would be minimized through the use of engineering controls. State air permit may be required.	Wastewater pretreated on-site and discharged to sewer in accordance with wastewater discharge permit restrictions.	Solid waste is recycled or sent to a permitted county landfill. RCRA hazardous wastes would be treated, stored, and disposed of according to state and federal regulations.	Size of facility may require compliance with state and federal storm water runoff regulations.

Table 2.1. (continued)

Industry	Emissions	Effluents	Wastes	Comments
Fabricated metal products: • Prefabricated metal buildings • Metal stamping and machine shops • Cutlery and hand tools	Minor emissions of particulates, VOCs, NO_x, SO_2, and metals would be minimized through the use of engineering controls. State air permit may be required.	Wastewater pretreated on-site and discharged to sewer in accordance with wastewater discharge permit restrictions.	Solid waste is recycled or sent to a permitted county landfill. RCRA hazardous wastes would be treated, stored, and disposed of according to state and federal regulations.	Size of facility may require compliance with state and federal storm water runoff regulations.
Industrial and commercial equipment: • Engine equipment • Ventilation, heating, air conditioning, and commercial refrigeration equipment • Office machinery	Minor air emissions that typically would not require an air quality permit. Facility may require state air permit for oil or natural gas combustion. If used, CFC emissions would have to be controlled.	Wastewater discharged to sewer in accordance with wastewater discharge permit restrictions.	Solid waste is recycled or sent to a permitted county landfill. RCRA hazardous wastes would be treated, stored, and disposed of according to state and federal regulations.	Size of facility may require compliance with state and federal storm water runoff regulations.
Electronics and electrical equipment: • Computer and peripheral equipment • Lighting fixtures • Software reproduction	Minor air emissions that typically would not require an air quality permit. Facility may require state air permit for oil or natural gas combustion.	Wastewater discharged to sewer in accordance with wastewater discharge permit restrictions.	Solid waste is recycled or sent to a permitted county landfill.	Size of facility may require compliance with state and federal storm water runoff regulations.
Measuring and analyzing devices: • Medical instruments and supplies • Analytical laboratory instruments	Minor air emissions that typically would not require an air quality permit. Facility may require state air permit for oil or natural gas combustion.	Wastewater discharged to sewer in accordance with wastewater discharge permit restrictions.	Solid waste is recycled or sent to a permitted county landfill. Radioactive cadmium wastes used for spectrum analyzers would be returned to the manufacturer.	Size of facility may require compliance with state and federal storm water runoff regulations.

Table 2.1. (continued)

Industry	Emissions	Effluents	Wastes	Comments
Assets recovery: • Electronics recycling and reuse • Contaminated materials treatment and recycling • Metals decontamination and reuse	Air emissions include particulates, VOCs, and radionuclides. Facilities would have HEPA filters and other controls to meet state and federal air guidelines and regulations.	Any process wastewater would be pretreated to meet criteria in discharge permit. After testing, water would be discharged to sewer.	Hazardous wastes and radioactive materials are stabilized, tested, and sent to a licensed off-site disposal facility. Sanitary waste is recycled or sent to a permitted county landfill.	These businesses would use existing facilities within the industrialized portion of PORTS. Comprehensive monitoring program for air, water, and soil.
Industrial laundry	Natural gas combustion releases, SO_2, NO_x, VOCs, and CO; air permit is generally not required.	Wastewater may require pretreatment and testing prior to discharge to sewer in accordance with wastewater discharge permit restrictions.	Solid waste is recycled or sent to permitted county landfill.	Uses potable city water. Does not use laundry materials containing organic solvents or gasoline.
Multi-modal transportation facility	Fugitive dust emissions and mobile emissions from internal combustion sources. Air quality permit is generally not required.	Wastewater discharged to sewer in accordance with wastewater discharge permit restrictions.	Sólid waste recycled or sent to a permitted county landfill.	Size of facility may require compliance with state and federal storm water runoff regulations.
Auto repair shop/vehicle maintenance center	VOCs–gasoline vapors, solvents; however, air quality permit is generally not required.	Wastewater discharged to sewer in accordance with wastewater discharge permit restrictions.	Oil is collected for recycle or disposal; solid waste is sent to permitted county landfill. Any hazardous waste would be sent to licensed off-site facilities.	May be classified as a small quantity generator or generator of hazardous waste under RCRA, or may be conditionally exempt.
Commercial offices and wholesaling/warehousing	No air quality permit required.	Sanitary wastewater to sewer.	Solid waste recycled or sent to permitted county landfill.	Size of facility may require compliance with state and federal storm water runoff regulations.

Table 2.1. (continued)

Industry	Emissions	Effluents	Wastes	Comments
Retail shops: (Laundry, dry cleaner, pharmacy, auto parts, mailing service, appliance repair, copying center, hair styling, video rental, restaurant, or catering)	No air quality permit generally required except for dry cleaner.	Wastewater discharged to sewer in accordance with wastewater discharge permit restrictions.	Solid waste recycled or sent to a permitted county landfill.	Dry cleaner size may require meeting NESHAP for PCE cleaners.
Convenient food stores with gasoline/diesel	VOCs–gasoline vapors, solvents; however, no Air Quality Permit is generally required.	Discharges wastewater to sewer in accordance with wastewater discharge permit restrictions.	Solid waste sent to permitted county landfill.	Underground storage tank regulations must be met.

Source: USEPA Office of Enforcement and Compliance Assurance, Sector Notebooks, http://es.epa.gov/oeca/sector/. U.S. Census Bureau, North American Industry Classification System, http://census.gov/epcd/www/naics.html. Personal communications from Bart Howell, Howell Industrial Services (Knoxville, Tennessee), June 1996; Scott Chapin, Niton Corporation (North Kingstown, Rhode Island), June 1996; Chris Nelson, Coors Technical Ceramic Co. (CTCC), George Solomon (Vacuum Technologies), and Bob Cooney (ELO Touch Systems) to Helen Braunstein, Oak Ridge National Laboratory (Tennessee). Personal communication from Nancy Swarts, Pall Trinity Micro (Cortland, New York), August 1997, and Martin Markowicz, Performance Development Corporation (Oak Ridge, Tennessee), a subcontractor to Perma-Fix Environmental Services, Inc. (Oak Ridge, Tennessee), August 1997, and James Terry, Oak Ridge National Laboratory (Tennessee), November 1999.

CFC = chlorofluorocarbon.
CO_2 = carbon dioxide.
NESHAP = National Emission Standards for Hazardous Air Pollutants.
NPDES = National Pollutant Discharge Elimination System.
PCE = perchloroethylene.
SO_2 = sulfur dioxide.
CO = carbon monoxide.
HEPA = high-efficiency particulate air.
NO_x = nitrogen oxide.
PCB = polychlorinated biphenyl.
RCRA = Resource Conservation and Recovery Act of 1976.
VOC = volatile organic compound.

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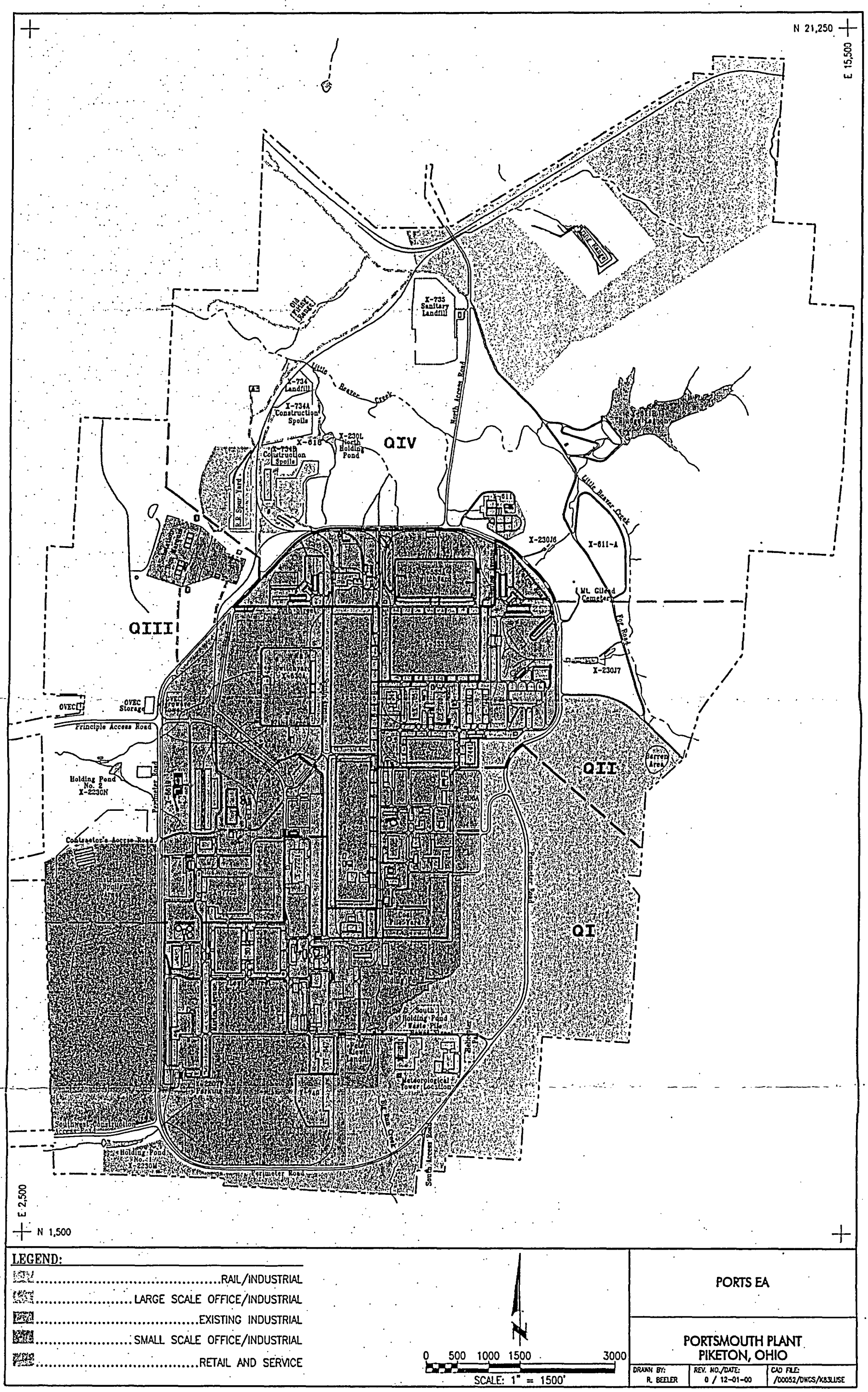

Fig. 2.1. Proposed PORTS reindustrialization land use categories.

- *Small-scale Office/Industrial*—This area is located west of the GCEP area along Perimeter Road in Quadrants I and III. This area primarily would be used for smaller businesses; it would be suitable for office, light industrial manufacturing and assembly, distribution, and other types of uses. Parcelswould range from 4.05 to 8.10 ha (10 to 20 acres), supporting 30.48 to 60.96 m^2 (100,000- to 200,000-ft^2) sized facilities. Total development of as much as 0.8 million total m^2 (2.7 million total ft^2) could be supported. It should be noted that large portions of this area could be deemed undevelopable due to topographic or environmental constraints or other factors.

- *Retail and Service*—Located along the southern part of Perimeter Road in Quadrant I, this area could be used for small-scale development to provide support services to the larger users of the property and the employees. Commercial uses could include small restaurants, a gas station/convenience store, a bank, a post office/mailing/shipping center, and business services such as copying or printing. This parcel likely would be 1.21 to 2.43 ha (3 to 6 acres). This area has substantial road frontage and access to water and sewer lines. It should be noted that large portions of this area could be deemed undevelopable due to topographic or environmental constraints or other factors

- *Existing Industrial*—This area includes the reuse of existing industrial facilities within PORTS. Likely reuse would include warehousing and distribution, manufacturing operations, as well as supporting asset recovery operations.

2.1.3.3 Bounding analysis assumptions

DOE also has based the bounding analysis in this EA on the following assumptions:

- Development of land parcels would be limited to those areas having less than 15% slope in order to minimize cut-and-fill operations, erosion potential, and general construction costs. Other constraints, such as the presence of utility ROWs, may place additional restrictions on development in some of these areas. Archaeological sites, wetlands, and other areas containing sensitive resources would be protected through the use of lease and/or deed restrictions and compliance with all applicable local, state, and federal regulations.

- Potential users that handle permitted or licensed quantities of radioactive or hazardous materials as part of their process would be restricted to the industrialized portion of PORTS and utilize existing facilities. Clean land parcels would be developed for uses that would minimize the potential for contamination and adverse environmental impacts.

- No food manufacturing or processing activities would be allowed to take place within previously industrialized portions of PORTS.

- Habitat and populations of threatened and endangered species listed, or those proposed for listing by the U.S. Fish and Wildlife Service (USFWS) or the State of Ohio, would not be subject to transfer and would be protected from the effects of leasing and development in other areas of PORTS.

- Construction in wetlands would be avoided to the extent practicable. Wetland boundaries would be surveyed prior to construction, and appropriate buffer zones would be defined and required. Construction activities adjacent to wetlands would employ best management practices (BMPs) and appropriate mitigation measures to prevent or mitigate adverse impacts.

- Historical and archeological cultural resources would be preserved or avoided as advised by the Ohio State Historic Preservation Officer (SHPO). Compliance with the National Historic Preservation Act

of 1966 (NHPA), Section 106, would be undertaken during individual transfer negotiations as future needs for building modification or proposed uses become known.

- Facilities not designated for near-term D&D would be reused to the greatest extent practicable, and decontamination measures would be completed prior to occupancy, or as otherwise agreed, to ensure worker health and safety and in accordance with regulatory guidance.

- Disposal areas (i.e., landfills) containing classified and/or contaminated materials, equipment, and wastes would be excluded from development or reuse, although their surface areas could be leased for grounds maintenance purposes.

- PORTS utilities would be the responsibility of a DOE contractor, or a lessee, who could provide these services to PORTS tenants and DOE as part of a lease or contract agreement. These services may include the water distribution system; the electrical power system; the steam plant; the nitrogen and air plant; the sewage treatment plant; the fire protection system; the communication system; the on-site railroad system; on-site roads; and truck scales. Some of these systems might need to be retrofitted or require minor upgrades to accommodate individual users or tenants. Utility or transportation system modifications, including new construction and facility or operational changes to existing systems that would have a major effect on the quality and/or quantity of emissions, effluents, and wastes, are outside the scope of analysis in this EA and would require additional review. In some instances, coordinated permit reviews for transition of permitted sources would be conducted. Appropriate regulatory authorities would be involved.

- Earthwork on land parcels would be conducted incrementally to minimize the potential for significant adverse environmental impacts. For the purpose of air quality analysis, it was assumed that no more than 8 ha (20 acres) of land would be under construction at a time.

- Air emissions from tenant operations would be treated and released in accordance with the requirements of the CAA and Ohio EPA permits as obtained by the tenants.

- Industrial and wastewater effluents would be pretreated, treated, and discharged in accordance with applicable state and local permits, as well as DOE's permits granted by the state for storm water, etc.

- State and federal storm water regulations to minimize erosion and sedimentation would be met. Notification of any disturbance would be made to DOE or Ohio EPA prior to earth-moving activities that meet the criterion for notification.

Other mitigation measures that could be implemented to eliminate or reduce potential adverse environmental impacts are described under the appropriate resource areas in the environmental consequences section.

Guidance issued by DOE (1999c) established levels of protection necessary to ensure worker safety by grading the risks associated with leasing DOE facilities. Facilities and/or sites that have been determined suitable for leasing are categorized in the following grades:

- Unrestricted Release. This category includes property that is suitable for release for unrestricted use under DOE 5400.5 and is outside of the controlled area. At PORTS this could include the land parcels identified in Sect. 2.1.2.2, which are located outside of the security fence that surrounds most of the existing industrial area. The future use of the property also must not affect the safety basis for any DOE facility on the site or affect DOE activities with respect to worker safety and health. DOE activities at non-leased facilities should not provide occupational exposures to lessees. Lessee

activities do not involve radiological work for DOE. Doses received by lessee employees from all on-site DOE sources would be maintained as low as reasonably achievable (ALARA), and worker provisions that are included in 10 *CFR* 835 would not apply to lessees. Workers within facilities and/or sites in this category would be classified as member of the public.

- Restricted Release. This category includes property that is suitable for release and may be either inside or outside of the controlled area. The future use of the property may affect (1) the safety basis of one or more DOE facilities on the site or (2) DOE activities with respect to worker safety and health. Where lessee activities do not involve radiological work, doses received by lessee employees from all DOE sources on-site would be maintained ALARA. Lease terms would provide that the workers at the leased facility are treated as general employees (i.e., co-located workers) and would be protected via access controls, emergency response training, and other methods determined appropriate by DOE-PORTS. Lessee activities may involve radiological work for DOE, and 10 *CFR* 835 would apply to the effects on workers at leased facilities from DOE activities at non-leased facilities.

To accommodate or otherwise prepare land and facilities for occupancy by tenants, several actions could be undertaken by DOE, DOE contractors or subcontractors, the designated community reuse organization, or the tenants themselves. These preparatory activities could include, but are not limited to, the following:

- Installation of, or modification to, ventilation systems to enhance workplace habitability (i.e., modifications to or installation of heating/ventilating/air conditioning systems); provide for personnel safety and health enhancement (i.e., installing/improving fume hoods and associated collection and exhaust systems); and ensure proper temperature control of buildings and equipment (CX-GEN-001).

- Routine radiological or other surveys, including sample collection from various media and the decontamination of equipment (CX-GEN-OO4).

- Installation, modification, upgrade, and/or enhancement of communications and computer systems, including telephone systems, computers and computer networks, and public address/warning systems (CX-GEN-005).

- Installation, modification, and/or upgrading of personnel safety systems and devices including, but not limited to, safety showers; eye washes; fume hoods; radiation monitoring devices; sprinkler systems; emergency exit lighting systems; emergency ingress/egress routes; protective equipment for electrical panels; circuit breakers and electrical switch gear; personnel accountability/assembly systems and stations; improvements to walking and working areas and/or surfaces; and fabrication, installation, or modification of platforms, rails, stairways, shields, and guards (CX-GEN-007).

- Characterization, cleanup, encapsulation, removal, and/or disposal of asbestos-containing materials, with possible replacement of the asbestos-containing materials with asbestos-free materials (CX-GEN-008).

- Routine upgrades, installations, modifications, or replacements to fire protection systems (CX-GEN-010).

- Routine maintenance activities, including corrective, preventative, and predictive maintenance and maintenance-related activities (CX-GEN-011).

- Alterations to existing buildings, construction of small-scale support structures, and relocation of machinery and equipment (CX-GEN-012).

Where licenses or permits are needed (other than DOE-granted real estate licenses or permits), the parties taking the action would be appropriately licensed or permitted to conduct the work and would be bound by the applicable regulatory requirements.

2.2 THE NO-ACTION ALTERNATIVE

The no-action alternative provides an environmental baseline with which impacts of the proposed action and alternatives can be compared. The no-action alternative must be considered even if DOE is under a court order or legislative command to act. See 10 *CFR* 1021.321(c).

Under the no-action alternative, active uranium enrichment, ongoing and planned environmental restoration, D&D activities, waste management, and other current site uses would continue at PORTS. These uses would continue until projects are completed or transferred to another site and operations cease. These actions would also proceed even if the proposed action is approved. However, under the no-action alternative, more facilities would be unused and could be subject to D&D activities earlier.

USEC has announced that it will cease uranium enrichment operations at PORTS beginning in June 2001. Since USEC's announcement, DOE has proposed placing the GDP in cold standby. Present plans for USEC-leased facilities consider that USEC would continue to lease the majority of the PORTS facilities. Some leased facilities would continue to be used for USEC product transfer and shipping operations. The transfer and shipping facilities transfer USEC's enriched uranium product into transportation cylinders and prepare the cylinders for shipping to fuel fabricators. Certain other USEC-leased facilities and uranium enrichment equipment would be placed in cold standby (see Sect. 4.13.2). These activities would take place for a period of about 5 years after current enrichment operations are ceased.

Other DOE planned activities considered under the no-action alternative include the following:

- Prepare, package, ship, and permanently dispose of 5200 tons of low-level contaminated scrap metal, located in the X-747H Scrap Metal Yard Area, to Envirocare by truck and rail.
- Complete all quadrant CMSs.
- Upgrade capacity/efficiency of X-622 Groundwater Treatment Facility.
- Deploy remedial groundwater treatment methods at 5-Unit and X-749/X-120 Groundwater Plume areas. The 5-Unit remediation will be by pump and treat, and the X-749/X-120 remediation will use phytoremediation.
- Dispose of 11,764 PCB/low-level waste containers located in process buildings and outside storage areas.
- Dispose of 3877 containers of RCRA low-level waste.

In addition to environmental restoration and waste management activities, DOE would also proceed with D&D activities at PORTS. This would include currently non-leased facilities that are declared excess, shutdown of the HEU portion of the cascade (X-326), portions of the GDP not needed for standby, and the entire GDP at the conclusion of standby. Equipment removal and D&D-related work that would be done by DOE in USEC-leased areas would be accomplished in accordance with applicable DOE orders. Those areas where equipment removal and D&D work would be performed would be

deleased from USEC for the purposes of equipment removal. Other D&D work performed in non-leased areas of PORTS would also be subject to the applicable DOE orders.

DOE also has proposed the construction and operation of a depleted UF_6 conversion facility and a gas centrifuge pilot plant at PORTS. These proposed actions are described further in Sect. 4.13. However, analysis of these proposed actions is beyond the scope of this EA and would be subject to separate NEPA review.

3. AFFECTED ENVIRONMENT

3.1 LAND AND FACILITY USE

PORTS is situated on a 1503-ha (3714-acre) parcel of DOE-owned land (Fig. 1.2). The Perimeter Road surrounds a 485.6-ha (1200-acre) centrally developed area. The terrain surrounding the plant, except for the Scioto River floodplain, consists of marginal farmland and densely forested hills. The Scioto River floodplain is farmed extensively, particularly with grain crops.

The reservation land outside Perimeter Road is used for a variety of purposes, including a water treatment plant, holding ponds, sanitary and inert landfill, and open and forested buffer areas. The majority of the site improvements associated with the GDP are located within the 202-ha (500-acre) fenced area. Within this area are three large process buildings and auxiliary facilities that are currently leased to USEC. A second, large developed area covering about 121 ha (300 acres) contains the facilities built for GCEP. These areas are largely devoid of trees, with grass and paved roadways dominating the open space. The remaining area within Perimeter Road has been cleared and is essentially level. Controlled access exists within the limited security area as well as closed sites.

Approximately 190 buildings are located within PORTS as well as the utility structures on the site. In general, the X-100 through X-700 series of buildings are directly related to the gaseous diffusion process. Most of the buildings in this series are located within the 202-ha (500-acre) fenced area. The X-200 and X-300 series are the production buildings and related infrastructure facilities. Most of the buildings and infrastructure included in the X-1000 through X-7000 series of buildings are located within the 121-ha (300-acre) GCEP expansion area. The facilities containing the administrative activities include the facilities numbered in the X-100 series for the GDP and X-1000 series for the more recent construction. The facilities house such activities as administrative offices, engineering, cafeteria, hospital, security, and fire protection.

The X-500 series in the GDP and the X-5000 series in the GCEP area pertain to the power operations facilities. Included are switchyards, switch houses, valve houses, and test and repair facilities. The X-600 and X-6000 series of facilities are utility related functions. Included are a steam plant, well fields, pump houses, a water treatment plant, a sewage treatment plant, and numerous cooling towers. In addition, dry air and nitrogen generation facilities are housed in the GDP process buildings. The X-700 and X-7000 series of buildings house chemical operations, a laboratory, maintenance shops, and numerous storage facilities. The major maintenance facility for the GDP is the X-720 Maintenance and Stores Building. The building contains more than 91,440 m^2 (300,000 ft^2) of space for various shop activities, offices, and storage of parts. The GCEP-equivalent facility is the X-7721 Maintenance, Stores, and Training Building located in the 121-ha (300-acre) expansion area. The X-7721 building contains more than 36,576 m^2 (120,000 ft^2) of space.

The uranium enrichment production and operations facilities at PORTS are leased by USEC. The lease between DOE and USEC is active through July 1, 2004, although some facilities may be returned to DOE on an earlier date. Besides the leased facilities, USEC also leases common areas that include ditches, creeks, ponds, and other areas (i.e., roads and rail spurs) necessary for ingress, egress, and proper maintenance of facilities. A list of the facilities that are leased by USEC is included in Appendix C.

3.2 CLIMATE AND AIR QUALITY

3.2.1 Climate

PORTS is located in the humid continental climate zone of North America and has weather conditions that vary greatly throughout the year. The mean annual temperature is about 12.7°C (55°F). Average summer and winter temperatures are 22.2°C (72°F) and 0°C (32°F), respectively. Record high and low temperatures are 39.4°C (103°F) and –32°C (–25°F), respectively.

Prevailing winds are out of the south–southwest and average 8.05 km per hour (km/h) [5 miles per hour (mph)]. The highest monthly average wind speed, 17.7 km/h (11 mph), typically occurs in the spring. Total precipitation averages approximately 101.6 cm (40 in.) annually and is usually well distributed throughout the year. Fall is the driest season. Snowfall averages approximately 51.8 cm/year (20.4 in./year). Although snow amounts and frequencies vary greatly from year to year, an average 8 d/year have greater than 2.54 cm (1 in.) of snowfall.

3.2.2 Air Quality

The PORTS region is classified as an attainment area for the pollutants listed in the National Ambient Air Quality Standards (NAAQS). These standards are shown in Table 3.1. Primary standards protect against adverse health effects, while secondary standards protect against welfare effects such as damage to crops, vegetation, and buildings. The State of Ohio has adopted the NAAQS and regulations to guide the evaluation of hazardous air pollutants and toxins to specify permissible short- and long-term concentrations.

PORTS is located in a Class II prevention of significant deterioration (PSD) area. PSD regulations were established to prevent significant deterioration of air quality in areas that already meet the NAAQS. Specific details of PSD are found in 40 *CFR* 51.166. Among other provisions, cumulative increases in sulfur dioxide, nitrogen dioxide, and PM-10 levels after specified baseline dates must not exceed specified maximum allowable amounts. These allowable increases, also known as increments, are especially stringent in areas designated as Class I areas (e.g., national parks and wilderness areas) where the preservation of clean air is particularly important. All areas not designated as Class I currently are designated as Class II. The nearest Class I PSD area is the Dolly Sods Wilderness Area, which is approximately 280 km (174 miles) east of PORTS in West Virginia.

Airborne discharges of radionuclides from PORTS are regulated under the CAA National Emission Standards for Hazardous Air Pollutants (NESHAP). Releases of radionuclides are used to calculate a dose to members of the public (Sect. 3.11.1).

The majority of radiological emissions at PORTS result from the uranium enrichment process operated by USEC. In 1999, USEC reported emissions of 0.9 Ci (curie: a measure of radioactivity) from its 19 radionuclide sources. DOE-PORTS is responsible for two emission sources, the X-326 L-Cage Glove Box and the X-744G Glove Box. These glove boxes are used to repackage wastes or other materials that contain radionuclides. Emissions from these sources are based on waste analysis data and standard engineering procedures. Radiological emissions from these two DOE sources were 0.000064 Ci in 1999 (DOE 2000a).

Nonradiological releases to the atmosphere are permitted under the Ohio Permit to Operate regulations. Under Ohio regulations, the Ohio EPA can register small emission sources rather than issue a formal permit. DOE-PORTS had 5 permitted and 10 registered air emission sources at the end of 1999.

Table 3.1. Air quality standards

Pollutant	Averaging time	NAAQS (μg/m³) Primary	NAAQS (μg/m³) Secondary	Allowable PSD increment (μg/m³)[a] Class I	Allowable PSD increment (μg/m³)[a] Class II
Sulfur dioxide	3 h[b]		1300	25	512
	24 h[b]	365		5	91
	Annual	80		2	20
Nitrogen dioxide	Annual	100	100	2.5	25
Ozone	1 h[c]	235	235		
	8 h[d]	157	157		
Carbon monoxide	1 h[b]	10,000			
	8 h[b]	40,000			
PM-10[e]	24 h[c]	150	150	8	30
	Annual	50	50	4	17
PM-2.5[f,d]	24 h	65	65		
	Annual	15	15		
Lead	3 months[g]	1.5	1.5		

Note: Where no value is listed, there is no corresponding standard.
[a]Class I areas are specifically designated areas in which degradation of air quality is severely restricted; Class II areas have a less stringent set of allowable increments.
[b]Not to be exceeded more than once per year.
[c]Not to be exceeded more than one day per year on average over 3 years.
[d]The ozone 8-h standard and the PM-2.5 standards are included for information only. A 1999 federal court ruling blocked implementation of these standards, which the U.S. Environmental Protection Agency proposed in 1997.
[e]Particulate matter less than 10 μm in diameter.
[f]Particulate matter less than 2.5 μm in diameter.
[g]Calendar quarter.
NAAQS = National Ambient Air Quality Standard.
PSD = prevention of significant deterioration.

One new air permit was obtained in 1999 for the X-734 Landfill Area closure. The project required an air permit for emissions of particulates, or dust, from unpaved roadways and soil storage piles.

DOE-PORTS operates numerous small sources of conventional air pollutants such as nitrogen oxides, sulfur dioxide, and particulate matter. These emissions are estimated every 2 years for the Ohio EPA's biennial emission fee statement. Emissions of nonradiological air pollutants at PORTS are estimated using various USEPA-approved procedures. In calculating air emissions, DOE assumes that each source emits the maximum allowable amount of each pollutant as provided in the permit or registration for the source. Under this worst-case scenario, DOE-PORTS estimated emissions of sulfur dioxide, nitrogen oxides, organic compounds, and particulate matter in 1999 to be 13 tons/year. Most of these worst-case emissions resulted from particulate (dust) emissions from the X-734 Landfill Area closure. Worst-case air emissions excluding this source are no more than 1.5 tons/year (DOE 2000a).

The largest nonradiological airborne discharges from USEC sources are from the coal-fired boilers at the X-600 Steam Plant. The boilers are permitted by Ohio EPA with opacity, particulate, and sulfur dioxide limits. Electrostatic precipitators on each of the boilers control opacity and particulate emissions. In addition, the boilers emit nitrogen oxides and carbon monoxide. There are also minor contributions of

these pollutants from oil-fired heaters, stationary diesel motors, and mobile sources (e.g., cars and trucks). Other air pollutants emitted from USEC operations include gaseous fluorides, water treatment chemicals, cleaning solvent vapors, and process coolants.

In 1999 USEC collected data from a monitoring network of 15 air samplers. Data were collected both on-site at PORTS and in the area surrounding PORTS. The monitoring network is intended to assess whether air emission from PORTS affect air quality in the surrounding area. The air sampling stations measure gross alpha radiation, gross beta radiation, and fluorides. A background ambient air monitoring station is located approximately 21 km (13 miles) southwest of the site. The analytical results from air sampling stations closer to the plant are compared to background measurements. The average concentration of gross alpha, gross beta, and gaseous fluorides at sampling locations around PORTS appears to be similar to the background location except for one station located just west of the site. This station had gross alpha and gross beta measurements just above background, which could indicate that USEC operations affect this sampling station (DOE 2000a).

3.3 GEOLOGY AND SOILS

3.3.1 Site Geology

The near-surface geologic materials that influence the hydrologic system at PORTS consist of several bedrock formations and unconsolidated deposits. The bedrock formations include (from oldest to youngest) Bedford Shale, Berea Sandstone, Sunbury Shale, and Cuyahoga Shale. The unconsolidated deposits of clay, silt, sand, and gravel compose the Minford Clay and Silt (Minford) member and the Gallia Sand and Gravel (Gallia) member of the Teays formation (DOE 1996a). Prior to the Pleistocene glaciation, the Teays River and its tributaries were the dominant drainage system in Ohio.

The preglacial Portsmouth River, a tributary of the Teays, flowed north across the plant site, cutting down through the Cuyahoga Shale and into the Sunbury Shale and Berea Sandstone, and deposited fluvial silt, sand, and gravel of the Gallia member of the Teays Formation (Fig. 3.1).

3.3.2 Bedrock geology

Bedrock consisting of clastic sedimentary rocks underlies the unconsolidated sediments beneath PORTS. The geologic structure of the area is very simple, with the bedrock (Cuyahoga Shale, Sunbury Shale, Berea Sandstone, and Bedford Shale) dipping gently to the east–southeast. No known geologic faults are located in the area; however, joints and fractures are present in the bedrock formations.

The Bedford Shale is the lowest stratigraphic unit encountered during environmental investigative activities at the site. Bedford Shale is composed of thinly bedded shale with interbeds and laminations of gray, fine-grained sandstone and siltstone. The typical depth to the top of this formation at PORTS is 21.3 to 30.5 m (70 to 100 ft) below ground surface (bgs). However, Bedford Shale outcrops are present in deeply incised streams and valleys within the reservation. The Bedford Shale averages 30.5 m (100 ft) in thickness.

The Berea Sandstone is a light gray, thickly bedded, fine-grained sandstone with thin shale laminations. The top 3.05 to 4.57 m (10 to 15 ft) consists of a massive sandstone bed with few joints or shale laminae. The Berea Sandstone averages 10.67 m (35 ft) in thickness; however, the lower 3.05 m (10 ft) has numerous shale laminations and is very similar to the underlying Bedford Shale. This gradational contact does not allow for a precise determination of the thickness of the Berea Sandstone.

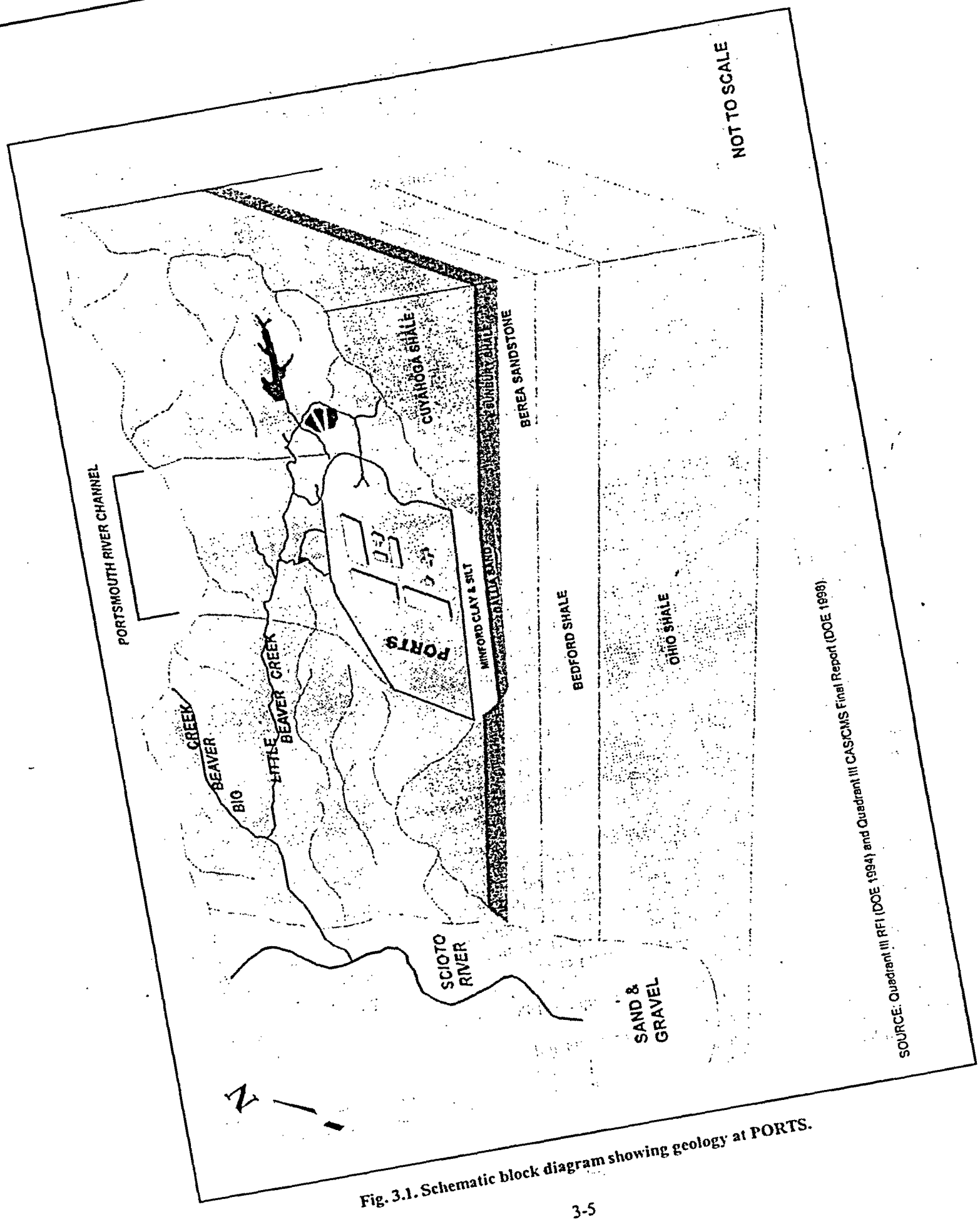

Fig. 3.1. Schematic block diagram showing geology at PORTS.

Regionally, Berea Sandstone contains naturally occurring hydrocarbons (oil and gas) in quantities sufficient for commercial production. Generally, within Perimeter Road, the Berea Sandstone is the uppermost bedrock unit beneath the western portion of PORTS but is overlain by the Sunbury Shale to the east.

The Sunbury Shale is a black, very carbonaceous shale. The Sunbury Shale is 6.09 m (20 ft) thick beneath much of PORTS, but thins westward as a result of erosion by the ancient Portsmouth River, and is absent on the western half of the site. The Sunbury Shale also is absent in the drainage of Little Beaver Creek downstream of the X-611A Former Lime Sludge Lagoons and the southern portion of Big Run Creek, where it has been removed by erosion. The Sunbury Shale underlies the unconsolidated Gallia beneath the most industrialized eastern portion of the plant and underlies the Cuyahoga Shale outside of the Portsmouth River Valley.

The Cuyahoga Shale, the youngest and uppermost bedrock unit at the site, forms the hills surrounding PORTS. The Cuyahoga Shale has been eroded from most of the active portion of PORTS. It consists of gray, thinly bedded shale with scattered lenses of fine-grained sandstone and regionally reaches a thickness of approximately 48.77 m (160 ft).

3.3.3 Unconsolidated Deposits

Unconsolidated deposits in the vicinity of PORTS fill the ancient Portsmouth River Valley to depths of approximately 9.1 to 12.2 m (30 to 40 ft). The unconsolidated deposits are divided into two members of the Teays Formation, the Minford Clay and Silt and the Gallia Sand and Gravel.

Minford Clay and Silt. The Minford is the uppermost stratigraphic unit beneath PORTS. The Minford averages 6.1 to 9.1 m (20 to 30 ft) in thickness and grades from predominantly silt and very fine sand at its base to clay near the surface. The upper clay unit averages 4.88 m (16 ft) in thickness, is reddish-brown, plastic, and silty, and contains traces of sand and fine gravel in some locations. These thicknesses vary greatly as a result of construction cutting and filling operations, as discussed in the next paragraph. The lower silt unit averages 2.13 m (7 ft) in thickness, is yellow-brown and semiplastic, and contains varying amounts of clay and very fine sand.

During the initial grading of the site, the deposits within the Perimeter Road were reworked to a depth as great as 6.1 m (20 ft) by preconstruction cut and fill activity. In most cases, the fill is indistinguishable from the undisturbed Minford. The combination of construction activities, bedrock topography, and erosion by modern streams has influenced the areal extent and thickness of the Minford at PORTS.

Gallia Sand and Gravel. Prior to Pleistocene glaciation, the Portsmouth River meandered north through the valley currently occupied by PORTS and deposited the sand and gravel of the Gallia. The Gallia averages 0.9 to 1.22 m (3 to 4 ft) in thickness at the site and is characterized by poorly sorted sand and gravel with silt and clay. Channel migration and variation in depositional environments that occurred during deposition of the Gallia resulted in the variable thickness of the Gallia. The areas of thickest accumulation of Gallia may represent the former channel location and include areas under the southern end of the X-330 Process Building and near the X-701B Holding Pond. Gallia deposits beneath PORTS are generally absent above an approximate elevation of 198 m (650 ft) above mean sea level (AMSL).

As a result of similar depositional environments and source material, deposits from modern streams at the site often are visually indistinguishable from Gallia deposits. The modern surface-water drainage also has eroded the unconsolidated sediments and resulted in locally thin or absent Gallia and Minford.

3.3.4 Surface Soil Description

According to the Soil Survey of Pike County, Ohio, 22 soil types occur within the PORTS property boundary with the predominant soil type being Omulga Silt Loam (U.S. Department of Agriculture 1990). Most of the area within the active portion of PORTS is classified as Urban land-Omulga complex with a 0 to 6% slope, which consists of Urban land and a deep, nearly level, gently sloping, moderately well-drained Omulga soil in preglacial valleys. The Urban land is covered by roads, parking lots, buildings, and railroads that so obscure or alter the soil that identification of the soil series is not feasible.

The surface layer of Omulga Silt Loam is dark grayish-brown, friable (easily crumbled), and approximately 25.4 cm (10 in.) thick. The subsoil is approximately 137.2 cm (54 in.) thick and is composed of three portions: (1) a yellowish-brown, friable silt loam; (2) a fragipan (brittle, compacted subsurface soil) of yellowish-brown, mottled, firm, and brittle silty clay loam middle; and (3) a yellowish-brown, mottled, friable silt loam approximately 50.8 cm (20 in.) thick. The root zone generally is restricted to the zone above the fragipan and contains none of the Urban land soils. Well-developed soil horizons may not be present in all areas inside Perimeter Road because of cut-and-fill operations related to construction.

Prime farmland is land that has the best combination of physical and chemical characteristics for producing crops of statewide or local importance. Prime farmland is protected by the Farmland Protection Policy Act which seeks "... to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmlands to nonagricultural uses..." [7 USC 4201(b)].

Seven soil types that occur within the DOE property boundary at PORTS are considered prime farmland in the Soil Survey of Pike County, Ohio. Of these, four soil types are found within four of the six areas that could potentially be transferred under the proposed action. These four soil types are the Omulga silt loam (0 to 3% slopes), Doles silt loam (0 to 3% slopes, where drained), Coolville silt loam (1 to 8% slopes), and Princeton fine sandy loam (3 to 8% slopes).

3.3.5 Seismicity

Geological studies conducted to determine the potential seismic hazard for PORTS have determined that only one fault is located within 40 km (25 miles) of the site, and no seismicity has been recorded on it and no recorded seismic events have occurred within 40 km (25 miles) of the site. The Kentucky River fault zone and the Bryant Station-Hickman Creek fault are located farther away from PORTS, the latter fault being roughly 96.5 km (60 miles) to the southwest. These faults bound the southern part of a north-to-northeast-trending area of seismicity in central and eastern Ohio. Soil testing for the GCEP facility indicated that the potential for earthquake-induced soil liquefaction is relatively low. The potential for soi-structure interaction (ground motion magnification) is also slight. Also, Pike County is not one of the political jurisdictions listed in Appendix VI of 40 *CFR* 264 for which compliance with seismic standards must be demonstrated (MMES 1994).

3.4 WATER RESOURCES

3.4.1 Groundwater

3.4.1.1 Site hydrogeology

The groundwater flow system at PORTS includes two water-bearing units (the bedrock Berea Sandstone and the unconsolidated Gallia) and two aquitards (the Sunbury Shale and the unconsolidated

Minford). The basal portion of the Minford is generally grouped with the Gallia to form the uppermost and primary aquifer at the facility. The hydraulic properties of these units and groundwater flow at the site also have been well defined.

Groundwater recharge and discharge areas at PORTS include both natural and man-made recharge and discharge areas. Natural recharge to the groundwater flow system at PORTS comes from precipitation.

Land use and the presence of thick upper Minford clay and the Sunbury Shale effectively reduce recharge to underlying units. Recharge to the Minford and Gallia is reduced because a large percentage of the land is paved or covered by buildings. However, recharge to the Berea Sandstone from the overlying Gallia is increased as a result of the absence of the Sunbury Shale.

Groundwater flow at PORTS can generally be divided into four separate flow regions. Groundwater divides provide the basis for separation of the reservation into quadrants. The groundwater divides generally coincide with topographic highs along the center of the industrial complex (from south to north) and topographic highs radiating outward and separating the predominant surface water features draining the facility. The locations of the groundwater flow divides may migrate small distances in response to seasonal changes in precipitation and groundwater recharge. The rates of pumping the X-700/X-705 sumps and remediation wells can also influence the location of the groundwater divides in some areas.

Groundwater at PORTS discharges primarily to surface streams. Groundwater in the eastern and northern portions of the facility discharges to the East and North Drainage Ditches and to the Little Beaver Creek. In the southern portion of the facility, groundwater discharges to the Big Run Creek and to the unnamed Southwest drainage ditch. Along the western boundary of the site, the West Drainage Ditch serves as a local discharge area for all geologic units.

Groundwater recharge and discharge areas at PORTS also are affected by man-made features including the storm sewer system, the sanitary sewer system, the recirculating cooling water (RCW) system, water lines, and building sumps. The storm sewer system consists of numerous large-diameter culverts and pipes that drain surface water from discrete segments of the site. Groundwater collected by these drains is transported to the discharge point for each storm drain. Discharge points for the storm drains generally coincide with site National Pollutant Discharge Elimination System (NPDES) outfalls that eventually discharge to the surface water units described previously. The RCW and fire hydrant supply systems are pressurized to ensure proper transport of water. If these systems have leaks, they may locally act as sources of recharge to groundwater. Although recharge from these lines to groundwater is difficult to measure, overall groundwater directions are not affected. These systems are generally located within 1.8 to 3.7 m (6 to 12 ft) of the ground surface. The depth to groundwater generally is more than 3.7 m (12 ft) bgs. Consequently, these systems and their associated backfills are usually located above the local water table. On the basis of these factors, none of these systems appears to act as a major discharge conduit for groundwater. Man-made features that do have a major effect on groundwater flow at the site include a set of sumps located in the X-700 and the X-705 buildings, extraction wells in the vicinity of X-231B, X-701B, and groundwater interceptor trenches at X-749 and X-701B.

Groundwater is used as a domestic, municipal, and industrial water supply in the vicinity of PORTS. Most municipal and industrial water supplies in Pike County are developed from the Scioto River Valley buried aquifer. Groundwater in the Berea sandstone and Gallia sand formations that underlie PORTS is not used as domestic, municipal, or industrial water supplies. Domestic water supplies are obtained from either unconsolidated deposits in preglacial valleys, major tributaries to the Scioto River Valley, or from fractured bedrock encountered during drilling.

The PORTS reservation is the largest industrial user of water in the vicinity and obtains its water from the X-608, X-605G, and X-6609 water supply well fields, which are next to the Scioto River south of Piketon. The wells tap the Scioto River Valley buried aquifer. Total groundwater production averages 49.4 million liters per day (L/d) [13 million gallons per day (MGD)] for the entire site, including USEC activities (DOE 1999b).

3.4.1.2 Groundwater monitoring

Groundwater monitoring is performed at six RCRA hazardous waste units and three solid waste units at PORTS. Parameters that are monitored at each unit are approved by the Ohio EPA. Two RCRA Corrective Action Program units, the X-611A Former Lime Sludge Lagoons and the X-749B Peter Kiewit Landfill, also require routine groundwater monitoring.

Different types of groundwater monitoring are conducted based on two factors: (1) conditions at each unit, and (2) applicable regulations for hazardous and solid waste. Detection monitoring is performed at units where there has been no significant change in groundwater indicator parameters for upgradient or downgradient wells. Detection monitoring uses statistical comparison of monitoring parameters at upgradient and downgradient wells to determine whether a release from the unit has affected groundwater. If a release from the unit is identified, the groundwater contaminant plume associated with the unit is characterized during a groundwater quality assessment, and assessment monitoring is performed according to a groundwater quality assessment plan.

Assessment monitoring is conducted to characterize the extent of, rate of migration, and concentration of hazardous and solid waste constituents in groundwater. In general, PORTS compares constituents detected in the groundwater at units in the assessment-monitoring program to preliminary remediation goals (PRGs) to assess the potential for the concentrations of each constituent to affect human health and the environment. These PRGs have been determined as part of the RCRA Corrective Action process. PRGs are based on naturally occurring concentrations of some constituents; on risk-based numbers calculated by the USEPA, such as maximum contaminant levels for drinking water; or are determined through a site-specific risk assessment.

In addition to the detection monitoring and assessment monitoring at PORTS, there is also a surveillance monitoring program that consists of perimeter exit pathway monitoring, off-site water supply sampling, PORTS water supply sampling, and baseline monitoring. Additional information about each of the units is provided in the *Portsmouth Annual Environmental Report for 1998* (DOE 1999a).

Sampling performed as part of the groundwater monitoring effort has determined that soil and groundwater underlying some areas of the site have been contaminated with various solvents, such as trichloroethylene, that were commonly used to degrease equipment. To a lesser degree, uranium, technetium, and inorganics (metals) have also been detected in soils and groundwater. To date, studies indicate that groundwater contamination is limited to the shallow aquifer, which is not of sufficient volume to be used for drinking water. Off-site residential well sampling has not detected any contamination, indicating that contaminants in the groundwater beneath PORTS do not affect the quality of the water in the Scioto River Valley buried aquifer (DOE 1999a).

Five distinct groundwater plumes have been identified within PORTS:

- X-749/120 plume (Quadrant I),
- Five-Unit Area plume (Quadrant I),
- Seven-Unit Area plume (Quadrant II),

- X-701B plume (Quadrant II), and
- X-740 plume (Quadrant III).

Analytical results from two 1998 sampling events for the X-735 Industrial Solid Waste Landfill and X-749A Classified Materials Disposal Facility, and the associated statistical analyses, indicated that no release of leachate to the groundwater has occurred from these solid waste units. The third solid waste unit, the X-749 Contaminated Materials Storage Yard (southern portion), is underlain by a groundwater contaminant plume and for the purposes of groundwater monitoring is addressed with the other RCRA Hazardous Waste Units.

Groundwater monitoring in 1998 detected groundwater contamination associated with six of the seven RCRA Hazardous Waste Units located at PORTS (DOE 1999a):

- X-231B Southwest Oil Biodegradation Plot—A contaminated groundwater plume consisting primarily of trichloroethene (TCE) is associated with the X-231B area. Metals, uranium, and technetium are also present, but the concentrations of these constituents are below established PRGs.

- X-616 Chromium Sludge Surface Impoundments—Inorganic constituents including chromium, nickel, and manganese have been detected in groundwater associated with the X-616 area. The concentrations of these constituents are below established PRGs. The only volatile organic compound (VOC) detected above its PRG was TCE.

- X-701B Holding Pond—Trichloroethane, TCE, and other VOCs are present in a groundwater plume associated with the X-701B Holding Pond. Metals, uranium, and technetium have also been detected in the groundwater beneath the X-701B area.

- X-701C Neutralization Pit—This area is also located within a TCE plume centered near the X-700 Converter Shop and Cleaning Building and the X-705 Decontamination Building. Dichloroethene was also detected above its PRG, and inorganics (metals) have also been detected in the groundwater beneath the X-701C area. No radiological constituents were detected above PRGs.

- X-735 Landfill (Northern Portion)—Analytical results and the associated statistical analyses for 1998 indicate that there have been no releases from the X-735 Landfill.

- X-749 Contaminated Materials Storage Yard—The most extensive and most concentrated constituents associated with the groundwater plume under the X-749 area are TCE and trichloroethane. Metals, uranium, and technetium have also been detected in the groundwater beneath the area.

- X-740 Hazardous Waste Storage Facility—The TCE-contaminated groundwater plume extends approximately 213.4 m (700 ft) west of the X-740 building. The Gallia groundwater flow is primarily west toward the center tributary of the West Drainage Ditch. Metals do not appear to be contaminants of concern in groundwater at X-740.

3.4.1.3 Groundwater treatment

In 1998, a combined total of approximately 23.8 million gal of contaminated groundwater was treated at the X-622, X-622T, X-623, X-624, and X-625 Groundwater Treatment Facilities. Approximately 156 gal (590.5 L) of TCE were removed from the groundwater (DOE 1999a). All processed water is discharged through NPDES outfalls before exiting PORTS.

- X-622—TCE-contaminated groundwater from the X-231B Southwest Oil Biodegradation Plot, the X-749 Contaminated Materials Disposal Facility, and the Peter Kiewit groundwater collection system is processed at the X-622 Groundwater Treatment Facility using activated carbon and green sand filtration.

- X-622T—At this treatment facility, activated carbon is used to treat contaminated groundwater from the X-700 and X-705 buildings. The contaminated groundwater is extracted from sumps located in the basement of each building.

- X-623—This groundwater treatment facility consists of an air stripper with off-gas activated carbon filtration and aqueous-phase activated carbon filtration. X-623 provides treatment for contaminated groundwater from the X-701B Holding Pond and three groundwater extraction wells in the X-701B plume area.

- X-624—TCE-contaminated groundwater from the X-237 interceptor trench associated with the X-701B plume is treated via an air stripper with off-gas activated carbon filtration, plus carbon filtration of the effluent water.

- X-625—Groundwater that is gravity fed to this facility (from a horizontal well associated with the X-749/X-120 groundwater plume and as part of an ongoing technology demonstration) is treated with various passive media such as iron fillings.

3.4.2 Surface Water

3.4.2.1 Site hydrology

PORTS is drained by several small tributaries of the Scioto River, which flows south to the Ohio River. Sources of surface water drainage include storm water runoff, groundwater discharge, and effluent from plant processes.

The largest stream on the site is Little Beaver Creek, which drains the northern and northwestern portions of the site before discharging into Big Beaver Creek. Little Beaver Creek is a small, high-gradient, unmodified stream that receives the majority of its flow from the X-230J7 East Holding Pond discharge through the East Drainage Ditch. Little Beaver Creek also receives effluent via the Northeast Drainage Ditch through the outfall from the X-230J6 Northeast Holding Pond and the North Drainage Ditch through the X-230L North Holding Pond outfall. Substrates are predominantly slab boulders and bedrock at the upper reach to gravel and sand near the mouth. During parts of the year, intermittent flow conditions exist upstream from the X-230-J7 discharge. During these times the upstream section is composed of isolated pools with no observable flow (Ohio EPA 1998).

Big Run Creek, located in the southeastern portion of the site, receives outfall effluent from the X-230K Holding Pond at the headwaters of the stream. Big Run Creek continues southwest from the DOE property boundary until it discharges into the Scioto River, approximately 6.4 km (4 miles) from the site. The substrates are predominated by gravel and cobble, and the channel has remained unmodified.

Because of the small stream size and high gradient, deep pools are absent. Big Run Creek often has intermittent flow during parts of the year (Ohio EPA 1993).

Two ditches drain the western and southwestern portions of the site; flow is low to intermittent. The West Drainage Ditch receives water from surface water runoff, storm sewers, and plant effluent. The unnamed southwest drainage ditch receives water mainly from storm sewers and groundwater discharge. These two drainage ditches continue west and ultimately discharge into the Scioto River.

3.4.2.2 Surface water monitoring

The quality of surface waters at PORTS is affected by wastewater discharges and groundwater transport of contaminants from land disposal of waste. Although bedrock characteristics differ somewhat among the watersheds of these surface waters, the observed differences in water chemistry are attributed to different contaminant loadings rather than to geologic variation (DOE 1999a). Water quality, radioactivity, and flow measurements are made at a number of stations operated by DOE. The frequency of surface water sampling (weekly, monthly, etc.) is specific to the analytes. Routine and permitted outfall samples are tested for radiological components (gross alpha, gross beta-gamma, technetium, and uranium), pH, flow, turbidity, TCE, oil and grease, heavy metals, fluorides, and phosphates.

Most surface water sampling at PORTS for nonradiological discharges is regulated by NPDES permits enforced by the Ohio EPA. NPDES permit limitations regulate all plant process effluent discharged to the environment. The DOE-PORTS NPDES permit was issued in 1995 and modified in 1996 and 1997. The DOE-PORTS NPDES permit expired on March 31, 1999. DOE submitted a permit renewal application to Ohio EPA in 1998 in accordance with Ohio EPA requirements. The old permit will remain in effect until Ohio EPA issues a new permit. The Ohio EPA also conducted the annual inspection of all DOE-PORTS outfalls on March 17, 1999. No problems were noted during the inspection (DOE 2000a).

DOE has six discharge points, or outfalls, through which water is discharged from the site. Three outfalls discharge directly to surface water (unnamed streams that flow to the Scioto River and Little Beaver Creek), and three discharge to the USEC X-6619 Sewage Treatment Plant before leaving the site through USEC Outfall 003 to the Scioto River. USEC is responsible for 10 NPDES outfalls at PORTS. Seven outfalls discharge directly to surface water (unnamed tributary to Scioto River, Little Beaver Creek, Big Run Creek, and the Scioto River). Three discharge to the X-6619 Sewage Treatment Plant and USEC Outfall 003.

DOE-PORTS Outfalls:

012 (X-2230M Holding Pond)
013 (X-2230N Holding Pond)
015 (X-624 Groundwater Treatment Facility)
608 (X-622 Groundwater Treatment Facility)
610 (X-623 Groundwater Treatment Facility)
611 (X-622T Groundwater Treatment Facility)

USEC Outfalls:

001 (X-230J7 Holding Pond)
002 (X-230K South Holding Pond)
003 (X-6619 Sewage Treatment Plant)
004 [X-616 Chromate Treatment Facility (inactive)]

005 (X-611B Lime Sludge Lagoon)
009 (X-230L North Holding Pond)
010 (X-230J5 Northwest Holding Pond)
011 (X-230J6 Holding Pond)
604 (X-700 Biodenitrification Facility)
605 (X-705 Decontamination Microfiltration System)

Surface water monitoring of the Big Run Creek, East Drainage Ditch, Little Beaver Creek, North Holding Pond, unnamed southwestern drainage ditch, and West Drainage Ditch is conducted quarterly to assess the effect of the discharge of groundwater to streams (as base flow) at PORTS. This monitoring helps to support assessment monitoring at X-231B and X-701B and post-closure monitoring at X-616, X-735, and X-749. These surface monitoring locations are part of the Groundwater Monitoring Program and are not considered part of the PORTS NPDES sampling program (DOE 1999a).

3.4.2.3 Surface water quality

Both DOE and USEC monitor NPDES outfalls for radiological discharges by collecting water samples and analyzing the samples for radionuclides. Samples are analyzed for gross alpha activity, gross beta activity, technetium, and total uranium. In 1999, a total of 0.0079 Ci of radionuclides was discharged from DOE NPDES outfalls, and uranium discharges totaled 0.59 kg. Data collected by USEC and provided to DOE showed that USEC released 21.14 kg of uranium through its 10 NPDES outfalls during 1999. Total radioactivity released was 1.08 Ci (DOE 2000a).

The Ohio EPA also requires monthly collection of surface water samples from the X-745C and X-745E depleted uranium cylinder yards. Samples are analyzed for alpha activity, beta activity, and total uranium. During 1999, alpha activity ranged from less than 1 picocurie per liter (pCi/L) to 52 pCi/L, beta activity ranged from less than 3 pCi/L to 148 pCi/L, and total uranium ranged from 1.0 µg/L to 14.5 µg/L. Beginning in September 1999, samples also were analyzed for total PCBs, technetium, ^{241}Am, ^{243}Am, ^{237}Np, ^{238}Pu, and ^{239}Pu. These parameters were not detected at levels greater than the applicable detection limits (DOE 2000a).

Sampling of nonradioactive constituents is regulated under the NPDES permit. Analyses are performed in accordance with applicable regulations. The 1999 NPDES compliance rate for DOE outfalls was 100%, and compliance rates for individual parameters was also 100%. This EA does not include results for nonradiological monitoring of USEC NPDES outfalls.

Results of the 1998 surface water monitoring conducted in conjunction with groundwater assessment monitoring are as follows. No VOCs were detected at the sampling locations in Big Run Creek, Little Beaver Creek, East Drainage Ditch, North Holding Pond, or West Drainage Ditch, with the exception of small amounts of chloroform and other trihalomethanes that are common residuals in treated chlorinated drinking water. These streams received such treated water. TCE has been detected regularly at UND-SW01 within the unnamed southwestern drainage ditch at low levels since 1990 and was detected in 1998 at 2 to 3 µg/L. TCE was also detected downstream from UND-SW01 at 2 µg/L in the second quarter of 1998. Naturally occurring Sunbury shale chips and fines in the stream sediment contain trace concentrations of uranium, and these chips might account for the low uranium concentrations that were detected below PRGs at many of the sampling locations in 1998. Gross alpha and beta activity was also detected at several sampling locations, but the activity was below PRGs (DOE 1999a).

3.5 FLOODPLAINS AND WETLANDS

3.5.1 Floodplains

Floodplains consist of mostly level land along rivers and streams that may be submerged by floodwaters. The Flood Insurance Rate Map provided by the Federal Emergency Management Agency indicates that the 100-year floodplain extends on both sides of Little Beaver Creek upstream from the confluence with Big Beaver Creek to the rail spur located near the X-230 J-9 North Environmental Sampling Station (Fig. 3.2). The 100-year floodplain ranges on either side of Little Beaver Creek from 15.24 to 60.96 m (50 to 200 ft) roughly following the 174.7-m (575-ft) topographic contour. Flooding is not a problem for the majority of the site. The highest recorded flood level of the Scioto River in the vicinity of the site was 570.0 ft AMSL (January 1913), which is approximately 100 ft below the level of most PORTS facilities. No portion of the floodplain for Big Run Creek is located within the PORTS boundary.

3.5.2 Wetlands

The U.S. Army Corps of Engineers (USACE) defines wetlands as "those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands usually include swamps, marshes, bogs, and similar areas. In identifying a wetland, three characteristics should be met. First is the presence of hydrophytic vegetation that has morphological or physiological adaptations to grow, compete, or persist in anaerobic soil conditions. Second, hydric soils are present and possess characteristics that are associated with reducing soil conditions. Third, site hydrology, meaning the area is inundated or saturated to the surface at some time during the growing season of the prevalent vegetation, must be present (USACE 1987).

PORTS contains 41 jurisdictional and 4 non-jurisdictional wetlands totaling 13.92 ha (34.36 acres) (DOE 1996b). Quadrant I has 13 jurisdictional wetlands totaling 5.22 ha (12.91 acres). Quadrant II contains three jurisdictional wetlands with a total area of 5.2 ha (12.86 acres). Quadrant III has 6 jurisdictional wetlands totaling 0.82 ha (2.02 acres), and Quadrant IV has 19 jurisdictional wetlands and 4 non-jurisdictional wetlands totaling 2.66 ha (6.58 acres). The majority of the wetlands are associated with wet fields, areas of previous disturbance, drainage ditches, or wet areas along roads and railway tracks. Table 3.2 provides information about the wetlands at PORTS. The location of all the wetlands is shown on Fig. 3.3.

3.6 ECOLOGICAL RESOURCES

3.6.1 Terrestrial Resources

The 10 terrestrial habitat types at PORTS are as follows (DOE 1997a):

- Old field areas—Early successional stage of disturbed areas dominated by tall weeds, shade-intolerant trees, and shrubs.
- Scrub thicket—Later successional stage covering old field areas dominated by dense thickets of small trees.
- Managed grassland—Open areas actively maintained and dominated by grasses.

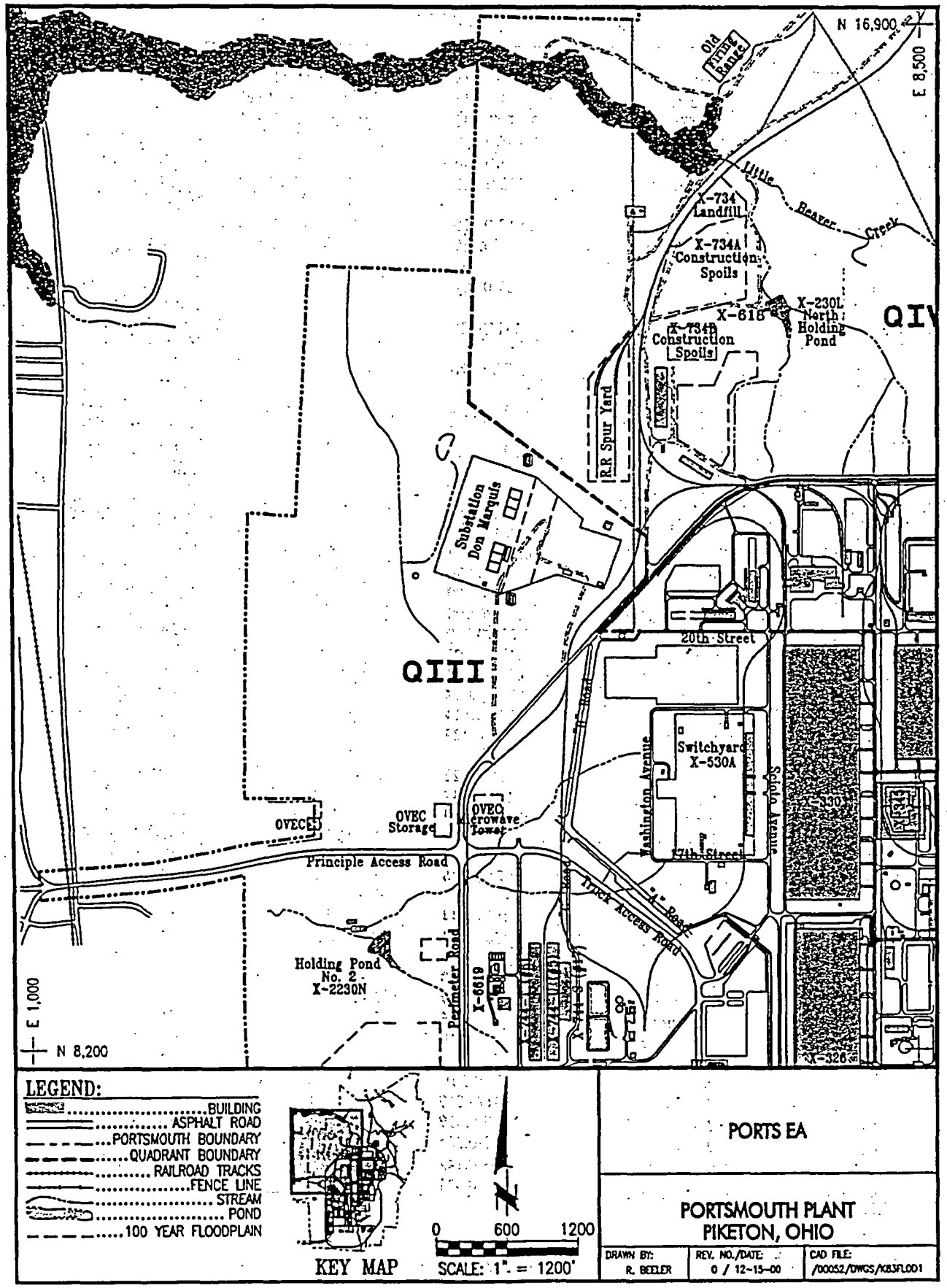

Fig. 3.2. 100-Year floodplain of Little Beaver Creek.

1 **Table 3.2. Wetlands at PORTS**

Wetland ID #	Status	ha/acre	Location	Comments
QI-01	Jurisdictional	0.133/0.328	West Perimeter Road	
QI-02	Jurisdictional	0.436/1.077	West Perimeter Road	
QI-03	Jurisdictional	0.778/1.922	West Perimeter Road	
QI-05	Jurisdictional	0.105/0.259	X-2207 parking	Drainage ditch
QI-06	Jurisdictional	0.093/0.230	X-749A Landfill	Drainage ditch
QI-32	Jurisdictional	1.292/3.189	Former GCEP site	Wet field; former GCEP site
QI-33	Jurisdictional	0.012/0.029	West Perimeter Road	
QI-34	Jurisdictional	0.109/0.269	Former GCEP site	Wet field; former GCEP site
QI-35	Jurisdictional	0.151/0.374	Former GCEP site	Wet field; former GCEP site
QI-36	Jurisdictional	0.051/0.125	Former GCEP site	Wet field; former GCEP site
QI-37	Jurisdictional	1.874/4.626	Former GCEP site	Wet field; former GCEP site
QI-38	Jurisdictional	0.103/0.254	Former GCEP site	Wet field; former GCEP site
QI-39	Jurisdictional	0.092/0.228	Former GCEP site	Wet field; former GCEP site
QII-09	Jurisdictional	4.203/10.378	Little Beaver Creek	
QII-11	Jurisdictional	0.182/0.450	X-611A	Previous disturbance
QII-12	Jurisdictional	0.821/2.028	X-701B area	RAD area
QIII-27	Jurisdictional	0.047/0.117	West Perimeter Road	
QIII-29	Jurisdictional	0.015/0.036	West Perimeter Road	
QIII-30	Jurisdictional	0.194/0.480	X-744 N, P, and Q	Previous disturbance
QIII-31	Jurisdictional	0.042/0.103	X-615	RAD area
QIII-46	Jurisdictional	0.032/0.080	X-616	Drainage ditch
QIII-51	Jurisdictional	0.486/1.201	West Perimeter Road	
QIV-13	Jurisdictional	0.949/2.343	X-611A	Old borrow area
QIV-14	Non-jurisdictional	0.005/0.012	X-611B	Sludge lagoon
QIV-15	Non-jurisdictional	0.046/0.114	X-611B	Sludge lagoon
QIV-17	Jurisdictional	0.093/0.229	Fog Road	Natural area; past disturbance
QIV-18	Jurisdictional	0.130/0.322	North access road	Drainage ditch
QIV-19	Jurisdictional	0.181/0.447	North borrow area	Drainage ditch
QIV-20	Jurisdictional	0.158/0.389	North borrow area	Drainage ditch
QIV-21	Jurisdictional	0.066/0.163	X-735 Landfill	Borders railroad track
QIV-22	Jurisdictional	0.007/0.018	X-7456 Cylinder Yard	Drainage ditch
QIV-23	Jurisdictional	0.024/0.006	Ruby Hollow	Natural area; past disturbance
QIV-24	Jurisdictional	0.018/0.044	Ruby Hollow	Natural area
QIV-25	Jurisdictional	0.038/0.094	Ruby Hollow	Natural area; past disturbance
QIV-26	Jurisdictional	0.065/0.160	X-752 Warehouse	Man-made ditch
QIV-40	Jurisdictional	0.145/0.359	X-611B	Man-made ditch
QIV-42	Jurisdictional	0.047/0.115	X-611B	Base of dam
QIV-43	Jurisdictional	0.048/0.119	X-611B	Base of dam
QIV-44	Jurisdictional	0.068/0.167	X-611B	Base of dam
QIV-45	Jurisdictional	0.08/0.201	X-747H Landfill	RAD area
QIV-46	Jurisdictional	0.016/0.040	North borrow area	Borrow area
QIV-47	Jurisdictional	0.202/0.499	North borrow area	Drainage ditch
QIV-48	Jurisdictional	0.228/0.564	North borrow area	Drainage ditch
QIV-49	Non-jurisdictional	0.058/0.142	X-611B	Sludge lagoon
QIV-50	Non-jurisdictional	0.013/0.031	X-611B	Sludge lagoon

2 GCEP = Gas Centrifuge Enrichment Plant.
3 ha = hectare.
4 RAD = radioactive.
5 *Source: Wetland Survey Report for the Portsmouth Gaseous Diffusion Plant*, 1996b, POEF-LMES-106.

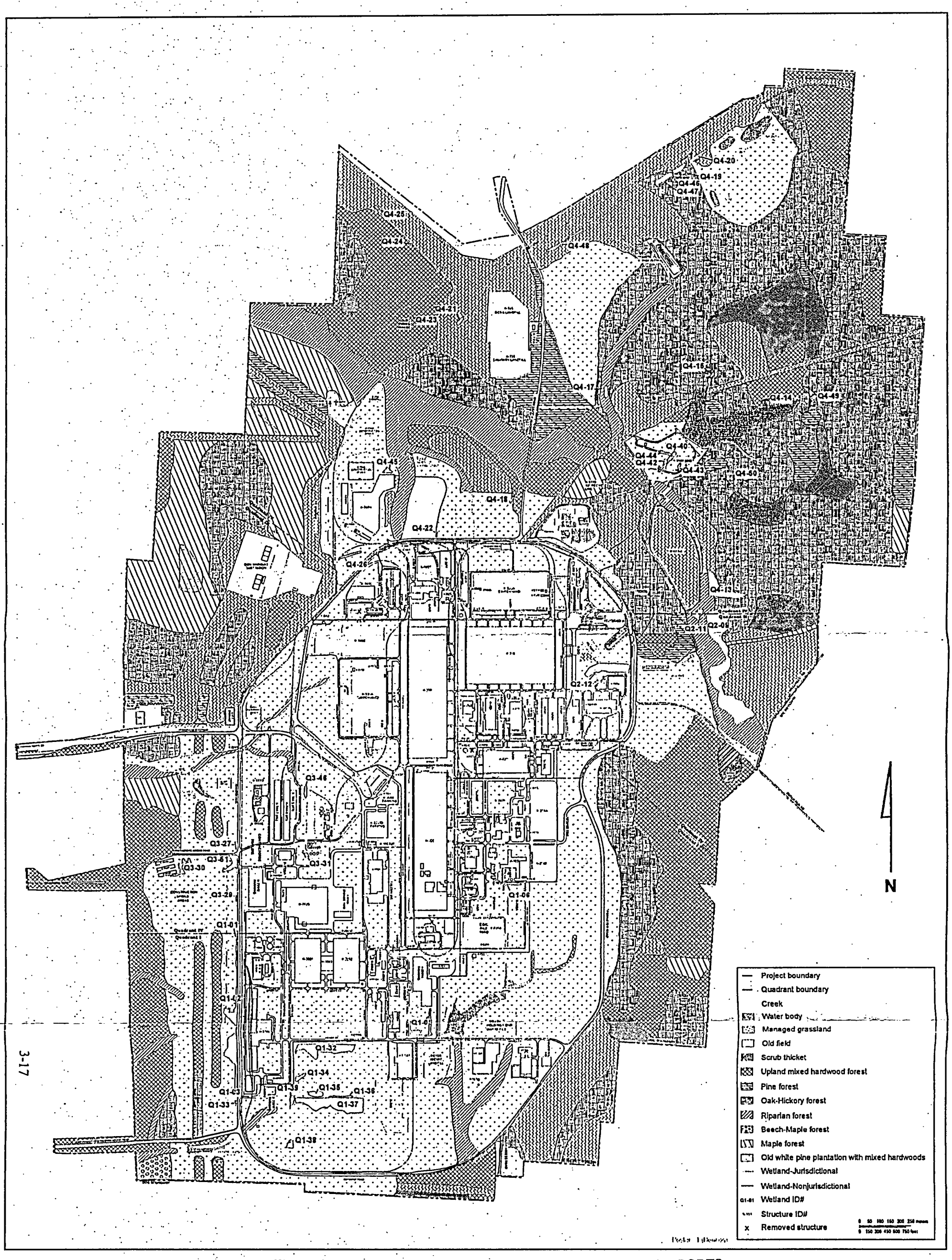

Fig. 3.3. Terrestrial and aquatic habitats (including wetlands) located at PORTS.

- Upland mixed hardwood forest—Mesic to dry upland areas dominated by black walnut, black locust, honey locust, black cherry, and persimmon.
- Pine forest—Advanced successional stage following scrub thicket. The overstory is dominated by Virginia pine.
- Pine plantation—Nearly pure stands of Virginia pines.
- Oak-hickory forest—Well-drained upland soils. White oak and shagbark hickory are the most dominant of the oaks and hickories.
- Riparian forest—Periodically flooded, low areas associated with streams. Dominated by cottonwood, sycamore, willows, silver maple, and black walnut.
- Beech-maple forest—Undisturbed areas dominated by American beech and sugar maple.
- Maple forest—Dominated by sugar maple and other shade-tolerant species.

The habitat types covering the largest area on the reservation are managed grassland (30 % of total area), oak-hickory forest (17 %), and upland mixed hardwood forest (11 %). The areas covered by each habitat type are listed in Table 3.3 and shown in Fig. 3.3. Several species of animals have been observed within the PORTS property boundary. A complete list of these species is presented in Appendix D and is summarized in this section.

Table 3.3. Terrestrial habitat types at PORTS

Habitat type	Approximate total area (ha/acre)	Approximate no. of communities	Percent of total area[a]
Managed grassland	446/110	Numerous[b]	30.0
Old field	170/420	10	11.4
Scrub thicket	32/79	10	2.2
Upland mixed hardwood forest	162/400	20	10.9
Pine forest	28/69	10	1.9
Oak-hickory forest	256/632	14	17.2
Riparian forest	62/153	10	4.2
Beech-maple forest	2/5	1	0.1
Maple forest	52/128	7	3.5
Old white pine plantation with mixed hardwoods	2/5	1	0.1

Source: DOE 1997a (DOE/OR/11/1668&D0).

[a]Total site area is 1486 ha (3714 acres). Approximately 252 ha (629 acres, 16.9%) of the total area are covered by buildings, parking lots, and roads. The remainder of the total site area contains aquatic habitat.

[b]This habitat is present in many areas interspersed between buildings and paved areas across the plant site.

Forty-nine mammals have ranges that include PORTS. Only 27 of those have been observed on the site. The most abundant mammals include white-footed mouse (*Peromyscus leucopus*) and short-tailed shrew (*Blarina brevicauda*). Larger mammals present include white-tailed deer (*Odocoileus virginianus*), eastern cottontail rabbit (*Sylvilagus floridanus*), and opossum (*Didelphis virginiania*) (DOE 1996c).

One hundred and fourteen bird species including year-round residents, winter residents, and migratory species have been observed on-site (DOE 1996c). The species include raptors [red-tailed hawk (*Buteo*

jamaicensis)], water birds [mallard (*Anas platyrynchos*) and wood duck (*Aix sponsa*)], game birds [wild turkey (*Meleagris gallopavo*)], and non-game birds [nuthatches (*Sitta* sp.) and wrens (*Troglodytes* sp.)].

Eleven species of reptiles and six species of amphibians have been observed at the facility. The most common reptiles include eastern box turtle (*Terrapene carolina*), black rat snake (*Elaphe obsolete obsoleta*), and northern black racer (*Coluber constrictor*). The most common species of amphibians are American toad (*Bufo americanus*) and northern dusky salamander (*Desmognathus fuscus*) (DOE 1996c).

Common orders of insects found at PORTS include Homoptera (cicadas and aphids), Hymenoptera (bees, wasps, and ants), Diptera (flies), Coleoptera (beetles), and Orthoptera (grasshoppers) (Battelle 1976).

3.6.2 Aquatic Resources

Surface water aquatic resources at PORTS include creeks and drainage ditches. Little Beaver Creek and Big Run Creek provide drainage for a large portion of the facility. All aquatic resources at the facility are shown in Fig. 3.3. Sources of surface water are precipitation runoff, groundwater discharge, and effluent from plant processes. Most of the aquatic resources include populations of fish (58 species were collected around the facility), invertebrates, and periphyton. The outflow areas also are known to adversely affect the aquatic community of organisms. Some areas of ditches are devoid of aquatic insects and fish while other areas support only the most pollution-tolerant species.

In 1997, the Ohio EPA (Ohio EPA 1998) assessed Little Beaver Creek and found that non-attainment of the Warmwater Habitat (WWH) designation occurred upstream and immediately downstream from the X-230-J7 effluent discharge. Partial attainment was reached 0.97 km (0.6 miles) downstream from the X-230-J7 discharge, and in the lower reaches the stream fully attained WWH status. The lack of stream habitat combined with low water flow was determined to be the principal cause of the non-attainment of WWH status in the upper reaches, and not the effluent. The fish communities ranged from fair to exceptional condition in the Little Beaver Creek and ranged from good to exceptional downstream from the X-230-J7 discharge. The macroinvertebrate communities ranged from poor to exceptional. Poor ratings were assigned in the upstream areas where low flow or pollution stressed the community. Downstream areas of Little Beaver Creek contained exceptional macroinvertebrate communities and included high taxa diversity and a predominance of pollution-sensitive organisms. The most abundant fish taxa were central stonerollers (*Campostoma anomalum*), creek chubs (*Semotilis atromaculatus*), and bluntnose minnows (*Pimephales notatus*).

Big Run Creek is a typical headwater stream for the area. Prior to the relocation of 304.8 m (1000 ft) of the stream channel in 1994, it contained seven species of fish dominated by creek chubs and central stonerollers (Ohio EPA 1993). Macroinvertebrates consisted of chironomids, fly larvae, mayflies, stoneflies, caddisflies, beetles, damselflies, aquatic earthworms, and planaria (ERDA 1977).

The drainage ditches have not been well studied in the past. An unnamed western tributary has three species of fish typically associated with headwaters and contains fly larvae, caddisflies, beetles, and snails (ERDA 1977). Tributaries in the northwestern and southwestern portions of the facility have not had bioassessments performed on them.

3.6.3 Threatened and Endangered Species

The USFWS and the Ohio Department of Natural Resources (ODNR), Division of Natural Areas and Preserves, provided information regarding threatened and endangered species at PORTS. Also, a comprehensive evaluation of the site for the presence of federal- and state-listed threatened and

endangered species was conducted in 1996 (DOE 1997a). The USFWS has indicated that the Indiana bat (*Myotis sodalis*) is the only federally listed endangered animal species whose home range includes PORTS. Information from ODNR identified several state-listed threatened, endangered, and special interest species within 1 mile of the facility; however, their database does not show any species within the property boundaries of the facility. Informal consultation letters and other information from each agency are included in Appendix E.

Surveys were conducted for the presence of the Indiana bat in 1994 and 1996. As part of the 1996 survey, potential summer habitat for the Indiana bat was identified in the Northwest Tributary stream corridor, the Little Beaver Creek stream corridor, and along a logging road in a wooded area to the east of the X-100 Administration Building. Mist netting was conducted in those areas in June and again in August. Although 14 bats representing four common species were captured during the August survey, no Indiana bats were collected. The survey also indicated that most of PORTS has poor summer habitat for Indiana bats. The few woodlands that occur on the property are small, isolated, and not of sufficient maturity to provide good habitat. The exception is an area of deciduous sugar maple forest along the Northwest Tributary stream corridor, where several of the bats were collected (DOE 1997a). The Northwest Tributary begins just southwest of the Don Marquis substation and flows approximately 3200 ft before leaving the DOE property prior to its confluence with Little Beaver Creek.

Historically, isolated sightings and observations of threatened, endangered, or special interest species have occurred at the facility. An Ohio endangered raptor, sharp-shinned hawk (*Accipiter striatus*), has been observed at the site in the past (DOE 1993). One Ohio endangered plant species, Carolina yellow-eyed grass (*Xyris difformis*), and a potentially threatened species, Virginia meadow-beauty (*Rhexia virginica*), have been found at the facility (DOE 1993; DOE 1996c). The rough green snake (*Opheodrys aestivus*), listed as an Ohio special interest species, has been observed at PORTS (DOE 1996c).

3.6.4 Environmentally Sensitive Areas

There are several environmentally sensitive areas within PORTS. These include areas where Ohio endangered or threatened species have been observed, and wetland areas and the floodplain of Little Beaver Creek. There are no exceptional warm water streams within the facility.

- The Northwest Tributary stream corridor is considered a sensitive area because it represents the best habitat for bats at PORTS.

- The area near the X-611B Sludge Lagoon should be considered a sensitive area due to the possible presence of Carolina yellow-eyed grass, which was observed at PORTS in 1994 (DOE 1996b). Confirmation of this species is necessary, as the original identification occurred while the plant was not flowering.

- The area near the X-611A Former Line Sludge Lagoons is a sensitive area because of the presence of Virginia meadow-beauty (*Rhexia virginica)* adjacent to the base of the dike. Wetlands also are present in this area.

There are no state or national parks, forests, conservation areas, wild and scenic rivers, or other areas of recreational, ecological, scenic, or aesthetic importance within the immediate vicinity of PORTS.

3.7 CULTURAL RESOURCES

Cultural resources are defined as any prehistoric or historic district, site, building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious, or any other reason. When these resources meet any one of the National Register Criteria for Evaluation (NRCE) (36 *CFR* Part 60.4), they may be termed historic properties and thereby are potentially eligible for inclusion on the National Register of Historic Places (NRHP).

The Ohio Historic Preservation Office (OHPO) made a determination that PORTS met the NRCE under Criterion A, Criteria Consideration G, because of its exceptional significance in the development of nuclear energy potential in post-World War II U.S. history (Raymond 1995). The boundary of the historic property that met the NRCE was not addressed by OHPO.

3.7.1 Archaeological Resources

PORTS is located within a region where Adena and Hopewell Indian mounds have existed. Additionally, several historic Native American Indian tribes are known to have had villages nearby.

Two preliminary Phase I archaeological surveys (Dobson-Brown et al. 1996; Schweikart et al. 1997) have been completed at PORTS. The combined surveys covered 836 ha (2066 acres) in Quadrants I through IV. There are few prehistoric archaeological resources at PORTS. Whether this is indicative of the local prehistoric upland settlement pattern or is a consequence of the extensive land disturbance associated with PORTS is not known. In contrast, historic archaeological resources in PORTS are relatively abundant, conspicuous, and undisturbed due to the nature and development of the facility.

Dobson-Brown et al. (1996) developed a predictive model of archaeological resource locations at PORTS based on variations in modern plant communities, topography, and soils, and on the location of previously identified archaeological resources in a 6.5-km (4-mile) literature review study area radius around the facility.

Survey methods in Quadrants I and II included visual inspection, surface collection, and hand excavation of shallow, <13 cm (<5 in.), shovel test pits. Similar shovel test pits inside the Perimeter Road area did not identify archaeological resources and indicated that this area has been highly disturbed.

Survey methods in Quadrants III and IV consisted of visual inspection, surface collection, hand-excavated shovel tests to 30 cm (12 in.) in depth in high-probability areas lacking significant disturbance and <15% slope. Additionally, hand-excavated deep shovel tests (>30 cm or 12 in.) were accompanied by 2-cm (0.75-in.)-diameter hand-coring in three areas in Quadrant IV along Little Beaver Creek. Portions of Quadrants I and II that were not investigated during the preliminary Phase I archaeological survey were also investigated by shallow shovel tests.

The combined Phase I archaeological surveys identified 39 archaeological resources (Tables F.1, F.2, and F.3). Nine of the resources contain prehistoric components. Five are identified as prehistoric isolated finds. Two are identified as prehistoric lithic scatters. Two contain prehistoric and historic components: a prehistoric isolated find in an historic cemetery and a prehistoric lithic scatter and historic farmstead. These sites are located in Quadrants I, II, and IV. No archaeological resources have been identified in Quadrant III. Thirty of the archaeological resources are associated with historic-era properties located within PORTS. Fifteen are remnants of historic farmsteads. Seven are scatters of historic artifacts or open refuse dumps. Two are isolated finds of historic artifacts. Four are remnants of PORTS structures. Two are historic cemeteries. One of the historic cemeteries has an associated chapel and remnant of a PORTS observation tower.

The draft cultural resource report (Schweikart et al. 1977) determined that 23 of the archaeological resources do not meet the NRCE (Table F.1). Insufficient data were collected at the remaining 14 archaeological components and two historic-era cemeteries, one of which (33 Pk 189; PIK-206-9) includes an associated historic archaeological component, to determine whether they meet the NRCE (Tables F.2 and F.3).

3.7.2 Architectural Historic Resources

Two architectural historic surveys have also been completed at PORTS (Dobson-Brown et al. 1996; Coleman et al. 1977). The combined surveys covered 1501 ha (3708 acres) and identified several structures that may have historical significance at PORTS (Table F.4).

A draft historic context for PORTS has also been prepared. This historic context is broken into four development periods for PORTS: Development Period 1 (1900–51), Development Period 2 (1952–56), Development Period 3 (1957–78), and Development Period 4 (1979–85). In the draft architectural survey report (Coleman et. al. 1977), recommendations were made concerning which buildings and structures were considered contributing and noncontributing resources to the PORTS historic property. DOE will evaluate these recommendations in conjunction with the Ohio SHPO to determine which buildings and structures are considered historic properties under the NHPA and whether any of the properties are eligible for inclusion on the NRHP.

3.8 SOCIOECONOMICS

The region of influence (ROI) for the PORTS reindustrialization analysis includes Jackson, Pike, Ross, and Scioto Counties, Ohio. The ROI includes the city population centers of Portsmouth, Chillicothe, and Jackson, as well as several rural villages such as Piketon, Wakefield, and Jasper (Fig. 3.4).

3.8.1 Demographic Characteristics

3.8.1.1 Population

Population trends and projections for each of the counties in the ROI are presented in Table 3.4. Of the four counties, Scioto and Ross Counties have the largest populations, accounting for 37% and 35%, respectively, of the region's 1997 population. Jackson County accounts for 15%, and Pike County for the remaining 13%. The Ohio Department of Development (ODOD) projects that the population in the region will grow very slowly, increasing by less than 7% between 1997 and 2010 (ODOD 1999).

Table 3.4. PORTS ROI regional population trends and projections

County	1990	1997	2000	2010
Jackson	30,238	32,455	32,900	35,000
Pike	24,362	27,530	27,140	29,380
Ross	69,455	75,168	74,800	81,700
Scioto	80,385	80,744	82,500	84,700
Region	204,440	215,897	217,340	230,780
State	10,861,801	11,237,752	11,288,760	11,738,930

Sources: Bureau of Economic Analysis, 1999; ODOD, 1999.

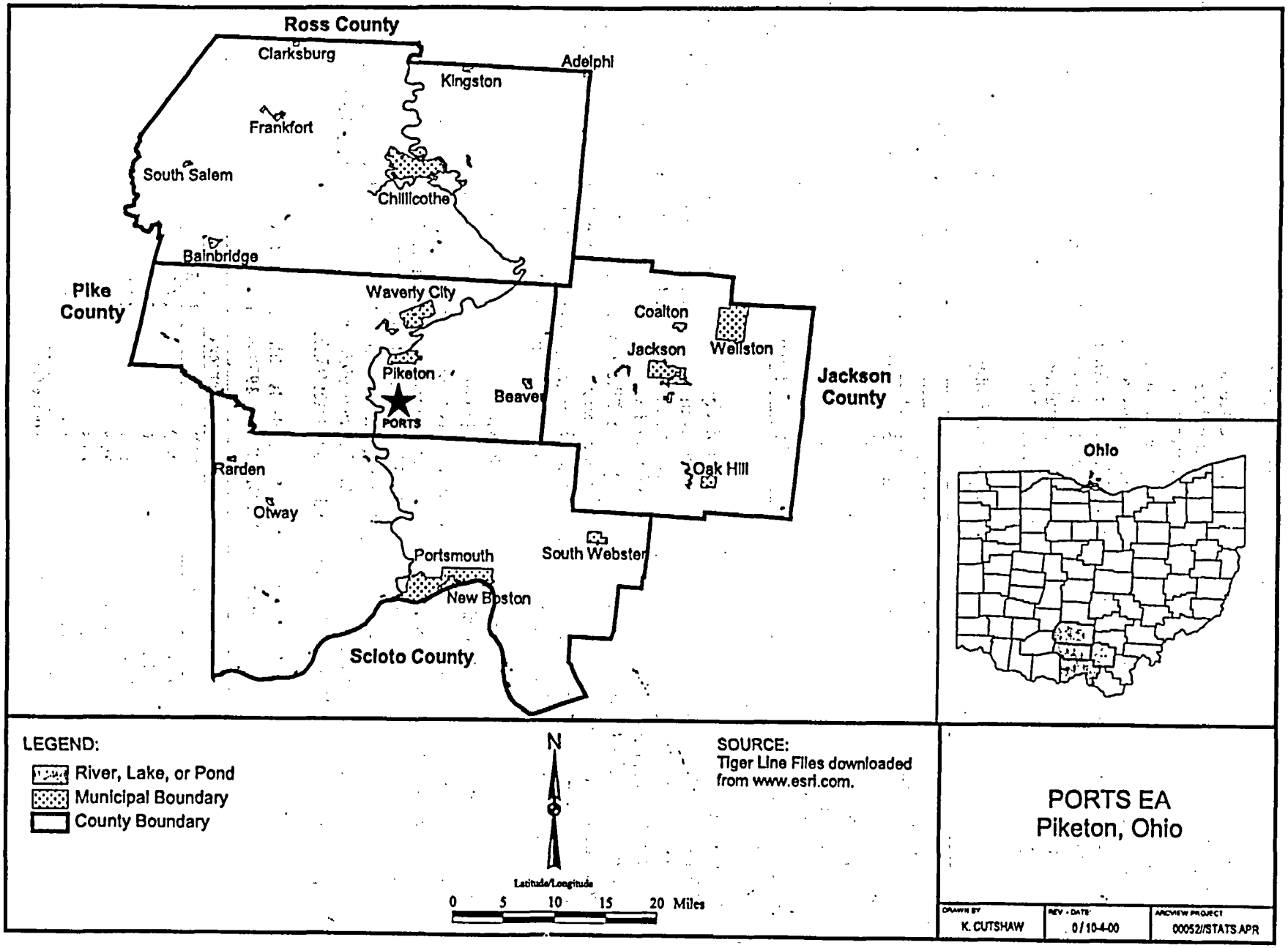

Fig. 3.4. Region of influence for PORTS.

3.8.1.2 Minority and economically disadvantaged populations

The distribution of minority and economically disadvantaged populations was studied to address environmental justice concerns. Table 3.5 presents the distribution of minority populations by county in the four-county ROI. For the purposes of this analysis, a minority population consists of any area in which minority representation is greater than the national average of 24.2%. Minorities include individuals classified by the U.S. Bureau of the Census as Negro/Black/African-American, Hispanic, Asian and Pacific Islander, American Indian, Eskimo, or Aleut. Since Hispanics may be of any race, nonwhite Hispanics are included only in the Hispanic category, and not under their respective minority racial classifications. In all four counties, minority populations are smaller than the national average, ranging from a high of 8.9% in Ross county to a low of 1.2% in Jackson County (ODOD 1999).

Table 3.5. PORTS ROI distribution of minority populations, 1998

	Jackson		Pike		Ross		Scioto	
Race/ethnic group	Number	Percent	Number	Percent	Number	Percent	Number	Percent
White	32,159	98.8	27,185	97.9	69,246	91.7	77,647	96.6
Black	270	0.8	433	1.6	5,618	7.4	2079	2.6
Asian/Pacific Islander	74	0.2	74	0.3	420	0.6	200	0.2
American Indian	60	0.2	83	0.3	189	0.3	429	0.5
Hispanic (any race)	129	0.4	112	0.4	492	0.7	337	0.4
Total	32,563	100.0	27,775	100.0	75,473	100.0	80,355	100.0

Source: ODOD, 1999.

Since any adverse health or environmental effects are likely to fall most heavily on the individuals nearest PORTS, it is also important to examine the populations in the closest census tracts. Figure 3.5 illustrates the distribution of minority populations in the census tracts that immediately surround the PORTS. As of the 1990 Census, none of the tracts closest to the site had minority representation greater than the national average of 24.2% (Bureau of the Census 1990a). In Pike County, tract 9522 contained the largest proportion of minority residents at 4.9%. Only one census tract within the ROI includes a minority population; minorities represent 26.1% of the population in tract 9937 in Scioto County. This tract is near the center of the city of Portsmouth, approximately 37 km (23 miles) south of PORTS.

Table 3.6 presents the proportion of individuals with income below the poverty level, by county, in the four-county ROI. Figure 3.6 shows the location of low-income populations for the same area. In this analysis, a low-income population includes any census tract in which the percentage of persons with income below the poverty level is greater than the national average of 13.1% (Bureau of the Census 1990b). The Ohio average in 1990 was 12.5%. Nearly all (41 out of 48) of the census tracts in the four-county area qualify as low-income populations (Bureau of the Census 2000). The percent of persons below the poverty level ranges as high as 51.0% for tract 9936 in Scioto County. In Pike County, the proportion ranges from 10.8% in tract 9524 to 33.9% in tract 9527.

Table 3.6. Proportion of individuals with income below poverty level: PORTS ROI, 1989 and 1995

	Percent	
Area	1989	1995
Jackson County	24.2	17.5
Pike County	26.6	19.5
Ross County	17.7	15.1
Scioto County	25.8	21.4
State of Ohio	12.5	12.5
United States	13.1	13.1

Source: ODOD, 1999; Bureau of the Census, 1990b.

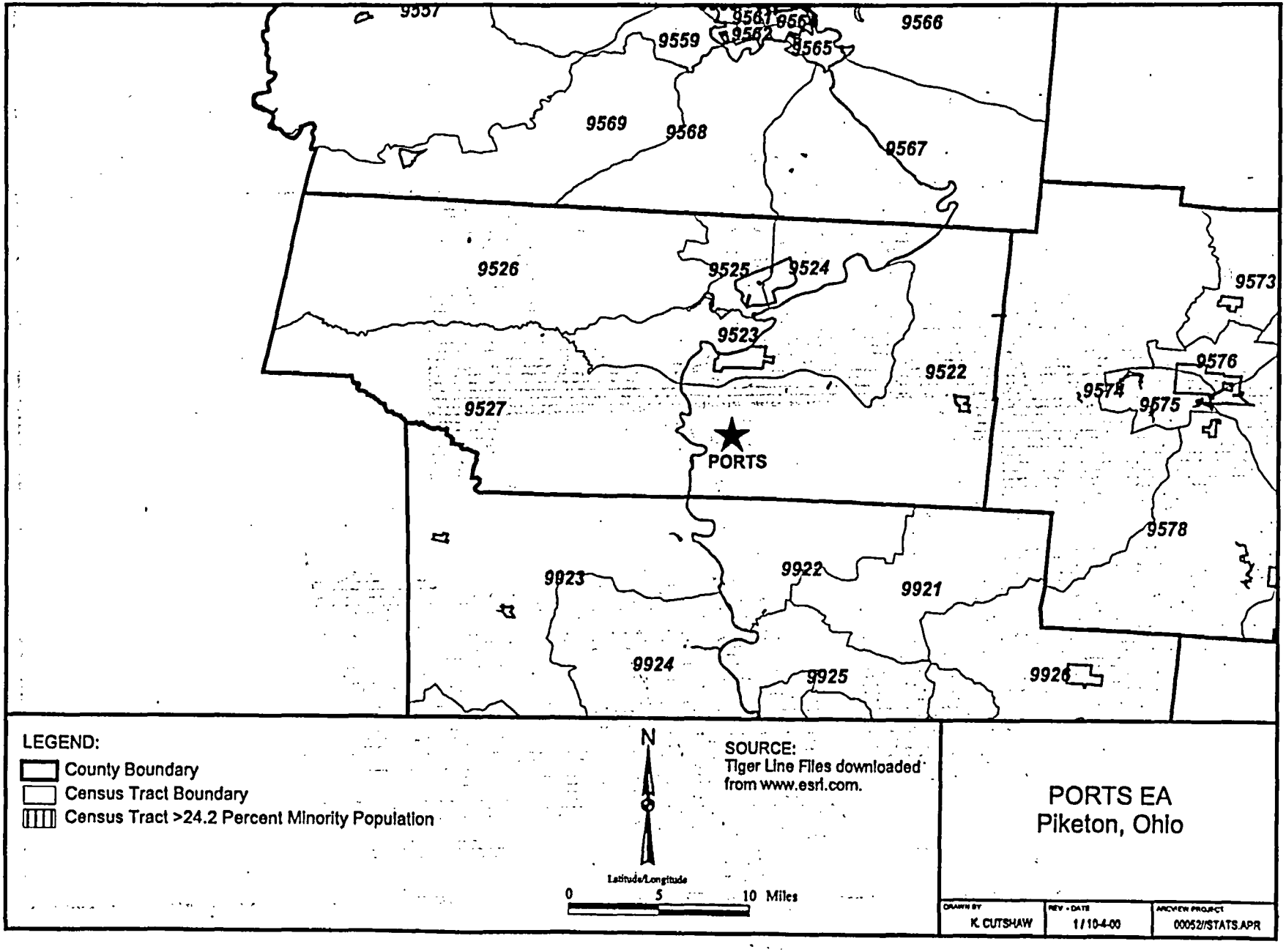

Fig. 3.5. Census tracts with minority population proportions greater than the national average of 24.2%.

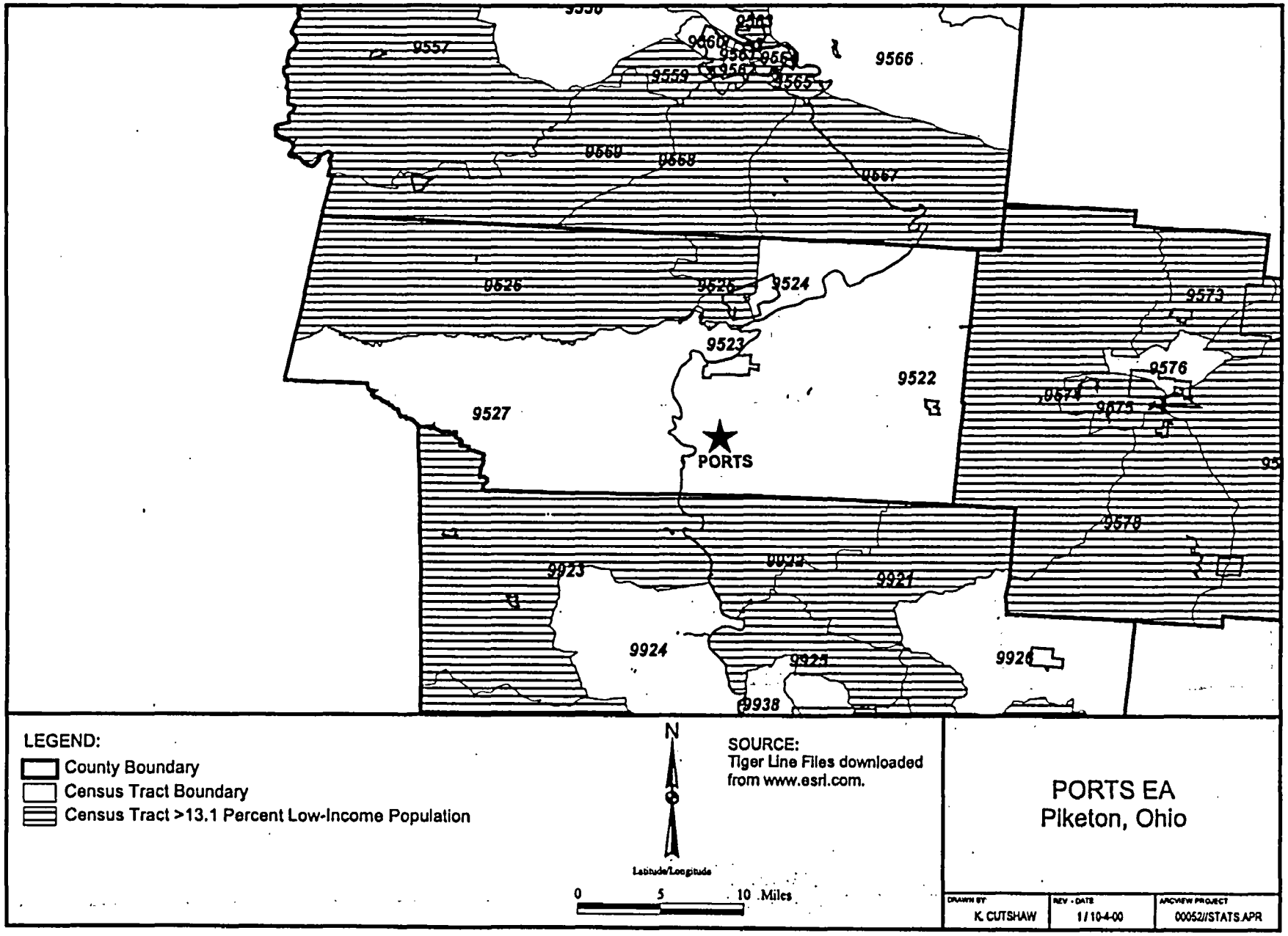

Fig. 3.6. Census tracts with low-income population proportions greater than the national average of 13.1%.

3.8.2 Employment

Regional employment data for 1992 through 1997 are summarized in Table 3.7. While total employment grew more than 16% during the 5-year period, unemployment rates within the region remained high. As Table 3.8 shows, the 1999 average unemployment rate for the ROI was 7.0%, compared to a statewide average of only 4.3%. Unemployment rates for individual counties ranged from 8.5% in Scioto and Pike counties to 5.1% in Ross County (Bureau of Labor Market Information 2000). Data for previous years show a persistent pattern of high unemployment rates throughout the region.

Table 3.7. PORTS ROI employment, 1992–1997

County	1992	1997	Percent change
Jackson	12,240	14,017	14.52
Pike	10,506	13,930	32.59
Ross	29,428	33,944	15.35
Scioto	28,802	32,218	11.86
Region	80,976	94,109	16.22
Ohio	5,906,639	6,596,769	11.68

Source: Bureau of Economic Analysis, 1999.

Table 3.8. PORTS ROI annual average unemployment, 1999

County	Employed	Unemployed	Total	Unemployment rate (%)
Jackson	13,600	1,000	14,600	6.8
Pike	10,600	1,000	11,600	8.6
Ross	32,900	1,800	34,700	5.2
Scioto	30,100	2,800	32,900	8.5
Total	87,200	6,600	93,800	7.0
Ohio	5,503,000	246,000	5,749,000	4.3

Source: Bureau of Labor Market Information, 2000.

In 1997, 2340 (91%) of the 2550 DOE-related workers lived in the four-county impact region (SODI 1997). These workers represented about 2.6% of the total ROI employment shown in Table 3.7. Table 3.9 shows the distribution of DOE-related employment across the ROI counties for that year. Scioto County held the largest share of the region's DOE-related employment with 51%, followed by Pike County with 23% and Ross County with 15%. Jackson County accounted for the remaining 10%.

Table 3.9. Distribution of DOE-related employment in ROI, 1997

County	1997 Employment	Percent
Jackson	244	10
Pike	544	23
Ross	362	15
Scioto	1190	51
Region	2340	100

Source: SODI, 1997.

Currently the total site employment at PORTS is approximately 2092. USEC employs about 1725 people while DOE, BJC, and various subcontractors employ approximately 367 people.

3.8.3 Income

Between 1992 and 1997, total regional income grew by 27% from approximately $2.9 billion to nearly $3.7 billion (Bureau of Economic Analysis 1999). Per capita income data for the region and the state are shown in Table 3.10. Per capita income in all four counties was well below the state average in both 1992 and 1997, continuing a long established trend. From 1992 to 1997, per capita incomes in the relevant counties grew between 19 and 25%, compared to a statewide increase of 24%. In 1997, it was estimated that PORTS accounted (directly and indirectly) for about $185 million of that income, about 5% of the total. The share of wages and salaries in individual counties ranged from 2.4% in Ross County to 15.2% in Pike County (Henderson 1997).

Table 3.10. Measures of per capita income for the PORTS ROI

Area	Per capita income		Percent increase
	1992 ($)	1997 ($)	
Jackson County	13,245	16,392	24
Pike County	13,292	15,783	19
Ross County	14,896	17,900	20
Scioto County	13,422	16,824	25
State of Ohio	19,482	24,163	24

Source: Bureau of Economic Analysis, 1999.

3.8.4 Housing

In 1990 vacancy rates in the region ranged between a low of 7% in Ross County to a high of 10% in Jackson County (Bureau of the Census 2000). Among all occupied housing units in the region, approximately 70% were owner occupied. The median home value was similar in all four counties, ranging between $37,000 and $49,600. Rents ranged from $281 to $317 across the ROI (Table 3.11).

Table 3.11. Housing summary for the PORTS ROI, 1990, by county

	Jackson County		Pike County		Ross County		Scioto County	
	Number	%	Number	%	Number	%	Number	%
Total housing units	12,452	100	9,722	100	26,173	100	32,408	100
Occupied	11,260	90	8,805	91	24,325	93	29,786	92
Vacant	1,192	10	917	9	1848	7	2,622	8
Median home value	$38,700	NA	$42,600	NA	$49,600	NA	$37,000	NA
Gross rent	$283	NA	$297	NA	$317	NA	$281	NA

NA = Not applicable.
Sources: U.S. Bureau of the Census, 2000; U.S. Bureau of the Census, 1990a.

3.8.5 Education

Summary figures for the school districts within the four-county ROI are shown in Table 3.12. The highest per-student expenditures occur in Scioto County, which spent an average of $5849 per student during the 1997–1998 school year (ODOD 1999).

Table 3.12. Public school statistics in the PORTS ROI, 1997–1998 school year

County	Number of schools	Student enrollment[a]	Teachers[a]	Teacher/student ratio	Per-student expenditures
Jackson	17	6,020	347	1:17	$5,082
Pike	13	5,861	320	1:18	$5,385
Ross	30	12,444	691	1:18	$5,544
Scioto	37	14,549	923	1:16	$5,849

[a]Full-time equivalent figures, public schools only.
Source: ODOD, 1999.

3.8.6 Health Care

There are three general hospitals currently serving the region. Average statistics for the hospitals indicate that there are approximately 442 routine-care hospital beds in the region, about 53% of which are available on any given day. This capacity is considered adequate to serve the health needs of the local population (The American Hospital Directory 1999).

3.8.7 Police and Fire Protection

The Protective Forces at PORTS provide physical security services at the site. However, the Pike County Sheriff provides limited patrols of Perimeter Road. USEC and DOE both have mutual aid agreements for fire protection, emergency squad, and hospital services, primarily with Scioto Township and Seal Township. The Seal Township fire department plans to add a second fire station to better protect the nearby Zahn's Corner Industrial Park.

3.8.8 Fiscal Characteristics

The State of Ohio imposes an income tax, and the state constitution requires that at least 50% of the income tax collected from individuals be returned to the county of origin. Transfers back to the county are distributed as follows: 4.2% to the local government fund, 0.6% to the local government revenue assistance fund, 5.7% to the library and local government support fund, and 89.5% to the general revenue fund of the county. Ohio law allows the imposition of a local sales tax on retail sales, the rental of tangible personal property, and selected services. The local permissive sales tax is 1.5% in Ross County, and 1.0% in each of the other three counties. Intergovernmental transfers back to the county in which the tax is collected are distributed as follows: 4.2% to the local government fund and 0.6% to the local government revenue assistance fund.

There is also an optional tangible personal property tax on machinery, equipment, and inventories. Revenue is distributed to the counties, municipalities, townships, school districts, and special districts according to the taxable values and total mileage levied by each. For the state as a whole, school districts receive roughly 70% of the total tangible personal property tax collected (Henderson 1997).

In 1997, Henderson estimated that activities at PORTS and wages paid to its employees accounted for $3.2 million in tax revenues returned to the region, including $2 million from income taxes and $1.2 million from sales taxes (Henderson 1997).

3.9 INFRASTRUCTURE AND SUPPORT SERVICES

3.9.1 Transportation

PORTS is served by Southern Ohio's two major highways: U.S. Route 23 and Ohio State Route 32 (Fig. 1.1). These highways are located within 1.6 km (1 mile) of the site. Access is by the Main Access Road, a four-lane interchange with U.S. Route 23, and the North Access Road, two lanes transitioning to four lanes with an at-grade interchange with Ohio State Route 32. These access routes easily accommodate PORTS traffic flow. The site is 5.6 km (3.5 miles) from the intersection of the U.S. Route 23 and Ohio State Route 32 interchange. Both routes are four lanes with U.S. Route 23 traversing north–south and Ohio State Route 32 traversing east–west. Two other access routes also serve the site. The East Access Road is a two-lane county road that disperses traffic to a county road network east and southeast of PORTS. Access to Ohio State Route 32 is also available by this network. South Access Road is also a two-lane road that disperses traffic to the south and southeast. South Access Road also intersects U.S. Route 23 south of the site. Approximately 113 km (70 miles) north of the site, U.S. Route 23 intersects I-270, I-70, and I-71. Trucks also may access I-64 approximately 32.2 km (20 miles) southeast of Portsmouth.

North Access Road has a daily traffic load of approximately 2383 vehicles. East Access Road has a daily traffic load of 802 vehicles. South Access Road has a daily traffic load of 1579 vehicles. The Main Access Road has a daily traffic load of 592 vehicles. (Traffic in both directions is included in these values.) These roads are congested during shift change; however, traffic flows at posted speed limits and a projected 40% increase in vehicles are feasible without staggering shifts or upgrades to roads. These data were provided by the Pike County Engineer's office from a 1999 traffic study. Load limits on these routes are controlled by the Ohio Revised Code at 85,000-lb gross vehicle weight. Special overload permitting is available.

U.S. Route 23 has an average daily traffic volume of 13,990 vehicles. Ohio State Route 32 has an average daily volume of 7420 vehicles (traffic in both directions is included in these values). U.S. Route 23 is at 60% of design capacity with Ohio State Route 32 at 40% of design capacity. The Ohio Department of Transportation supplied this data from a 1999 traffic study. Load limits on these routes is controlled by the Ohio Revised Code at 85,000-lb gross vehicle weight. Special overload permitting is available.

The PORTS road system is in generally good condition due to frequent road repaving projects. Except during shift changes, traffic levels on the site access roads and Perimeter Road are low. Peak traffic flows occur at shift changes and the principal traffic problem areas during peak morning/afternoon traffic are at locations where parking lot access roads meet the Perimeter Road. The site has 12 parking lots varying in capacity from approximately 50 to 800 vehicles. Total parking capacity is for approximately 4400 vehicles.

PORTS has excellent rail access, and several track configurations are possible within the site. The Norfolk Southern rail line is connected to the CSX main rail system via a rail spur entering the northern portion of the site. The on-site system primarily is used for the movement of large UF_6 cylinders on flatcars. Primary tracks that handle UF_6 cylinder traffic are maintained in good condition by USEC. The secondary tracks within the site receive minimal attention. The GCEP area is also connected to the

existing rail configuration. Track in the vicinity of Piketon, Ohio, allows a maximum speed of 96.6 km/h (60 mph). The CSX system also provides access to other rail carriers.

PORTS can be served by barge transportation via the Ohio River at the ports of Wheelersburg, Portsmouth, and New Boston. The Portsmouth barge terminal bulk materials handling facility is available for bulk materials and heavy unit loads. All heavy unit loading is by mobile crane or barge-mounted crane at an open air terminal. The Ohio River provides barge access to the Gulf of Mexico via the Mississippi River or the Tennessee–Tombigbee Waterway. Travel time to New Orleans is 14 to 16 d; to St. Louis, 7 to 9 d; and to Pittsburgh, 3 to 4 d. The USACE maintains the Ohio River at a minimum channel width of 243.8 m (800 ft) and a depth of 2.74 m (9 ft).

PORTS is relatively isolated from commercial air service. There are 14 major carriers that provide 300 flights per day to 89 cities serving the Greater Cincinnati International Airport, which is 160.9 km (100 miles) to the west. The Port of Columbus International Airport (160.9 km or 100 miles north) is served by 17 airlines providing 250 flights daily. The Tri-State Airport (88.5 km or 55 miles southeast), Huntington, West Virginia, is served by 4 airlines and 18 flights per day. The Portsmouth Regional Airport, serving private and charter aircraft is 30.58 km (19 miles) southeast, near Minford, Ohio. The Pike County Airport, located near Piketon, is a small facility for private planes. The Pike County Aviation Authority has proposed a capital improvement program to improve and enhance airport services.

3.9.2 Utilities

3.9.2.1 Electricity and natural gas

PORTS is supplied electricity by the Ohio Valley Electric Corporation (OVEC) under a long-term contract that runs through 2005. OVEC operates two coal-fired power plants (Kyger Creek and Clifty Creek on the Ohio River) that were built for and dedicated to serving PORTS. Their combined generating capacity is comparable to the PORTS design load of 2260 megawatts (MW) although the DOE-OVEC contract calls only for a firm power supply of 1940 MW. According to the DOE-USEC lease agreement, DOE continues to administer the power contracts that supply electric service to PORTS. USEC pays DOE for purchased power, which in turn pays the power suppliers who are under an existing contract.

There are four switchyards on the site. The Don Marquis Substation, which covers approximately 10.52 ha (26 acres) on the crest of a hill northwest of Perimeter Road, is a high-voltage station operated and maintained by the OVEC. High-voltage electrical power (345 kV) is received from overhead power lines at the X-533 and X-530 switchyards. High-voltage oil circuit breakers and gas circuit breakers provide line switching capability and fault protection, and large oil-filled transformers step down the power to 13.8 kV. Air circuit breakers at the X-533 and X-530 switch houses provide protection and control for the numerous 13.8-kV distribution feeders leading to the GDP process buildings, auxiliary buildings, and substations. Construction in the GCEP area included additional 345-kV circuit breakers in the northern section of the X-530 Switchyard. The newer high-voltage breakers and existing X-530 breakers feed 345 kV to the X-5000 Switchyard through oil-filled 345-kV underground feeder cables. The switching arrangement provides a highly reliable source of power for GCEP. At X-5000, oil-filled 345/13.8-kV transformers feed power to the 13.8-kV air circuit breakers in the X-5000 Switch House that control and protect the distribution circuits serving the GCEP area facilities.

The various high-voltage overhead power lines connecting Don Marquis, X-530, and X-533 with each other and with the external power grid are owned and maintained by OVEC. The underground

high-voltage system of the underground 345-kV feeders from X-530 to X-5000 are owned by DOE and leased to USEC.

Power is distributed from X-533 to X-333 and from X-530 to X-330 through 13.8-kV distribution cables. Some cables run through underground duct banks, and some are supported by aboveground cable trays. The feeder cables from X-530 to X-326 are all located in underground duct banks. Most of the major GDP facilities receive 13.8-kV power through underground duct banks. A 13.8-kV overhead power system supported by wooden poles provides power to the well fields, sanitary landfill, X-611 Water Treatment Plant, several warehouses, and several other facilities. A 2400-V overhead system provides power for street lighting and security fence lighting.

Natural gas is not currently provided at the plant site, and small amounts of fuel oil are used. Several outlying buildings are not supplied by the steam or recirculating heating water systems. These buildings are space heated with fuel oil. Natural gas service is available from Pike Natural Gas Company's main gas line near Zahn's Corner, Ohio, approximately 8 km (5 miles) north of the site.

3.9.2.2 Steam distribution system

Steam is used in gaseous diffusion operations to vaporize UF_6, obtain UF_6 samples from cylinders, maintain process temperatures, clean equipment, heat sanitary water, and provide heat for process and support operations. During the fall and winter months, some steam also is used for space heating.

Steam is generated at the X-600 Steam Plant, which contains three coal-fired boilers and electrostatic precipitators, each capable of providing steam at 56,699 kg/h (125,000 lb/h) at 125 pounds per square inch (psi). The steam plant contains the normal support equipment for boiler operation such as coal and ash handling equipment and boiler feedwater treatment equipment. Coal is stored in the adjacent X-600A Coal Pile Yard. All runoff from the coal yard and wastewater effluents from the steam plant are treated for pH adjustment and heavy metal removal at the X-621 Coal Pile Runoff Treatment Facility. Treated effluent flows into the South Holding Pond. Sludge generated at X-621 is buried in the X-735 Landfill. The coal supplier hauls coal ash off-site under a contractual agreement.

Steam is distributed to most major GDP facilities through aboveground insulated pipes. Parallel piping is provided to return condensate to X-600. Steam usage within the GCEP area is minimal. Steam and condensate return piping in this area is aboveground with a single 15.24-cm (6-in.) supply line tapped into both the east and west supply headers at X-600.

3.9.2.3 Water systems

PORTS requires a reliable supply of large amounts of water for process cooling, fire protection, and sanitary use. During plant construction, the X-605G Well Field and the X-605H Booster Station were installed to supply water for construction and for subsequent sanitary consumption. From plant startup in 1955 until 1965, water was routinely taken from the Scioto River at the X-608 Pumphouse, 6.44 km (4 miles) northwest of the site, and transported through a single 120-cm (48-in.) reinforced concrete pipeline to the site.

Additional well fields were constructed to supply high-quality groundwater as a substitute for the poorer quality river water. However, the capability of pumping river water was retained for emergency use. The X-608A Well Field entered service in 1965, and the X-608B Well Field followed in 1975. Both are adjacent to the X-608 Pumphouse. Water flows from these well fields to the X-611 Water Treatment Plant on the site through the 120-cm (48-in.) concrete pipeline. Water from the original well field, X-605G, flows through a 25-cm (10-in.) plastic tie line into the 120-cm (48-in.) line.

The X-605 and X-608 well fields contain 19 wells with a total pumping capacity of almost 114 million L/d (30 MGD). However, because of aquifer condition, periodic silting and encrustation of the wells, as well as normal maintenance outages, their combined reliable pumping capacity is between 57 and 66.5 million L/d (15 and 17.5 MGD).

The X-6609 Well Field, constructed to support the GCEP, is composed of 12 wells with a design capacity of 32.68 million L/d (8.6 MGD). The X-6609 raw water supply is carried to the X-611 Water Treatment Plant through a 75-cm (30-in.) line. Water from X-605 flows to X-611 through a tie line into the 75-cm (30-in.) line from X-6609. At X-611, the water is treated with lime to remove a major portion of its carbonate hardness and a polymer for coagulation of precipitated solids. Following this softening process, treated water flows directly into the basins of the GDP cooling towers to "make-up" for evaporation and blowdown losses from the RCW system. The system, which consists of seven cooling towers, three pumphouses, and supply and return headers paralleling the three process buildings, is used to remove excess heat from the diffusion process.

Within the GCEP area, the principal elements of the Cooling Tower Water System consist of a pumphouse, cooling tower, and distribution piping. The system can remove heat from the closed-loop Machine Cooling Water Systems and from air conditioning condensers in various facilities.

Following the softening process at the X-611 Water Treatment Plant, a portion of the water receives additional treatment for use as sanitary water within the facility. At X-611, the water is chlorinated, the pH is adjusted, and the water is treated with a phosphate compound for corrosion control. Residual suspended solids and bacteria are removed in the X-611C Filter House, which contains four sand filters having a combined rated capacity of approximately 15.2 million L/d (4 MGD).

At the X-611C Filter House, pumps discharge filtered water into the sanitary water distribution piping system. The X-612 Elevated Water Tank has a 950,000-L (250,000-gal) capacity. X-612 is used to maintain a stable pressure for the system (approximately 85 psi).

The fire protection sprinkler systems for all GDP facilities, except the three process buildings and their respective cooling towers, are fed from the sanitary water system. There are separate piping systems within each building for sanitary purposes and fire protection. Fire hydrants throughout the site feed directly off the sanitary water distribution piping.

The primary supply of sanitary water for the GCEP area is directly from X-611 through a pipeline that parallels Perimeter Road to the X-6644 Sanitary and Firewater Pumphouse. The X-6613 Sanitary Water Storage Tank, one of three 7.6-million-L (2-million-gal) concrete tanks, is used for buffer capacity. Booster pumps within X-6644 supply sanitary water to the GCEP area facilities and to the GDP area through several connections with the GCEP piping system.

A separate high-pressure firewater distribution system for the sprinkler systems in the three GDP process buildings and their respective cooling towers was constructed in 1959. The system is fed from the RCW make-up water line leading from X-611 and into the X-640-1 Firewater Pumphouse. Pumps within X-640-1 are used to maintain an appropriate water level in the X-640-2 Elevated Storage Tank, which has a capacity of 11.14 million L (300,000 gal). The tank has a height of 91.44 m (300 ft), which maintains the system pressure at approximately 125 psi.

The high-pressure firewater system was extended to provide fire hydrant and sprinkler system feed water for the GCEP area. Sanitary water flowing from X-611 to the X-6644 Sanitary and Firewater Pumphouse can be valved to two firewater storage tanks that provide 15.2 million L (4 million gal) of backup capacity. Booster pumps within X-6644 feed water into the firewater distribution piping system

throughout the newer facilities. Cross-connections also exist with the GDP high-pressure firewater piping around X-326. The GDP/GCEP area high-pressure firewater system is considered one system with each site serving as a backup to the other.

3.9.2.4 Wastewater treatment

The PORTS X-6619 Sewage Treatment Plant is located in Quadrant III. The plant was built in 1980 and became operational in 1981. It is comprised of four reinforced concrete buildings (screen building, sludge pumping building, filter building, and chlorine building), totaling approximately 1524 m^2 (5000 ft^2); two circular clarifiers; four aeration tanks; two aerobic digesters; and five sludge drying beds.

The PORTS sanitary sewers feed by gravity into one of six lift stations around the plant site or feed directly to the X-614A Pump Station on X-6614J Sewage Lift Station. The sewage collection system is constructed of vitrified clay tile. The lines from the Lift Stations to the X-614A Pump Station are vitrified clay pipe, and the force main from X-614A to the X-6619 Sewage Treatment Plant is cast-iron pipe. The Lift Stations and the Pump Station operate independently.

The X-6619 Sewage Treatment Plant utilizes aerobic digesters, aeration tanks, clarifiers, filters, and an activated sludge process to provide adequate sewage treatment. Following post-chlorination, dechromanation, and effluent monitoring, treated wastewater flows directly to the Scioto River through a pipeline. Dried digested sludge is containerized in 209-L (55-gal) drums and is stored as low-level waste on-site pending subsequent disposal at Envirocare in Utah.

3.9.2.5 Holding ponds and lagoons

Holding ponds and lagoons are used to control plant process effluent and storm water runoff. The ponds and lagoons also promote chlorine dissipation and settling of sediment mobilized by storm water runoff. Many also serve as spill retention basins to prevent off-site migration of spills or accidental discharges until treatment or recovery can be accomplished. Several ponds were designed specifically to treat process effluent. For example, the X-611B Sludge Lagoon is used for deposition of lime sludge generated from the drinking water purification process. Table 3.13 summarizes all the holding ponds on-site, their respective uses, and the surface water bodies into which they drain.

Table 3.13. PORTS holding ponds

Pond	Location (quadrant)	Purpose/use	Discharges to
X-230J5	West (III)	Control storm water runoff/sedimentation	Scioto River
X-230J6	Northeast (IV)	Control storm water runoff/sedimentation	Little Beaver Creek
X-230J7	Northeast (II)	Control storm water runoff/sedimentation	Little Beaver Creek
X-230K	Southeast (I)	Control storm water runoff/coal pile steam plant discharge	Big Run Creek
X-230L	North (IV)	Spill retention/control storm runoff/sedimentation	Little Beaver Creek
X-611A[a]	Northeast (IV)	Lime sludge lagoons (3), water treatment effluent	Little Beaver Creek
X-611B	Northeast (IV)	Lime sludge lagoon, water treatment effluent	Little Beaver Creek
X-701B[a]	Northeast (II)	Treatment of effluent	East Drainage Ditch
X-2230M	Southwest (I)	Control storm water runoff/sedimentation from GCEP	Scioto River
X-2230N	West (III)	Control sedimentation from GCEP construction	Scioto River

Source: DOE 1999b.
[a]Converted to a prairie habitat.
GCEP = Gas Centrifuge Enrichment Plant.

3.9.2.6 Telecommunications

PORTS currently has two Fujitsu-Omni 53 telephone switches with 2300 existing line connections. The site feed lines are copper cables capable of handling analog and digital signals through the Piketon, Ohio, exchange. Long distance service is through the Federal Telephone System. Commercial phone service is available. The site distribution system contains both copper and fiber-optic units.

3.10 NOISE

Noise at PORTS is intermittent and intensity levels vary. Noise levels associated with construction and processing activities and local traffic are comparable to those of any other industrial site. No sensitive receptor sites, such as picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, or hotels, are in the immediate vicinity of PORTS.

3.11 EXISTING RADIOLOGICAL AND CHEMICAL EXPOSURES

3.11.1 Public Radiation Dose

Potential impacts on human health from PORTS operations were calculated based on environmental monitoring and surveillance data. The effect of radionuclides released to the atmosphere was characterized by calculating effective dose equivalents (EDEs) to the maximally exposed person (a hypothetical individual who is assumed to reside at the most exposed point on the plant boundary) and to the entire population (approximately 918,000 residents) within 80.47 km (50 miles) of the plant. The maximum potential EDE to an off-site individual from DOE air emission sources at PORTS in 1999 was 0.00048 mrem/year. USEC calculated the maximum potential dose to an off-site individual in 1999 to be 0.28 mrem/year. The combined dose from USEC and DOE sources is well below the 10 mrem/year NESHAP limit applicable to PORTS and the 300 mrem/year (approximate) dose that the average individual in the United States receives from natural sources of radiation. The collective EDE to the entire population within 80.5 km (50 miles) of PORTS in 1999 was 1.0 person-rem, based on USEC calculations of 1.0 person-rem/year from USEC sources and 0.00077 person-rem/year from DOE sources. The collective EDE to the nearest community, Piketon, was calculated to be 0.15 person-rem/year, based on USEC calculations of 0.15 person-rem/year from USEC sources and 0.00014 person-rem/year from DOE sources (DOE 2000a).

Based on a person driving past the PORTS depleted uranium cylinder storage yards to and from work for a year, the maximum estimated potential exposure to a member of the public from radiation from the cylinder yards is less than 0.59 mrem/year. The average yearly dose to a person in the United States from natural and man-made radiation sources is approximately 366 mrem. The potential estimated dose from the cylinder yards to a member of the public is less than 0.2% of the average yearly radiation exposure for a person in the United States.

3.11.2 Occupational Radiation Dose

The Radiation Exposure Information Reporting System report is an electronic file created annually to comply with DOE Order 5484.1. This report contains exposure results for all monitored individuals at PORTS, including visitors, with a positive exposure during the previous calendar year. The 1999 Radiation Exposure Information Reporting System report indicated that there were no visitors with a positive exposure. The average total effective dose in 1999 for all PORTS employees and subcontractors was 0.83 mrem (DOE 2000a).

3.11.3 Public Chemical Exposures

Direct exposure to chemicals from PORTS does not represent a likely pathway of exposure for the public. For airborne releases, concentrations off-site are too small to present problems through dermal exposure or inhalation pathways. Water discharge outfalls are located within areas of the site that are not readily accessible to the general public. Public exposure to water from the outfalls on a daily basis is highly unlikely, and ingestion of water directly from the outfalls is even less likely.

3.11.4 Occupational Chemical Exposure

Historically, PORTS operations involved the use of a variety of chemicals and toxic metal hazardous materials to which workers (potentially) have been exposed. These included solvents (e.g., TCE, carbon tetrachloride, methylene chloride, and benzene), toxic materials (e.g., arsenic, mercury, lithium, chromium, nickel, and beryllium), toxic gases (e.g., fluorine, hydrogen fluoride, welding fumes, hydrogen cyanide, chlorine, chlorine trifluoride and its byproducts, and ammonia), acids (e.g., nitric acid and hydrochloric acid), and biocides and fungicides. Many of these materials have been greatly reduced or eliminated from routine operations, but workers involved in environmental restoration and waste management activities continue to face potential exposures.

The Hazardous Chemical Inventory Report, which includes the identity, location, storage information, and hazards of the chemicals that exceeded threshold planning quantities, is submitted annually to state and local authorities. Eleven materials stored by DOE-PORTS exceeded the threshold planning quantities in 1999: aluminum oxide, diesel fuel, ethylene glycol, lithium hydroxide, PCBs, sodium fluoride, sulfuric acid, triuranium octaoxide, UF_6, uranium tetrafluoride, and uranium (ingots and fuel rods) (DOE 2000a).

3.11.5 Occupational Health Services

Occupational health services for DOE and DOE's site management contractor employees have been arranged through a subcontract with the Southern Ohio Medical Center (SOMC), Portsmouth, Ohio. SOMC is a full-service community medical center, and its occupational health clinic offers comprehensive occupational health services, including chemical exposure screening. The SOMC occupational medical staff has some familiarity with PORTS operations from past contracts with the USEC medical department.

DOE's site management contractor and subcontractors are responsible for procuring their own medical services from SOMC. Some subcontractors have opted to retain the on-site medical services of the USEC medical department. DOE's site management contractor has mandated that the PORTS subcontractors adhere to the medical requirements in DOE Order 440.1A, Chapter 19, "Occupational Medicine," as listed in Exhibit G of their subcontracts.

3.12 ACCIDENTS

Potential accidents at PORTS that may be of particular concern to prospective tenants are primarily associated with the approximately 13,900 DOE-managed cylinders containing depleted UF_6. The cylinders are stored in the X-745-C (C-yard) and X-745-E (E-yard) located in the northern part of PORTS just inside Perimeter Road.

The chemical and physical characteristics of depleted UF_6 pose potential health risks, and the material is handled accordingly. Uranium and its decay products in depleted UF_6 in storage emit low

levels of alpha, beta, gamma, and neutron radiation. The radiation levels measured on the outside surface of filled depleted UF_6 cylinders are typically about 2 to 3 millirem per hour (mrem/h), decreasing to about 1 mrem/h at a distance of 0.3 m (1 ft). If depleted UF_6 is released to the atmosphere, it reacts with water vapor in the air to form hydrogen fluoride (HF) and a uranium oxyfluoride compound called uranyl fluoride. These products are chemically toxic. Uranium is a heavy metal that, in addition to being radioactive, can have toxic chemical effects (primarily on the kidneys) if it enters the bloodstream by means of ingestion or inhalation. HF is an extremely corrosive gas that can damage the lungs and cause death if inhaled at high enough concentrations.

Cylinders are stored with minimum risks to workers, members of the general public, and the environment at PORTS. DOE maintains an active cylinder management program to improve storage conditions in the cylinder yards, to monitor cylinder integrity by conducting routine inspections for breaches, and to perform cylinder maintenance and repairs to cylinders and the storage yards, as needed.

Potential accidents related to the PORTS cylinder yards have been analyzed in the Safety Analysis Report (SAR) for PORTS (LMES 1997). The SAR identified major hazards associated with confinement failures that could result in the release of UF_6—a release of solid or gaseous UF_6 to the atmosphere from cylinder failure and a cylinder yard fire. In the first case, a large spill of solid material was considered to bound all of the smaller releases that could occur. The conclusions of the SAR were that cylinder failure does not pose a severe health risk beyond approximately 200 m (656 ft). Because of the slow release rate, workers in the immediate area of the release could easily evacuate the area without being significantly exposed. On-site personnel are trained to flee areas where releases are detected by sight and/or odor (i.e., odor of HF at extremely low concentration levels is easily detectable). Beyond the 200 m (656 ft) and for the off-site public, both uranium intake and the HF exposure were estimated to be below the guideline threshold values of 10 mg uranium intake and 2.3 mg/m^3 HF exposure with no mitigation.

In the case of the cylinder yard fire, the event was not expected to occur during the life of the facility but was postulated as a worst-case scenario. The conclusions for the cylinder yard fire showed that the threshold values designed to protect public health of 30 mg uranium intake and 23.2 mg/m^3 HF exposure could be exceeded on-site out to about 275 m (900 ft) for the initial release if no mitigative actions were taken. Off-site boundaries are greater than 300 m (984 ft) from the cylinder yards. This scenario is estimated to have an extremely unlikely frequency. Primary controls to minimize the likelihood of a cylinder yard fire include preventative measures (e.g., inspection of cylinders before welding and the Fire Protection Program and its established controls). Although a cylinder yard fire case exceeds the guidelines for distances on-site, the combination of stringent controls to prevent a fire and a well-prepared emergency response plan limit the associated risk.

The disposition of the cylinders at PORTS has been addressed by DOE in the *Final Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride* (DOE/EIS-0269) (see Sect. 4.12.3). The decision to construct and operate a cylinder conversion facility at PORTS will affect the probabilities and impacts of potential accidents.

4. ENVIRONMENTAL CONSEQUENCES

4.1 LAND AND FACILITY USE

4.1.1 Proposed Action

Under the proposed action, approximately 526 ha (1300 acres) of PORTS land and facilities could potentially be transferred under the proposed reindustrialization program. It is assumed that approximately 60% or 316 ha (780 acres) of the potentially transferred land and facilities would be suitable for development or reuse due to additional environmental constraints (e.g. slope, buffer areas, utility easements, contamination, etc.). Buildings and other structures would be constructed on transferred land parcels changing the visual character of the land in these areas from a more natural to a more developed environment typical of other regional industrial parks. Areas surrounding buildings would be landscaped and maintained to preserve an aesthetically pleasing environment. There are no conflicts between the proposed action and any future land use planning efforts that have been proposed for PORTS or the surrounding area.

Facilities within the industrialized portion of the site would be reused for various industries instead of being closed and/or demolished. The length of time that the facilities could be used would depend on the individual transfer agreements and the long-term mission requirements of DOE. The majority of the PORTS facilities that currently are directly leased to USEC (Sect. 3.1) would not be available for any planned reuse until the primary lease term expires on July 1, 2004. However, some facilities may be turned over to DOE in 2001 after USEC ceases uranium enrichment operations. Under DOE's proposal to place the GDP in cold standby, USEC would continue to operate the majority of the PORTS facilities associated with the gaseous diffusion process. USEC also would continue to operate the transfer and shipping operations for a period of about 5 years after current enrichment operations cease. Environmental constraints (e.g., sensitive resources and contamination), security requirements, and the DOE proposals for a depleted UF_6 conversion facility and gas centrifuge pilot plant could also limit and exclude some of the land and facilities from possible development or reuse.

4.1.2 No Action

Under the no-action alternative, ongoing operations would continue until USEC ceases uranium enrichment operations beginning in June 2001 and DOE places the GDP in cold standby. USEC would continue to operate the transfer and shipping operations for a period of about 5 years after uranium enrichment operations cease. Facilities that are not required for the DOE mission likely would be scheduled for D&D. Environmental restoration activities would also continue. Once cleanup activities were completed, fewer facilities (only those needed to maintain institutional control or surveillance and maintenance for wastes left in place) would be used. The impact of the no-action alternative would be further underutilization of remaining facilities and a less industrialized site. Other potential actions that could impact land and facility use, such as the depleted UF_6 conversion facility and the gas centrifuge pilot plant, are outside the scope of this EA and would require separate NEPA review.

4.2 AIR QUALITY

4.2.1 Proposed Action

4.2.1.1 Construction

Local air quality should not be affected by emissions from vehicle and equipment exhaust, fugitive dust from vehicle traffic, and disturbance of soils. These emissions would include carbon monoxide, nitrogen dioxide, sulfur dioxide, PM-10 (inhalable particulate matter with particles less than 10 μm in diameter), and hydrocarbons. Particulate matter emissions would primarily consist of airborne soil. Site preparation and construction emissions would be short term, sporadic, and localized (except for emissions from vehicles of construction workers and of transport of construction materials and equipment). Dispersion would decrease concentrations of pollutants in the ambient air as distance from the construction site increased. Increments of pollutants due to workers' vehicles and construction vehicles and equipment would not be expected to cause any exceedances of primary or secondary NAAQS (Table 3.1).

Not all of the new construction areas would be developed simultaneously. Rather, earthwork likely would be undertaken in increments, with the first phase being excavation for utility installation, road construction and upgrading, and grading and contouring. For the purpose of air quality analysis, it is assumed that no more than 8 ha (20 acres) of land would be under construction at a time. Increases in PM-10 concentrations due to fugitive dust from excavation and earthwork probably would be noticeable on-site and in the immediate vicinity, and ambient concentrations of particulates likely would rise in the short term. However, control measures for lowering fugitive dust emissions (i.e., covers and water or chemical dust suppressants) would minimize these emissions.

For construction activities, PM-10 is assumed to be the largest source of air emissions. PM-10 concentrations have previously been estimated in an EA prepared for a similar action located in Oak Ridge, Tennessee (DOE/EA-1175), issued in November 1997 (DOE 1997b). The results of that analysis are summarized in this section. It was assumed that heavy construction took place 8 hours a day, 5 days a week, including holidays, at the same location for an entire year. Four areas of 2 ha (5 acres) each, within a larger area of 20 ha (50 acres), were assumed to be simultaneously undergoing excavation and earthwork. These areas were taken to be fairly close together so as to minimize initial dispersion and maximize estimated downwind concentrations. The mitigating effect of sprinkling with water twice per day, reducing emissions by 50% (USEPA 1985), was also included. This earthwork scenario would likely be an overestimate for reindustrialization at PORTS, but is used to obtain an upper-bound estimate of PM-10 concentrations resulting from fugitive dust emissions.

The modeling results indicated that the maximum construction-related 1-h increase in PM-10 concentration at a point about 1200 m (0.75 miles) from the construction area would be 161 $\mu g/m^3$. The 1-h maximum was multiplied by 0.7, as per USEPA 1988, to obtain a worst-case 8-h average of 113 $\mu g/m^3$. This value is well below the 24-h average NAAQS of 150 $\mu g/m^3$.

4.2.1.2 Operation

Use of newly developed areas within PORTS and reuse of existing facilities could result in minor increases of air pollutant emissions. The types of commercial and industrial uses proposed for PORTS reindustrialization would not result in the kind of major air emissions produced by large, heavy smokestack industries. Emissions from PORTS industries are expected to be similar to those of other regional industrial parks. The majority of emissions would result from the combustion of natural gas and diesel fuel. Automobile exhaust also would be a minor source of air emissions. Emissions from the

coal-fired steam plant also are expected to continue at or below current levels. Potential emissions would not be expected to exceed current emissions from ongoing operations, result in a violation of air quality standards, have an adverse impact on air quality, or be detrimental to human health.

Trace amounts of radioactive air emissions could result from some industrial uses proposed for PORTS reindustrialization (i.e., scrap metal recycling). However, no net increases of radioactive air emissions would be anticipated from the proposed action. Current radioactive emissions are already below applicable limits. Permitted radioactive sealed sources, unsealed sources, and ion-producing equipment (such as X-ray machines) could also be allowed to be used and stored as part of a potential industrial or commercial user's business. Sources of radioactive materials may be regulated by the Nuclear Regulatory Commission (NRC) and would primarily only be used for research and quality control purposes.

Specific details about atmospheric pollutants that may be emitted are not available. However, potential users would be required to complete environmental review and hazard evaluation documents, which record details about proposed construction and operations, including any potential air emissions. If applicable, industrial facilities would be permitted by the state or federal agencies and operating emissions would be limited for all regulated pollutants.

Conservative estimates (estimates biased toward high values) of increases in ambient air concentrations of pollutants that might result from the operation of industries located at PORTS were also assumed to be similar to those estimated in DOE 1997b. Ten stacks were used to estimate emissions of sulfur dioxide, nitrogen oxide, carbon monoxide, and lead. Two sets of clones of four stacks from a waste and metal treatment/recycling facility were assumed to make up 8 stacks, 1 stack was assumed to be associated with a ceramic parts facility, and 1 stack was used to estimate emissions from a hypothetical metal fabrication facility. The USEPA-approved ISCST3 model was used for analyzing continuous operations, and pollutant concentrations were estimated at several points around the site.

The highest estimated concentration of each pollutant analyzed, for each applicable averaging period, did not exceed any of the NAAQS. Sulfur dioxide concentrations were estimated to be 22 $\mu g/m^3$ for the 24-h average and the annual average was 4 $\mu g/m^3$. Annual nitrogen oxide concentrations were estimated to be 2 $\mu g/m^3$. The maximum 1-h average for carbon monoxide was estimated to be 180 $\mu g/m^3$ and 68 $\mu g/m^3$ for the 8-h average. The maximum 1-month average ambient air concentration of lead was estimated to be 0.001 $\mu g/m^3$. This 1-month average was used as a high-bias estimate of a 3-month average for comparison with the NAAQS. The concentration was less than 0.1% of the NAAQS for lead.

4.2.2 No Action

Airborne emissions from ongoing uranium enrichment operations are scheduled to continue until June 2001. Some ongoing air emissions would continue from USEC transfer and shipping operations, and emissions from placing the GDP in cold standby should decrease, but may continue if DOE elects to perform cell treatments to remove deposits. Under the no-action alternative, environmental restoration and D&D activities also would continue (Sect. 2.2). Air quality effects from ongoing operations and remedial actions are relatively small, and the radiological dose via the air pathway is well below applicable limits. Current emissions are discussed in Sect. 3.2.2. Construction impacts under no action would be expected to be less than those under the proposed action. Construction-related effects from remedial actions could increase particulate concentrations some, but the increases are not expected to exceed the NAAQS. Air emissions from the construction and operation of the proposed depleted UF_6

conversion facility and gas centrifuge pilot plant are beyond the scope of this EA and would be subject to separate NEPA review.

4.3 GEOLOGY AND SOILS

4.3.1 Proposed Action

Site clearing, grading, and contouring could alter the topography of the land parcels that could be developed under the proposed action, but the geologic formations underlying those sites should not be affected by proposed development. Seismic hazards are relatively low in the PORTS area, and structures would be designed to conform to appropriate seismic standards.

Construction would disturb soils, and some topsoil might be removed in the process. Topsoil would be replaced after buildings and roads were completed, and unpaved areas would be landscaped with native vegetation.

The Farmland Protection Policy Act requires federal agencies to consider the effects of any activity that would convert farmland. The Soil Survey of Pike County, Ohio, indicates that seven soil types that occur within the PORTS property boundary are considered prime farmland. Of these, four soil types are found within areas that could be potentially transferred under the proposed action (see Sect. 3.3.4).

To rate the relative impact of the proposed action, DOE-PORTS completed a Farmland Conversion Impact Rating form (form AD-1006). The rating form is based on a Land Evaluation and Site Assessment (LESA) system. LESA is a numerical system that measures the quality of farmland. LESA systems have two components. The Land Evaluation element rates soil quality. The Site Assessment component measures other factors that affect the farm's viability including, but not limited to, proximity to water and sewer lines and the size of the parcel. In general, the higher the LESA score, the more appropriate the site is for protection.

DOE-PORTS completed the site assessment portion of the form, and the Natural Resources Conservation Service was responsible for the land evaluation component. The total site assessment score for the proposed action was determined to be 107 out of 260 possible points. Sites receiving a combined score of less than 160 do not require further evaluation. Therefore, no adverse impacts to prime farmland would result from the proposed action. A copy of the completed Farmland Conversion Impact Rating form is included in Appendix E.

4.3.2 No Action

No impact to the geology of PORTS is expected to occur from the types of remedial activities and other environmental restoration actions that could occur under the no-action alternative. However, the extent of these activities has not been determined. Environmental restoration activities at PORTS are evaluated on a case-by-case basis and conducted in accordance with the RCRA corrective action review and documentation process (i.e., cleanup alternatives study/corrective measures study, corrective measures implementation, and interim remedial measures). Potential remedial actions, such as removal of contaminated soil and installation of interceptor trenches or other types of groundwater treatment methods, could result in disturbance of existing soils. With the use of appropriate mitigation measures and because of the extent of prior soil disturbance at the site, adverse impacts to soils, such as soil erosion and uncontrolled exposure to contaminated soils, should be negligible. In addition, removal of contaminated soil as part of environmental restoration activities would be considered a beneficial impact.

4.4 WATER RESOURCES

4.4.1 Proposed Action

The greatest potential impact to surface waters would originate from soil erosion, runoff, and sedimentation (during construction); a fuel, hazardous material, or waste spill; or a sewer line leak (during construction and operation of facilities). Although the potential transfer areas exclude most surface water features, there are some small ponds, creeks, and ditches within, or adjacent to, some of the areas. Any construction activities that would directly occur in these surface waters may require that the appropriate permits are obtained prior to any disturbance.

Uncontrolled soil erosion would increase sedimentation and turbidity in the receiving surface waters. Spills of fuel, hazardous material, or waste, or a sewer line leak, could have adverse impacts on surface waters if not controlled or contained. Impacts would primarily be a change to the water quality (pH, dissolved oxygen, conductivity, etc.) which could affect vegetation and aquatic biota. Soil erosion impacts would be mitigated through the use of BMPs (i.e., silt fences, straw bales, and temporary sediment detention basins). The potential for spills would be mitigated through the adherence to proper safety procedures and spill prevention plans. In the event of a spill from an accident, spill response measures (e.g., booms, berms, sorbents, neutralizers, secondary containment, and mechanical removal equipment) would minimize potential adverse impacts.

Changes in surface topography during construction could lead to the alteration of local hydrology. This potential impact would be minimized by the stated restriction of limiting development to areas of less than 15% slope. Paving of large areas for roads and parking lots could substantially reduce water infiltration, potentially affecting on-site surface water features.

Construction of new facilities could require state storm water runoff permits. Wastewater from industrial and commercial operations would be pretreated (if required) and discharged to on-site treatment facilities according to discharge permit restrictions. Impacts from accidental spills would be addressed by individual operators through the use of safety procedures, spill prevention plans, and spill response plans. Surface water protection measures are already in place at PORTS and would be continued for the proposed action. Prior to any development, potential tenants or purchasers would be required to complete environmental review and hazard evaluation documentation (Sect. 2.1.1). Coordination with DOE and their site management contractor's Environment, Safety, and Health organization also would be required prior to any:

- earth-disturbing activities,
- changes in discharges to the storm drain system,
- outdoor application of herbicides and pesticides, or
- facility modifications.

Impacts to groundwater quality could also occur as a result of a fuel or waste spill, or a sewer line leak and subsequent migration of contaminants through the soil profile to the groundwater table. A spill directly into the surface water bodies in the vicinity also could affect the groundwater quality because of the connection between surface water and groundwater resources. However, it is expected that the quantities of materials with the potential to affect surface or groundwater (e.g., fuel) would be transported or stored at the reindustrialized areas within PORTS in the proper containers and according to all applicable regulations. The use of safety procedures, spill prevention plans, and spill response plans in accordance with state and federal laws would minimize the severity of potential impacts from accidents. Institutional controls (e.g., lease or deed restrictions) would be in place to ensure that there would be no use of groundwater resources.

4.4.2 No Action

Under the no-action alternative, surface and groundwater monitoring and appropriate environmental restoration measures would be continued. Appropriate mitigation measures are considered and implemented for these activities under the RCRA corrective action review and documentation process at PORTS. Impacts to surface water or groundwater could also occur as the result of a spill or leak from ongoing operations. Surface and groundwater protection measures, such as spill prevention and spill response plans, are already in place at PORTS for ongoing operations.

4.5 FLOODPLAINS AND WETLANDS

4.5.1 Proposed Action

No portion of the floodplain for Little Beaver Creek is located within any areas proposed for reindustrialization activities. Thus, no direct adverse impacts to the floodplain would occur. The potential for indirect adverse impacts that could result from soil erosion and increased sedimentation would be mitigated through the establishment of stream buffer areas and the use of BMPs (e.g., erosion controls).

In Quadrant I, four wetlands totaling 1.36 ha (3.36 acres) are located within the area proposed for small-scale office/industrial activities, and six wetlands totaling 3.57 ha (8.82 acres) are located within the existing industrial area. No wetlands are located in Quadrant II within areas proposed for reindustrialization activities. Three wetlands totaling 0.70 ha (1.73 acres) are located within the area proposed for small-scale office/industrial activities in Quadrant III. In Quadrant IV, six wetlands totaling 0.88 ha (2.17 acres) are located within the area proposed for rail/industrial activities. All of the wetlands are associated with wet fields, areas of previous disturbance, drainage ditches, or wet areas along roads and railway tracks, and they are all considered to be jurisdictional wetlands.

Wetlands would be avoided to the maximum extent practicable by surveying their boundaries and requiring the establishment of appropriate buffer zones before any construction. However, some or all of the wetlands could potentially experience adverse impacts (i.e., siltation, draining, and filling). To the extent that wetlands could not be avoided, all practical measures (e.g., erosion control measures) would be incorporated to minimize adverse impacts. If direct impacts to wetlands were unavoidable for certain developments, the activities would be required to comply with applicable federal, state, and local laws, rules, or ordinances governing land use in wetlands. This would most likely include completing a wetland determination and analysis, acquiring the proper regulatory permits under 33 *CFR* 330, and implementing adequate mitigation measures (e.g., wetland restoration or replacement) in accordance with permit conditions.

4.5.2 No Action

No additional impacts to floodplains or wetlands are expected to occur from the types of remedial activities and other environmental restoration actions that could occur under the no-action alternative. However, the extent of these activities has not been determined. Environmental restoration activities at PORTS are evaluated on a case-by-case basis and conducted in accordance with the RCRA corrective action review and documentation process. If remedial actions were determined to impact these resources, the potential impacts and any mitigation measures would also be considered as part of the RCRA corrective action process.

4.6 ECOLOGICAL RESOURCES

4.6.1 Proposed Action

Development in the land parcels proposed for reindustrialization would have direct impacts on terrestrial habitats, plants, and animals present within PORTS. Potential adverse impacts to aquatic resources could also occur unless they are avoided and mitigation measures are implemented. Transfer of facilities within the industrialized portion of the site would have a negligible impact because of the marginal habitat and limited biota located in that part of the site.

Proposed construction would have an impact on terrestrial habitats in Quadrants I, II, and IV. In Quadrant I, habitat loss would include managed grassland, oak-hickory forest, upland mixed hardwoods, riparian forest, maple forest, old field, and scrub thickets. Habitat loss in Quadrant II would occur in upland mixed hardwood forest, managed grassland, and scrub thicket. In Quadrant IV, habitant loss would include old field, managed grassland, riparian forest, oak-hickory forest, pine forest, and scrub thicket.

The impact of construction could include direct mortality or injury to biota and elimination or degradation of the impacted habitat. The most likely impact would be the elimination of one or more fragmented terrestrial areas or narrowing of areas already squeezed by activities at the facility. The elimination or narrowing of terrestrial communities would have minimal impact on any plant or animal species. The animal and plant species observed in communities generally were observed in more than one quadrant, and some animal species would relocate to another community of the same structure. Minimizing the amount of earth-moving activities would reduce the effects on plants and terrestrial habitats. Blending construction with the natural setting of the area would result in fewer impacts and mitigation measures.

If construction activities could not avoid direct impacts to aquatic resources, appropriate permits would be obtained prior to any disturbance. These unavoidable direct impacts would be minor and temporary because the resources that would be impacted are limited, not considered unique, and do not contain sensitive species. Indirect impacts to aquatic resources at PORTS could result from an increase in flow caused by an increase in the amount of storm water runoff. Increased flow could affect the plant species, riparian habitat, and the fish and macroinvertebrate species found in the impacted creeks and drainage ditches. Larger flow volumes could scour banks and substrates of the waterways eroding plants, soil, and sediment. A decrease or change in stream substrate could lead to a reduction in the number of fish and macroinvertebrate species.

Impacts to ecological resources at PORTS would be addressed by avoiding the resource, minimizing the impact, or mitigating the impact if avoidance or minimization is not possible. Impacts from construction would be considered short term and minimal, and would be mitigated through the establishment of stream buffer areas and the use of BMPs (e.g. erosion controls). Natural habitat around the areas of proposed development would be left as a buffer zone between the developed areas and other undeveloped portions of the site. Areas disturbed during construction but not needed for facilities would be revegetated after construction is completed with native species as much as possible. The use of native species for revegetation would have a positive impact as it could enhance biotic and ecosystem diversity in the area.

Holding ponds used to capture storm water would be designed and constructed to handle the additional runoff associated with any new developments. An increase in the capacity of existing storm water retention ponds and outfall structures (that control release or flow) could also minimize impacts to creeks and drainage ditches. Storm water runoff would be discharged to surface water only in accordance with

limitations established under state or other regulatory permits. Wastewater discharges would be to existing on-site treatment facilities at PORTS according to discharge permit restrictions. If permit limits were consistently met, degradation of aquatic habitat would not be expected.

The potential for a spill or leak also exists from the normal operation of new and existing facilities. Impacts to biota could include direct mortality, injury, and degradation of the impacted habitat. Because of the limited habitat and biota at the site, these impacts would probably be minor to moderate, and the affected resources would be expected to recover within a few months to a year, depending on the severity of the spill or leak.

No direct or indirect impacts would occur to any threatened and endangered species from the transfer of land and facilities at PORTS. No federally listed threatened and endangered plants or animals are known to exist within the boundary of PORTS. Carolina yellow-eyed grass (state-listed endangered) and Virginia meadow-beauty (state-listed potentially threatened) occur within Quadrant IV but in areas not being considered for development under the proposed action. The USFWS has indicated that the Indiana bat is the only federally listed endangered animal species whose home range includes PORTS, although no Indiana bats have ever been captured or observed at the site. The USFWS has recommended (see letter in Appendix E) that if potential roost trees with exfoliating bark are encountered in any area proposed for development, they and surrounding trees should be saved wherever possible. If such trees are within the area and they require removal, they should not be cut between April 15 and September 15. If potential maternity roost trees are present, and if the above time restriction is unacceptable, mist net or other surveys should be conducted to determine if Indiana bats are present. If needed, the surveys should be conducted in June or July to coincide with the peak summer bat population. If direct impacts to potential Indiana bat habitat could not be avoided, DOE would implement the USFWS recommendations.

4.6.2 No Action

Environmental restoration activities under the no-action alternative could potentially impact ecological resources at PORTS, but the areas where these activities would most likely take place have been previously disturbed and contain marginal habitat and limited biota. Environmental restoration activities are evaluated under the RCRA corrective action process. If remedial actions were determined to impact ecological resources, the potential impacts and any mitigation measures would also be considered as part of the RCRA corrective action process. The potential also exists for a spill or leak from normal ongoing operations and traffic at the site. Impacts to biota could include direct mortality, injury, and degradation of the impacted habitat. Because of the limited habitat and biota at the site, these impacts would probably be minor to moderate and the resource would be expected to recover within a few months to a year depending on the severity of the spill or leak.

4.7 CULTURAL RESOURCES

4.7.1 Proposed Action

DOE is required to comply with Section 106 of the National Historic Preservation Act of 1966, as amended. Section 106 stipulates that federal agencies involved in federal undertakings must locate and identify historic properties within the area of potential environmental impact and determine if any of these properties are eligible for inclusion on the NRHP. The federal regulations implementing Section 106 are found in 36 *CFR* Part 800.

To ensure that the potential effects of individual transfer proposals are thoroughly considered, and until a Programmatic Agreement is signed by DOE-PORTS and the Ohio SHPO, notification and

consultation with the SHPO would be conducted on a proposal-by-proposal basis. At the present time, DOE-PORTS is finalizing draft cultural resource survey reports (see Sect. 3.7) that would be used to determine NRHP eligibility. Each transfer proposal at PORTS would require that DOE-ORO notify and consult with the SHPO to make a determination of effect. If it is determined in the consultation process that the proposed undertaking (e.g., lease) would have adverse effects on a cultural resource(s), a step-by-step review of the undertaking, up to and including preparation of a Memorandum of Agreement (MOA), would be conducted. An example would be a major structural modification of a facility by a tenant that could change the historical character or significance of the building. If an MOA is required, it would involve additional consultation between DOE, the Ohio SHPO, and other identified consulting parties and would include any required mitigation measures needed to address the adverse effects of the undertaking. The MOA would then be provided to the Advisory Council on Historic Preservation for their files. Examples of appropriate measures that could be implemented to avoid, reduce, or mitigate project effects include, but are not limited to:

- Re-siting the proposed activity, where feasible;
- Rehabilitation in accordance with "The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings;"
- Additions to historic buildings and structures that takes into account the significant architectural characteristics of the original building or structure;
- Salvage of architectural or scientific/engineering elements where feasible; and
- Recordation as a last resort when other mitigation measures are determined, in consultation with the SHPO, to be infeasible. Recordation may include photographs, floor plans, and drawings (when not precluded because of security classification priorities).

Consultation is currently ongoing between the Ohio SHPO and DOE. Copies of correspondence between the two agencies are included in Appendix E.

In addition to the NHPA, cultural resources on federal lands are also protected under the Archaeological Resources Protection Act of 1979, as amended, and the Native American Graves Protection and Repatriation Act of 1990. If an unanticipated discovery of cultural materials (e.g., human remains, pottery, bottles, weapon projectiles, and tools) or sites was made during development activities, all ground-disturbing activities in the vicinity of the discovery would be halted immediately. The DOE-ORO Cultural Resources Management Coordinator would be contacted, and consultation with the Ohio SHPO would be initiated and completed prior to any further disturbance of the discovery-site area.

4.7.2 No Action

Environmental restoration activities and potential D&D actions conducted at PORTS under the no-action alternative could have the potential to impact cultural resources located at the site. Environmental restoration activities at PORTS are evaluated under the RCRA corrective action process. If remedial actions were determined to impact cultural resources, the potential impacts and any mitigation measures would also be considered as part of the process. This would include the consultation with the Ohio SHPO described above in Sect. 4.7.1.

4.8 SOCIOECONOMICS

4.8.1 Proposed Action

This section assesses the potential socioeconomic impacts of PORTS reindustrialization. These impacts would depend on a number of factors, among them the success of the chosen recruiting strategy, the types of commercial businesses and industries that locate within PORTS, and the timing of each stage of development. Given the competitive nature of business and industrial recruiting, the willingness of commercial companies and industries to locate at PORTS is not assured, although it has been assumed for the analysis below.

Socioeconomic impacts are not only important in themselves, but also for the secondary environmental or distributional effects they may have. For example, economic growth can sometimes attract enough new people to an area that it places pressure on housing, schools, water supply, and other infrastructure. Environmental effects of any new construction, facility improvements required, or infrastructure overloads that result from such a population increase should also be evaluated as induced effects of the development.

This analysis assumes that commercial businesses and industries would be successfully recruited to locate at PORTS gradually over approximately a 10-year period. This represents the maximum potential impact on the local economy and, therefore, the most likely to generate induced environmental effects. Whether the reindustrialization program would actually succeed in achieving its goals is unknown. The purpose here is not to forecast economic activity but to make sure that reasonably foreseeable indirect effects are appropriately identified and considered. The characteristics of the actual tenants would be unknown until transfer proposals had been reviewed, but examples of commercial and industrial uses considered are presented in Sect. 2.1.3.

This analysis estimates that by the year 2010, new businesses from PORTS reindustrialization would create up to 2574 direct jobs. This estimate is based on the assumption that 60% of the 526 ha (1300 acres) would be available and suitable for development or reuse, with a ratio of 3.3 jobs per acre. While the actual acreage available is unknown at this time, it is likely that it will represent less than 60% of the 526 ha (1300 acres) due to additional environmental constraints (e.g., slope, buffer areas, and utility ROWs). Also for the purpose of this analysis, it is assumed that all direct and indirect jobs created would be filled by employees who reside within the ROI. As discussed in Sect. 3.8.2, 91% of the PORTS workforce resided within the four-county ROI in 1997. This represents an upper bound on potential impacts, given the other assumptions used.

4.8.1.1 Demographics

Population. Reindustrialization of PORTS is expected to provide jobs for some of the DOE, USEC, and contractor employees who are displaced as a result of downsizing. Given the scale of recent job losses at this facility and the potential for its closure over the next few years, any in-migration associated with development is likely to be balanced by out-migration of displaced workers. Relatively high historic unemployment and low-income levels suggest that large-scale in-migration to fill the jobs created is unlikely.

Environmental Justice. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations," requires agencies to identify and address disproportionately high and adverse human health or environmental effects their activities may have on minority and low-income populations. As discussed in Sect. 3.8.1.2, only one census tract (9937) in the ROI includes a minority population, and this population is located several miles south of PORTS in the

city of Portsmouth. Therefore, there would be no disproportionate impact on minority populations. Many of the tracts in the ROI meet the definition of low-income populations, especially the tracts nearest the site in Pike County. However, no disproportionately high and adverse human health or environmental impacts to these low-income populations are expected to result from the implementation of the proposed action. As discussed in Sect. 2.1.2, each transfer proposal would include a review of past and present uses to identify potential hazards (via completion of the Hazard Evaluation Worksheet), and an Environmental Review Checklist also would be prepared for any proposed use of land and facilities. DOE would use this information in its review of each proposal to determine whether unacceptable impacts would be likely and to document whether the proposed use exceeds the bounding scenarios evaluated under this EA, and hence, whether additional NEPA analysis would be needed.

4.8.1.2 Employment

As discussed earlier, it is estimated that reindustrialization activities at PORTS would create up to 2574 direct, full-time-equivalent jobs by the end of the 10-year development period. The indirect impact would depend, to a large extent, on the specific businesses recruited and the extent to which the four-county region can supply the goods and services those industries use. A 1997 assessment suggested that each direct DOE-related job results in a total of 1.6 to 2.4 total jobs within the ROI, depending on the type of operation considered (Henderson 1997). The estimate was based on Regional Input-Output Modeling System (RIMS II) multipliers created by the Bureau of Economic Analysis specifically for the four-county PORTS ROI.

Based on the range of multipliers cited above, it is estimated that new businesses would generate a maximum of 2.4 total jobs for each direct job created. This figure represents an upper limit on the total number of jobs expected. Using this estimate, the 2574 direct jobs would generate a total of 6233 jobs by the end of the decade. Then, the net increase would be 6.6% during a 10-year term (approximately 0.6% per year), starting from the 1997 wage and salary employment shown in Table 3.7. This represents about a 20% increase above the historic growth rate of 3% per year during the 5-year period from 1992 to 1997. Such an increase is not expected to strain local resources (e.g., housing, transportation, or other local infrastructure). It is generally assumed that growth rates that are within 20% of historic rates can probably be accommodated within the normal functioning of a local economy and, therefore, would not create undue stress on local resources (Geo-Marine and SAIC 1995).

As discussed above, this figure represents the maximum potential impact, and either the number of direct jobs or the total number of jobs may be much lower. For example, if each direct job creates only 1.6 total jobs, total employment increase over 10 years would be 4118 jobs, or about 0.4% per year. This would represent an approximate 13% increase over historic growth rates.

Moreover, workforce restructuring could considerably offset new jobs created. For example, between 1997 and 2000, the number of jobs at PORTS fell from 2550 to 2040 (Henderson 1997; DOE 2000b). Current site employment at PORTS is approximately 2092. USEC employs about 1725 people while DOE, BJC, and various subcontractors employ approximately 367 people. USEC has announced that it would cease uranium enrichment operations at PORTS starting in June 2001. Since USEC's announcement, DOE has proposed a $630 million plan to save about 1200 jobs (see Sect. 2.2). DOE has currently secured $125.7 million of the $630 million. However, approximately 530 USEC employees would still be laid off after production is stopped in June, which could translate to 1272 total jobs lost (530 × 2.4). With the potential for this additional loss, the proposed action could create a maximum of 4961 net new jobs (6233 new jobs – 1272 lost as a result of USEC layoffs). Using the lower estimate of total jobs, only 3270 net new jobs would be created (4118 new jobs – 848 as a result of USEC layoffs).

Henderson (1997) estimated that complete closure of PORTS would result in a total of 4091 direct and indirect jobs lost. If this occurred, the proposed action would create a maximum of 2142 net new jobs or a 2.3% net increase over 1997 employment (6233 new jobs – 4091 lost from closure). To the extent that total job creation falls below the upper limit, potential impacts would be further reduced. Assuming plant closure and the lower estimate of total jobs, only 27 net new jobs would be created (4118 new jobs – 4091 lost from closure).

4.8.1.3 Income

At the upper limit, if it is assumed that each of the newly generated direct jobs pays the 1997 statewide average manufacturing wage ($40,206) and that the indirect jobs paid the average wage for all industries ($28,666) (ODOD 1999), the total impact would be an increase of $209 million, less than 6% of the 1997 ROI income. Regional income grew by 27% (about 5% per year) in the 5-year period from 1992 to 1997. Additional income growth of 0.5% per year represents a 10% increase over historic growth rates and would not represent a strain on local resources. Actual impacts are likely to be lower, since wages for all industries within the ROI have been consistently below the state average, and wages for direct jobs created also would be lower for non-manufacturing industries and businesses (ODOD 1999).

As in the case of employment, the income lost as a result of restructuring also would offset this impact. In 1997, the average DOE-related wage was $46,274 (Henderson 1997), and the 510 direct jobs already lost account for $23.6 million in lost income. Further reductions would further reduce the net impact on income. For example, using the Bureau of Economic Analysis multipliers, Henderson (1997) estimated that complete closure of PORTS would result in an estimated $195.6 million in lost income. In this case, the net impact of the proposed action would be much smaller, at $13.4 million, or 0.4%, growth in income over 10 years.

4.8.1.4 Housing

The demand for housing is directly related to population size. Since reindustrialization would only partially offset the recent and continuing reductions in DOE-related jobs and associated population loss, no appreciable increase in housing demand is expected.

4.8.1.5 Public services and local government expenditures

Based on the assumption that there will be little net change in the population size as a result of PORTS reindustrialization, there should be no subsequent increases in demand for education, residential water and sewer services, hospitals, and police and fire protection. Protective and emergency services are expected to be adequate for the expected development. However, since this relies in part on mutual aid agreements with the PORTS facility, its complete closure might require an offsetting increase in local emergency services as the site is redeveloped.

Electricity, water, and other utilities available at the PORTS site appear to be adequate to support the expected industrial development. Although the specific arrangements are yet to be determined, it is assumed for this analysis that tenants will have access to these utilities via leasing or some other arrangement. Under these assumptions, development would require no major local government expenditures.

4.8.1.6 Fiscal characteristics

Reindustrialization would have the positive impact of generating additional revenue for local governments through the state income tax and local taxes paid on purchases made within the ROI. Since both income and sales tax revenues are proportional to income, the increase in tax revenue should reflect the projected increase in income. The new revenue would help offset the effects of DOE downsizing and associated reductions in income and sales tax payments.

4.8.2 No Action

Under the no-action alternative, there would be some additional temporary employment associated with environmental restoration and D&D activities at the site. However, recent and projected job losses due to downsizing at PORTS are likely to continue and would have negative effects on the communities surrounding the site. Specifically, local employment would decline, which would likely lead to out-migration of some current residents, a decline in local purchases of goods and services, and reductions in both income and sales tax revenues for the state and local governments.

As a result of the USEC decision to cease uranium enrichment operations at PORTS starting in June 2001, approximately 530 workers would lose their jobs. Potential layoffs could be greater, but DOE has secured funding to save about 1200 USEC jobs with initiatives such as placing the GDP on cold standby, launching a new gas centrifuge technology pilot program, and expanding cleanup efforts including the construction and operation of a depleted UF_6 conversion facility (see Sect. 2.2).

The worst-case scenario under the no-action alternative would be the complete decommissioning and closure of PORTS. A 1997 analysis estimated that complete closure of PORTS would result in a total of 4091 direct and indirect jobs lost and a loss of $195.6 million in income (Henderson 1997).

4.9 INFRASTRUCTURE AND SUPPORT SERVICES

4.9.1 Transportation

4.9.1.1 Proposed action

Under the proposed action, the number of vehicle trips per day to and from the site would probably be equal to or slightly less than the current amount of traffic. A slight increase in the amount of truck traffic would be expected due to the types of industrial and commercial development anticipated. For example, approximately 328 truck trips per week were estimated for loading and unloading rail cars as part of a multi-modal transportation facility that could be developed on one of the PORTS land parcels.

The existing system of roads and rail lines within the site would be able to accommodate any minor additional increases in traffic. Some additional road and rail improvements (i.e., widening, paving, and rail spurs) would be necessary for the development of areas proposed for reindustrialization.

Transportation accidents under the proposed action would be expected to be similar to those that could potentially occur during normal operations at PORTS and would depend on the types and amounts of traffic entering and exiting the roads and highways in and around the site. The most common type of transportation accident that would be expected to occur would be vehicular accidents involving site workers or visitors. Under the proposed action, trucks and trains would be involved in the transport and delivery of various materials into and out of the site. Although it is anticipated that the majority of these truck and rail shipments would consist of nonhazardous materials, there is the potential for accidents

involving the spill or leakage of hazardous materials. However, it is expected that the quantities of hazardous materials would be transported in the proper containers and according to all applicable regulations. The use of safety procedures, spill prevention plans, and spill response plans in accordance with state and federal laws would minimize the severity of potential impacts from transportation accidents.

4.9.1.2 No action

Under the no-action alternative, further workforce restructuring and the shutdown of uranium enrichment operations would result in a continued decrease in the amount of vehicle trips per day at PORTS. However, if actions proposed by DOE (i.e., cold standby, depleted UF_6 conversion facility, and gas centrifuge pilot program) were implemented, traffic would likely continue to remain close to current levels. Temporary employment associated with environmental restoration and D&D activities would also keep the number of vehicle trips per day similar to current levels. Temporary increases in truck traffic could also result from the construction activities associated with these proposed actions. Further analysis of the potential transportation impacts that could result from these proposed actions is beyond the scope of this EA and would require separate NEPA review.

4.9.2 Utilities

4.9.2.1 Proposed action

Potential impacts to PORTS utilities under the proposed action would be expected to be minimal. PORTS utilities would be the responsibility of a DOE contractor, or a lessee, who could provide these services to PORTS tenants and DOE as part of a lease or contract agreement. Options also exist that would permit possible connection of proposed land parcel developments with the existing PORTS utilities. These services may include the water treatment and distribution system; the electrical power system; the steam plant; the nitrogen and air plant; the sewage treatment plant; the fire protection system; the communication system; the on-site railroad system; on-site roads; and truck scales. Some of these systems might need to be retrofitted or require minor upgrades to accommodate individual users or tenants, and individual metering would be needed at individual facilities that are transferred. New development within land parcels would require trenching for the burial of water, electric, gas, and sewer lines and pipes in new utility ROWs. The existing water and sewage treatment plants would be able to accommodate anticipated industrial and commercial development and reuse from the reindustrialization program. Additional capacity would become available as a result of the proposed shutdown or cold standby of the gaseous diffusion process. Major utility or transportation system modifications, including new construction and facility or operational changes to existing systems, that would affect the quality and/or quantity of emissions, effluents, and wastes are outside the scope of analysis in this EA and would require additional review.

4.9.2.2 No action

Impacts to utilities under the no-action alternative would depend on what activities would take place. The shutdown of uranium enrichment operations by USEC and the eventual closure of PORTS would result in a large part of the utility infrastructure being scheduled for D&D. DOE is also considering other actions (i.e., cold standby, depleted UF_6 conversion facility, and gas centrifuge pilot program) that would require the continued use of the utility infrastructure at PORTS. Further analysis of potential utility impacts that could result from these actions is beyond the scope of this EA and would require separate NEPA review. In the interim, it is expected that only minor upgrades and retrofits would be needed to maintain the existing systems.

4.10 NOISE

4.10.1 Proposed Action

The erection of buildings and the paving of parking lots for industrial and commercial development on the land parcels at PORTS would require the use of heavy equipment for the clearing, leveling, and construction of the buildings. Equipment such as front-end loaders and backhoes would produce noise levels around 73 to 94 "A-weighted decibels" (dBA) at 15 m (50 ft) from the work site under normal working conditions (Cantor 1996; Magrab 1975). The finishing work within the building structures would create noise levels slightly above normal background. Sound levels would be expected to dissipate to background levels by the time they reach the DOE property boundary. No sensitive noise resources are located in the immediate vicinity of the site.

Operation of new and existing facilities would generate noise. Because actual noise estimates are not available, measured noise levels around an automobile assembly plant were used to estimate potential noise impacts. These noise levels are 55 to 60 dBA at about 60 m (200 ft) from the plant property (Cantor 1996). These noise levels would be inaudible 500 m (1640 ft) from the site, even with low background noise levels. USEPA has identified 55 dBA as a yearly average outdoor noise level that, if not exceeded, would prevent activity interference and annoyance (USEPA 1978). Sound levels from facility operations would be expected to dissipate to background levels by the time they reach the DOE property boundary, and because no sensitive noise resources are located in the immediate vicinity of the site, no adverse noise impacts are expected.

4.10.2 No Action

As described in Sect. 3.10, noise levels at PORTS are typical of other industrial areas and primarily are associated with construction activities, ongoing operations, and traffic. With a decrease in workforce, current noise levels would decrease. However, if the actions proposed by DOE (Sect. 2.2) were implemented noise levels would be expected to remain similar to current levels. Temporary effects of noise from construction would be negligible.

4.11 HUMAN HEALTH AND SAFETY

4.11.1 Proposed Action

The surrogate commercial businesses and industries considered in this EA would have emissions and effluents common to other industrial sites. These businesses and industries would be required to follow appropriate environmental regulations and obtain applicable permits under the authority of the Ohio EPA. These measures are intended to protect human health and the environment.

The majority of the surrogate industry operations evaluated in this analysis would not result in radiological exposures to the public. However, for industries that could handle radioactive material (e.g., radioactive waste treatment and metals decontamination/recycling), no unique radiological emissions would be anticipated. The NRC and/or Ohio Department of Health would regulate and inspect these facilities for compliance with the terms and conditions of their radioactive materials licenses.

The estimated dose for a radioactive waste treatment facility is based on an estimate used for an actual facility located in Oak Ridge, Tennessee (SEG 1995). The Oak Ridge facility estimated that an off-site individual located 300 m (0.2 miles) away would receive a maximum EDE of 0.09 mrem/year.

This is 0.025% of an individual's average background exposure level of 360 mrem/year and 0.09% of DOE's limit on public exposure of 100 mrem/year.

Another company located in Oak Ridge that handles radioactive materials as part of a metal decontamination/recycling operation (Adcock 1996) calculated a dose estimate, for an individual at the fence line of their facility, of 0.02 mrem/year. While these dose estimates are location specific and only represent a dose for one year, they are used as an estimate of the possible magnitude of the added impact from locating private industry at PORTS. Any dose would be an incremental increase above background due to other operations and activities at PORTS. However, the incremental change due to the proposed action would be minor, and the total radiological dose would kept below the DOE limit of 100 mrem/year to the pubic.

No unique occupational health and safety hazards would be posed by development of a reindustrialization program at PORTS. The difference would be that private sector employees would conduct the work instead of DOE contractors. Individuals working for companies that locate at PORTS under a reindustrialization program would be classified as general employees (i.e., co-located workers) or as members of the public (see Sect. 2.1.3.3). Co-located workers could be located within the controlled area at PORTS and would be protected via access controls, emergency response training, and other methods determined appropriate by DOE-PORTS. Workers classified as members of the public would only be located outside of the controlled area, and DOE activities at non-leased facilities within PORTS should not provide any occupational exposures to these employees. Where lessee activities do not involve radiological work, doses received by lessee employees from all DOE sources on-site would be maintained ALARA. Construction workers would be subject to typical hazards and occupational exposures faced at other industrial construction sites. Falls, spills, vehicle accidents, confined-space incidents, and injuries from tool and machinery operation could occur. Similar hazards also would be present during industrial operations. Workers would be expected to receive applicable training, be protected through appropriate controls and oversight, and follow standard industrial and protective engineering practices, including the use of personal protective clothing and equipment as specified in applicable Occupational Safety and Health Act of 1970 (OSHA) regulations (e.g., 29 *CFR* 1910 and 29 *CFR* 1926).

Occupational radiological exposures from the surrogate operations would be similar to the doses estimated for public exposures and would be kept below the 5000 mrem/year limit for occupational exposure of radiation workers set by the NRC and DOE. No unique chemical exposures would be anticipated from facility operations. Potential chemical exposures could include various hazardous materials and chemicals such as solvents, ketones, toluene, methanol, xylenes, formaldehyde, phenols, acids, ammonia, metals, and silicates. All activities involving chemicals would be expected to comply with applicable OSHA regulations including environmental exposure standards, applicable training requirements, hazard communication programs, engineering controls, and the use of personal protective clothing and equipment.

OSHA currently has not assumed responsibility for regulating occupational safety and health at any DOE facilities covered by reindustrialization activities. DOE lacks statutory authority to enforce OSHA standards, or its own occupational safety and health regulations and orders, on lessees not engaged in DOE activities. However, to avoid a regulatory gap in enforcement of OSHA requirements, DOE has taken responsibility for the health and safety oversight on federal property with radiological restrictions.

In an effort to compensate for the lack of OSHA enforcement, DOE has developed several means to promote good occupational safety and health practices and compliance with standards:

- requiring compliance with OSHA standards as a condition in the lease;

- periodic walk-through inspections by safety and health professionals with expertise in industrial safety, industrial hygiene and health physics;
- providing a safety advocate to work with tenants on resolving safety issues and concerns;
- providing and supporting safety councils as a forum for communicating and exchanging information about occupational safety and health;
- requiring (through the lease) each lessee to submit a health and safety plan; and
- DOE project managers and engineers periodically walk their lessees' space and provide feedback on health and safety conditions they observe.

4.11.2 No Action

Activities at PORTS conducted by DOE that could impact the public are subject to DOE Orders 5400.1, *General Environmental Protection*, and 5400.5, *Radiation Protection of the Public and the Environment*. Current chemical and radiological exposures would likely continue at low levels as they currently exist. It is unlikely that additional environmental management or D&D activities would have additional impacts on the public because they are not expected to cause major off-site releases. Moreover, for extensive environmental restoration or D&D actions, risk assessments are usually required. These assessments evaluate potential public exposures in detail and provide a forum for public involvement. Potential public exposures from other activities proposed by DOE (e.g., depleted UF_6 conversion facility and gas centrifuge pilot program) are outside the scope of this EA and would require separate NEPA review. Once operations activities and cleanup of PORTS are completed, the impacts to the public would be reduced, because contamination would be removed or reduced. Some wastes areas would remain (with continued institutional controls to limit public access), but public exposures would be expected to be smaller than currently exist.

Occupational exposures for DOE and contractor workers follow the requirements of DOE Order 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*, and 10 *CFR* 835, *Occupational Radiation Exposure*. Additional activities under the no-action alternative could result in occupational exposures in addition to current exposures. Exposures would continue throughout the duration of proposed environmental restoration, D&D, and operations activities. Once these actions are completed, occupational exposures would be reduced because the number of workers needed to maintain institutional controls would be reduced. Standard industrial accidents (falls, electrical accidents, and fires, etc.) remain the most important class of accidents with respect to frequency and impact.

The NRC performs regulatory oversight of USEC activities. OSHA regulates USEC occupational safety and worker health, and the State of Ohio and the USEPA regulate USEC environmental activities.

4.12 ACCIDENTS

4.12.1 Proposed Action

Under the proposed action, accidents could occur during construction activities or operation of new or existing facilities. Accidents could result from operator error, equipment malfunction, or from natural phenomena (e.g., earthquakes, tornadoes, flooding, fire, etc.). Typical accidents that could result from construction activities include falls, chemical spills, vehicle accidents, confined-space incidents, and injuries from tool and machinery operation. Potential hazards from the operation of facilities could

include radiation sources, toxic/corrosive/reactive materials, flammable materials, and electrical energy. Other hazards include kinetic energy and stored energy. Examples of kinetic energy hazards include moving ventilation system components, forklifts, and other drum- or box-handling equipment. Stored energy hazards include elevated structures and equipment, stacked drums, and boxes. Consequences of these hazards could potentially include:

- internal and external radiation exposure to on-site and off-site personnel;
- exposure of on-site and off-site personnel to toxic chemicals;
- building fire resulting in the release of toxic and radioactive materials and the production of toxic gases, smoke, and/or corrosive materials;
- electrical burns, shock, and electrocution; and
- bruises, broken bones, cuts, etc.

An example of a typical accident that could potentially occur during the operation of an existing or new facility would be a building fire. The consequences of a potential fire would depend on several factors, including building construction materials and design and the types and quantities of materials used and stored within the building. Although most fires start as small, localized fires, the amounts of flammable materials and combustibles available in the facility could make a fire grow in intensity. There is the potential that a fire could spread and involve a major portion of the building, but with the proper mitigation measures in place, it is most likely that the fire would remain localized, affecting only the area where the fire was initiated.

A toxic material release could potentially occur inside a building as the result of a fire or explosion. Although the majority of the toxic material release concerns would be localized, the potential would exist for toxic gases or aerosols to be drawn into the building ventilation system and be distributed throughout other sections of the building. If the event were large enough, these gases or aerosols could be released to the outside. However, because of the types of businesses and industries that probably would locate at PORTS under a reindustrialization program, the consequences of a toxic material release outside of the facility would not be expected to cause major injuries or fatalities to other on-site workers or nearby members of the public.

The potential for fires and any resulting adverse impacts would likely be mitigated by the following: (1) most new building construction would consist of steel frames, concrete floors, noncombustible exterior walls, and metal roofs; (2) building design and materials would comply with all applicable National Fire Protection Association codes and standards; (3) buildings would be equipped with fire detection systems and fire suppression equipment as applicable (e.g., fire alarms, portable fire extinguishers, and sprinkler systems); and (4) appropriate fire safety and emergency policies and procedures, including proper training, would be implemented. The majority of the existing PORTS facilities that could potentially be leased have been evaluated as part of a fire protection program and provide an acceptable level of fire safety. Emergency response would be provided by the on-site Fire Services and through mutual-aid agreements with the surrounding fire departments and emergency response organizations.

Accidental spills of hazardous materials during construction activities or facility operations could cause contamination of localized areas of soil and subsequent impacts on surface waters and groundwater. Terrestrial and aquatic plants and animals in the affected areas could also be adversely impacted. Accidental releases of high concentration and/or large quantities of hazardous materials could cause water

quality standards to be exceeded and result in fish kills. Impacts from accidental spills and releases would be addressed by individual operating entities through the use of safety procedures and spill prevention and response plans.

If required by state and federal law, industries located within PORTS would be required to have an emergency response plan for the accidental release of hazardous materials. The Emergency Planning and Community Right-To-Know Act of 1986, also referred to as the Superfund Amendments and Reauthorization Act Title III, requires reporting of emergency planning information, hazardous chemical inventories, and releases to the environment. Emergency Planning and Community Right-To-Know Act reports (if required) would be submitted to federal, state, and local authorities. Section 304 of the Emergency Planning and Community Right-To-Know Act requires reporting of off-site reportable quantity releases to state and local authorities. It is expected that resources would be available for response to an event such as a release or spill through agreements with the on-site emergency response units and surrounding communities.

Under the proposed action, tenants located within PORTS could also be subjected to the consequences of potential accidents from current operations at the site (e.g., cylinder yards, waste storage and handling, feed and withdrawal operations, and shipping operations associated with the gaseous diffusion process). Accident scenarios and consequences from ongoing operations are addressed in the Safety Analysis Report (SAR) for PORTS (LMES 1997). Section 3.12 presents a summary of the consequences associated with potential cylinder yard accidents).

Potential accidents also could occur from new actions proposed by DOE (i.e., environmental restoration activities, D&D actions, cold standby, depleted UF_6 conversion facility, and the gas centrifuge pilot program). Accident analysis and consequences for these actions are beyond the scope of this EA and would be addressed under the RCRA Corrective Action Program or require separate NEPA review.

4.12.2 No Action

Under the no-action alternative, accident impacts for ongoing operations at PORTS are addressed in the SAR for PORTS (LMES 1997). Additional impacts that could result from accidents associated with proposed environmental restoration activities, D&D activities, cold standby, the depleted UF_6 conversion facility, and the gas centrifuge pilot program are beyond the scope of this EA and would be addressed under the RCRA Corrective Action Program or require separate NEPA review. It is expected that the potential for accidents and their associated environmental impacts would be reduced as environmental restoration and D&D activities are completed. Placing the gaseous diffusion process in cold standby also would be expected to reduce the potential for accidents associated with ongoing operations. Construction and operation of the depleted UF_6 conversion facility would be expected to reduce the potential risk of accidents associated with the ongoing storage of depleted UF_6 cylinders at PORTS.

4.13 WASTE MANAGEMENT AND WASTE MINIMIZATION

4.13.1 Proposed Action

Construction of new facilities in the undeveloped portions of PORTS would produce noncontaminated construction waste. Trees and other vegetation that would be removed may be suitable for mulch or compost and could be processed for this purpose. The remainder would be burned (if permitted) or disposed of as refuse at an appropriate landfill. Construction debris and quantities of solid nonhazardous waste generated from construction activities or facility operations would be recycled or transported to an appropriate landfill for disposal.

It is anticipated that only minor quantities of hazardous waste and hazardous materials would be handled as part of reindustrialization activities at PORTS. Future users of PORTS land and facilities would likely be small-quantity generators. In the event that they generate sufficient quantities to require reporting status, they would probably qualify as conditionally exempt small-quantity generators. Users would be expected to comply with the temporary storage provisions under the RCRA (42 USC 6901, et. seq.).

Waste generation and handling, including any pollution prevention and waste minimization practices proposed by potential tenants at PORTS, would be addressed during the completion of the Environmental Review Checklist and Hazard Evaluation Worksheet (see Appendix B).

4.13.2 No Action

Under the no action alternative, management of waste generated from plant operations and from environmental restoration projects is handled by DOE-PORTS through its Waste Management Program. All waste management activities are conducted in compliance with state and federal regulations. The Waste Management Program also has implemented supplemental policies that address waste minimization and recycling.

4.14 CUMULATIVE IMPACTS

Cumulative impacts are those that may result from the incremental impacts of an action considered additively with the impacts of other past, present, and reasonably foreseeable future actions. Cumulative impacts are considered regardless of the agency or person undertaking the other actions (40 *CFR* 1508.7, CEQ 1997) and can result from the combined or synergistic effects of individually minor actions over a period of time. This section describes past and present actions, as well as reasonably foreseeable future actions, that are considered pertinent to the analysis of cumulative impacts for the proposed reindustrialization program at PORTS. It should be noted that considerable uncertainty as to scope and funding is associated with many of the future actions. Final decisions have not yet been made for some of these actions, and some are contingent upon additional NEPA analysis. The actions are as follows.

4.14.1 Environmental Management

The DOE-PORTS Environmental Restoration Program was developed in 1989 to find, analyze, and correct site contamination problems as quickly and inexpensively as possible. This task may be accomplished by removing, stabilizing, or treating hazardous wastes. As of December 31, 1998, certification of closure had been received from Ohio EPA for 18 RCRA facilities:

- X-744G(U) Container Storage Facility,
- X-735 Sanitary Landfill (cells 1 through 6),
- X-616 surface impoundments,
- X-705A Incinerator Area,
- X-749 Landfill (northern portion),
- X-749 Landfill (southern portion),
- X-750 waste oil tank,
- X-752 Container Storage Facility,
- X-700 tank 6 generator closure,
- X-700 chromic acid tank 7,
- X-700 tank 8 generator closure,

- X-744G(R) Container Storage Facility,
- X-749A Classified Materials Disposal Area,
- X-344A settling tank,
- X-740A Waste Oil Storage Facility,
- X-740 tank,
- X-735 Industrial Solid Waste Landfill, and
- X-326 trap material storage area (DMSA #7).

The Ohio EPA has designated five RCRA units at PORTS as "integrated units." They include:

- X-231B Southwest Oil Biodegradation Plot,
- X-744Y Waste Storage Yard,
- X-701B surface impoundments,
- X-701C neutralization pit, and
- X-230J7 Holding Pond.

Preliminary remedial action at these sites has been completed as required by closure plans and as directed by the Ohio EPA.

The DOE-PORTS Technology Applications Program was established in 1993 to facilitate the introduction of innovative or experimental environmental technology into the DOE-PORTS Environmental Restoration Program. The primary function of the technology program is to identify, evaluate, and test/demonstrate innovative advancements in environmental characterization and cleanup. Projects have included:

- X-231A soil fracturing demonstrations,
- X-231B in situ soil mixing with thermally enhanced vapor extraction,
- X-625 passive groundwater treatment through reactive media,
- X-749/X-120 vacuum-enhanced recovery wells,
- X-701B in situ chemical oxidation and recirculation,
- X-701B oxidant injection using the horizontal well,
- X-701B oxidant injection using lance permeation,
- X-701B vacuum-enhanced recovery using the five-spot configuration,
- 5-Unit Area (Quadrant I groundwater investigative area) oxidant injection, and
- X-701B underground steam stripping and hydrous pyrolysis/oxidation.

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. During 1998, approximately 2.54 million pounds of waste from PORTS were recycled, treated, or disposed.

Current activities include obtaining certification for the completed cap on the X-734 Landfill Area, the ongoing cleanup of the X-747H Northwest Contaminated Scrap Yard, and the X-616 chromium sludge shipment project. Five groundwater treatment facilities have also been constructed and are operational.

Planned environmental management activities include:

- completion of the Quad II CMS,
- complete corrective measures for Quads I and II,

- upgrade capacity/efficiency of X-622 Groundwater Treatment Facility,
- disposal of 11,764 PCB/low-level waste containers in process buildings and outside storage areas, and
- disposal of 3877 containers of RCRA low-level waste.

Long-term environmental management milestones include:

- by the end of 2002, assessments and agency-required remedial actions completed;
- by the end of 2006, all DOE-PORTS environmental management waste shipped for final disposition; and
- beyond 2006, continued operations of active and passive groundwater treatment systems, sitewide groundwater protection program ongoing, and long-term surveillance and maintenance of remedial action and D&D facilities.

4.14.2 Proposed DOE Program to Secure Supply of Enriched Uranium

On October 6, 2000, Energy Secretary Bill Richardson announced a plan to further protect U.S. energy security by placing the gaseous diffusion plant at PORTS in cold standby and building an advanced technology demonstration plant at PORTS for uranium enrichment using gas centrifuge technology. Major actions under the plan include:

- place the gaseous diffusion plant in cold standby and maintain it until gas centrifuge technology is successfully demonstrated;
- demonstrate, by 2005, the commercial feasibility of the U.S.-origin gas centrifuge at PORTS;
- provide transition aid for workers displaced from the closure of the gaseous diffusion plant and for lump sum liability payments associated with the OVEC power contract;
- complete D&D of the currently non-leased excess facilities over the next 2 years;
- begin equipment removal of those portions of the gaseous diffusion process facilities not needed for standby with remaining gaseous diffusion plant D&D to begin in FY 2005; and
- accelerate cleanup of the former GCEP facilities and prepare those facilities to house the gas centrifuge demonstration plant.

Cold standby involves placing those portions of the gaseous diffusion plant needed for 3 million separative work units per year (SWU/year) production capacity in a non-operational condition, and performing surveillance and maintenance activities necessary to retain the ability to resume operations after a set of restart activities are conducted. Feed and withdrawal systems would also be in standby. A cadre of cascade operators, utilities operators, and maintenance staff would be retained and would form the basis for future restart, operations, and maintenance. The power load would decrease to about 15 MW. Specific steps to go into cold standby include:

- removing uranium deposits in certain portions of the cascades,
- buffering of process cells with dry air to prevent wet air in-leakage,

- installing cell buffer alarms to assure that proper integrity of the system is maintained, and
- revising operating and maintenance procedures.

Other issues related to cold standby include the need to dispose of all HEU-contaminated equipment (potential need for disposal cell at PORTS), state regulatory issues and interface, nuclear safety regulatory strategy, and contracting arrangements.

Components of the DOE Gas Centrifuge Program include:

- completion of 325 SWU/year (nominal) machine design;
- refurbishment of the fabrication and test facilities located at Oak Ridge, Tennessee;
- verification of the enrichment performance of new machine;
- verification of the component designs (5 machines);
- reactivation of the Portsmouth GCEP facilities; and
- installation and operation of a 240-machine pilot facility at PORTS.

4.14.3 Depleted UF_6 Conversion Facility

In April 1999, DOE issued a *Final Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride* (DOE/EIS-0269) that described the preferred alternative for managing depleted UF_6. The Record of Decision (ROD) was issued in August 1999.

DOE has proposed to design, construct, and operate conversion facilities at PORTS and the Paducah Gaseous Diffusion Plant (PGDP) in Kentucky. These facilities would convert DOE's inventory of depleted UF_6 now located at PORTS, PGDP, and the East Tennessee Technology Park in Oak Ridge, Tennessee, to triuranium octaoxide, uranium dioxide, uranium tetrafluoride, uranium metal, or some other stable chemical form acceptable for transportation, beneficial use/reuse, and/or disposal. A related objective is to provide cylinder surveillance and maintenance of the DOE inventory of depleted UF_6, low-enrichment UF_6, natural assay UF_6, and empty and heel cylinders in a safe and environmentally acceptable manner.

Although no site has been selected until a separate NEPA review has been conducted and an ROD has been issued, the candidate site for the conversion facility at PORTS is the lithium warehouse area. This is an area surrounding and including warehouses X-744S, T, and U. The candidate site, in general, is bounded on the west side by an unnamed road west of X-744T; on the north and east side by a truck access road; and on the east and south side by a dirt construction road. Excluded from this area are Bldgs. X-616, X-106B, and X-106C.

4.14.4 Other Regional Industrial Developments

There are several other industrial parks in the area that, if successful, may also increase employment in the ROI (Table 4.1). Most of these parks are relatively new, and their potential for new job creation is unknown. The cumulative impact would depend on the total number of jobs created throughout the region, and on the type of wages paid by the industries that located there. If all of these parks developed rapidly within the next 10 years, there could be a large cumulative impact on employment and income. However, such rapid development in a chronically depressed region would be highly unusual.

Table 4.1. Additional industrial parks in the PORTS ROI

County	Site name	No. of acres
Jackson	Jackson Area Industrial Park	200
	Gettles Site	75
Pike	Zahn's Corner	376
	Scioto Township Industrial Park	200
Ross	Gateway	90
Scioto	New Boston	70
	Haverhill	1065
	522 Site	172

Source: Chandler 2000, Justice 2000, and ODOD 1999–2000.

4.14.5 Impacts

Potential cumulative impacts that could occur from the proposed reindustrialization program for PORTS and the other actions described previously are presented in the following sections. Detailed environmental impact analysis of many of these actions is beyond the scope of this EA and would be subject to separate NEPA review.

4.14.5.1 Land and facility use

Impacts from the other actions described in the previous sections have the potential to affect land and facility use at PORTS. Placing the GDP in cold standby, the gas centrifuge pilot plant, and construction and operation of the depleted UF_6 conversion facility would potentially limit (at least in the short term) the land and facilities that could be developed or reused under the proposed reindustrialization program. Direct incremental impacts of the proposed action on the development of other industrial properties in the region are unlikely. Although some industries and businesses may locate at PORTS rather than other areas within the region, many of the attractions and detriments to locating at PORTS are unique to the existing facilities at the site, and because some of the other developments are sufficiently distant from PORTS.

4.14.5.2 Air quality

Reindustrialization of PORTS is unlikely to have major impacts on local or regional air quality. The existing air quality of the region is considered to be good and is in attainment for all of the NAAQS. Air emissions from the other actions described previously would only be expected to have minor impacts and not violate any of the NAAQS. This is because the actions would probably not be implemented at the same time and would be controlled, to a large extent, by engineering controls and adherence to applicable regulations. Fugitive dust emissions from construction activities would be temporary and controlled by mitigation measures (e.g., watering and covering exposed soil piles).

4.14.5.3 Soil and water resources

Construction-related disturbance of natural soils would occur under the proposed action. Environmental restoration activities also could result in impacts if soils are disturbed to remove or treat contamination. These types of impacts would be temporary and mitigated through the use of BMPs. Accidental spills and releases of hazardous materials could also potentially impact soils. Impacts to surface water and groundwater resources could also occur during construction activities, but they also would be mitigated. None of the actions discussed previously would be expected to have major discharges of industrial effluents that could adversely impact water resources. The removal and treatment of

contaminated soils and groundwater and the D&D of contaminated facilities at PORTS would have a beneficial impact on these resources.

4.14.5.4 Ecological resources

Construction in undeveloped portions of PORTS and other developments in the region would directly impact existing habitats and biota in those areas. Forest fragmentation and its associated impacts on biodiversity are increasing as more land is developed. However, development of land parcels at PORTS would only cause minor impacts since none of the areas contain habitats or biota that are considered rare or unique. Additionally, no federal- or state-listed threatened and endangered species are known to exist in the area proposed for development. Reuse of existing facilities in the industrialized portion of the site could have a beneficial impact because use of these areas could potentially limit the amount of new industrial development that may be needed in undeveloped areas. Emissions and effluents from the operation of the proposed actions should not be of sufficient quantity to have major adverse impacts (e.g., stress, impairment, injury, or mortality) on existing habitats and biota. Accidental releases from ongoing and proposed operations could impact ecological resources if adequate mitigation measures were not in place and implemented.

4.14.5.5 Socioeconomics and environmental justice

The creation of a large number of new commercial/industrial jobs in the vicinity of PORTS could contribute to cumulative socioeconomic impacts by inducing in-migration to the area, with corresponding demands for housing and public services. However, such in-migration is not likely to result from currently planned projects. Given the persistent unemployment in the region, the limited success to date of local development, and the emphasis on creating jobs for local residents, it is expected that most of the jobs would be filled from within the ROI. Even with the new projects, ongoing downsizing and workforce restructuring would continue, and employment from some of the proposed actions would only be temporary (about 5 years). In addition to the new direct employment in the area, new indirect jobs would be generated, because new direct employment would create the need for the goods and services that are provided by indirect workers. However, these new indirect jobs also are not likely to stimulate in-migration because nearly all the new indirect positions could probably be filled with unemployed persons residing in the impact area.

No cumulative environmental justice impacts are expected to occur from any of the actions considered in this analysis, especially those proposals that would be located at PORTS. Environmental justice and census tract data for the PORTS region is presented in Sects. 3.8.1.2 and 4.8.1.1.

4.14.5.6 Infrastructure and support services

Cumulative transportation impacts in the region surrounding PORTS could occur from increased industrial development and growth. Implementation of the proposed actions discussed previously would not require any major upgrades to existing transportation systems or major new construction of roads or rail facilities. Peak-hour traffic volumes could increase slightly over current levels but would depend on total employment numbers that are unknown at this time. Construction-related impacts from truck traffic would be temporary and would not be a problem unless several different construction projects were ongoing at the same time, which is unlikely.

Associated with increases in traffic is the potential for an increased number of accidents, additional noise and air pollution, and road deterioration and damage. The increase in average daily traffic volumes could result in inconveniences for other vehicles (personal and commercial) on affected routes and connecting roads. Commercial operations could suffer temporarily reduced business while customers

avoid affected areas because of traffic delays. Increased pavement deterioration and damage could increase costs associated with maintaining or resurfacing roads and highways. Although noise associated with increases in traffic is normally not harmful to hearing, increased traffic noise is considered by the public to be a nuisance. Increased accidents put an additional strain on local emergency response personnel. Increased vehicular traffic also has the greatest potential to increase air pollution in the local area because emissions from motor vehicles are poorly regulated.

Existing utilities are considered to be sufficient for the actions proposed at PORTS. The water and wastewater treatment plants also have enough excess capacity to handle the proposed developments. Some of the systems may need to be retrofitted or require minor upgrades, but no major utility system modifications are expected.

4.14.5.7 Human health and accidents

Cumulative public and occupational health impacts would be expected to be equal to or less than those that currently exist in and around PORTS. Actions that involve environmental remediation and D&D usually have a positive impact by eliminating or reducing potential exposures to existing contamination. However, a certain amount of risk and potential exposure is involved for the workers who participate in the implementation of such actions. Emissions and effluents released from new industrial developments would not be expected to be major sources of potential exposures and would be controlled through the use of proper engineering and administrative controls. Standard industrial accidents would increase proportionally to the increase in new facilities in the area. Further development of surrounding land could cause an increase in the number of people that could be exposed to off-site releases from large accidents. However, the accidents from existing conditions (e.g., cylinder yards, feed and withdrawal operations, and waste management activities) could be reduced from the operation of the depleted UF_6 conversion facility and placing the gaseous diffusion process in cold standby.

5. REGULATORY COMPLIANCE

During the NEPA process, DOE contacts the USFWS to obtain the latest information on threatened and endangered species or designated critical habitats that could occur in the vicinity of the proposed action. If DOE determines that any threatened and endangered species or critical habitat could be adversely impacted by the proposed action, informal or formal consultation with the USFWS is initiated under Section 7 of the Endangered Species Act (16 U.S.C. 1531 et seq.). Threatened and endangered species at PORTS are discussed in Sects. 3.6.3 and 4.6.1. Appendix E includes correspondence between DOE and both the USFWS and the Ohio Department of Natural Resources.

DOE is also required under Section 106 of the NHPA to consult with the SHPO regarding the presence of archaeological and historic sites and the potential for adverse impacts at a proposed project site. Consultation with the Ohio SHPO is discussed in Sect. 4.7.1. Also, under the Farmland Protection Policy Act, DOE consults with the Natural Resource Conservation Service regarding the presence and future use of prime farmland soils at a proposed site.

DOE activities at PORTS are required to operate in accordance with environmental regulations established by federal and state laws, executive orders, DOE orders, and compliance agreements. Most DOE-PORTS cleanup activities are conducted under a Consent Decree with the State of Ohio and an Administrative Consent Order with the Ohio EPA and USEPA. While environmental restoration activities are implemented in accordance with the RCRA Corrective Action Program, the Administrative Consent Order cites CERCLA as a governing authority in addition to RCRA. CERCLA establishes many requirements for transfer of federally owned property, including property that has been contaminated or property that can be identified as uncontaminated.

Relevant DOE orders that pertain to actions involving property transfer include DOE Order 430.1, "Life Cycle Asset Management"; DOE Order 5400.1, "General Environmental Protection Program"; and DOE Order 5400.5, "Radiation Protection of the Public and the Environment."

Private industrial developers would be responsible for seeking and obtaining any applicable federal, state, and/or local permits and licenses for activities at their facilities. Regulations implementing the CAA, CWA, NRC rules, RCRA, Safe Drinking Water Act, TSCA, Emergency Planning and Community-Right-to-Know Act, and others may apply.

6. LIST OF AGENCIES AND PERSONS CONTACTED

The following agencies and persons were contacted for information and data used in the preparation of this EA.

Name	Affiliation	Location	Topic
James Borchelt	National Resources Conservation Office	Waverly, Ohio	Prime Farmland
Jennifer Chandler	Southern Ohio Diversification Initiative	Piketon, Ohio	Socioeconomics
Pat Jones	Ohio Department of Natural Resources	Columbus, Ohio	Threatened and Endangered Species
T. J. Justice	Ohio Regional Economic Development Office: Region 7	Chillicothe, Ohio	Socioeconomics
Kent Kroonemeyer	U.S. Fish and Wildlife Service	Reynoldsburg, Ohio	Endangered Species Act, Section 7 Informal Consultation
David Snyder	Ohio Historic Preservation Office	Columbus, Ohio	National Historic Preservation Act, Section 106 Compliance

7. REFERENCES

Adcock, B., Manufacturing Sciences Corporation, Oak Ridge, TN 1996. Written communication to P. Gross, Director, Environmental Protection Division, U.S. Department of Energy, Oak Ridge, TN, April.

The American Hospital Directory, Inc. 1999. *American Hospital Directory*, August 28, 2000, http://www.ahd.com.

Battelle 1976. *Research and Evaluation of Selected Environmental Aspects of the Portsmouth Gaseous Diffusion Plant in Scioto and Seal Townships, Pike County, Ohio,* Battelle Columbus Laboratories, Battelle, Ohio.

Bureau of Economic Analysis 1999. Regional Economic Information System (1969–97), July 26 and 27, 2000, http://govinfo.library.orst.edu.

Bureau of Labor Market Information 2000. *Civilian Labor Force Estimates*, July 27, 2000, http://lmi.state.oh.us/LAUS/LAUS.html, Bureau of Labor Market Information, Ohio Department of Job and Family Services.

Bureau of the Census 1990a. Summary Tape File C90STF3A, August 1, 2000, http://venus.census.gov.cdrom/lookup.

Bureau of the Census 1990b. *Census Historical Poverty Tables*, Table CPH-L-162, August 1, 2000, http://www.census.gov/hhes/poverty/census/cphl162.html.

Bureau of the Census 2000. *Population, Land Area, and Poverty Data for 1990 Census Tracts*, accessed August 8, 2000, www.census.gov/geo/www/ezstate/poverty.html.

Cantor, L. 1996. *Environmental Impact Assessment*, 2d ed., McGraw-Hill, Inc., New York.

Chandler, J., Southern Ohio Diversification Initiative 2000. Personal communication to Sharon Bell and Michael Deacon, Science Applications International Corporation, Portsmouth environmental assessment team members (August 15).

Church, F., Dobson-Brown, D. L., Coleman, K. B., Herr, D., Kramb, A., and Schweikart, J. 1997. *Portsmouth Gaseous Diffusion System Facility Cultural Resource Management Plan* (submitted to Lockheed Martin Energy Systems, Piketon, OH), ASC Group, Columbus, OH.

Coleman, K., Dobson-Brown, D., and Herr, D. 1997. *Phase I Architectural Survey for the Portsmouth Gaseous Diffusion Plant (PORTS Facility) in Scioto and Seal Townships, Pike County, Ohio* (submitted to, and copies available from, the U.S. Department of Energy), ASC Group, Columbus, OH.

Dobson-Brown, D., Church, F., and Schweikart, J. 1996. *Management Summary for the PORTS Cultural Resource Literature Review, Predictive Model, and Preliminary Reconnaissance Survey in Scioto and Seal Townships, Pike County, Ohio* (submitted to Lockheed Martin Energy Systems, Inc.), ASC Group, Columbus, OH.

DOE (U.S. Department of Energy) 1993. *Portsmouth Gaseous Diffusion Plant Environmental Report for 1992*, ES/ESH-37, Oak Ridge, TN.

DOE 1995. *Environmental Assessment: Construction and Operation of an Industrial Solid Waste Landfill at Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/EA-0767, Oak Ridge, TN.

DOE 1996a. *Quadrant III RCRA Facility Investigation Final Report*, DOE/OR/11-1308/VI&D3.

DOE 1996b. *Wetland Survey Report for the Portsmouth Gaseous Diffusion Plant*, POEF-LMES-106, Lockheed Martin Energy Systems, Inc., Piketon, OH.

DOE 1996c. *Baseline Ecological Risk Assessment, Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/OR/11-1316/V1&D2, Oak Ridge, TN.

DOE 1996d. *Environmental Assessment: Lease of Parcel ED-1 of the Oak Ridge Reservation by the East Tennessee Economic Council*, DOE/EA-1113, Oak Ridge, TN, April.

DOE 1997a. *Final Threatened and Endangered Species Report–Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/OR/11/1668&D0, Lockheed Martin Energy Systems, Inc., Piketon, OH.

DOE 1997b. *Final Environmental Assessment for Lease of Land and Facilities within the East Tennessee Technology Park, Oak Ridge, Tennessee*, DOE/EA-1175, November.

DOE 1999a. *Portsmouth Annual Environmental Report for 1998*, DOE/OR/11-3031, December.

DOE 1999b. *Quadrant II, Cleanup Alternatives Study/Corrective Measures Study, Final Report. Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/OR/12-1223&D3.

DOE 1999c. *Guidance on Protection of Workers Utilizing DOE Leased Facilities*, U.S. Department of Energy, Washington, D.C., August 5, 1999.

DOE 2000a. *Draft Portsmouth Annual Environmental Report for 1999*, November.

DOE 2000b. *Revised Draft: Workforce Restructuring Plan for Portsmouth Plant, Ohio, and Paducah Plant, Kentucky*, DOE Office of Worker and Community Transition, June.

ERDA (Energy Research & Development Administration) 1977. *Final Environmental Impact Statement: Portsmouth Gaseous Diffusion Plant Site, Piketon, Ohio*, Vol. 2, ERDA-1555.

Geo-Marine and SAIC (Science Applications International Corporation) 1995. *Socioeconomic Handbook*, Vol. 1, prepared for the U.S. Air Force, Air Combat Command, June.

Henderson, D. 1997. "Preliminary Report: Impact Study for PORTS Facility," Ohio State University, Piketon Research and Extension Center, May 13.

Justice, T. J., Regional Economic Development Office: Region 7, Chillicothe, OH 2000. Personal communication to Sharon Bell, Science Applications International Corporation, environmental assessment team (September 18 and 20).

LMES (Lockheed Martin Energy Systems, Inc.) 1997. *Safety Analysis Report Volume 1, Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, POEF-LMES-89, Paducah, KY.

Magrab, E. B. 1975. *Environmental Noise Control*, Wiley-Interscience Publication, John Wiley & Sons, New York.

MMES (Martin Marietta Energy Systems, Inc.) 1994. *Portsmouth Gaseous Diffusion Plant Siting Criteria Document*, DOE/OR/111267&D1, Portsmouth, OH, April.

ODOD (Ohio Department of Development) 1999. Office of Strategic Research, *Ohio County Profiles*, July 27, 2000, http://www.oded.state.oh.us/osr/profiles.

Ohio EPA (Ohio Environmental Protection Agency) 1993. *Biological, Fish Tissue, and Sediment Quality in Little Beaver Creek, Big Beaver Creek, Big Run, and West Ditch, Piketon (Portsmouth Gaseous Diffusion Plant), Ohio*, State of Ohio Environmental Protection Agency, Ecological Assessment Section, Division of Water Quality Planning and Assessment, Columbus, OH, May.

Ohio EPA 1998. "Biological and Water Quality Study of Little Beaver Creek and Big Beaver Creek–1997."

ORNL (Oak Ridge National Laboratory) 1999. *Comprehensive Integrated Planning Process for the Oak Ridge Operations Sites*, ORNL/M-6717, Bechtel Jacobs Company LLC, Lockheed Martin Energy Research Corporation, and Lockheed Martin Energy Systems, Inc., Oak Ridge, TN, September.

Raymond, M. J. February 10, 1995. Letter to R. W. Meehan, Ohio Historic Preservation Office, Columbus.

Schweikart, J. F., Coleman, K., and Church, F. 1997. "Phase I Archaeological Survey for the Portsmouth Gaseous Diffusion Plant (PORTS Facility) in Scioto and Seal Townships, Pike County, Ohio" (submitted to, and copies available from, the U.S. Department of Energy), ASC Group, Columbus, OH.

SEG (Scientific Ecology Group, Inc.) 1995. *Report on Compliance with the Clean Air Act Limits for Radionuclide Emissions from the COMPLY Code, Version 1.5d*, Scientific Ecology Group, Inc., Oak Ridge, TN.

SODI (Southern Ohio Diversification Initiative) 1997. "Southern Ohio Diversification Initiative's Community Transition Plan" (submitted to the U.S. Department of Energy), Piketon, OH, August.

USACE (U.S. Army Corps of Engineers) 1987. *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, Department of the Army.

USDA (U.S. Department of Agriculture) 1990. *Soil Survey of Pike County, Ohio*, Washington, D.C.

USEC (United States Enrichment Corporation) 2000. "USEC to Cease Uranium Enrichment at the Portsmouth, Ohio Facility in June 2001," June 21.

USEPA (U.S. Environmental Protection Agency) 1978. *Protective Noise Levels: Condensed Version of the EPA Levels Document*, EPA-550/9-79-100, U.S. Environmental Protection Agency, Office of Noise Abatement and Control, Washington, D.C.

USEPA 1985. *Compilation of Air Pollutant Emission Factors, Vol. I: Stationary Point and Area Sources*, 4th ed., EPA Publication AP-42, U.S. Environmental Protection Agency, Research Triangle Park, NC.

USEPA 1988. *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources*, EPA450/4-88-010, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC.

APPENDIX A

FEDERAL REGISTER NOTICE OF RULE

§ 299.1 Prescribed forms.

* * * * *

Form No.	Edition date	Title
*	*	*
I–129W	12–22–99	H–1B Data Collection and Filing Fee Exemption.
*	*	*

7. Section 299.5 is amended in the table by revising the entry for Form "129W" to read as follows:

§ 299.5 Display of control numbers.

* * * * *

INS form No.	INS form title	Currently assigned OMB Control No.
*	*	*
I–129W	H–1B Data Collection and Filing Exemption	1115–0225
*	*	*

Dated: February 24, 2000.

Doris Meissner,

Commissioner, Immigration and Naturalization Service.

[FR Doc. 00–4766 Filed 2–28–00; 8:45 am]

BILLING CODE 4410–10–M

DEPARTMENT OF ENERGY

[Docket No. FM–RM–99–RPROP]

10 CFR PART 770

RIN 1901–AA82

Transfer of Real Property at Defense Nuclear Facilities for Economic Development

AGENCY: Department of Energy.

ACTION: Interim final rule and opportunity for public comment.

SUMMARY: The Department of Energy (DOE) is establishing a process for disposing of unneeded real property at DOE's defense nuclear facilities for economic development. Section 3158 of Public Law 105–85, the National Defense Authorization Act for Fiscal Year 1998, directs DOE to prescribe regulations which describe procedures for the transfer by sale or lease of real property at such defense nuclear facilities. Transfers of real property under these regulations are intended to offset negative impacts on communities caused by unemployment from related DOE downsizing, facility closeouts and work force restructuring at these facilities. Section 3158 also provides discretionary authority to the Secretary to indemnify transferees of real property at DOE defense nuclear facilities. This regulation sets forth the indemnification procedures.

EFFECTIVE DATE: This rule is effective February 29, 2000. Comments on the interim final rule should be submitted by April 14, 2000. Those comments received after this date will be considered to the extent practicable.

ADDRESSES: Send comments (3 copies) to James M. Cayce, U.S. Department of Energy, Office of Management and Administration, MA–53, 1000 Independence Avenue, SW, Washington, D.C. 20585. The comments will be included in Docket No. FM–RM–99–PROP and they may be examined between 9:00 a.m. and 4:00 p.m. at the U.S. Department of Energy Freedom of Information Reading Room, Room 1E–190, 1000 Independence Avenue, SW, Washington, D.C. 20585, (202) 586–6020.

FOR FURTHER INFORMATION CONTACT: James M. Cayce, U.S. Department of Energy, MA–53, 1000 Independence Avenue, SW, Washington, D.C. 20585, (202) 586–0072.

SUPPLEMENTARY INFORMATION:

I. Background

DOE's real property consists of about 2.4 million acres and over 21,000 buildings, trailers, and other structures and facilities. In the eight years since the end of the Cold War, DOE has been engaged in a two-part process in which DOE reexamines its mission need for real property holdings, and then works to clean up the land and facilities that have been contaminated with hazardous chemicals and nuclear materials. The end result will be the availability, over time and to widely varying degree at DOE sites, of real property for transfer. DOE may sell or lease real property under a number of statutory authorities. The primary authorities are section 161g of the Atomic Energy Act (42 U.S.C. 2201(g)) and sections 646(c)–(f) (also known as the "Hall Amendment") and 649 of the Department of Energy Organization Act, as amended (42 U.S.C. 7256(c)–(f) and 7259). Section 161g of the Atomic Energy Act broadly authorizes DOE to transfer real property by sale or lease to another party. Section 649 applies to leasing of underutilized real property. Section 646(c)–(f) applies to specific facilities that are to be closed or reconfigured. In addition, DOE may declare real property as "excess, underutilized or temporarily underutilized," and dispose of such real property under provisions of the Federal Property and Administrative Services Act, 40 U.S.C. 472 *et seq.* With the exception of sections 646(c)–(f) of the DOE Organization Act, these authorities do not deal specifically with transfer of real property for economic development.

In section 3158 of the National Defense Authorization Act for Fiscal Year 1998 ("Act"), Congress directed DOE to prescribe regulations specifically for the transfer by sale or lease of real property at DOE defense nuclear facilities for the purpose of permitting economic development (42 U.S.C. 7274q(a)(1)). Section 3158 also provides that DOE may hold harmless and indemnify a person or entity to whom real property is transferred against any claim for injury to person or property that results from the release or threatened release of a hazardous substance, pollutant or contaminant as a result of DOE (or predecessor agency) activities at the defense nuclear facility (42 U.S.C. 7274q(b)). The indemnification provision in section 3158 is similar to provisions enacted for the Department of Defense Base Realignment and Closure program under Section 330 of the Defense Authorization Act for Fiscal Year 1993, Public Law 102–484.

The indemnification provisions in section 3158 aid these transfers for economic development because, even at sites that have been remediated in accordance with applicable regulatory requirements, uncertainty and risk to capital may be presented by the possibility of as-yet undiscovered contamination remaining on the property. Potential buyers and lessees of real property at defense nuclear facilities have sometimes expressed a need to be indemnified as part of the transfer. Furthermore, indemnification often is requested by lending or underwriting institutions which finance the purchase, redevelopment, or future private operations on the transferred property to protect their innocent interests in the property. Indemnification may be granted under this rule when it is deemed essential for facilitating local reuse or redevelopment as authorized under 42 U.S.C. 7274q.

This rule is not intended to affect implementation of the Joint Interim Policy that DOE and the Environmental Protection Agency (EPA) entered into on June 21, 1998, to implement the consultation provisions of the Hall Amendment (42 U.S.C. 7256(e)). The Joint Interim Policy provides specific direction for instances in which Hall Amendment authority is used by DOE to enter into leases at DOE sites which are on the EPA's National Priorities List. As

stated in the scope of the joint policy, at National Priorities List sites, EPA was given the authority to concur in the DOE determination that the terms and conditions of a lease agreement are "consistent with safety and protection of public health and the environment."

II. Section-by-Section Discussion

The following discussion presents information related to some of the provisions in today's interim final rule, and explains DOE's rationale for those provisions.

1. Section 770.2 (Coverage)

Generally, real property covered by these regulations includes land and facilities at DOE defense nuclear facilities offered for sale or lease for the purpose of permitting the economic development of the property. Leases of improvements to real property that has been withdrawn from the public domain are covered, but not the withdrawn land. If any of these improvements are removable, they can be transferred under this part.

2. Section 770.4 (Definitions)

DOE has included a definition of "Community Reuse Organization" (CRO) in this rule. CROs are established and funded by DOE to implement community transition activities under section 3161 of the National Defense Authorization Act for Fiscal Year 1993 (42 U.S.C. 7274h). Membership in a CRO is composed of a broad representation of persons and entities from the affected communities. The CRO coordinates local community transition planning efforts with the DOE's Federal Advisory Committees, "Site Specific Advisory Boards," and others to counter adverse impacts from DOE work force restructuring. CROs may act as agent or broker for parties interested in undertaking economic development actions, and they can assure a broad range of participation in community transition activities.

Section 3158 defines "defense nuclear facility" by cross-reference to the definition in section 318 of the Atomic Energy Act of 1954 (42 U.S.C. 2286(g)). These facilities are atomic energy defense facilities involved in production or utilization of special nuclear material; nuclear waste storage or disposal facilities; testing and assembly facilities; and atomic weapons research facilities, which are under the control or jurisdiction of the Secretary of Energy. DOE has identified the facilities receiving funding for atomic energy defense activities (with the exception of activities under Office of Naval Reactors) which are covered by the definition. A list of these defense nuclear facilities is included at the end of this section-by-section discussion for the convenience of the interested public.

"Excess real property" is DOE property that, after screening at all levels of DOE, is found to be unneeded for any of the DOE's missions.

The term "underutilized real property or temporarily underutilized real property" means an entire parcel of real property, or a portion of such property, that is used at irregular intervals or for which the mission need can be satisfied with only a portion of the property. These designations are reviewed on an annual basis by the certified real property specialist at each Field Office.

3. Sections 770.5 and 770.6 (Identification of Real Property for Transfer)

DOE annually conducts surveys of its real property to determine if the property is being fully utilized. In a related process, DOE annually reviews its real property to identify property that is no longer needed for DOE missions. Real property covered by this part will be initially identified by these two processes. Under this part, Field Office Managers will provide the established CRO, and other interested persons and entities with a list of the real property that may be transferred under these regulations. Field Office Managers may make this list available by mail to known entities, or other means (such as posting on DOE Internet sites), or upon request. DOE will provide existing information on listed property, including its policies under the relevant transfer authority, information on the physical condition of the property, environmental reports, safety reports, known use restrictions, leasing term limitations and other pertinent information. Section 770.6 provides that a CRO or other person or entity may request that the Field Office Manager make available specific real property for possible transfer in support of economic development.

4. Section 770.7 (Transfer Process)

To initiate the transfer process, the potential purchaser or lessee must prepare and provide to the Field Office Manager a proposal for the transfer of real property at a defense nuclear facility for economic development. The proposal must contain enough detail for DOE to make an informed determination that the transfer, by sale or lease, would be in the best interest of the Government. Every proposal must include the information specified in section 770.7(a)(1) relating to the scope and economic development impact of the proposed transfer. A proposal must include: a description of the real property proposed to be transferred; the intended use and duration of use of the real property; a description of the economic development that would be furthered by the transfer (*e.g.*, jobs to be created or retained, improvements to be made); information supporting the economic viability of the proposed development; and the consideration offered and any financial requirements. A proposal also should explicitly state if indemnification against claims is or is not being requested, and, if requested, the specific reasons for the request and a certification that the requesting party has not caused contamination on the property. This requirement stems from section 3158(b) of the Act, which requires DOE to include in any agreement for the sale or lease of real property provisions stating whether indemnification is or is not provided (42 U.S.C. 7274q(b)).

Paragraph 770.7(b) provides that DOE will review a proposal and within 90 days notify the person or entity submitting the proposal of its decision on whether the transfer is in the best interest of the Government and DOE's intent to proceed with development of a transfer agreement. DOE may consider a variety of factors in making its decision, such as the adverse economic impacts of DOE downsizing and realignment on the region, the public policy objectives of the laws governing the downsizing of DOE's production complex, the extent of state and local investment in any proposed projects, the potential for short- and long-term job generation, the financial responsibility of the proposer, current market conditions, and potential benefits to the federal government from the transfer. Since many defense nuclear facilities have ongoing missions, particular transfers may be subject to use restrictions that are made necessary by specific security, safety, and environmental requirements of the DOE facility. If DOE does not find the transfer is in the best interest of the Government and will not pursue a transfer agreement, it will, by letter, inform the person or entity that submitted it of DOE's decision and reasons. Agreement by DOE to pursue development of a transfer agreement does not commit DOE to the project or constitute a final decision regarding the transfer of the property.

Section 3158 of the Act prohibits DOE from transferring real property for economic development until 30 days have elapsed following the date on which DOE notifies the defense

committees of Congress of the proposed transfer of real property. Therefore, if DOE determines that a proposal would be in the best interest of the Government, it then will notify the congressional defense committees of the proposed transfer. In particular instances, it is possible that this notification requirement may delay the development of the transfer agreement.

Before a proposed transfer agreement is finalized, the Field Office Manager must ensure that DOE's National Environmental Policy Act (NEPA) environmental review process is completed. Depending on the transfer authority used and the condition of the real property, other agencies may need to review or concur with the terms of the agreement. For example, for Hall Amendment leases at National Priorities List sites, EPA was given the authority to concur in the DOE determination that the terms and conditions of a lease agreement are consistent with safety and the protection of public health and the environment. The DOE will also comply with any other applicable land transfer statutes.

DOE has established policy that requires public participation in the land and facility planning, management, and disposition decision process (under DOE O 403.1A, Life Cycle Asset Management). Generally, because the proposals are likely to be generated by or in coordination with a CRO, a separate public involvement process should not be necessary. However, there may be instances in which a specific authority requires separate or additional procedures (*e.g.*, commitments in agreements signed with tribal, state, or local governments).

5. Section 770.8 (Transfer for Less Than Fair Market Value)

The House Conference Report for the Act (105–340) noted that DOE should address in this part, when it is appropriate for DOE to transfer or lease real property below fair market value or at fair market value. DOE will generally pursue fair market value for real property transferred for economic development. DOE may, however, agree to sell or lease such property for less than fair market value if the statutory transfer authority used imposes no market value restriction and the real property requires considerable infrastructure improvements to make it economically viable, or if in DOE's judgment a conveyance at less than market value would further the public policy objectives of the laws governing the downsizing of defense nuclear facilities. DOE has the authority to transfer real and personal property at less than fair market value (or without consideration) in order to help local communities recover from the effects of downsizing of defense nuclear facilities.

6. Sections 770.9–770.11 (Indemnification)

DOE real property often is viewed by the public as a potential liability even if it has been cleaned to specific regulatory requirements. To improve the marketability of previously contaminated land and facilities, DOE may indemnify a person or entity to whom real property is transferred for economic development against any claim for injury to persons or property that results from the release or threatened release of a hazardous substance, pollutant or contaminant attributable to DOE (or predecessor agencies).[1] DOE will enter into an indemnification agreement under this rule if a person or entity requests it, and indemnification is deemed essential for the purposes of facilitating reuse or redevelopment. A claim for injury to person or property will be indemnified only if an indemnification provision is included in the agreement for sale or lease and in subsequent deeds or leases.

This general DOE indemnification policy is subject to the conditions in section 770.9 of this part. As provided by section 3158(c)(1) of the Act (42 U.S.C. 7274q(c)(1)), a person or entity who requests indemnification under a transfer agreement must notify DOE (the Field Office Manager) in writing within two years after the claim accrues.

Section 770.9 contains several other requirements and conditions that are taken from section 3158(c)(1) of the Act. The person or entity requesting indemnification for a particular claim must furnish the Field Office Manager pertinent papers regarding the claim received by the person or entity, and any evidence or proof of the claim; and must permit access to records and personnel for purposes of defending or settling the claim.

DOE also is prohibited by section 3158(b)(3) from indemnifying a person or entity for a claim "to the extent the persons and entities * * * contributed to any such release or threatened release" (42 U.S.C. 7274q(b)(3)). This limitation on DOE's ability to indemnify potentially liable parties is included in the rule in paragraph 770.9(b).

One additional statutory limitation on indemnification is that DOE may not indemnify a transferee for a claim, even if an indemnification agreement exists, if the person requesting indemnification does not allow DOE to settle or defend the claim. This limitation is in paragraph 770.9(c), and it is required by section 3158(d)(2) of the Act (42 U.S.C. 7274q(d)(2)).

Section 770.10 provides, as stipulated in the Act, that if an indemnification claim is denied by DOE, the person or entity must be informed through a notice of final denial of a claim by certified or registered mail. If the person or entity wishes to contest the denial, then that person or entity must begin legal action within six months after the date of mailing of a notice of final denial of a claim by DOE. (42 U.S.C. 7274q(c)(1)).

Section 770.11 incorporates the Act's provision that a claim "accrues" on the date on which the person asserting the claim knew (or reasonably should have known) that the injury to person or property was caused or contributed to by the release or threatened release of a hazardous substance, pollutant, or contaminant as a result of DOE activities at the defense nuclear facility on which the real property is located. (42 U.S.C. 7274q(c)(2)). DOE may not waive this timeliness requirement.

Appendix to Preamble of 10 CFR Part 770

List of Defense Nuclear Facilities: This list is consists of the defense nuclear facilities noted as covered facilities in House Report 105–137, and is not meant to be inclusive.

Argonne National Laboratory
Brookhaven National Laboratory
Fernald Environmental Management Project Site
Hanford Site
Idaho National Engineering and Environmental Laboratory
Kansas City Plant
K–25 Plant (East Tennessee Technology Park)
Lawrence Livermore National Laboratory
Los Alamos National Laboratory
Mound Facility
Nevada Test Site
Oak Ridge Reservation
Oak Ridge National Laboratory
Paducah Gaseous Diffusion Plant
Pantex Plant
Pinellas Plant
Portsmouth Gaseous Diffusion Plant
Rocky Flats Environmental Technology Site

[1] Regardless of the existence of an indemnification agreement, DOE would be responsible for the release, or threatened release of a hazardous substance or pollutant or contaminant resulting from the activities of DOE or its predecessor agencies, if the property was not remediated to required standards. This would also apply to early transfers, by sale or lease, of contaminated real property under Section 120(h)(3)(C) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. 9620(h)(3)(C).

Sandia National Laboratory
Savannah River Site
Waste Isolation Pilot Project
Y–12 Plant

III. Public Comment

The interim final rule published today relates to public property and, therefore, is exempt from the notice and comment rulemaking requirements in the Administrative Procedure Act, 5 U.S.C. 553. Nonetheless, DOE is providing an opportunity for interested persons to submit written comments on the interim final rule. Three copies of written comments should be submitted to the address indicated in the ADDRESSES section of this rule. All comments received will be available for public inspection in the Department of Energy Reading Room, 1E–190, Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C., between the hours of 9 a.m. and 4 p.m., Monday through Friday, except federal holidays. All written comments received on or before the date specified in the beginning of this rule will be considered by DOE. Comments received after that date will be considered to the extent that time allows.

Any person submitting information or data that is believed to be confidential, and exempt by law from public disclosure, should submit one complete copy of the document and two additional copies from which the information believed to be confidential has been deleted. DOE will makes its own determination with regard to the confidential status of the information and treat it as provided in 10 CFR 1004.11.

IV. Procedural Requirements

A. Review Under Executive Order 12866

Today's regulatory action has been determined not to be "a significant regulatory action" under Executive Order 12866, "Regulatory Planning and Review," 58 FR 51735 (October 4, 1993). Accordingly, this action was not subject to review under that Executive Order by the Office of Information and Regulatory Affairs of the Office of Management and Budget.

B. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.*, requires preparation of an initial regulatory flexibility analysis for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. Today's interim final rule concerning the sale or lease of real property at defense nuclear facilities is not subject to the Regulatory Flexibility Act because neither the Administrative Procedure Act (5 U.S.C. 553(a)(2)), nor any other law requires DOE to propose the rule for public comment.

C. Review Under the Paperwork Reduction Act

No new collection of information is imposed by this interim final rule. Accordingly, no clearance by the Office of Management and Budget is required under the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*).

D. Review Under the National Environmental Policy Act

Under the Council on Environmental Quality regulations (40 CFR Parts 1500–1508), DOE has established guidelines for its compliance with the provisions of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*). This interim final rule establishes procedures for real property transfers for economic development. Because the rule is procedural, it is covered by the Categorical Exclusion in paragraph A6 of Appendix A to Subpart D, 10 CFR Part 1021. Accordingly, neither an environmental assessment nor an environmental impact statement is required. As paragraph 770.3(b) of the rule notes, individual proposals for the transfer of property are subject to appropriate NEPA review.

E. Review Under Executive Order 13132

Executive Order 13132, "Federalism," 64 FR 43255 (August 4, 1999), requires that regulations, rules, legislation, and any other policy actions be reviewed for any substantial direct effects on states, on the relationship between the federal government and the states, or in the distribution of power and responsibilities among the various levels of government. DOE has analyzed this rulemaking in accordance with the principles and criteria contained in Executive Order 13132, and has determined that this rule will not have a substantial direct effect on states, the established relationship between the states and the federal government or the distribution of power and responsibilities among the various levels of government.

F. Review Under Executive Order 12988

With respect to the review of existing regulations and the promulgation of new regulations, section 3(a) of Executive Order 12988, "Civil Justice Reform," 61 FR 4729 (February 7, 1996), imposes on federal agencies the general duty to adhere to the following requirements: (1) Eliminate drafting errors and ambiguity; (2) write regulations to minimize litigation; and (3) provide a clear legal standard for affected conduct rather than a general standard and promote simplification and burden reduction. Section 3(b) of Executive Order 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) Clearly specifies the preemptive effect, if any; (2) Clearly specifies any effect on existing federal law or regulation; (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction; (4) specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in section 3(a) and section 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that this interim final rule meets the relevant standards of Executive Order 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (Pub. L. No. 104–4) requires each federal agency to prepare a written assessment of the effects of any federal mandate in a proposed or final rule that may result in the expenditure by state, local, and tribal governments, in the aggregate, or by the private sector, of $100 million in any one year. The Act also requires a federal agency to develop an effective process to permit timely input by elected officers of state, local, and tribal governments on a proposed "significant intergovernmental mandate," and it requires an agency to develop a plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirement that might significantly or uniquely affect small governments. The interim final rule published today does not contain any federal mandate, so these requirements do not apply.

H. Review Under the Treasury and General Government Appropriations Act of 1999

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105–277) requires federal agencies to issue a Family Policymaking Assessment for any

proposed rule or policy that may affect family well-being. Today's proposal would not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

I. Congressional Notification

As required by 5 U.S.C. 801, DOE will submit to Congress a report regarding the issuance of today's interim final rule prior to the effective date set forth at the outset of this notice. The report will state that it has been determined that the rule is not a "major rule" as defined by 5 U.S.C. 801(2).

List of Subjects in Part 770

Federal buildings and facilities, Government property, Government property management, Hazardous substances.

Issued in Washington, on January 21, 2000.

Edward R. Simpson,

Acting Director of Procurement and Assistance Management.

For the reasons set forth in the preamble, Title 10, Chapter III, of the Code of Federal Regulations is amended by adding a new part 770 as set forth below:

PART 770—TRANSFER OF REAL PROPERTY AT DEFENSE NUCLEAR FACILITIES FOR ECONOMIC DEVELOPMENT

Sec.

Authority: 42 U.S.C. 7274q.

§ 770.1 What is the purpose of this part?

(a) This part establishes how DOE will transfer by sale or lease real property at defense nuclear facilities for economic development.

(b) This part also contains the procedures for a person or entity to request indemnification for any claim that results from the release or threatened release of a hazardous substance or pollutant or contaminant as a result of DOE activities at the defense nuclear facility.

§ 770.2 What real property does this part cover?

(a) DOE may transfer DOE-owned real property by sale or lease at defense nuclear facilities, for the purpose of permitting economic development.

(b) DOE may transfer, by lease only, improvements at defense nuclear facilities on land withdrawn from the public domain, that are excess, temporarily underutilized, or underutilized, for the purpose of permitting economic development.

§ 770.3 What general limitations apply to this part?

(a) Nothing in this part affects or modifies in any way section 120(h) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9620(h)).

(b) Individual proposals for transfers of property are subject to NEPA review as implemented by 10 CFR Part 1021.

(c) Any indemnification agreed to by the DOE is subject to the availability of funds.

§ 770.4 What definitions are used in this part?

Community Reuse Organization or CRO means a governmental or non-governmental organization that represents a community adversely affected by DOE work force restructuring at a defense nuclear facility and that has the authority to enter into and fulfill the obligations of a DOE financial assistance agreement.

Claim means a request for reimbursement of monetary damages.

Defense Nuclear Facility means "Department of Energy defense nuclear facility" within the meaning of section 318 of the Atomic Energy Act of 1954 (42 U.S.C. 2286g).

DOE means the United States Department of Energy.

DOE Field Office means any of DOE's officially established organizations and components located outside the Washington, D.C., metropolitan area. (See Field Office Manager.)

Economic Development means the use of transferred DOE real property in a way that enhances the production, distribution, or consumption of goods and services in the surrounding region(s) and furthers the public policy objectives of the laws governing the downsizing of DOE's defense nuclear facilities.

Excess Real Property means any property under DOE control that the Field Office, cognizant program, or the Secretary of Energy have determined, according to applicable procedures, to be no longer needed.

Field Office Manager means the head of the DOE Operations Offices or Field Offices associated with the management and control of defense nuclear facilities.

Hazardous Substance means a substance within the definition of "hazardous substances" in subchapter I of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601(14)).

Indemnification means the responsibility for reimbursement of payment for any suit, claim, demand or action, liability, judgment, cost, or other fee arising out of any claim for personal injury or property damage, including business losses consistent with generally accepted accounting practices, which involve the covered real property transfers. Indemnification payments are subject to the availability of appropriated funds.

Person or Entity means any state, any political subdivision of a state or any individual person that acquires ownership or control of real property at a defense nuclear facility.

Pollutant or Contaminant means a substance identified within the definition of "pollutant or contaminant" in section 101(33) of CERCLA (42 U.S.C. 9601(33)).

Real Property means all interest in land, together with the improvements, structures, and fixtures located on the land (usually including prefabricated or movable structures), and associated appurtenances under the control of any federal agency.

Release means a "release" as defined in subchapter I of CERCLA (42 U.S.C. 9601(22)).

Underutilized Real Property or Temporarily Underutilized Real Property means the entire property or a portion of the real property (with or without improvements) that is used only at irregular intervals, or which is used by current DOE missions that can be satisfied with only a portion of the real property.

§770.5 How does DOE notify persons and entities that defense nuclear facility real property is available for transfer for economic development?

(a) Field Office Managers annually make available to Community Reuse Organizations and other persons and entities a list of real property at defense nuclear facilities that DOE has identified as appropriate for transfer for economic development. Field Office Managers may use any effective means of publicity to notify potentially-interested persons or entities of the availability of the list.

(b) Upon request, Field Office Managers provide to interested persons and entities relevant information about listed real property, including information about a property's physical condition, environmental, safety and health matters, and any restrictions or terms of transfer.

§770.6 May interested persons and entities request that real property at defense nuclear facilities be transferred for economic development?

Any person or entity may request that specific real property be made available for transfer for economic development pursuant to procedures in §770.7. A person or entity must submit such a request in writing to the Field Office Manager who is responsible for the real property.

§770.7 What procedures are to be used to transfer real property at defense nuclear facilities for economic development?

(a) *Proposal.* The transfer process starts when a potential purchaser or lessee submits to the Field Office Manager a proposal for the transfer of real property that DOE has included on a list of available real property, as provided in §770.5 of this part.

(1) A proposal must include (but is not limited to):

(i) A description of the real property proposed to be transferred;

(ii) The intended use and duration of use of the real property;

(iii) A description of the economic development that would be furthered by the transfer (*e.g.*, jobs to be created or retained, improvements to be made);

(iv) Information supporting the economic viability of the proposed development; and

(v) The consideration offered and any financial requirements.

(2) The person or entity should state in the proposal whether it is or is not requesting indemnification against claims based on the release or threatened release of a hazardous substance or pollutant or contaminant resulting from DOE activities.

(3) If a proposal for transfer does not contain a statement regarding indemnification, the Field Office Manager will notify the person or entity by letter of the potential availability of indemnification under this part, and will request that the person or entity either modify the proposal to include a request for indemnification or submit a statement that it is not seeking indemnification.

(b) *Decision to transfer real property.* Within 90 days after receipt of a proposal, DOE will notify, by letter, the person or entity that submitted the proposal of DOE's decision whether or not a transfer of the real property by sale or lease is in the best interest of the Government. If DOE determines the transfer is in the Government's best interest, then the Field Office Manger will begin development of a transfer agreement.

(c) *Congressional committee notification.* DOE may not transfer real property under this part until 30 days have elapsed after the date DOE notifies congressional defense committees of the proposed transfer. The Field Office Manager will notify congressional defense committees through the Secretary of Energy.

(d) *Transfer.* After the congressional committee notification period has elapsed, the Field Office Manager:

(1) Finalizes negotiations of a transfer agreement, which must include a provision stating whether indemnification is or is not provided;

(2) Ensures that any required environmental reviews have been completed; and

(3) Executes the documents required for the transfer of property to the buyer or lessee.

§770.8 May DOE transfer real property at defense nuclear facilities for economic development at less than fair market value?

DOE generally attempts to obtain fair market value for real property transferred for economic development, but DOE may agree to sell or lease such property for less than fair market value if the statutory transfer authority used imposes no market value restriction, and:

(a) The real property requires considerable infrastructure improvements to make it economically viable, or

(b) A conveyance at less than market value would, in the DOE's judgment, further the public policy objectives of the laws governing the downsizing of defense nuclear facilities.

§770.9 What conditions apply to DOE indemnification of claims against a person or entity based on the release or threatened release of a hazardous substance or pollutant or contaminant attributable to DOE?

(a) If an agreement for the transfer of real property for economic development contains an indemnification provision, the person or entity requesting indemnification for a particular claim must:

(1) Notify the Field Office Manager in writing within two years after such claim accrues under §770.11 of this part;

(2) Furnish the Field Office Manager, or such other DOE official as the Field Office Manager designates, with evidence or proof of the claim;

(3) Furnish the Field Office Manager, or such other DOE official as the Field Office Manager designates, with copies of pertinent papers (*e.g.*, legal documents) received by the person or entity;

(4) If requested by DOE, provide access to records and personnel of the person or entity for purposes of defending or settling the claim; and

(5) Provide certification that the person or entity making the claim did not contribute to any such release or threatened release.

(b) DOE will enter into an indemnification agreement if DOE determines that indemnification is essential for the purpose of facilitating reuse or redevelopment.

(c) DOE may not indemnify any person or entity for a claim if the person or entity contributed to the release or threatened release of a hazardous substance or pollutant or contaminant that is the basis of the claim.

(d) DOE may not indemnify a person or entity for a claim made under an indemnification agreement if the person or entity refuses to allow DOE to settle or defend the claim.

§770.10 When must a person or entity, who wishes to contest a DOE denial of request for indemnification of a claim, begin legal action?

If DOE denies the claim, DOE must provide the person or entity with a notice of final denial of the claim by DOE by certified or registered mail. The person or entity must begin legal action within six months after the date of mailing.

§770.11 When does a claim "accrue" for purposes of notifying the Field Office Manager under §770.9(a) of this part?

For purposes of §770.9(a) of this part, a claim "accrues" on the date on which the person asserting the claim knew, or reasonably should have known, that the

injury to person or property was caused or contributed to by the release or threatened release of a hazardous substance, pollutant, or contaminant as a result of DOE activities at the defense nuclear facility on which the real property is located.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 98-NM-262-AD; Amendment 39-11602; AD 2000-04-19]

RIN 2120-AA64

Airworthiness Directives; Dassault Model Mystere-Falcon 50 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), applicable to certain Dassault Model Mystere-Falcon 50 series airplanes, that currently requires a revision to the Limitations section of the FAA-approved Airplane Flight Manual (AFM) to include procedures to use certain values to correctly gauge the minimum allowable N1 speed of the operative engines during operation in icing conditions. This amendment adds a new requirement for operators to adjust the thrust reverser handle stop, install new wiring, and modify the Digital Electronic Engine Control (DEEC) software, which terminates the AFM revision. This amendment is prompted by issuance of mandatory continuing airworthiness information by a foreign civil airworthiness authority. The actions specified by this AD are intended to prevent flightcrew use of erroneous N1 thrust setting information displayed on the Engine Indication Electronic Display (EIED), which could result in in-flight shutdown of engine(s).

DATES: Effective April 4, 2000.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of April 4, 2000.

ADDRESSES: The service information referenced in this AD may be obtained from Dassault Falcon Jet, P.O. Box 2000, South Hackensack, New Jersey 07606. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Norman B. Martenson, Manager, International Branch, ANM-116, FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-2110; fax (425) 227-1149.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) by superseding AD 97-21-16, amendment 39-10202 (62 FR 60773, November 13, 1997), which is applicable to certain Dassault Model Mystere-Falcon 50 series airplanes, was published in the Federal Register on November 3, 1999 (64 FR 59685). The action proposed to retain the requirement to revise the Limitations section of the FAA-approved Airplane Flight Manual (AFM) to include procedures to use certain values to correctly gauge the minimum allowable N1 speed of the operative engines during operation in icing conditions, and add a new requirement for adjustment of the thrust reverser handle stop, installation of new wiring, and modification of the Digital Electronic Engine Control (DEEC) software, which would terminate the need for the AFM revision.

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

Requests To Revise Applicability

One commenter, the manufacturer, suggests that the applicability be revised to exclude airplanes on which Dassault Factory Modification M2193 has been accomplished. The commenter notes that this modification is equivalent to Dassault Service Bulletin F50-276, dated June 24, 1998 (which was cited in the AD as the appropriate source of service information). The FAA concurs. The actions described in the referenced Dassault service bulletin constitute terminating action for the requirements of this AD; therefore, airplanes on which the service bulletin has been accomplished are excluded in the applicability of the AD. Since Dassault Modification M2193 is equivalent to that service bulletin, the FAA has revised the final rule to also exclude airplanes having this production modification.

The same commenter also requests that the applicability of the proposed AD be revised in regard to the listing of affected airplanes. The commenter notes that the proposed AD applies to "serial numbers 251, 253, and subsequent, equipped with Allied-Signal TFE731-40 engines * * *." The commenter suggests that the applicability be expanded to include any Falcon 50 series airplane retrofitted with Dassault Service Bulletin F50-280 or Dassault Factory Modification 2518, since this service bulletin describes procedures for installation of Allied-Signal TFE731-40 engines on any Model Mystere-Falcon 50 series airplane, including serial numbers prior to 251.

The FAA does not concur. The FAA acknowledges that all airplanes equipped with the referenced engine type should also be subject to the requirements of this AD, if all actions required by this AD have not been accomplished. However, after further discussions with the manufacturer, the FAA has been advised that Dassault Service Bulletin F50-280 is in the process of review, but has not been released, nor has the equivalent Dassault Modification 2518 been approved. The FAA does not consider it appropriate to delay issuance of this final rule while awaiting such approval; therefore, no change is made to the applicability of the AD in this regard. If the engine retrofit service information is approved, the FAA will consider further rulemaking, if necessary, to apply the requirements of this AD to additional airplanes.

Request To Revise Number of Affected Airplanes

The same commenter states that the estimate of 7 affected airplanes is incorrect in the cost impact information of the proposed AD, since other airplanes may have the Allied-Signal TFE731-40 engines installed as a retrofit, as discussed in the previous comment. The FAA infers that the commenter is requesting that the number of affected airplanes be increased. However, since the previously described engine retrofit service information has not been approved, no airplanes on the U.S. Register should have had such a modification at this time. No change to the AD is necessary in this regard.

Request To Revise Cost Estimate

The same commenter states that the estimate of 2 work hours is conservative in that it does not include hours necessary to gain access, remove and replace the unit, and perform engine ground runs and/or flight tests. The

APPENDIX B

ENVIRONMENTAL REVIEW CHECKLIST
AND
HAZARD EVALUATION WORKSHEET

EXAMPLE

ENVIRONMENTAL REVIEW CHECKLIST FOR PROPOSED LEASE OR SUBLEASE ACTIONS

1. GENERAL INFORMATION Date of Checklist Meeting : _____

Lease Name:		Estimated Lease Date:
Account Executive (Print Name):	Bldg/MS/Phone No:	Estimated Occupancy Date:
Project Location (Plant, Site, Area, Bldg No):	Sublessee Company Contact Name:	Phone No: Fax No:

2. LEASE STATUS: Is this action an initial lease or a sublease? _____ If it is a tenant sublease, please provide the name of the SODI leaseholder. _____

3. CHANGE IN OPERATION: If this is an existing lease, is a change in operations planned? YES [ ] NO [ ]
** *If yes, please complete the checklist as it pertains to the change in operations only.* **

4. ENVIRONMENTAL SUMMARY: Would changes and/or disturbances, or use of, occur within the following entities at any time in the overall duration of your lease? (Note: Almost all sublessees will check yes to 3, 11, and 12)

	Y	N	U		Y	N	U
1. Air emissions	___	___	___	10. Asbestos waste	___	___	___
2. Liquid effluents	___	___	___	11. Sewage system	___	___	___
3. Solid waste	___	___	___	12. Water use/diversion	___	___	___
4. Radioactive waste/soil	___	___	___	13. Clearing or excavation >1 acre, <5	___	___	___
5. Hazardous or PCB waste	___	___	___	14. Elevated noise levels	___	___	___
6. Mixed waste	___	___	___	15. Pesticide/herbicide use	___	___	___
7. Classified waste streams	___	___	___	16. Explosives	___	___	___
8. Chemical storage/use	___	___	___	17. Transportation issues	___	___	___
9. Petroleum storage/use	___	___	___	18. Facility modifications	___	___	___

Notes (on "yes" or "unknown" responses):

Y=Yes, N=No, U=Uncertain

5. ENVIRONMENTAL PERMITS AND LICENSES: Would the action require new permits or modifications to existing environmental permits? _____ Identify all necessary and/or licenses and note the schedule for obtaining the permits and/or licenses.

6. DESCRIPTION OF PROPOSED SUBLESSEE ACTIVITIES: Describe the components of your plans, including construction/demolition and/or operation phases of the action by DOE, SODI, and by the lessee/sublessee. Be sure to include all support facilities/activities (e.g., utility lines, access roads, laydown areas, and equipment decontamination). Include attachments where appropriate. A copy of the business plan will suffice under normal circumstances.

7. OCCUPANCY PATTERNS: A risk assessment/risk calculation may be prepared for your lease to determine potential exposures based on existing environmental conditions. So that we may most accurately model exposure over a variety of pathways (ingestion, inhalation, dermal, and total) we need to know how you plan to use your space and for what time periods, by activity. For example – will workers be outside 40 hours per week, or only 5 hours per week with the rest of their time spent indoors? Will work activities include desk assignment, or will staff spend time mowing the grass or excavating areas on site. Lease duration? _____ Hours spent indoors_____ Hours spent outdoors_____ Activities conducted indoors_____ Activities conducted outdoors_____ Hours worked on-site in a work year – full-time____ part-time ____seasonal _____.

8. DISTURBANCE OF HAZARDOUS/RADIOACTIVE SUBSTANCES: Consider whether operations could involve the disturbance of hazardous substances, pollutants, contaminants, and/or CERCLA-excluded petroleum and natural gas products that pre-exist n the environment while implementing Best Management Practices. Would the action involve, or effect:

	Y	N	U	Describe
Will your activities involve excavation, alteration, or modification of areas of hazardous substances that are known to exist?				
Will your activities involve excavation, alteration, or modification of an area of known radioactive contamination?				
Will your operations require or implement control equipment/spill prevention precautions?				
Will you be conducting excavation activities that could involve groundwater?				
Will your activities involve excavation, alteration, or modification of known solid waste management units?				

Y=Yes, N=No, U=Uncertain

9. ENVIRONMENTAL EFFECTS: Would the operations involve or effect the features noted below. For "yes" responses, please provide details to help us evaluate the impacts and expedite the review process.

undeveloped areas? [ ] Yes [ ] No

threatened and/or endangered species/habitat? [ ] Yes [ ] No

100 or 500 year floodplains? [ ] Yes [ ] No

wetland areas? [ ] Yes [ ] No

surface water? [ ] Yes [ ] No

historic or archaeological resources? [ ] Yes [ ] No

modification/demolition of a structure or a portion thereof? [ ] Yes [ ] No

10. WASTE GENERATION AND HANDLING

10a. PROCESS WASTE MANAGEMENT: Other than sanitary waste and typical stormwater runoff, will your activities generate process wastes, which includes once-through cooling water, make-up water, and other sources that may (with approval) be sent to the sewer, storm drain or CNF? [ ] Yes [ ] No

If yes, how do you plan to manage them, i.e., store, treat, and dispose of them? For example, will you treat them on-site?

If the wastes will be treated on site, will you construct or operate your own permitted waste treatment system? [ ] Yes [ ] No

If in the future you were able to send your wastes to a permitted DOE system, would that option be of interest? [ ] Yes [ ] No

What types of wastes will need treatment and by what process?

How and where will the wastes be disposed of?

Please provide any additional detail necessary to help us understand your process.

10b. Would operations/activities generate airborne emissions? _____ Please circle the category and type and estimate amounts of regulated emissions and describe below.

Category: radioactive, RCRA, TSCA, mixed, biohazard
Type: low-level radioactive, particulates, smoke, asbestos, organics/solvents, heavy metals, gases, dust

Airborne:

10c. What type of administrative or control equipment would be used to control emissions?

10d. If hazardous or non-hazardous wastes will be generated, stored, treated, and/or disposed of as a result of operations or activities, please note the category below.

Table 10d. Waste Category (check if applicable)						
Waste Stream	RAD	RCRA	TSCA	Mixed	Sanitary Industrial	Bio-Hazard
Solid						
Liquid						
Sludge						

10e. For each of the waste categories noted in Table 10d except sanitary industrial and biohazard, please estimate the quantity below by type.

Table 10e. Waste Type and Quantity							
Waste Stream	Low-Level Rad	PCB	Oil/Oily	Asbestos	Organics/Solvents	Heavy Metals	Soil Debris
Solid							
Liquid							
Sludge							

10f. For each of the waste categories (see Table 10d.) and types (see Table 10e.) noted above, indicate the means of management.

Table 10f. Waste Management Methods						
	Storage		Disposal			Treatment
Waste Stream	Underground Storage (Tanks/Boxes)	Above-ground Storage (Tanks/Boxes/Drums)	Discharge into Storm Sewer	Discharge into Sanitary Sewer	Landfill or Other	Commercial, Other
Solid						
Liquid						
Sludge						

[Reviewer: Based on this review, would this action be covered by the EA for Transfer of Land and Facilities at PORTS? _____]

EXAMPLE

REINDUSTRIALIZATION HAZARD EVALUATION WORKSHEET
FOR_____ LOCATED IN FACILITY NO. X-_____ (COMPANY NAME)

Company Point of Contact, if questions: _____ **Phone:** _____ **Date:** _____
Document Prepared by: _____ **Phone:** _____

TYPE HAZARD	ARE CRITERIA EXCEEDED?	YES OR NO	If YES, provide detail on expected inventory (e.g. what, how much, & how controlled). Note the MAXIMUM quantity and/or activity anticipated at any one time. If detail uncertain, provide best estimates.
Radioactive Material	Any radioisotope meeting or exceeding the Appendix B, 40 CFR 302.4, RQ criteria.		
Toxic or Carcinogenic Material	Any toxic chemical ≥ RQ from 40 CFR 302 Table 302.4, 40; or any other known toxic material		
Toxic and Hazardous Substances and Process Safety	Hazard or Hazardous material 29 CFR 1910.119, 1910 subpart H 29 CFR 1910.120, 1910 subpart H 29 CFR 1910.1200, 1910 subpart Z		
Reactive Material	> 10 lb of a substance with an NFPA reactivity hazard level > 2		
Incompatible Chemicals (chemical energy)	Presence of > 1 kg each of two or more incompatible chemicals in same unsegregated area		
Explosive Materials	Any 49 CFR 173 Division 1.1, 1.2, or 1.3; or > 10 oz of Division 1.4		

TYPE HAZARD	ARE CRITERIA EXCEEDED?	YES OR NO	If YES, provide detail on expected inventory (e.g. what, how much, & how controlled). Note the MAXIMUM quantity and/or activity anticipated at any one time. If detail uncertain, provide best estimates.
Flammable Material	More than a total of 110 gallons flammable liquids with a flashpoint < 100°F or > 3000 standard ft^3 of gas with an established LEL.		
Biohazard	Any known biohazard for which special controls are required		
Asphyxiant	Use or storage of any asphyxiant that if released could potentially overcome people, outside the work or storage area.		
Electrical Energy	Use, generation, or distribution of electrical energy not adequately controlled by OSHA or other recognized industry standard, such that people outside the work area could be adversely impacted by an accident.		
Kinetic or Potential Energy	Any high energy form not controlled by recognized industry standards that if released could impact people outside the work area.		
High Pressure	> 3000 psig		
Lasers	Any Class IV, any Class III with non-enclosed beam per American National Standards Institute Z-136.1		
Particle Beam Accelerators	Any accelerator		
X-ray Machines	Any not meeting ANSI N537/NBS123 requirements or similar industry standards.		
Other	Any other process hazard or recognized hazard not controlled by recognized industry standards that could impact people outside the work area if released. Consideration is to be given to OSHA requirements in 29 CFR.		

APPENDIX C

DRAFT PORTS FACILITIES LIST

Table C.1. Draft PORTS facility list

Facility ID	Description	ft^2	Age	Current status
Administrative Facilities				
X-100	Administration Bldg.	135,000	1954	USEC Lease
X-100B	Air Conditioning Equipment Building	800	1958	USEC Lease
X-100L	Environmental Control Trailer	500		
X-101	Health Services	10,315	1954	USEC Lease
X-101A	Credit Union Trailer			
X-102	Cafeteria	18,895	1954	USEC Lease
X-103	Auxiliary Office Building	10,025	1954	USEC Lease
X-104	Guard Headquarters	9,107	1954	USEC Lease
X-104A	Indoor Firing Range	3,640	1980	USEC Lease
X-105	Electronic Maintenance Building	11,063	1957	USEC Lease
X-106	Tactical Response Station	6,214	1955	USEC Lease
X-106B	Old Fire Training Building	2,400	1967	Retained by DOE
X-106C	New Fire Training Building			USEC Lease
X-108A	South Portal and Shelter	1,030	1955	USEC Lease
X-108B	North Portal and Shelter	300	1955	USEC Lease
X-108E	Construction Entrance Portal	615	1975	USEC Lease
X-108H	Pike Avenue Portal	100	1976	USEC Lease
X-109A	Personnel Monitor Station	1,075	1955	USEC Lease
X-109B	Personnel Monitor Station	324	1955	USEC Lease
X-109C	Personnel Monitor Station	720	1975	USEC Lease
X-111A	SNM Monitoring Portal, X-326	858		USEC Lease
X-111B	SNM Portal Northwest, NW X-326	300		USEC Lease
X-112	Data Processing Building	30,000	1984	USEC Lease
X-114A	Outdoor Firing Range	1,400		USEC Lease
X-120	Old Weather Station			Retained by DOE
X-120H	New Weather Station			USEC Lease
X-1000	Administration Building	73,700	1981	USEC Lease
X-1007	Fire Station	12,800	1981	USEC Lease
X-1020	Emergency Operations Center	7,180	1981	USEC Lease
X-1107AV	Administrative Vehicle Portal		1983	USEC Lease
X-1107BP	Administrative Pedestrian Portal	1,436	1985	USEC Lease
X-1107BV	Interplant Vehicle Portal	1,436	1985	USEC Lease
X-1107DP	Administrative Pedestrian Portal	1,740	1985	USEC Lease
X-1107DV	Administrative Vehicle Portal	1,740	1985	USEC Lease
X-1107EP	Northwest Pedestrian Portal	1,740	1985	Retained by DOE
X-1107EV	Northwest Vehicle Portal	1,740	1985	Retained by DOE

Table C.1. (continued)

Facility ID	Description	ft^2	Age	Current status
X-1107FP	South Pedestrian Portal	1,740	1985	Retained by DOE
X-1107FV	South Vehicle Portal	1,740	1985	Retained by DOE
Production Buildings & Related Infrastructure				
X-206A	North Main Parking Lot			USEC Lease
X-206B	South Main Parking Lot			USEC Lease
X-206E	Construction Parking Lot			USEC Lease
X-206H	Pike Avenue Parking Lot			USEC Lease
X-206J	South Office Parking Lot			USEC Lease
X-208	Security Fence			
X-208A	Boundary Fence			
X-208B	Security Fence			
X-215D	Electric Power Tunnel		1954	
X-220A	Instrumentation Tunnels		1954	
X-230J-1	Environmental Monitoring Station	100	1968	USEC Lease
X-230J-2	South Holding Pond Effluent Monitoring Station	110	1968	USEC Lease
X-230J-3	West Environmental Monitoring Station	110		USEC Lease
X-230J-5	West Holding Pond & Environmental Sampling Building	144		USEC Lease
X-230J-6	Northeast Holding Pond & Monitoring Station	144		USEC Lease
X-230J-7	East Holding Pond & Monitoring Station	144		USEC Lease
X-230J-8	Environmental Storage Building	96	1981	USEC Lease
X-230J-9	North Environmental Sampling Station	96	1981	USEC Lease
X-230K	South Holding Pond			USEC Lease
X-230L	North Holding Pond			USEC Lease
X-230M	Clean Site Northeast of XT-801			Retained by DOE
X-231A	Southeast Oil Biodegradation Plot			Retained by DOE
X-231B	Southwest Oil Biodegradation Plot			Retained by DOE
X-2207A	Parking Lot			USEC Lease
X-2207D	Parking Lot			USEC Lease
X-2207E	Northwest Parking Lot			Retained by DOE
X-2207F	South Parking Lot			Retained by DOE
X-2230M	Holding Pond #1			Retained by DOE
X-2230N	Holding Pond #2			Retained by DOE
X-300	Plant Control Facility	16,014	1950's	USEC Lease
X-300A	Process Monitoring Building	1,427	1954	USEC Lease
X-300B	Plant Control Facility Carport	375		USEC Lease
X-326	Process Building	2,566,792	1956	USEC Lease
X-326L	L-Cage, L-Cage Glove Box & Storage Area			Retained by DOE
X-330	Process Building	2,796,600	1955	USEC Lease

Table C.1. (continued)

Facility ID	Description	ft^2	Age	Current status
X-333	Process Building	2,850,216	1955	USEC Lease
X-334	Transformer Cleaning Building	2,512		USEC Lease
X-342A	Feed, Vaporization & Fluorine Generation Building	13,761	1954	USEC Lease
X-342B	Fluorine Storage Building	1,526	1954	USEC Lease
X-342C	Waste HF Neutralization Pit			Retained by DOE
X-343	Feed, Vaporization & Sampling Building	14,721	1981	USEC Lease
X-344A	UF_6 Sampling Facility	91,586	1958	USEC Lease
X-344B	Maintenance Storage Building	6,025	1958	USEC Lease
X-344C	HF Storage Building	1,677	1958	Retained by DOE
X-344D	HF Neutralization Pit			Retained by DOE
X-344E	Gas Ventilation Stack		1958	Retained by DOE
X-344F	Safety Building	106	1958	Retained by DOE
X-344G	Russian Transparency Building			Retained by DOE
X-345	SNM Storage Building	36,061		Retained by DOE
X-3000	Environmental Compliance Building	12,371	1981	USEC Lease
X-3001	GCEP Process Building #1	303,680	1985	Retained by DOE
X-3002	GCEP Process Building #2	303,680	1985	Retained by DOE
X-3012	GCEP Process Support Building	56,243	1983	Retained by DOE
X-3346	GCEP Feed & Withdrawal Facility	167,236	1985	Retained by DOE
Power Operations Facilities				
X-501	Substation	112	1953	USEC Lease
X-501A	Substation	168	1989	USEC Lease
X-502	Substation	750	1953	USEC Lease
X-530A	Switch Yard	780,000	1954	USEC Lease
X-530B	Switch House	112,560	1954	USEC Lease
X-530C	Test & Repair Building	1,250	1954	USEC Lease
X-530D	Oil House	465	1954	USEC Lease
X-530E	Valve House	527	1954	USEC Lease
X-530F	Valve House	527	1954	USEC Lease
X-530G	GCEP Oil Pumping Station	500	1980	USEC Lease
X-533	Transformer Storage Pad			USEC Lease
X-533A	Switch Yard	772,174	1954	USEC Lease
X-533B	Switch House	148,756	1955	USEC Lease
X-533C	Test & Repair Building	1,250	1955	USEC Lease
X-533D	Oil House	465	1955	USEC Lease
X-533E	Valve House	527	1955	USEC Lease
X-533F	Valve House	527	1955	USEC Lease
X-533H	Gas Reclaiming Cart Garage	1,200		USEC Lease
X-540	Telephone Building	2,652	1954	USEC Lease

Table C.1. (continued)

Facility ID	Description	ft^2	Age	Current status
X-5000	GCEP Switch House	7,500	1982	USEC Lease
X-5001	Substation	45,500	1982	USEC Lease
X-5001A	Valve House	200	1982	USEC Lease
X-5001B	Oil Pumping Station	800	1982	USEC Lease
Utility Related Facilities				
X-600	Steam Plant Facility	19,506	1954	USEC Lease
X-600A	Coal Pile Yard			USEC Lease
X-600B	Steam Plant Shop	960	1981	USEC Lease
X-600C	Ash Wash Treatment Building	400	1985	USEC Lease
X-605	Sanitary Water Control House	456		USEC Lease
X-605H	Booster Pump House & Facility	597		USEC Lease
X-605I	Chlorinator Building	288		USEC Lease
X-605J	Diesel Generator Building	192		USEC Lease
X-608	Raw Water Pump House	11,600	1954	
X-611	Water Treatment Plant	7,978	1954	USEC Lease
X-611A	Former Lime Sludge Lagoons Area			Retained by DOE
X-611B	Sludge Lagoon Pumping Station	384		USEC Lease
X-611C	Filter Building	7,600		USEC Lease
X-611D	Recarbonization Instrument Building	240		USEC Lease
X-611E	Clearwell & Chlorine Building			USEC Lease
X-612	Elevated Water Tank			USEC Lease
X-614A	Sewage Pumping Station			USEC Lease
X-614B	Sewage Lift Station			USEC Lease
X-614D	South Sewage Lift Station			USEC Lease
X-614P	Northeast Sewage Lift Station			USEC Lease
X-615	Old Sewage Treatment Plant			Retained by DOE
X-616	Liquid Effluent Control Facility	2,000	1976	USEC Lease
X-617	South Holding Pond & pH Control Facility	384	1979	USEC Lease
X-618	North Holding Pond Storage Building	144	1981	USEC Lease
X-621	Coal Pile Runoff Treatment Facility	1,900	1984	USEC Lease
X-622	South Groundwater Treatment Building	3,775		Retained by DOE
X-622T	Carbon Filtration (X-705 Sump Water)			Retained by DOE
X-623	North Groundwater Treatment Building	5,810		Retained by DOE
X-624	Little Beaver Groundwater Treatment Facility	900		Retained by DOE
X-624-1	Little Beaver Groundwater Treatment Decontamination Pad			Retained by DOE
X-625	Pilot Scale Treatment Facility	1,200		Retained by DOE
X-626-1	Recirculating Water Pump House	7,010	1954	USEC Lease
X-626-2	Cooling Tower	19,082	1954	USEC Lease
X-630-1	Recircirculating Water Pump House	10,249		USEC Lease

Table C.1. (continued)

Facility ID	Description	ft²	Age	Current status
X-630-2A	Cooling Tower	30,894		USEC Lease
X-630-2B	Cooling Tower	30,894		USEC Lease
X-633-1	Recirculating Water Pump House	11,268	1954	USEC Lease
X-633-2A	Cooling Tower	48,557		USEC Lease
X-633-2B	Cooling Tower	48,557		USEC Lease
X-633-2C	Cooling Tower	16,884		USEC Lease
X-633-2D	Cooling Tower	16,884		USEC Lease
X-640-1	Fire Water Pump House	1,648	1960	USEC Lease
X-640-2	Elevated Water Tank		160	USEC Lease
X-6000	GCEP Cooling Tower Pump House	8,165	1984	USEC Lease
X-6001	Cooling Tower	4,893	1984	USEC Lease
X-6001A	Valve House	140	1984	USEC Lease
X-6613	Sanitary Water Storage Tank			USEC Lease
X-6614E	Sewage Lift Station		1970's	USEC Lease
X-6614G	Sewage Lift Station		1970's	USEC Lease
X-6614H	Sewage Lift Station		1970's	USEC Lease
X-6614J	Sewage Lift Station		1970's	USEC Lease
X-6619	Sewage Treatment Plant	5,030	1980	USEC Lease
X-6643-1	Fire Water Storage Tank #1			USEC Lease
X-6643-2	Fire Water Storage Tank #2			USEC Lease
X-6644	Fire Water Pump House	756		USEC Lease
Chemical Operations, Laboratory, Maintenance Shops & Storage Facilities				
X-700	Converter Shop & Cleaning Building	128,852	1955	USEC Lease
X-700A	Air Conditioning Equipment Building	2,400	1975	USEC Lease
X-701A	Lime House	858	1955	USEC Lease
X-701B	Holding Pond (Drained)			Retained by DOE
X-701C	Neutralization Pit & Tank			Retained by DOE
X-701D	Water Deionization Building	726	1955	USEC Lease
X-701E	Neutralization Building	400	1973	Retained by DOE
X-701F	Effluent Monitoring Facility	36		
X-705	Decontamination Building	100,776	1955	USEC Lease
X-705A	Incinerator Area	4,000		Retained by DOE
X-705B	Contaminated Burnable Storage Area			Retained by DOE
X-705D	Heating Booster Pump Building	735	1983	USEC Lease
X-705E	Oxide Conversion Area			Retained by DOE
X-710	Technical Services Building	143,281	1953	USEC Lease
X-710A	Technical Services Gas Manifold Shed	240	1955	USEC Lease
X-710B	Explosion Test Facility	245	1956	USEC Lease
X-720	Maintenance & Stores Building	312,035	1954	USEC Lease

Table C.1. (continued)

Facility ID	Description	ft^2	Age	Current status
X-720A	Maintenance & Stores Gas Manifold Shed	1,000	1954	USEC Lease
X-720B	Radio Base Station Building	768	1978	USEC Lease
X-720C	Paint and Oil Storage Building	4,200	1980	USEC Lease
X-721	Radiation Instrument Calibration Facility	4,500		USEC Lease
X-734	Old Sanitary Landfill			Retained by DOE
X-734A	Construction Spoils Disposal Area			Retained by DOE
X-734B	Construction Spoils Disposal Area			Retained by DOE
X-735	Sanitary Landfill			Retained by DOE
X-735A	Landfill Utility Building	2,827	1980	Retained by DOE
X-735B	Borrow Area			Retained by DOE
X-736	West Construction Spoils Landfill			Retained by DOE
X-740	Waste Oil Storage Facility	6,300	1982	Retained by DOE
X-741	Oil Drum Storage Facility	3,600	1954	USEC Lease
X-742	Gas Cylinder Storage Facility	2,800	1954	USEC Lease
X-743	Lumber Storage Shed	13,750	1955	USEC Lease
X-744B	Salt Storage Shed	1,200	1979	USEC Lease
X-744G	Bulk Storage Building	114,400	1956	Retained by DOE
X-744H	Bulk Storage Building	58,707	1953	USEC Lease
X-744J	Bulk Storage Building	58,707	1953	USEC Lease
X-744K	Warehouse K	35,640	1978	Retained by DOE
X-744L	Stores & Maintenance Building	53,280	1983	USEC Lease
X-744N	Warehouse N-Non UEA	15,184	1988	Retained by DOE
X-744P	Warehouse P-Non UEA	15,184	1988	Retained by DOE
X-744Q	Warehouse Q-Non UEA	15,184	1988	Retained by DOE
X-744S	Warehouse S-Non UEA	47,570	1957	Retained by DOE
X-744T	Warehouse T-Non UEA	98,060	1957	Retained by DOE
X-744U	Warehouse U-Non UEA	98,060	1957	Retained by DOE
X-744W	Surplus & Salvage Building	84,000	1957	USEC Lease
X-744Y	Waste Storage Yard			Retained by DOE
X-745B	Toll Enrichment Process Gas Yard			USEC Lease
X-745C	West DUF^6 Storage Yard			Retained by DOE
X-745D	Cylinder Storage Yard			USEC Lease
X-745E	Northwest DUF_6 Storage Yard			Retained by DOE
X-745F	North Process Gas Stockpile Yard			USEC Lease
X-745G	DUF_6 Cylinder Storage Yard			USEC Lease
X-745H	DUF_6 Cylinder Storage Yard			USEC Lease
X-746	Materials Receiving & Inspection Building	19,975	1954	USEC Lease
X-747	Clean Scrap Yard			USEC Lease
X-747A	Material Storage Yard			USEC Lease

Table C.1. (continued)

Facility ID	Description	ft^2	Age	Current status
X-747B	Material Storage Yard			USEC Lease
X-747C	Material Storage Yard			USEC Lease
X-747D	Material Storage Yard			USEC Lease
X-747E	Material Storage Yard			USEC Lease
X-747F	Miscellaneous Material Storage Yard			USEC Lease
X-747G	Precious Metal Scrap Yard			Retained by DOE
X-747H	Northwest Contaminated Scrap Yard			Retained by DOE
X-747J	Decontamination Storage Yard			USEC Lease
X-748	Truck Scale Facility			USEC Lease
X-749	South Contaminated Material Storage Yard (Capped)			Retained by DOE
X-749A	South Classified Burial Yard (Capped)			Retained by DOE
X-749B	Peter Kiewit Landfill (Capped)			Retained by DOE
X-750	Mobile Equipment Maintenance Garage	15,500	1953	USEC Lease
X-750A	Garage Storage Building	473	1953	USEC Lease
X-751	GCEP Mobile Equipment Garage	16,360	1979	Retained by DOE
X-752	Warehouse	18,000	1978	Retained by DOE
X-760	Chemical Engineering Building	8,047	1954	USEC Lease
X-770	Mechanical Test Building	22,640	1954	Retained by DOE
X-7721	Maintenance, Stores & Training Building	136,188	1985	USEC Lease
X-7725	Recycle/Assembly Building	837,900	1983	Retained by DOE
X-7725A	Waste Accountability Facility	29,647		Retained by DOE
X-7726	Centrifuge Training & Test Facility	62,400	1983	Retained by DOE
X-7727H	Interplant Transfer Corridor	26,078	1983	Retained by DOE
X-7745R	Recycle/Assembly Storage Yard			Retained by DOE
X-7745S	Fenced Area South of X-3012			Retained by DOE
Miscellaneous Facilities				
XT-801	South Office Building	43,200	1978	USEC Lease
XT-847	Warehouse	144,000	1980's	USEC Lease
XT-860A	Rubbish Building at X-7725			Retained by DOE
XT-860B	Rubbish Building at X-3346			Retained by DOE
	DOE's Contractor Trailer Area			Retained by DOE
	USEC Contractor Trailer Area			USEC Lease
	Contractor Laydown Area			Retained by DOE
	X-120 Area			Retained by DOE

DOE = U.S. Department of Energy.
DUF_6 = depleted uranium hexafluoride.
GCEP = Gas Centrifuge Enrichment Plant.
HF = hydrogen fluoride.
SNM = Special Nuclear Material.
USEC = United States Enrichment Corporation.
UEA = Uranium Enrichment Administration.

APPENDIX D

VERTEBRATE SPECIES OBSERVED AT PORTS

Table D.1. Vertebrate species observed on the reservation of the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio

Scientific name	Common name	Scientific name	Common name
Mammals			
Blarina brevicauda	short-tailed shrew	*Odocoileus virginianus*	white-tailed deer
Bos taurus	cattle	*Ondatra zibethicus*	muskrat
Canis familiaris	dog	*Peromyscus leucopus*	white-footed mouse
Didelphis virginiana	opossum	*Peromyscus maniculatus*	deer mouse
Eptesicus fuscus	big brown bat	*Pipistrellus subflavus*	eastern pipistrelle
Felis domestica	house cat	*Procyon lotor*	raccoon
Glaucomys volans	southern flying squirrel	*Reithrodontomys humulis*	eastern harvest mouse
Lasiurus borealis	red bat	*S. carolinensis*	gray squirrel
Marmota monax	woodchuck	*Sciurus carolinensis*	fox squirrel
Microtus pennsylvanicus	meadow vole	*Sorex cinereus*	masked shrew
Mus musculus	house mouse	*Sylvilagus floridans*	eastern cottontail rabbit
Mustela frenata	long-tailed weasel	*Tamius striatus*	eastern chipmunk
Myotis lucifugus	little brown bat	*Urocyon cinereoargenteus*	gray fox
Myotis septentrionalis	northern long ear bat	*Vulpes vulpes*	red fox
Reptiles and Amphibians			
Bufo americanus	American toad	*Hyla c. crucifer*	northern spring peeper
Bufo woodhousei fowleri	Fowler's toad	*Natrix s. sipedon*	northern water snake
Chelydra serpentina	snapping turtle	*Opheodrys aestivus*	rough green snake
Chrysemys picta	midland painted turtle	*Rana catesbeiana*	bullfrog
Columber c. constrictor	northern black racer	*Rana p. pipiens*	northern leopard frog
Desmognathus f. fuscus	northern dusky salamander	*Terrapene c. carolina*	eastern box turtle
Elaphe o. obsoleta	black rat snake	*Thamnophis s. sirtalis*	eastern garter snake
Graptemys geographica	map turtle	*Trionyx s. spinifer*	eastern spiny softshell turtle
Heterodon playtrhinos	eastern hognose snake		
Birds			
Accipiter cooperii	Cooper's hawk	*Guiraca caerulea*	blue grosbeak
Accipiter striatus	sharp-shinned hawk	*Hirundo rustica*	barn swallow
Actitis macularia	spotted sandpiper	*Hylocichla guttata faxoni*	hermit thrush
Agelaius phoeniceus	red-winged blackbird	*Hylocichla mustelina*	wood thrush
Aix sponsa	wood duck	*Icteria virens virens*	yellow-breasted chat
Ammodramus henslowii	Henslow's sparrow	*Icterus galbula*	northern oriole
Ammodramus savannarum	grasshopper sparrow	*Junco hyemalis*	dark-eyed junco
Anas crecca	green-winged teal	*Lophodytes cucullatus*	hooded merganser
Anas discors	blue-winged teal	*Megaceryle alcyon*	belted kingfisher
Anas platyrhynchos	mallard	*Melanerpes erythrocephalus*	red-headed woodpecker
Anas rubripes	black duck	*Meleagris gallopauo*	wild turkey
Anas strepera	gadwall	*Melospiza georgiana*	swamp sparrow
Archilochus colubris	ruby-throated hummingbird	*Melospiza melodia*	song sparrow
Ardea herodias	great blue heron	*Mimus polyglottos*	mockingbird

Table D.1. (continued)

Scientific name	Common name	Scientific name	Common name
Birds			
Aythya affinis	lesser scaup	*Molothus ater ater*	brown-headed cowbird
Aythya collaris	ring-necked duck	*Myiarchus crinitus*	great crested flycatcher
Bombycilla cedrorum	cedar waxwing	*Oporornis formosus*	Kentucky warbler
Bonasa umbellus	ruffed grouse	*Otus asio*	screech owl
Botarus lentiginosus	American bittern	*Parus atricapillus*	black-capped chickadee
Bucephala albeola	bufflehead	*Parus bicolor*	tufted titmouse
Buteo jamaicensis	red-tailed hawk	*Parus carolinensis*	Carolina chickadee
Butorides virescens	green heron	*Passerculus sandwichensis*	Savannah sparrow
Calidres alpina	dunlin	*Passerina cyanea*	indigo bunting
Calidres melanotos	pectoral sandpiper	*Philohela minor*	American woodcock
Calidres minutilla	least sandpiper	*Pipilo erythropthalmus*	rufous-sided towhee
Calidris pusillus	semipalmated sandpiper	*Piranga olivacea*	scarlet tanager
Capodacus purpureus	purple finch	*Piranga rubra*	summer tanager
Caprimulgus vociferus	whippoorwill	*Podilymbus podiceps*	pied-billed grebe
Cardinalis cardinalis	cardinal	*Polioptila caerulea caerulea*	blue-gray gnatcatcher
Cathartes aura	turkey vulture	*Progne subis*	purple martin
Centurus carolinus	red-bellied woodpecker	*Regulus calendula calendula*	ruby-crowned kinglet
Certhia familiaris	brown creeper	*Regulus satrapa satrapa*	golden-crowned kinglet
Chaetura pelagica	chimney swift	*Sayornis phoebe*	eastern phoebe
Charadrius vociferus	killdeer	*Seiurus aurocapillus*	ovenbird
Circus cyaneus	marsh hawk	*Siala sialis*	eastern bluebird
Coccyzus americanus	yellow-billed cuckoo	*Sitta canadensis*	red-breasted nuthatch
Coccyzus erythropthalamus	black -billed cuckoo	*Sitta carolinensis*	white-breasted nuthatch
Colaptes aurantus	common flicker	*Sphyrapicus varius*	yellow-bellied sapsucker
Colinus virginianus	bobwhite	*Spinus pinus*	pine siskin
Columba livia	rock dove	*Spinus tristis*	American goldfinch
Contopus virens	eastern wood pewee	*Spizella arborea*	tree sparrow
Corvus brachyrhynchos	common crow	*Spizella passerina*	chipping sparrow
Cyanocitta cristata	blue jay	*Spizella pusilla*	field sparrow
Dendrocopos pubescens	downy woodpecker	*Sturnella magna magna*	eastern meadowlark
Dendrocopos villosus	hairy woodpecker	*Sturnus vulgaris vulgaris*	starling
Dendroica coronata coronata	yellow-rumped warbler	*Thryothorus ludovicianus*	Carolina wren
Dendroica discolor	prairie warbler	*Toxostoma rufum rufum*	brown thrasher
Dendroica petechia	yellow warbler	*Tringa flavipes*	lesser yellowlegs
Dendroica virens	black-throated green warbler	*Tringa melanoleucus*	greater yellowlegs
Drycopus pileatus	pileated woodpecker	*Turdus migratorius*	American robin
Dumetella carolinensis	gray catbird	*Tyrannus tyrannus*	eastern kingbird
Empidonax traillii	willow flycatcher	*Vermivora pinus*	blue-winged warbler
Empidonax virescens	acadian flycatcher	*Vireo griseus*	white-eyed vireo
Falco sparverius	American kestrel	*Vireo olivaceus*	red-eyed vireo
Fulica americanus	American coot	*Zenaida macroura*	mourning dove
Gavia immer	common loon	*Zonotrichia albicollis*	white-throated sparrow
Geothlypis trichas	common yellowthroat	*Zonotrichia leucophrys*	white-crowned sparrow

Table D.1. (continued)

Scientific name	Common name	Scientific name	Common name
Fish (Note: Fish species were observed in the streams in and immediately surrounding the Plant.)			
Ambloplities rupestris	rock bass	*Lythrurus umbratilius*	redfin shiner
Ameiurus natalis	yellow bullhead	*Maxostoma duquesnei*	black redhorse
Aplodinatus grunniens	freshwater drum	*Micropterus dolmieui*	smallmouth bass
Campostoma anomalum	central stoneroller	*Micropterus punctulatus*	spotted bass
Catostomus commersoni	white sucker	*Micropterus salmoides*	largemouth bass
Cyprinella spiloptera	spotfin shiner	*Minytrema melanops*	spotted sucker
Cyprinella whippplei	steelcolor shiner	*Moxostoma erythrurum*	golden redhorse
Cyprinus carpio	common carp	*Moxostoma macrolepidotum*	shorthead redhorse
Dorosoma cepedianum	gizzard shad	*Notropis atherinoides*	emerald shiner
Esox americanus vermiculatus	grass pickerel	*Notropis buccatus*	silverjaw minnow
Etheostoma blennoides	greenside darter	*Notropis rubellus*	rosyface shiner
Etheostoma caeruleum	rainbow darter	*Notropis stramineus*	sand shiner
Etheostoma flabellare	fantail darter	*Noturus flavus*	stonecat madtom
Etheostoma nigrum	Johnny darter	*Noturus miuris*	brindled madtom
Etheostoma spectabile	orangethroat darter	*Percina caprodes*	logperch
Etheostoma zonale	banded darter	*Percina maculata*	blackside darter
Fundulus notatus	blackstripe topminnow	*Percina sciera*	dusky darter
Hypentelium nigricans	northern hogsucker	*Percopsis omiscomaycus*	trout-perch
Ictaluris punctatus	channel catfish	*Phenacobius mirabilis*	suckermouth minnow
Labidesthes sicculus	brook silverside	*Phoxinus erythrogaster*	southern redbelly dace
Lepisosteus osseus	longnose gar	*Pimephales notatus*	bluntnose minnow
Lepomis cyanellus	green sunfish	*Pimephales vigilax*	bullhead minnow
Lepomis macrochirus	bluegill	*Pomoxis annularis*	white crappie
Lepomis megalotis	longear sunfish	*Rhinichthys atratulus*	blacknose dace
Luxilus chrysocephalus	striped shiner	*Semotilus atromaculatus*	creek chub
Lythrurus ardens	rosefin shiner	*Stizostedion canadense*	sauger
Lythrurus umbratilis	redfin shiner	*Stizostedion vitreum*	walleye

Sources:

U.S. Department of Energy. 1994. *Baseline Ecological Risk Assessment, Portsmouth Gaseous Diffusion Plant, Piketon, Ohio.* Volume 3: Appendices C–E. DOE/OR/11-1316/V3&D1. 0-04-04/32.010.

U.S. Department of Energy. 1994. *Baseline Ecological Risk Assessment, Portsmouth Gaseous Diffusion Plant, Piketon, Ohio.* Volume 5: Appendices K–Q. DOE/OR/11-1316/V5&D1. 0-04-04/32.012.

Energy Research & Development Administration. *Final Environmental Impact Statement: Portsmouth Gaseous Diffusion Plant Site, Piketon, Ohio.* Volume 2: Appendices. ERDA-1555.

Lockheed Martin Energy Systems, Inc. 1998. *Final Threatened and Endangered Species Report: Portsmouth Gaseous Diffusion Plant, Piketon, Ohio.* DOE/OR/11/1668&D0

Ohio Environmental Protection Agency. 1998. *Biological and Water Quality Study of Little Beaver Creek and Big Beaver Creek – 1997. Portsmouth Gaseous Diffusion Plant, Pike County, Ohio.* Ohio EPA Technical Report MAS/1998-5-1.

APPENDIX E

COPIES OF CONSULTATION LETTERS

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
6950 Americana Parkway, Suite H
Reynoldsburg, Ohio 43068-4127

September 26, 2000

OFFICIAL FILE COPY
AMESQ
Log No. 4480
Date Received SEP 29 2000
File Code

James L. Elmore
Department of Energy
P.O. Box 2001
Oak Ridge, TN 37831

Dear Dr. Elmore:

This responds to your letter of September 20, 2000 regarding federally listed endangered species that may occur on the "Portsmouth Gaseous Diffusion Plant" (Pike County, Ohio) property that has been proposed for lease and/or disposal. Your letter states that development would be restricted to nonsensitive areas by the use of lease or deed restrictions. The control of development on sensitive areas would seem more certain if DOE retained title to those portions of the site.

ENDANGERED SPECIES COMMENTS: To facilitate compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, Federal agencies are required to obtain from the U.S. Fish and Wildlife Service information concerning any species, listed or proposed to be listed, which may be present in the area of a proposed action. Therefore, we are providing you the following list of endangered (E) or threatened (T) species which may be present in your project areas:

COUNTY	SPECIES NAME / STATUS
Pike	Indiana bat (E).

Summer habitat requirements for the Indiana bat are not well defined but the following are thought to be of importance:

1. Dead trees and snags along riparian corridors, especially those with exfoliating bark or cavities in the trunk or branches, which may be used as maternity roost areas;
2. Live trees (such as shagbark hickory) which have exfoliating bark;
3. Stream corridors, riparian areas, and nearby wood lots which provide forage sites.

We recommend that if trees with exfoliating bark (which could be potential roost trees) are encountered in the project area, they and surrounding trees should be saved wherever possible. If they must be cut, they should not be cut between April 15 and September 15.

If potential maternity roost trees are present, and if the above time restriction is unacceptable, mist net or other surveys should be conducted to determine if bats are present. The survey should be designed and conducted in coordination with the endangered species coordinator for this office, Mr. Buddy Fazio. The survey should be conducted in June or July to coincide with the peak summer bat population.

Two divisions of the Ohio Department of Natural Resources, the Division of Wildlife (614-265-6300) and the Division of Natural Areas and Preserves (614-265-6472), maintain lists of plants and animals of

concern to the State of Ohio. If you have not already done so, you may wish to contact each of these agencies to obtain site-specific information about species of state concern.

If you have questions or we may be of further assistance in this matter please contact Mr. Bill Kurey of this office at 614-469-6923 ext. 14.

Sincerely,

Ken Lammers
Acting Supervisor

cc: J. Marshall, ODOW

Ohio Department of Natural Resources

BOB TAFT, GOVERNOR — SAMUEL W. SPECK, DIRECTOR

Division of Natural Areas & Preserves
Stuart Lewis, Chief
1889 Fountain Square, Bldg. F-1
Columbus, OH 43224-1388
Phone: (614) 265-6453; Fax: (614) 267-3096

December 5, 2000

James L. Elmore, Ph.D.
Department of Energy
Oak Ridge Operations
P.O. Box 2001
Oak Ridge, TN 37831

Dear Dr. Elmore:

The Ohio Natural Heritage Database contains no records for are species or unique natural features within the Portsmouth Gaseous Diffusion Plant property on the Lucasville, Wakefield, Waverly South and Piketon quads, Pike County. Also, there are no state nature preserves or scenic rivers in the vicinity of this facility. Several years ago, Allison Cusick, our Division's chief botanist was allowed to briefly visit the diffusion plant property. He did not find any rare plants or high quality plant communities at that time.

For your information, I have enclosed a listing of rare animal and plant species recorded for the four quads on which the Piketon plant is located. These species are represented by records outside the diffusion plant property.

Please contact me if you have any questions about this information.

Sincerely,

Patricia D. Jones

Patricia D. Jones
Data Services Administrator
Support Services Group

Enclosure

E-5

File Code

FEDERAL STATUS	OHIO STATUS	SCIENTIFIC NAME	COMMON NAME
ANIMALS	T	CLINOSTOMUS FUNDULOIDES	ROSYSIDE DACE
	E	EPIOBLASMA TRIQUETRA	SNUFFBOX
	E	FUSCONAIA EBENA	EBONYSHELL
	S	GRAPTEMYS PSEUDOGEOGRAPHICA	FALSE MAP TURTLE
	E	HIODON ALOSOIDES	GOLDEYE
	S	HIODON TERGISUS	MOONEYE
		ICHTHYOMYZON UNICUSPIS	SILVER LAMPREY
	S	LAMPROPELTIS GETULA NIGRA	BLACK KINGSNAKE
		LAMPSILIS TERES	YELLOW SANDSHELL
	E	LEPISOSTEUS PLATOSTOMUS	SHORTNOSE GAR
	S	MOXOSTOMA CARINATUM	RIVER REDHORSE
	T	OBLIQUARIA REFLEXA	THREEHORN WARTYBACK
	E	PLETHOBASUS CYPHYUS	SHEEPNOSE
	T	POLYODON SPATHULA	PADDLEFISH
		POTAMILUS OHIENSIS	PINK PAPERSHELL
	T	TRUNCILLA DONACIFORMIS	FAWNSFOOT
	S	TRUNCILLA TRUNCATA	DEERTOE
PLANTS	T	DESCURAINIA PINNATA	TANSY-MUSTARD
	E	ECHINODORUS ROSTRATUS	BUR-HEAD
	P	GRATIOLA VISCIDULA	SHORT'S HEDGE-HYSSOP
	P	ORBEXILUM PEDUNCULATUM	FALSE SCURF-PEA
	P	RHEXIA VIRGINICA	VIRGINIA MEADOW-BEAUTY
	P	SCUTELLARIA INTEGRIFOLIA	HYSSOP SKULLCAP
	E	VIOLA PRIMULIFOLIA	PRIMROSE-LEAVED VIOLET

24 Records Processed

Division of Natural Areas and Preserves
Ohio Department of Natural Resources

Endangerment Codes

Federal Status Codes

LE= Endangered
LT= Threatened
PE= Proposed Endangered
PT= Proposed Threatened

Ohio Status Codes

Animals: (Assigned by the Ohio Division of Wildlife)

E= State Endangered
* T= Threatened (not a legal designation)
* S= Special Interest (not a legal designation)
* X= Extirpated from Ohio

* Animals without a status are inventoried by the Division of Natural Areas & Preserves, but have not been assigned a state status by the Ohio Division of Wildlife.

Plants: (Assigned by the Division of Natural Areas & Preserves)

E= State Endangered
T= State Threatened
* P= Potentially threatened (not a legal designation)
* X= Presumed extirpated from Ohio
* A= A species recently added to the inventory, a state endangerment status has not yet been determined.

* Administrative statuses, these are not legal designations.

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
11752 ST. RTE. 104
WAVERLY, OH. 45690
740-947-4533

March 20, 2001

Michael Deacon
SAIC
PO Box 2502
Oak Ridge, Tennessee 37831

Dear Mr. Deacon:

Enclosed please find the NRCS completed AD-1006 for the proposed site indicated. Thank you for the detailed data submitted with the form.

If you have questions, please feel free to call the office. Good luck with the project.

Sincerely,

Jim Borchelt

Jim Borchelt
District Conservationist

JB/jdb

Enclosure

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 3-19-01
Name Of Project PORTS Reindustrialization	Federal Agency Involved U.S. Department of Energy
Proposed Land Use Commercial/Industrial	County And State Pike County, Ohio
PART II *(To be completed by SCS)*	Date Request Received By SCS 3-19-01

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply – do not complete additional parts of this form).*	Yes ☒	No ☐	Acres Irrigated 0	Average Farm Size 220
Major Crop(s) Corn, Soybeans, Hay	Farmable Land In Govt. Jurisdiction Acres: 74700 26 %		Amount Of Farmland As Defined in FPPA Acres: 64114 23 %	
Name Of Land Evaluation System Used OCES-685	Name Of Local Site Assessment System FPPA		Date Land Evaluation Returned By SCS 3-20-01	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	637			
B. Total Acres To Be Converted Indirectly	425			
C. Total Acres In Site	1062			
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	130.5			
B. Total Acres Statewide And Local Important Farmland	0			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0.20			
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	67.5			
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	67			

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use	15	12			
2. Perimeter In Nonurban Use	10	8			
3. Percent Of Site Being Farmed	20	0			
4. Protection Provided By State And Local Government	20	0			
5. Distance From Urban Builtup Area	15	5			
6. Distance To Urban Support Services	15	0			
7. Size Of Present Farm Unit Compared To Average	10	0			
8. Creation Of Nonfarmable Farmland	10	5			
9. Availability Of Farm Support Services	5	5			
10. On-Farm Investments	20	0			
11. Effects Of Conversion On Farm Support Services	10	0			
12. Compatibility With Existing Agricultural Use	10	5			
TOTAL SITE ASSESSMENT POINTS	160	40			
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	67			
Total Site Assessment *(From Part VI above or a local site assessment)*	160	40			
TOTAL POINTS *(Total of above 2 lines)*	260	107			

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

Ohio Historic Preservation Office

567 East Hudson Street
Columbus, Ohio 43211-1030
614/ 298-2000 Fax: 614/ 298-2037

Visit us at www.ohiohistory.org/resource/histpres/

OHIO
HISTORICAL
SOCIETY
SINCE 1885

April 17, 2001

Sharon J. Robinson
Site Manager
Portsmouth Site Office
U.S. Dept. of Energy, PORTS
Post Office Box 700
Piketon, Ohio 45661

Dear Ms. Robinson:

Re: Proposed Reindustrialization, Portsmouth, Ohio, Gaseous Diffusion Plant

This letter is in response to your correspondence, received on February 27, 2001, notifying our office of your project referenced above. The comments of the Ohio Historic Preservation Office are made pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and the associated regulations at 36 CFR Part 800.

We concur with your opinion that the proposed project could adversely affect historic properties eligible for the National Register of Historic Places and find the proposed process for Section 106 coordination is appropriate.

If you have any questions, please contact David Snyder or Sandra Davies at the telephone number listed above. Thank you for your cooperation.

Sincerely,

Mark J. Epstein, Department Head
Resource Protection and Review

MJE/SLD:sd

APPENDIX F

ARCHAEOLOGICAL AND HISTORICAL ARCHITECTURAL RESOURCES

Table F.1. PORTS archaeological resources that do not meet the NRCE

OAI/OHI No.	Quadrant	Temporal affiliations	Site name
33 Pk 186	I	Unassigned Prehistoric	Lithic Scatter
33 Pk 187	I	Historic (ca. 1915–1951)	Farmstead Remnant
33 Pk 188	I	Historic (post 1952)	Worker Barracks
33 Pk 189	IV	Unassigned Prehistoric/Historic (post 1952)	Isolated Find & Tower Platform
33 Pk 190	I	Historic (post 1952)	Radio Tower Base
33 Pk 191	I	Historic (ca. 1830s–present)	Open Dump
33 Pk 192	I	Historic (ca. 1900–present)	Open Dump
33 Pk 196	I	Historic (ca. 1952–present)	Culvert/Drain Pipes
33 Pk 198	IV	Unassigned Prehistoric	Isolated Find
33 Pk 199	IV	Historic (ca. 1820–present)	Isolated Find
33 Pk 200	IV	Historic (ca. 1820–present)	Historic Scatter
33 Pk 201	IV	Historic (ca. 1890–present)	Isolated Find
33 Pk 202	IV	Historic (ca. 1934–present)	Historic Scatter
33 Pk 204	IV	Unassigned Prehistoric	Isolated Find
33 Pk 205	IV	Unassigned Prehistoric	Isolated Find
33 Pk 206	II	Unassigned Prehistoric	Lithic Scatter
33 Pk 207	II	Unassigned Prehistoric	Isolated Find
33 Pk 208	II	Unassigned Prehistoric	Isolated Find
33 Pk 209	I	Historic (ca. 1933–1964)	Historic Scatter
33 Pk 215	IV	Historic (ca. 1820–present)	Open Dump
33 Pk 216	IV	Historic (ca. 1879–present)	Open Dump
33 Pk 219	IV	Historic (post 1952)	Old Firing Range

Source: Schweikart et al. 1977.
OAI = Ohio Archaeological Inventory
OHI = Ohio Historic Inventory

Table F.2. PORTS archaeological resources recommended for Phase II assessments to determine if they meet the NRCE

OAI/OHI No.	Quadrant	Temporal affiliations	Site name
33 Pk 184	I	Historic (ca. 1820–present)	Davis Farmstead
33 Pk 185	I	Historic (ca. 1900–present)	South Shyville Farmstead
33 Pk 193	I	Historic (ca. 1820–present)	Iron Wheel Farmstead
33 Pk 194	II	Historic (ca. 1820–present)	North Shyville Farmstead
33 Pk 195	I	Historic (ca. 1820–present)	Beaver Road Farmstead
33 Pk 197	II	Historic (ca. 1951)	Dutch Run Road Farmstead
33 Pk 203	IV	Historic Farmstead (ca. 1820–present)	Ruby Hollow Farmstead
33 Pk 206	II	Historic (ca. 1820–present)	Terrace Farmstead
33 Pk 210	I	Unassigned Prehistoric	Southview Site (lithic scatter)
33 Pk 211	IV	Historic (1890–1964)	Bamboo Farmstead
33 Pk 212	IV	Historic (ca. 1931–present)	Railside Farmstead
33 Pk 213	IV	Historic (ca. 1820–present)	Log Pen Farmstead
33 Pk 217	IV	Historic (ca. 1820–present)	Stockdale Road Dairy
33 Pk 218 (PIK-205-12)	IV	Historic (ca. 1820–present)	Cannett Farmstead

Source: Schweikart et al. 1977
OAI = Ohio Archaeological Inventory
OHI = Ohio Historic Inventory

Table F.3. PORTS archaeological and architectural historic resources to which the NRCE have not been applied

OAI/OHI No.	Quadrant	Temporal affiliations	Site name
33 Pk 189 (PIK-206-9)	II	Historic (ca. 1790–present)	Mount Gilead Cemetery and Chapel Remnant
33 Pk 214 (PIK-207-12)	IV	Historic (ca. 1877–mid-20th century)	Holt Cemetery

Source: Schweikart et al. 1997.
OAI = Ohio Archaeological Inventory
OHI = Ohio Historic Inventory

Table F.4. Architectural historic resources in the PORTS facility historic property

OHI No.	PORTS Name	Quadrant	Date	Period	Type
PIK-45-12	Cooling Tower	II	1976	3	Heat Exchanging Structure
PIK-46-12	Cooling Tower and Uncovered Extension Basin	II	1954–1955	2	Heat Exchanging Structure
PIK-47-12	Recirculating Water Pump House	II	1953–1954	2	Mechanical Building
PIK-48-12	Cooling Tower and Uncovered Extension Basin	II	1954–1955	2	Heat Exchanging Structure
PIK-49-12	Cooling Tower	II	1978	3	Heat Exchanging Structure
PIK-50-12	Feed Vaporization and Sampling Facility	II	1981	3	Process Building
PIK-51-12	East Groundwater Treatment Facility	II	1994–1995	3	Mechanical Building
PIK-52-12	Bulk Storage Building–Non-UEA	II	1956	2	Warehouse
PIK-53-12	Neutralizing Building	II	1973	3	Mechanical Building
PIK-54-12	Bulk Storage Building	II	1953	2	Warehouse
PIK-55-12	Bulk Storage Building	II	1953	2	Warehouse
PIK-56-12	Undocumented Guard Post	II	ca. 1952–1960	2	Booth
PIK-57-12	Personnel Monitoring Building	II	1955	2	Booth
PIK-58-12	Maintenance Building	II	1957	2	Warehouse
PIK-59-12	Maintenance and Stores Warehouse	II	ca. 1983	3	Warehouse
PIK-60-12	Lime House	II	1955	2	Mechanical Building
PIK-61-12	Neutralizing Pit	II	1953	2	Basin
PIK-62-12	Converter Shop and Cleaning Facility	II	1955	2	Work Building
PIK-63-12	Water Deionization Facility	II	1955	2	Mechanical Building
PIK-64-12	Air Conditioning Equipment Building	II	1975	3	Mechanical Building
PIK-65-12	Decontamination Building	II	1955	2	Work Building
PIK-66-12	Heating Booster Pump Building	II	1983	3	Mechanical Building

Table F.4. (continued)

OHI No.	PORTS Name	Quadrant	Date	Period	Type
PIK-67-12	Special Nuclear Material Storage Building	II	1980	3	Bunker Warehouse
PIK-68-12	Radio Base Station Building	II	1978	3	Mechanical Building
PIK-69-12	Elevated Water Tank	II	1960	3	Elevated Cylinder Tank
PIK-70-12	Paint and Oil Storage Building	II	1980	3	Warehouse
PIK-71-12	Maintenance and Stores Building	II	1954	2	Work Building
PIK-72-12	Maintenance and Stores Gas Manifold Shed	II	1954	2	Covered Platform
PIK-73-12	North Portal and Shelter	I	1955	2	Booth
PIK-74-12	South Portal and Shelter	I	1955	2	Booth
PIK-75-12	Oil Drum Storage Facility	I	1954	2	Covered Platform
PIK-76-12	Gas Cylinder Storage Facility	I	1954	2	Covered Platform
PIK-77-12	Materials Receiving and Inspection	I	1954	2	Warehouse
PIK-78-12	Indoor Firing Range	I	ca. 1980–1985	3	Enclosed Firing Range Building
PIK-79-12	Guard Headquarters	I	1954, 1991	2	Office Building
PIK-80-12	Tactical Response Station	I	1955	2	Garage
PIK-81-12	Mobile Equipment Maintenance Shop	I	1953	2	Garage
PIK-82-12	Garage Storage Building	I	ca. 1953	2	Storage Shed
PIK-83-12	Auxiliary Office Building	I	1954	2	Warehouse
PIK-84-12	Plant Control Facility and Emergency Communications Antenna	I	ca. 1952–1955	2	Bunker Office Building
PIK-85-12	Process Monitoring Building	I	ca. 1954	2	Mechanical Building
PIK-86-12	Lumber Storage Facility	I	ca. 1953–1956	2	Covered Platform
PIK-87-12	Technical Service Building	I	1953, 1975	2	Laboratory Building
PIK-88-12	Explosion Test Facility	I	1956	2	Mechanical Building
PIK-89-12	Technical Service Gas Manifold Shed	I	ca. 1955	2	Covered Platform

Table F.4. (continued)

OHI No.	PORTS Name	Quadrant	Date	Period	Type
PIK-90-12	Cafeteria	I	1954	2	Cafeteria
PIK-91-12	Health Service Center	I	1954	2	Medical Building
PIK-92-12	Exchange Telephone Building	I	1954	2	Office Building
PIK-93-12	Air Conditioning Equipment Building	I	1958	3	Mechanical Building
PIK-94-12	Administration Building	I	1954	2	Office Building
PIK-95-12	Personnel Monitoring Trailer	I	1975	3	Mobile Home
PIK-96-12	Chemical Engineering Building	I	1954	2	Laboratory Building
PIK-97-12	Mechanical Test Building	I	1954	2	Mechanical Building
PIK-98-12	Steam Plant	I	1954, 1996	2	Heating Plant Structure
PIK-99-12	Steam Plant Shop Building	I	1981	3	Garage
PIK-100-12	Coal Pile Runoff Treatment Facility	I	1984	3	Mechanical Building
PIK-101-12	Recirculating Water Pump House	I	1954	2	Mechanical Building
PIK-102-12	Cooling Tower	I	1954	2	Heat Exchanging Structure
PIK-103-12	Interplant Portal	I	1985	4	Booth
PIK-104-12	Maintenance, Stores, and Training Facility	I	1985	4	Office Building, Multi-level
PIK-105-12	Plant Emergency Operations Center	I	ca. 1980–1985	4	Office Building
PIK-106-12	Fire Station	I	1981	4	Emergency Vehicle Garage
PIK-107-12	Data Processing Building	I	1984	4	Office Building
PIK-108-12	Administrative Portal - Pedestrian	I	1985	4	Booth
PIK-109-12	Administration Building	I	1981	4	Office Building
PIK-110-12	Electronic Maintenance Facility	I	ca. 1980–1985	4	Office Building
PIK-111-12	Cooling Tower Pump House	I	1984	4	Mechanical Building
PIK-112-12	Cooling Tower and Valve House	I	1984	4	Heat Exchanging Structure

Table F.4. (continued)

OHI No.	PORTS Name	Quadrant	Date	Period	Type
PIK-113-12	Undocumented Guard Booth	I	ca. 1960–1980	3	Booth
PIK-114-12	GCEP Process Building #2	I	1979–1985	4	Process Building
PIK-115-12	GCEP Process Support Building	I	1983	4	Office Building
PIK-116-12	GCEP Process Building #1	I	1979–1985	4	Process Building
PIK-117-12	GCEP Transfer Corridor	I and III	1983	4	Mechanical Corridor
PIK-118-12	Fire Water Pump House	I	ca. 1980–1985	4	Mechanical Building
PIK-119-12	Sanitary Water Storage Tank	I	ca. 1980–1985	4	Large Cylinder Tank
PIK-120-12	Fire Water Storage Tank 1	I	ca. 1980–1985	4	Large Cylinder Tank
PIK-121-12	Fire Water Storage Tank 2	I	ca. 1980–1985	4	Large Cylinder Tank
PIK-122-12	GCEP Switch House, Switchyard, Valve House and Oil Pumping Station	I	1982	4	Utility Yard
PIK-123-12	Waste Handling and Storage Facility (GCEP Feed and Withdrawal Facility)	I	ca. 1980–1985	4	Process Building
PIK-124-12	South Portal - Pedestrian	I	1985	4	Booth
PIK-125-12	South Portal - Vehicular	I	1985	4	Booth
PIK-126-12	Sewage Lift Stations	I and III	ca. 1970–1978	3	Mechanical Building
PIK-127-12	Mobile Equipment Garage	I	1979	4	Linear Garage
PIK-128-12	Warehouse K - Non-UEA	I	1953–1954, 1978	3	Warehouse
PIK-129-12	South Groundwater Treatment Facility	I	ca. 1994	3	Mechanical Building
PIK-130-12	Administration Portal - Vehicular	I	1983	4	Booth
PIK-131-12	GCEP Construction Warehouse	I	ca. 1980–1985	4	Warehouse
PIK-132-12	South pH Adjustment Facility	I	1979	3	Mechanical Building
PIK-133-12	South Environmental Sampling Building	I	1968	3	Mechanical Building
PIK-134-12	South Office Building	I	1977–1978	4	Office Building

Table F.4. (continued)

OHI No.	PORTS Name	Quadrant	Date	Period	Type
PIK-135-12	South Weather Station	I	ca. 1979, ca. 1993–1996	3	Communications Antenna
PIK-136-12	East Environmental Monitoring Station (Liquid Effluent System)	II	1981	3	Mechanical Building
PIK-137-12	Recirculating Water Pump House	II	ca. 1993–1996	3	Weatherport
PIK-138-12	Little Beaver Groundwater Treatment Facility	II	ca. 1993–1996	3	Mechanical Building
PIK-139-12	Groundwater Treatment Facility	I	ca. 1995	3	Mechanical Building
PIK-140-12	Hazardous Waste Storage Building (GCEP Recycle/ Assembly Building and GCEP Training and Test Facility)	III	1983	4	Process Building
PIK-141-12	GCEP Waste Accountability Facility	III	1984	4	Warehouse
PIK-142-12	Undocumented temporary warehouse in X-7745 R Yard	III	ca. 1996–1997	3	Weatherport
PIK-143-12	Process Building, SNM Monitoring Portals	III	1956, 1981	2	Process Building
PIK-144-12	Instrumentation Tunnels (beside X-326, X-330 and X-333)	I and III	1954	2	Utility Tunnel
PIK-145-12	Process Building	III	1955	2	Process Building
PIK-146-9	Undocumented bridge over tributary to Little Beaver Creek	IV	ca. 1930–1950, ca. 1954	1	Bridge
PIK-147-12	Switchyard, Test and Repair Building, Oil House, Valve Houses, GCEP Oil Pumping Station, undocumented building, undocumented mobile office	III	1954, 1980	2	Mechanical Building
PIK-148-12	Switch House (includes Control House, North Switch House, South Switch House)	III	1954	2	Utility Yard
PIK-149-12	Waste Oil Storage Building	III	1982	3	Weatherport
PIK-150-12	Personnel Monitoring Building	III	1955	2	Office Building
PIK-151-12	Recirculating Water Pump House	IV	ca. 1954–1955	2	Mechanical Building
PIK-152-12	Cooling Tower	IV	ca. 1954–1955	2	Heat Exchanging Structure
PIK-153-12	Cooling Tower	IV	ca. 1954–1955	2	Heat Exchanging Structure

Table F.4. (continued)

OHI No.	PORTS Name	Quadrant	Date	Period	Type
PIK-154-12	Two undocumented booths in X-745 E Yard	IV	ca. 1970–1980	3	Booth
PIK-155-12	Undocumented shed in X-745 C Yard	III	ca. 1996–1997	3	Storage Shed
PIK-156-12	Toll Enrichment Facility	IV	1958, 1971–1975	2	Process Building
PIK-157-12	Feed Vaporization and Fluorine Generation Facility	IV	1954, 1982–1983	2	Process Building
PIK-158-12	Fluorine Storage Building	IV	1954	2	Mechanical Building
PIK-159-12	Maintenance Storage Building	IV	1958	2	Warehouse
PIK-160-12	Undocumented mobile office behind X-344 A	IV	ca. 1990–1997	3	Mobile Home
PIK-161-12	Hydrofluoric Acid Storage Building, Gas Ventilation Stack, Safety Building	IV	1958	2	Weatherport
PIK-162-12	Transformer Storage and Cleaning Building	IV	1985	3	Storage Garage
PIK-163-12	Pike Avenue Portal	IV	1976	3	Booth
PIK-164-12	Switchyard, Test and Repair Facility, Oil House, Valve Houses, Gas Reclaiming Cart Garage, Electric Power Tunnels and undocumented mobile office	IV	1954, 1955, 1985, ca. 1997	2	Utility Yard
PIK-165-12	Switch House (includes Control House, East Switch House, West Switch House)	IV	1955	2	Mechanical Building
PIK-166-12	Recirculating Water Pump House	II	1960	3	Mechanical Building
PIK-167-12	Process Building	IV	1955	2	Process Building
PIK-168-12	Construction Entrance Building, Truck Scale Facility	III	1975	3	Booth
PIK-169-12	Northeast Portal - Vehicular and Northeast Portal - Pedestrian	III	1985	4	Booth
PIK-170-12	Fire Training Building	III	ca. 1993	3	Emergency Training Building
PIK-171-12	Liquid Effluent Control Facility	III	1976	3	Mechanical Building
PIK-172-12	Sanitary Sewage Treatment Facility	III	ca. 1954–1955	2	Mechanical Building
PIK-173-12	Warehouses	III	1957, 1978	2	Warehouse
PIK-174-12	Sewage Treatment Facility	III	1980	4	Mechanical Building

Table F.4. (continued)

OHI No.	PORTS Name	Quadrant	Date	Period	Type
PIK-175-12	Warehouses	III	1988	3	Warehouse
PIK-176-12	West Environmental Sampling Building	III	1968	3	Mechanical Building
PIK-177-12	West Environmental Monitoring Station	III	1981	3	Mechanical Building
PIK-178-12	Ohio Valley Electric Corporation office building	III	ca. 1954, ca. 1980–1990	2	Office Building
PIK-179-12	Ohio Valley Electric Corporation storage shed	III	ca. 1960–1980	3	Tractor Shed
PIK-180-12	Ohio Valley Electric Corporation Microwave Tower and Dish	III	ca. 1980–1990	3	Communications Antenna
PIK-181-12	Don Marquis Substation (upper tier yard)	III	ca. 1954–1970	2	Utility Yard
PIK-182-12	Don Marquis Substation (lower tier yard)	III	ca. 1954–1970	2	Utility Yard
PIK-183-12	Warehouse	IV	1978	3	Warehouse
PIK-184-12	Salt Storage Building	IV	1979	3	Bin
PIK-185-12	Surplus and Salvage Warehouse	IV	1957, 1983	2	Warehouse
PIK-186-12	North Holding Pond Storage Building	IV	1981	3	Mechanical Building
PIK-187-12	North Environmental Storage Building	IV	ca. 1986	3	Booth
PIK-188-12	Booster Pump House and Appurtenances, Chlorinator Building, Diesel Generator Building	IV	1954	2	Mechanical Building
PIK-189-9	Landfill Utility Building	IV	1980	3	Storage Garage
PIK-190-12	Elevated Water Tank	III	ca. 1960	3	Elevated Cylinder Tank
PIK-191-12	Water Treatment Plant Chemical Building and Mixing and Settling Basins	IV	1954	2	Mechanical Building
PIK-192-12	Water Treatment Plant Filter Building, Chlorine Building and Recarbonation Building	IV	1954, 1979, ca. 1993–1997	2	Mechanical Building
PIK-193-12	Northeast Environmental Monitoring Station	IV	1981	3	Mechanical Building
PIK-194-12	Former Firing Range	IV	ca. 1960–1970	3	Weatherport

Table F.4. (continued)

OHI No.	PORTS Name	Quadrant	Date	Period	Type
PIK-195-12	Undocumented pipeline from Water Treatment Plant to X-611 B Sludge Lagoon	IV	1979–1980	3	Pipeline
PIK-196-12	Undocumented sludge lagoon environmental monitoring station	IV	ca. 1980	3	Mechanical Building
PIK-197-9	Firing Range (New)	IV	ca. 1990	3	Open Firing Range
PIK-198-9	Undocumented water pipeline building near Little Beaver Creek	IV	ca. 1954	2	Mechanical Building
PIK-199-9	Undocumented railroad overpass over North Access Road	IV	1923, ca. 1952	1	Railroad Overpass
PIK-200-9	Undocumented barricade	IV	ca. 1980–1990	3	Earthen Barricade
PIK-201-9	Undocumented bridge over tributary to Little Beaver Creek	IV	ca. 1880–1920, ca. 1954	1	Bridge
PIK-202-12	Undocumented bridge over Little Beaver Creek	IV	ca. 1880–1920, ca. 1954	1	Bridge
PIK-203-12	Northwest Portal - Vehicular and Northwest Portal - Pedestrian	III	1985	4	Booth
PIK-204-12	Undocumented temporary warehouse beside X-3346	I	ca. 1996–1997	3	Weatherport

Source: Dobson-Brown et al. 1996 and Coleman et al. 1997.
GCEP = Gas Centrifuge Enrichment Plant.
OAI = Ohio Archaeological Inventory
OHI = Ohio Historic Inventory
SNM = Special Nuclear Material.
UEA = Uranium Enrichment Administration.