BJC/PAD-97

Comprehensive Integrated Planning:

A Process for the Paducah Gaseous Diffusion Plant and the Portsmouth Gaseous Diffusion Plant

Paducah, Kentucky
Piketon, Ohio

March 1999

Prepared by
Bechtel Jacobs Company LLC
for the
U.S. Department of Energy

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ABBREVIATIONS

the Act	Energy Policy Act of 1992
AVLIS	Atomic Vapor Laser Isotope Separation
Bechtel Jacobs	Bechtel Jacobs Company LLC
CRO	Community Reuse Organization
D&D	decontamination and decommissioning
DOE	U.S. Department of Energy
EF	Enrichment Facilities
EM	Environmental Management
FY	fiscal year
PACRO	Paducah Area Community Reuse Organization
PGDP	Paducah Gaseous Diffusion Plant
PORTS	Portsmouth Gaseous Diffusion Plant
S&M	surveillance and maintenance
SODI	Southern Ohio Diversification Initiative
USEC	United States Enrichment Corporation
WKWMA	West Kentucky Wildlife Management Area

INTRODUCTION

The Paducah Gaseous Diffusion Plant and the Portsmouth Gaseous Diffusion Plant Comprehensive Integrated Plan is intended to assist the U.S. Department of Energy (DOE) and contractor personnel in implementing a comprehensive integrated planning process consistent with DOE Order 430.1, Life Cycle Asset Management and Oak Ridge Operations Order 430.

This Comprehensive Integrated Plan serves as a summary document and provides information from other planning efforts regarding vision statements, missions, contextual conditions, resources and facilities, decision processes, and stakeholder involvement.

This report is a planning reference that identifies primary issues regarding major changes in land and facility use and serves all programs and functions on site. The Portsmouth and Paducah sites are valuable national resources and are managed on the basis of the principles of ecosystem management and sustainable development and how mission, economic, ecological, social, and cultural factors are used to guide land and facility use decisions.

Long-term goals of the comprehensive integrated planning process are to support DOE critical missions and to stimulate the economy while maintaining a quality environment.

1. OVERVIEW OF THE PADUCAH GASEOUS DIFFUSION PLANT

1.1 MISSION

The DOE mission at the Paducah Gaseous Diffusion Plant (PGDP) includes the following:

- plan and execute the Environmental Management (EM) Program to address legacy wastes/ contamination from previous DOE operations,
- serve as the landlord for enrichment facilities (EFs) leased to the United States Enrichment Corporation (USEC),
- manage DOE's EF Program (e.g., Depleted UF_6 Cylinders), and
- maximize future opportunities to reuse site assets and infrastructure through reindustrialization.

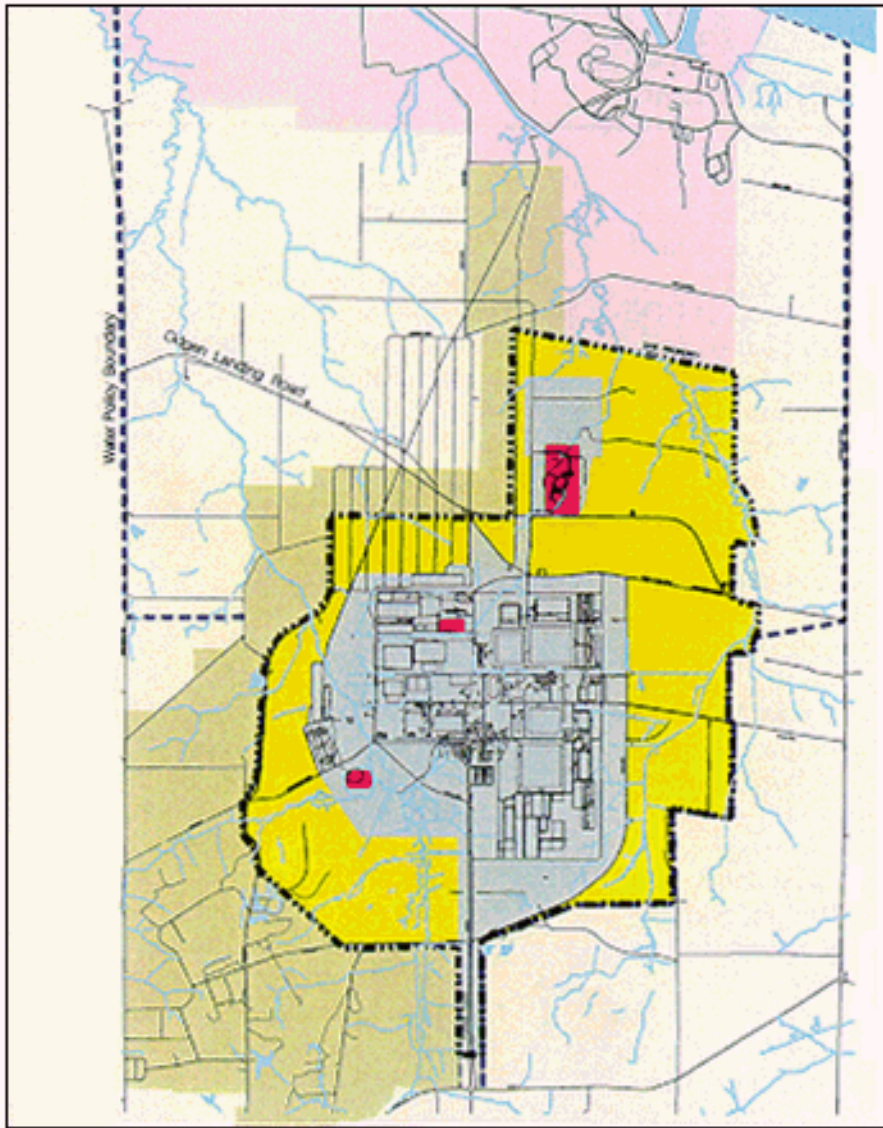
1.2 LAND USE

The PGDP is located in western Kentucky about 3 miles south of the Ohio River and about 15 miles west of the city of Paducah. The plant is situated on a 3423-acre parcel of DOE-owned land. The primary operations associated with the enrichment process are located on 748 acres inside the plant security fence. Of the remaining DOE acreage outside the fence, 2080 acres are leased to the Kentucky Department of Fish and Wildlife, serving as a portion of the West Kentucky Wildlife Management Area (WKWMA), which is used yearly by many hunters and fishermen. The remaining area surrounding WKWMA is predominantly rural with the exception of Tennessee Valley Authority-owned property north of the plant.

Figure 1 depicts the current land use located near PGDP. The geographic boundary in Figure 1 is designated as the Water Policy Boundary. DOE established this area when groundwater samples from certain residential wells near PGDP detected TCE and ^{99}TCE contamination. Subsequent to that discovery, DOE immediately provided temporary bottled water to the affected residents and sampled the remaining wells in the area to assess the extent of contamination. Subsequent to that effort, DOE established a water policy that extended the municipal water line to individuals within the affected area at DOE expense and offered to pay their water bills.

1.3 CURRENT FACILITY USE

PGDP is an active uranium enrichment facility, which began operating in the early 1950s, supplying enriched uranium for both government and commercial use. Extensive support facilities are required to maintain the diffusion process, including a steam plant, electrical switchyards, cooling towers, cleaning and decontamination facilities, water and wastewater treatment plants, and maintenance and laboratory facilities.



LEGEND

- Controlled Access
- DOE Owned Industrial Area
- DOE Property Leased to Kentucky Department of Fish and Wildlife
- WKWMA Owned by Kentucky Department of Fish and Wildlife
- TVA Boundary
- Non-DOE Reservation Land
- Building/Structures
- DOE Boundary
- Paved Road
- Water Policy Boundary
- Streams

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NORTH

0 2000 5000
Feet

FIGURE 1	Paducah Mixed Industrial/Recreational Current Use Paducah Gaseous Diffusion Plant - Paducah, Kentucky	Drawing ID: F/16711-00/pad-cu.dgn	Drawing Date: March 5, 1999 KCB

On October 24, 1992, the president signed the Energy Policy Act of 1992 (the Act), amending the Atomic Energy Act of 1954. This amendment transferred responsibility for uranium enrichment to a newly created government corporation, USEC, which made the transition to a publicly held company in 1998. In accordance with the Act, USEC assumed full responsibility on July 1, 1993, for uranium enrichment operations at the plant. However, the Act specifically required DOE to retain liability for any preexisting conditions before the transition, including responsibility for decontamination and decommissioning (D&D), waste management, Depleted UF_6 Cylinders, and environmental remediation. Current and near term uses at PGDP are dictated by an existing lease between DOE and USEC, which has a primary term through 1999 with exclusive options for USEC to extend the lease for additional periods. Under the agreement, USEC has leased only those facilities and areas necessary to support uranium enrichment. The remaining facilities and property excluded from the current lease agreement were retained by DOE; they are either being used to support DOE's EM and EF Programs or are subject to surveillance and maintenance (S&M) until D&D or alternative reuse can be identified. Figure 2 contains a map depicting facilities now leased to USEC.

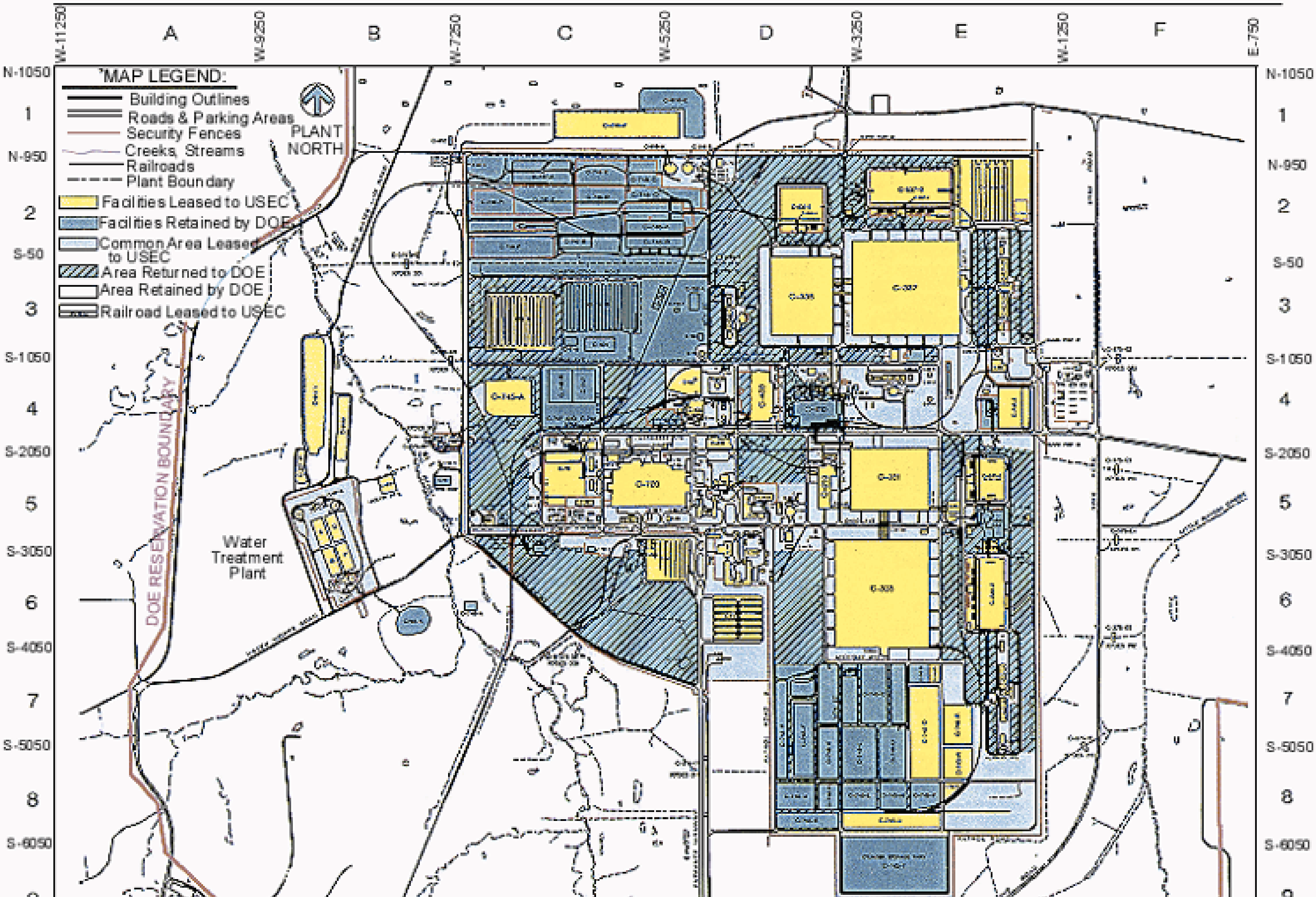
1.4 INFRASTRUCTURE NEEDS

USEC is responsible for the infrastructure needs to support the operation of the enrichment production facilities. However, DOE's existing EM and EF missions necessitate routine evaluation of the infrastructure. With regard to management of the Depleted UF_6 Cylinders, several cylinder storage areas were recently constructed, and additional yards are planned during the next few years. However, should a future DOE decision identify Paducah as a key location for expanded interim storage and/or processing of depleted UF_6, then additional infrastructure or facility upgrades must be further assessed to accommodate such scope.

Under the EM Program, current waste projections indicate existing storage facilities should have adequate capacity to accommodate existing legacy wastes and future waste streams generated by the remedial action program. However, funding has been requested to upgrade some storage facilities to meet DOE fire protection codes and Occupational Safety and Health Administration safety standards. Additionally, new landfill cells for the C-746-U Landfill must be constructed to provide adequate capacity for future disposal. Should USEC decide to shut down PGDP in the near future, additional waste management facilities may also be required to support active D&D of PGDP.

PGDP shutdown or additional industry relocating to PGDP would significantly expand DOE's current mission to include greater emphasis on reindustrialization. In such cases, certain PGDP existing support facilities will be essential to site reuse including electrical switchyards, water and wastewater treatment facilities, cooling towers, the steam plant, and other related facilities. Depending on

PADUCAH GASEOUS DIFFUSION PLANT LEASE STATUS MAP



THE ABOVE MAP IS INCLUDED FOR INFORAMTION PURPOSES ONLY. THE OFFICIAL MAP DEPICTING USEC / DOE RESPONSIBILITIES PURSUANT TO THE USEC / DOE LEASE IS SUBJECT TO CONFIGURATION CONTROL AND MUST BE CONSULTED FOR OFFICIAL DEMARCATION OF RESPONSIBILITIES

FIGURE 2	PADUCAH GASEOUS DIFFUSION PLANT BUILDING LEASE STATUS MAP PADUCAH, KENTUCKY	DOCUMENT ID: 35H830	MAP IS FROM DRAWING NUMBER: C5EC90000A046	DRAWING DATE: 16 MARCH 1999	BECHTEL JACOBS	Tetra Tech, Inc. OAK RIDGE, TENNESSEE

the nature of industry that may relocate to PGDP, new infrastructure or modifications to the existing infrastructure can be expected and must be further assessed as part of any reindustrialization effort.

1.5 SITE AND FACILITY PLANNING/REUSE ACTIVITIES

Several ongoing initiatives are underway to further evaluate alternative missions in coordination with the Paducah Area Community Reuse Organization (PACRO). On September 15, 1997, DOE Headquarters' Office of Worker and Community Transition officially recognized PACRO as the designated community reuse organization for PGDP. DOE established the community reuse program in 1993 to minimize negative effects of workforce restructuring at DOE facilities with an historical role in the nation's defense by providing assistance to the communities involved. DOE has given PACRO a $400,000 planning grant, and DOE Secretary Bill Richardson has pledged an additional $6 million to implement findings and strategies from the planning stage. PACRO studies and planning are underway in four areas: (1) training of the plant work force, (2) reuse of available facilities and assets at PGDP, (3) entrepreneurial opportunities, and (4) new strategies for regional economic development.

Most of the work of DOE and PACRO in facility/site reuse will begin at an undetermined point in the future when USEC ends its lease of the uranium EFs at PGDP and returns these facilities to DOE. However, specific ideas for potential reuse of PGDP have been identified. These include DOE plans to build Depleted UF_6 conversion facilities at Paducah and Portsmouth and USEC plans to locate an Atomic Vapor Laser Isotope Separation (AVLIS) plant at PGDP or at one of the other sites under consideration for laser uranium enrichment technology. In addition to the PACRO planning for facility/site reuse, DOE published several documents, including one on "Alternative Missions," as part of its PGDP Turnover Contingency Planning Project in 1995-96.

Since a primary goal of DOE is to facilitate future reuse of facilities at PGDP, a key element of the EM mission is to pursue a remediation strategy resulting in an end-use that will maximize unrestricted industrial use at PGDP. See Figure 3 for Paducah End-State Map. However, the nature of groundwater contamination at PGDP and the fact that some landfills may remain capped in place may necessitate the need to restrict future groundwater use and soil excavation activities at certain locations.

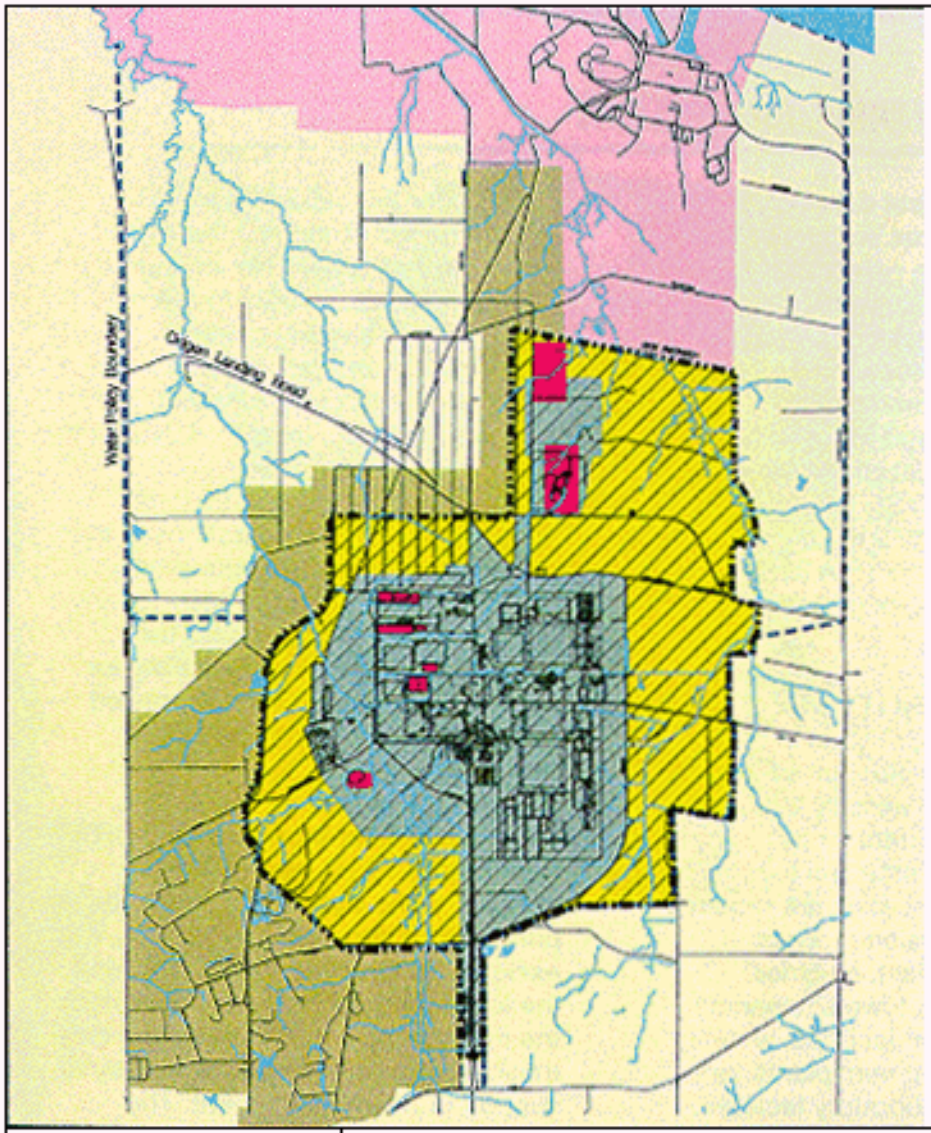
Additionally, based on the desired future use of these facilities and corresponding cleanup levels, residential development on the DOE reservation will probably be restricted to ensure protection of human health and the environment.

1.6 STAKEHOLDER INVOLVEMENT

PACRO members include stakeholders from McCracken, Ballard, Graves, and Marshall Counties in Kentucky, and Massac County in southern Illinois. PACRO members represent business, industry, education, economic development, government, DOE, Bechtel Jacobs Company LLC, and USEC.

In addition to the PACRO initiatives, DOE began preliminary discussions with stakeholders on future land use planning during a public workshop at Paducah June 30, 1994. Additional presentations on future land use have been routinely discussed during subsequent workshops and meetings, including a series of briefings provided to the Site Specific Advisory Board.

Generally, most stakeholders support a continued industrial/commercial presence at the site that would preserve existing jobs and continue to contribute to the regional economy.



LEGEND

- Controlled Access - Waste Disposal Area
- Restricted Use Area - Groundwater Consumption and Residential Development
- DOE Owned Industrial Area
- DOE Property Leased to Kentucky Department of Fish and Wildlife
- WKWMA Owned by Kentucky Department of Fish and Wildlife
- TVA Boundary
- Non-DOE Reservation Land
- Buildings/Structures
- DOE Boundary
- Paved Road
- Water Policy Boundary
- Streams

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NORTH

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Feet

Figure 3	Paducah End - State Map Paducah Gaseous Diffusion Plant - Paducah, Kentucky	Drawing ID: F/16711-00/pad-es.dgn	Drawing Date: March 5, 1999 KCB

2. OVERVIEW OF THE PORTSMOUTH GASEOUS DIFFUSION PLANT

2.1 MISSION

The DOE mission at the Portsmouth Gaseous Diffusion Plant (PORTS) includes the following:

- plan and execute the EM Program to address legacy contamination from previous DOE operations;
- serve as the landlord for EFs leased to USEC,
- manage the DOE EF Program (e.g., Depleted UF_6 Cylinders), and
- maximize future opportunities to reuse site assets and infrastructure through reindustrialization.

2.2 LAND USE

PORTS is located in rural Pike County in south central Ohio. The plant is situated on a 3714-acre parcel of DOE-owned land. Primary operations associated with the enrichment process and associated central development are located on 1200 acres surrounded by a perimeter road. The reservation land outside the perimeter road is used for several purposes, including a water treatment plant, lagoons for the process wastewater, former sanitary and inert landfills, and open and forested buffer areas. Figure 4 depicts the current land use located at PORTS. The entire reservation is restricted industrial with controlled access within the limited security area as well as closed sites.

2.3 CURRENT FACILITY USE

PORTS is an active uranium EF, which began operating in the early 1950s, supplying enriched uranium for government and commercial use. Extensive support facilities are required to maintain the diffusion process, including a steam plant, electrical switchyards, cooling towers, cleaning and decontamination facilities, water and wastewater treatment plants, and maintenance and laboratory facilities.

On October 24, 1992, the president signed the Act amending the Atomic Energy Act of 1954. This amendment transferred responsibility for uranium enrichment to a newly created government corporation, USEC, which made the transition to a publicly held company in 1998. In accordance with the Act, USEC assumed full responsibility on July 1, 1993, for uranium enrichment operations at the plant. However, the Act specifically required DOE to retain liability for any preexisting conditions before the transition, including responsibility for D&D, waste management, Depleted UF_6 Cylinders, and environmental remediation.

Current and near term uses at PORTS are dictated by an existing lease between DOE and USEC, which has a primary term through July 1, 2004, with exclusive options for USEC to extend the lease for additional periods. Under the agreement, USEC has leased only those facilities and areas necessary to support uranium enrichment. The

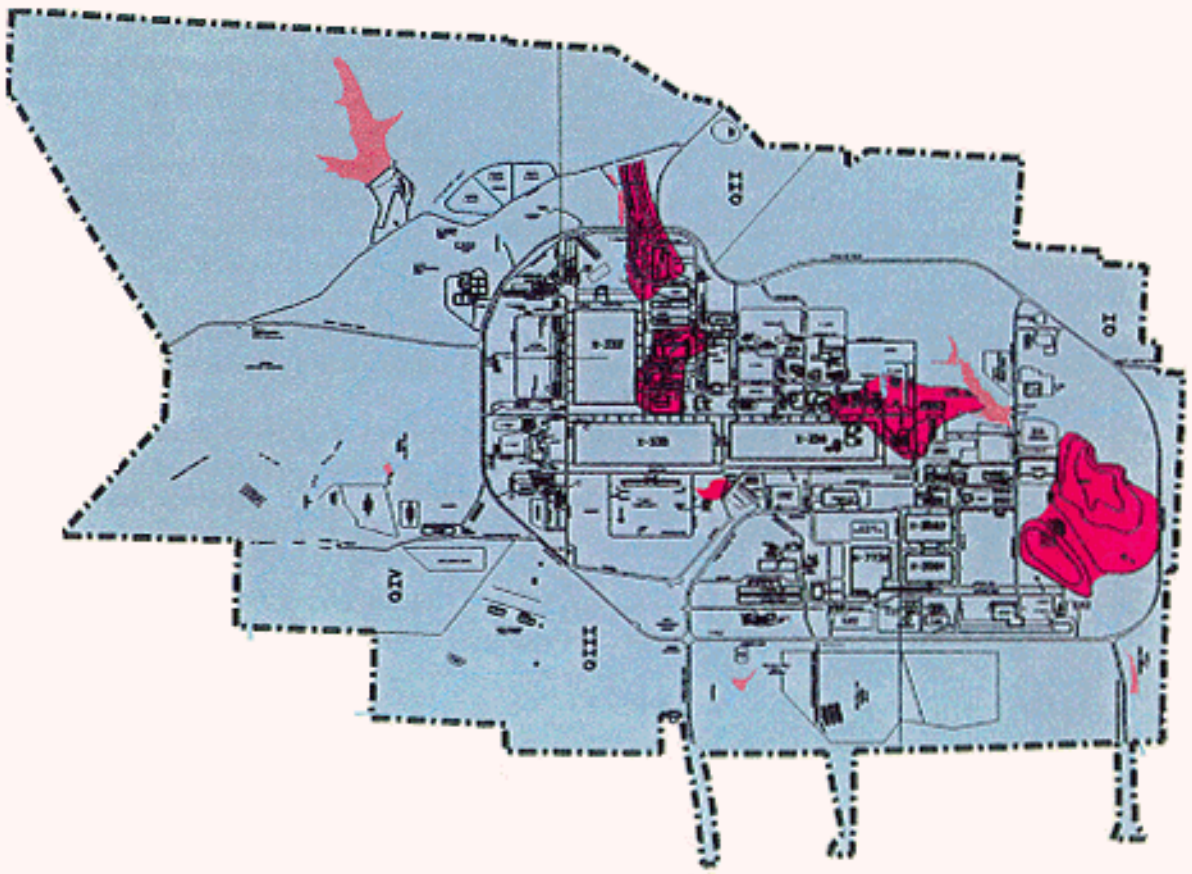

FIGURE 4	Portsmouth Current Use Portsmouth Gaseous Diffusion Plant - Piketon, Ohio	Drawing ID: F/16711-00/portsenv-cu.dgn	Drawing Date: March 5, 1999 KCB

remaining facilities and property excluded from the current lease agreement were retained by DOE; they are either being used to support DOE's EM and EF Programs or are subject to S&M until D&D or alternative reuse can be identified. Additionally, the lease agreement provides USEC first right of refusal to obtain any real property associated with PORTS that is not part of the existing lease agreement. Figure 5 contains a map depicting the facilities currently leased to USEC.

2.4 INFRASTRUCTURE NEEDS

USEC is responsible for the infrastructure needs to support the operation of the enrichment production facilities. However, DOE's existing EM and EF missions require routine evaluation of infrastructure needs. With regard to management of the Depleted UF_6 Cylinders, no significant infrastructure needs are currently expected for the next several years due
to recently constructed cylinder storage areas. However, should a future DOE decision identify PORTS as a key location for expanded interim storage and/or processing of depleted UF_6, then the need for additional infrastructure or upgrades must be further assessed to accommodate such scope. If USEC chooses to locate the AVLIS plant at PORTS, utility and infrastructure modifications would be required.

Under the EM Program, current waste projections indicate existing storage facilities should have adequate capacity to accommodate existing legacy wastes and future waste streams generated by the remedial action program. Also, should USEC decide to shut down PORTS in the near future, additional waste management facilities may be required to support active D&D of PORTS.

PORTS shutdown or additional industry relocating to PORTS would significantly expand DOE's current mission to include a greater emphasis on reindustrialization. In such cases, certain existing support facilities will be essential to site reuse including electrical switchyards, water and wastewater treatment facilities, cooling towers, the stream plant, and other related facilities. Depending on the nature of industry that may relocate to PORTS, new infrastructure or modifications to the existing infrastructure can be expected and must be further assessed as part of any reindustrialization effort.

2.5 SITE AND FACILITY PLANNING/REUSE ACTIVITIES

Several ongoing initiatives are underway to further evaluate alternative missions in coordination with the Southern Ohio Diversification Initiative (SODI) founded in 1995. DOE Headquarters' Office of Worker and Community Transition officially recognizes SODI as the designated Community Reuse Organization (CRO) for Ports. DOE established CRO in 1993 to minimize negative effects of workforce restructuring at DOE facilities with an historical role in the nation's defense by providing assistance to the communities involved.

PORTSMOUTH GASEOUS DIFFUSION PLANT FACILITY LEASE STATUS

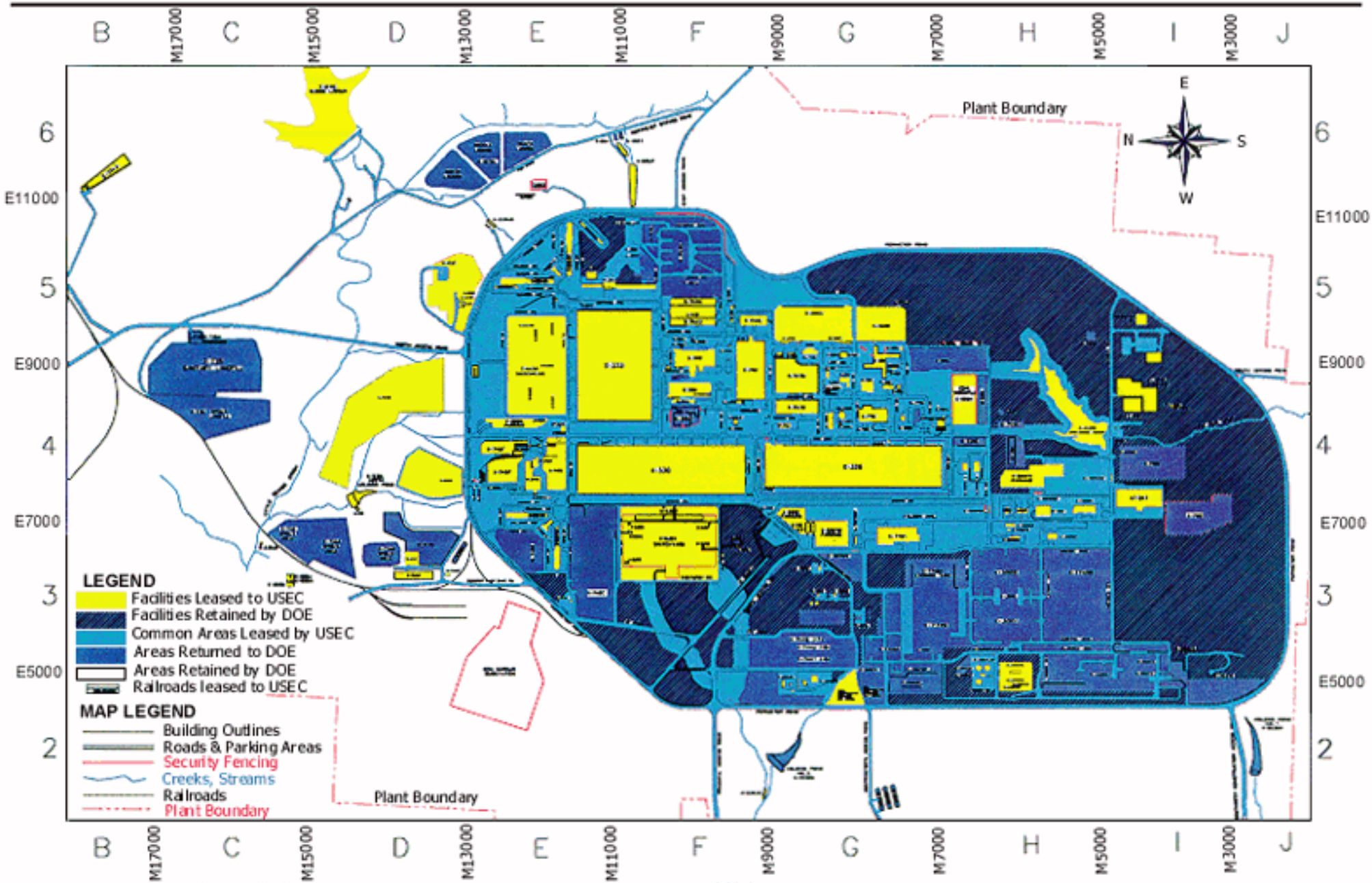

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FIGURE 5	PORTSMOUTH GASEOUS DIFFUSION PLANT BUILDING LEASE STATUS MAP PORTSMOUTH, OHIO	DOCUMENT ID:	MAP IS FROM DRAWING NUMBER:	DRAWING DATE:	BECHTEL JACOBS	Tetra Tech, Inc. OAK RIDGE, TENNESSEE
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In February 1996, DOE gave SODI an initial planning grant of $325,000. An additional planning grant of $175,000 was issued in August 1997. In March 1998, DOE announced a $6.5 million community transition funding grant toward SODI projects, including industrial parks in Pike and Scioto Counties. SODI's mission is to actively promote the reuse of underutilized lands, buildings and facilities at PORTS, and to promote further economic diversification of the region to offset impacts from the plant's changing mission.

Most of the work of DOE and SODI in facility/site reuse on site will begin at an undetermined point in the future when USEC ends its lease of the uranium EFs at Ports and returns these facilities to DOE. However, specific ideas for potential reuse of PORTS have been identified. These include DOE plans to build Depleted UF_6 conversion facilities at Paducah and Portsmouth and USEC plans to locate an AVLIS plant at PORTS or at one of the other sites under consideration for this uranium enrichment laser technology. Due to SODI's regional mission, several projects have been developed, including the initial development of 117 acres of a potential 1000-acre industrial site just north of the plant.

The industrial site received its first tenant in late 1998—a local cabinet manufacturer who invested $57 million in constructing a 1-million-ft^2 facility; the manufacturer plans to employ approximately 150 personnel. SODI has submitted an additional grant request to DOE for $59 million for 10 additional projects estimated to provide 850 jobs over the next 5 years. See Figure 6, which depicts Portsmouth FY 2006/End Use. The area outside the perimeter road will be used for recreational use. The area inside the perimeter will be made available for industrial use. Some small areas are controlled or have use restrictions.

2.6 STAKEHOLDER INVOLVEMENT

SODI's 16-member board includes stakeholders from Pike, Ross, Jackson, and Scioto Counties in southern Ohio. SODI members represent business, industry, education, economic development, government, DOE, Bechtel Jacobs, and USEC.

Presentations on future land use and other regional topics are routinely discussed during subsequent workshops and meetings.

Generally, the stakeholders support a continued industrial/commercial presence at the site that would preserve existing jobs, create new jobs, and continue to contribute to the regional economy.

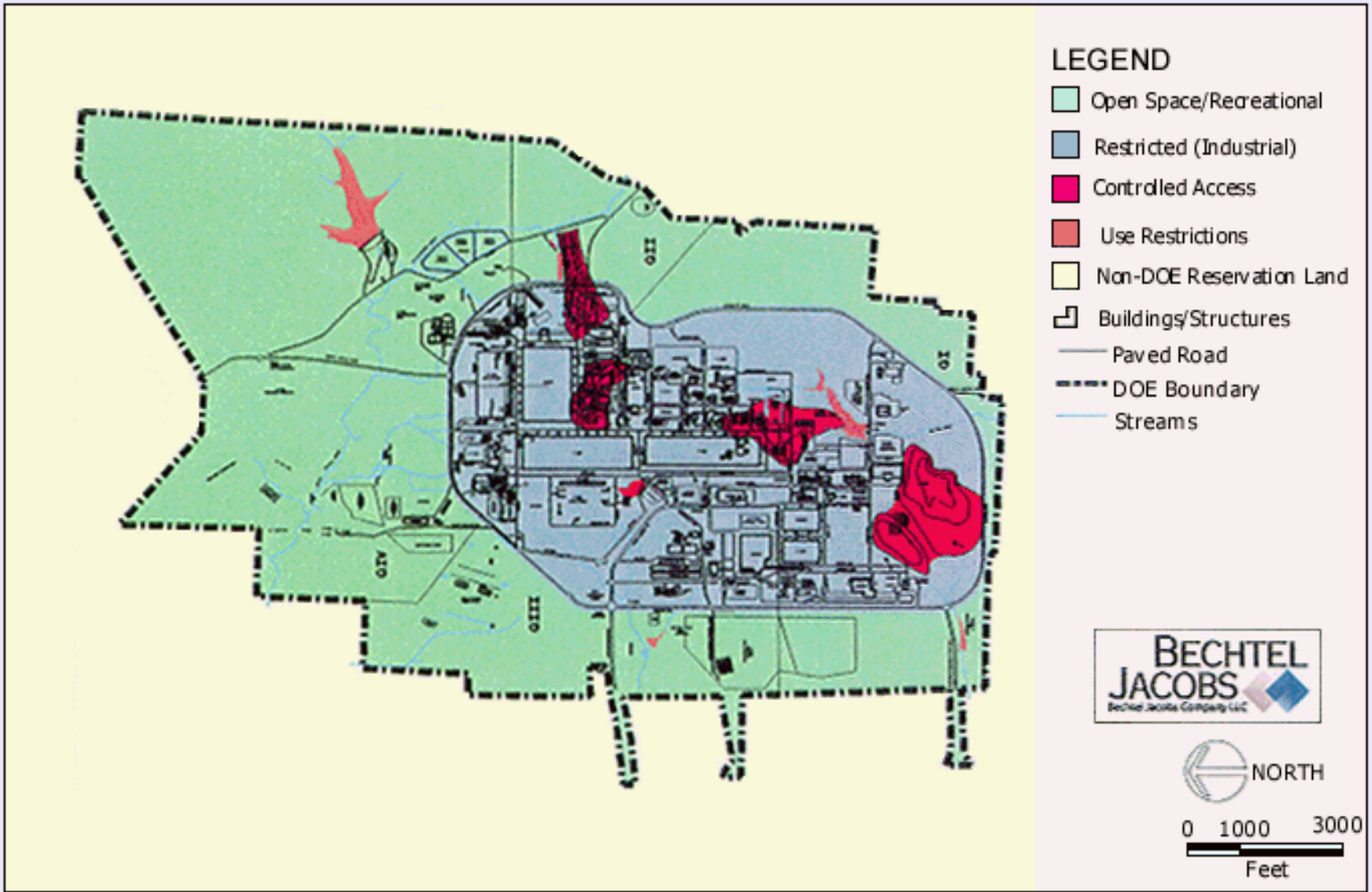

FIGURE 6	Portsmouth FY 2006/End Use Portsmouth Gaseous Diffusion Plant - Piketon, Ohio	Drawing ID: F/16711-00/portsenv-2006.dgn	Drawing Date: March 5, 1999 KCB