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May 15,2003

Ms. Dianna Feireisel
Acting Paducah Site Manager
Department of Energy
P.O. Box 1410
Paducah, KY 42002

Subject: Fiscal Year (FY) 2003 D2 Site Management Plan (SMP)

Dear Ms. Feireisel:

Enclosed for your consideration is a copy of the FY 2003 D2 SMP and the comment resolution package. It incorporates the Department of Energy's comments from the internal review process including FY 2003, FY 2004, and FY 2005 enforceable commitments, which were agreed to as part of the SMP dispute agreement signed on April 14, 2003.

If the enclosed is satisfactory, please forward to the Environmental Protection Agency and the Commonwealth of Kentucky by May 19,2003.

Please contact John Morgan of my staff at 5069 if you have any questions or need additional information.

Sincerely,

for John Van Sickle
Gordon L. Dover
Paducah Manager of Projects

GLD:mk
LTR-PAD/SRA-MK-03-0013

Enclosures: 1) Suggested text letter
2) FY 2003 D2 SMP and comment resolution package

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May XX, **2003**

Mr. Robert H. Daniell, Director
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Kentucky Department for Environmental Protection
14 Reilly Road, Frankfort Office Park
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Mr. Carl R. Froede Jr., P.G.
United States Environmental Protection Agency
Region **4**
DOE Remedial Section ***6***
Federal Facilities Branch
Waste Management Division
61 Forsyth Street
Atlanta, Georgia 30303

Dear Mr. Daniell and Mr. Froede:

FISCAL YEAR **2003 D2 SITE MANAGEMENT PLAN**

Attached for your consideration is the **D2** version of the Fiscal Year (FY) **2003** Site Management Plan (SMP) and the Department of Energy (DOE) comment resolution package. This revision of the SMP amends the FY 2003 Annual SMP (D1) submitted on November 15,2002, and is intended to officially incorporate the ***SMP*** dispute agreement signed by **DOE,** the Environmental Protection Agency (EPA), and the Kentucky Natural Resources and Environmental Protection Cabinet (KNREPC) on April **14,2003.** Specifically, it incorporates enforceable milestones for FY 2003, **FY 2004,** and FY **2005.** The April 14 Agreement further states the Federal Facility Agreement parties shall continue negotiations and agree to work in good faith to finalize schedules and milestones for the remaining outyear scope by September **15,2003.** The agreements resulting from the September **15** negotiations on the remaining outyear scope will be incorporated into the FY 2004 Annual SMP update, which is scheduled to be submitted November 15,2003.

DOE is committed to working closely with both EPA and KNREPC during these ongoing negotiations to reach agreement on a cleanup strategy that achieves a cost-effective acceleration using **a** risk-based approach.

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SITE MANAGEMENT PLAN
PADUCAH GASEOUS DIFFUSION PLANT
PADUCAH, KENTUCKY

AMENDED REVISION–FY 2003

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Primary Document

SITE MANAGEMENT PLAN
PADUCAH GASEOUS DIFFUSION PLANT
PADUCAH, KENTUCKY

AMENDED REVISION–FY 2003

Date Issued–May **2003**

Prepared for
U.S. Department of Energy
PADUCAH GASEOUS DIFFUSION PLANT
Paducah, Kentucky 42002
by
Bechtel Jacobs Company LLC
under contract DE-AC05-98OR22700
with contributions by
U.S. Environmental Protection Agency
Kentucky Cabinet for Environmental Protection
Kentucky Cabinet **for** Health Services

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ACRONYMS

ACO	Administrative Consent Order
AOC	areas of concern
ARAR	applicable or relevant and appropriate requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSOU	Comprehensive Site Operable Unit
D&D	decontamination and decommissioning
DMSA	DOE Material Storage Area
DOE	U.S. Department of Energy
EM	Environmental Management
EPA	U.S. Environmental Protection Agency
FFA	Federal Facility Agreement
FS	feasibility study
FY	fiscal year
GDP	gaseous diffusion plant
KDFWR	Kentucky Department for Fish and Wildlife Resources
KNREPC	Kentucky Natural Resources and Environmental Protection Cabinet
LCB	lifecycle baseline
NCP	National Contingency Plan
NPL	National Priorities List
OU	operable unit
PCB	polychlorinated biphenyl
PGDP	Paducah Gaseous Diffusion Plant
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RGA	Regional Gravel Aquifer
RI	remedial investigation
ROD	Record of Decision
SMP	Site Management Plan
SWMU	solid waste management unit
TCE	trichloroethene
USEC	United States Enrichment Corporation
WAG	Waste Area Grouping
WKWMA	West Kentucky Wildlife Management Area

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1. INTRODUCTION

The Paducah Gaseous Diffusion Plant (PGDP) was placed on the National Priorities List (NPL) on May 31, 1994. In accordance with Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the U.S. Department of Energy (DOE) entered into a Federal Facility Agreement (FFA) with the U.S. Environmental Protection Agency (EPA) and the Commonwealth of Kentucky on February 13, 1998. The FFA established one set of consistent requirements for achieving comprehensive site remediation under Resource Conservation and Recovery Act (RCRA) and CERCLA, including stakeholder involvement.

Section XVIII of the FFA requires DOE to submit an annual Site Management Plan (SMP), which outlines DOE's strategic approach for achieving cleanup under the FFA, to EPA and the Kentucky Natural Resources and Environmental Protection Cabinet (KNREPC) by November 15th of each year. The FFA states that the purpose of the SMP is to coordinate and document the potential and selected operable units (OUs), including removal actions; define cleanup priorities; identify work activities that will serve as the basis for enforceable timetables and deadlines under the agreement; and establish long-term cleanup goals.

In May 2001, the FFA parties invoked the dispute provisions of the FFA. This dispute pertained to the lack of agreement on enforceable milestones. Since that time, dispute negotiations between the FFA parties have been ongoing, and resolution to the dispute was reached on April 14,2003. This revision of the ***SMP*** officially incorporates the provisions of the ***SMP*** dispute agreement signed by DOE, EPA, and KNREPC on April 14, 2003, and amends the fiscal year (FY) 2003 Annual SMP (D1) submitted for review on November 15, 2003. Specifically, this amended SMP incorporates enforceable milestones for FY 2003, FY 2004, and FY 2005.

The milestones for the remaining outyear scope will be determined during negotiations held prior to September 15,2003. As noted in the April 14,2003 agreement, the FFA parties shall continue negotiations and agree to work in good faith to finalize the schedules and milestones for the remaining outyear scope by September 15, 2003. The provisions in the agreement to be reached by September 15,2003, will be incorporated into the FY 2004 Annual SMP Update, which is scheduled to be submitted November 15,2003.

The vision that served as the basis for this version of the **SMP** is to achieve significant risk reduction in the near term and complete additional actions, as necessary, prior to site closure. The following components were used to implement the site cleanup strategy and achieve this vision.

- Use risk-based cleanup with realistic exposure assumptions based on current and reasonably anticipated future land use.
- Implement a remediation approach that uses OUs, with an emphasis on early actions.
- Establish priorities that balance risk and compliance with mortgage reduction and visible progress toward completing the Environmental Management (EM) mission.
- Ensure that enforceable milestones and funding requests are based on clearly defined work scope and objectives.

In accordance with Section XVIII.F of the FFA, execution of above components, combined with other cost and productivity initiatives, are used to achieve efficient and cost-effective cleanup that is protective of human health and the environment.

The **SMP** is considered a strategic planning document that is updated annually in accordance with the FFA. It contains scope, schedule, and milestones based upon certain planning assumptions and is not intended to be predecisional. The actual scope and schedule associated with remedy selection and implementation will be proposed in the appropriate CERCLA document and subjected to public comment in accordance with CERCLA and RCRA, as specified by the FFA. In the event that an actual or apparent inconsistency arises between the FFA and the ***SMP***, the provisions of the FFA will govern.

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2. BACKGROUND

PGDP reached its 50th anniversary of operation in October 2002 as the only operating uranium enrichment plant in the U.S. With a half-century of production behind it, the plant faces significant environmental cleanup challenges.

2.1 FACILITY LOCATION AND OPERATIONS

PGDP is situated on a 3,556-acre parcel of DOE-owned property in western Kentucky, approximately 10 miles west of the city of Paducah and 3 miles south of the Ohio River (Fig. 1). The primary plant operations associated with the enrichment process are located on 748 acres within the plant security fence. Of the remaining acreage comprising the DOE-owned property (i.e., outside the main security fence), 1,986 acres are leased to the Kentucky Department for Fish and Wildlife Resources (KDFWR), as part of the West Kentucky Wildlife Management Area (WKWMA), and the remaining land (822 acres) is relegated as a buffer zone around the secure area.

The area surrounding the PGDP is predominantly rural. Immediately adjacent to PGDP is the WKWMA, which is used by hunters and fishermen. The remaining area is lightly populated with randomly located residences and farms. The small communities of Grahamville and Heath are located approximately 2 miles east of the plant. Metropolis, Illinois, is located north of PGDP, across the Ohio River.

PGDP is in an area of abundant surface water and groundwater resources. Bordering the east and west sides of the secure area are Little Bayou Creek and Bayou Creek, respectively. Little Bayou Creek originates in the WKWMA and Bayou Creek originates about 2.5 miles south of PGDP. Both creeks flow north toward the Ohio River, which is about 3 miles north of PGDP. Much of the flow in both creeks is caused by permitted effluent releases from PGDP. These effluents constitute the majority of normal flow in Bayou Creek and Little Bayou Creek.

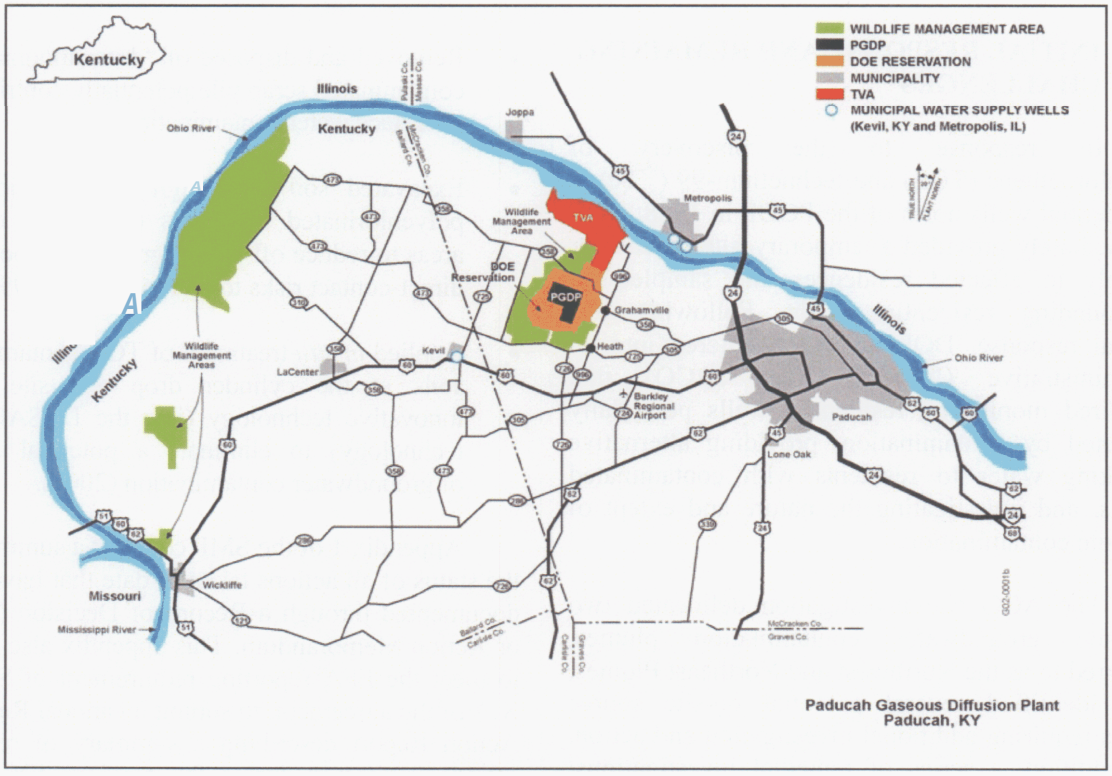

Fig. 1. Site location.

The major groundwater resource at PGDP is called the Regional Gravel Aquifer (RGA). The RGA is considered the uppermost aquifer at PGDP and historically served as a source of water to local residents. This aquifer originates near the southern boundary of PGDP, underlies nearly all of the secure area of the plant, and continues north to the Ohio River. The general flow direction of groundwater in the RGA is toward the north-northeast, where the aquifer discharges to the Ohio River.

Currently, the United States Enrichment Corporation (USEC) operates the uranium enrichment plant at PGDP. This corporation was established on October 24, 1992, when the President signed the Energy Policy Act of 1992. The charter of USEC under this act is to provide profitable and competitive uranium enrichment services. USEC has leased the uranium enrichment production facilities from DOE since July 1, 1993, but DOE has retained the non-leased facilities and is responsible for the decontamination and decommissioning (D&D) and cleanup for environmental conditions that existed before July 1, 1993. Privatization of USEC was complete on July 28, 1998.

2.2 INITIAL RESPONSE AND REMAINING CHALLENGES

In response to the discovery of trichloroethene (TCE) and technetium-99 (^{99}Tc) in residential wells north of the PGDP in 1988, DOE immediately provided a temporary alternate water supply to affected residences and sampled all surrounding residential wells. Following this initial response, DOE and EPA entered into an Administrative Consent Order (ACO) that required monitoring residential wells potentially affected by contamination, providing alternative drinking water to residents with contaminated wells, and investigating the nature and extent of off-site contamination.

The ACO site investigation delineated two off-site groundwater contamination plumes, referred to as the Northwest and Northeast Plumes, and identified several potential on-site source areas requiring additional investigation and action. In addition, a series of remedial investigations/ feasibility studies (RI/FSs) was conducted under the FFA, including completing the evaluation of all major contaminant sources impacting groundwater and surface water. In accordance with these investigations, DOE implemented actions that focused on reducing potential risks associated with off-site contamination. Examples of the significant actions completed to date include the following:

- Extended municipal water lines as a permanent source of drinking water to affected residents to eliminate exposure to contaminated groundwater (1995).
- Constructed and implemented groundwater treatment systems for both the Northwest and Northeast Plumes to reduce contaminant migration (1995 and 1997, respectively).
- Imposed institutional controls (fencing and posting) to restrict public access to contaminated areas in certain outfall ditches and surface water areas (1993).
- Constructed hard-piping to reroute surface runoff around highly contaminated portions of the North-South Diversion Ditch (1995).
- Removed and disposed of "drum mountain," a contaminated scrap pile potentially contributing to surface water contamination (2000).
- Excavated soil with high concentrations of polychlorinated biphenyls (PCBs) in on-site areas to reduce off-site migration and potential direct-contact risks to plant workers (1998).
- Applied *in situ* treatment of TCE-contaminated soils at the cylinder drop test site using innovative technology (i.e., the LASAGNA"" technology) to eliminate a potential source of groundwater contamination (2002).

Appendix 1 of the SMP contains a summary of the status of all actions taken to date that have been documented through a Record of Decision (ROD) or Action Memorandum. This appendix also serves to meet the FFA reporting requirement of Section X.A of the agreement, to submit an annual Removal Action Report describing a summary of removal actions performed during the previous FY. More detailed information on the status of each OU is

available in the FFA Semi-Annual Progress Report. In addition to the completed actions, DOE has an ongoing integrated environmental monitoring program that assesses contaminant effects and depicts trends in effects over time. Results from this program are reported in the Annual PGDP Environmental Reports, which will continue to be updated annually.

These initial response actions are steps in reducing site risks. While no known imminent threats currently exist, as verified by conclusions in the Agency for Toxic Substances and Disease Registry's Health Assessment, and in a report from the Commonwealth of Kentucky entitled ***Report of the Commonwealth Kentucky's Task Examining State Regulatory Issues at the Paducah Gaseous Diffusion Plant,*** several major challenges remain. As depicted in Fig. 2, these challenges are legacy waste, DOE Material Storage Areas (DMSAs), PCBs and radionuclides in creeks and soils, off-site plumes, burial grounds, and sources of groundwater contamination.

This SMP outlines a strategy to achieve significant reduction of potential risks at the site through a series of aggressive response actions, as is further explained in Section 3. The DMSAs and legacy waste indicated in Fig. 2 are not covered by the FFA or included in the scope of the SMP.

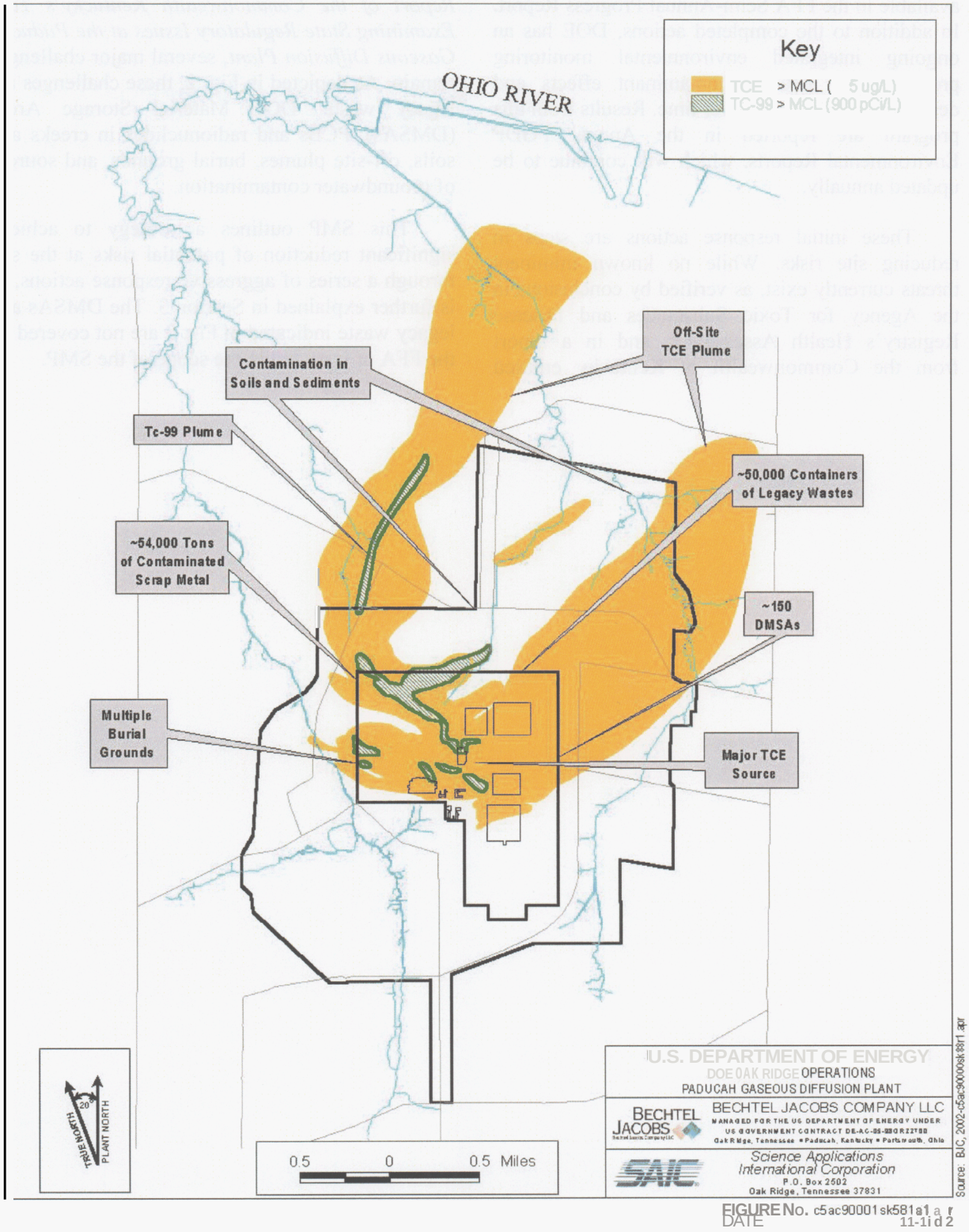

Fig. 2. Major site challenges.

3. RISK-BASED APPROACH

The site cleanup strategy uses a risk-based approach to ensure that areas posing the greatest potential risks are addressed first and that the selected response actions achieve overall protectiveness under current and reasonably anticipated future use patterns (i.e., end state goal). The risk-based approach considers site-specific factors such as land use, types of contaminants, exposure pathways, and locations of potentially affected receptors (i.e., industrial workers, recreational users, residents, and ecological receptors) to establish a site conceptual risk model. Information generated from this model is used to develop site cleanup objectives, which serve as guiding principles for creating more detailed remedial action objectives (RAOs) to focus OUs on specific site problems.

In summary, the following components are key elements of the risk-based strategy:

- **End state:** Define the end state goal that will achieve protectiveness under current and reasonably anticipated future land uses.

- **Exposure pathway analysis:** Develop a site conceptual exposure model to define exposure pathways leading from the sources to the potentially affected receptors, consistent with the current and reasonably anticipated future use patterns.

- **Site cleanup objectives:** Based on the results of the exposure pathway analysis, develop site cleanup objectives protective of potentially affected receptors that are consistent with the end state goal.

- OUs: Establish projects with clearly defined scope, schedule, and exit strategies that achieve site cleanup objectives in a timely and cost-effective manner.

- Prioritization: Prioritize the OUs using risk-based criteria to ensure that the areas posing the greatest risks are addressed first.

- **Site-wide baseline risk model:** Develop a baseline risk model to monitor progress toward achieving site cleanup objectives and end state goal.

The RAOs used in remedy selection for each OU will be included in the appropriate CERCLA decision document and subjected to stakeholder input in accordance with the requirements of CERCLA and RCRA.

3.1 END STATE

The end state goal of the site cleanup strategy is to maximize use of on- and off-site locations consistent with current and reasonably anticipated future use patterns. When selecting actions to achieve this goal, many factors, such as site contamination, technology limitations, and cost-effectiveness, must be considered.

For the purpose of the site cleanup strategy, the current and reasonably anticipated future land uses are referred to as the end state, which will be achieved after the active plant ceases operation; therefore, accurately defining current and reasonably anticipated future land use is essential to implementing response actions protective of human health and the environment.

As depicted in Fig. 3, the current and reasonably anticipated future land uses at PGDP consist of: industrial areas located primarily inside the security fence, recreational areas located outside the security fence, and off-site residential areas. Several factors were considered in establishing the land use assumptions under this strategy, including current and past land use, existing lease commitments, the nature of site contamination, and stakeholder input.

Lease agreements have a major impact on land use. As noted earlier, PGDP is an active uranium enrichment facility surrounded by a wildlife management area. DOE has lease agreements with USEC for plant operations and with KDFWR for use by WKWMA. In addition, DOE recently awarded a contract to construct and operate a depleted uranium hexafluoride (DUF_6) conversion plant at PGDP.

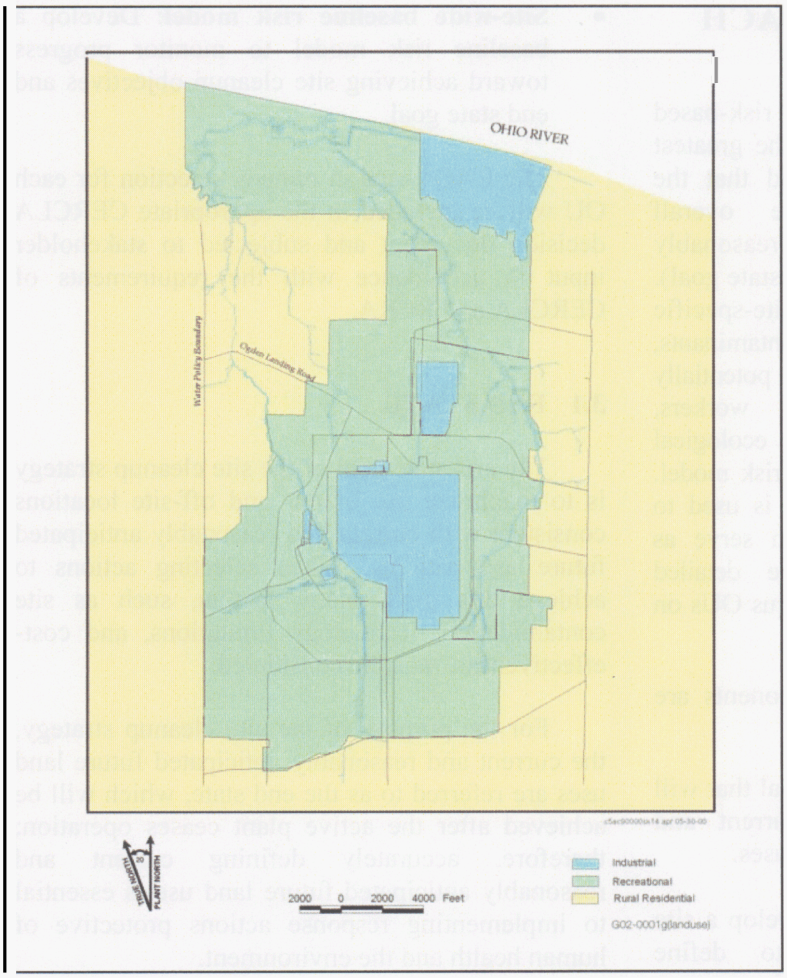

Fig. 3. Current and reasonably anticipated future land use at PGDP.

Site contamination is an important factor when determining land use because the extent to which DOE can address site contamination has a significant influence on the potential future use of DOE property. The primary contaminants of concern at the PGDP are radionuclides, organic solvents, and PCBs. Of these, both the radionuclides and PCBs are persistent in the environment and are unlikely to degrade to less hazardous contaminants within a short period of time. While organic solvents can be expected to degrade under many conditions, organic solvents released at PGDP have contaminated the uppermost aquifer (RGA), where degradation is slow. Additionally, the organic solvent TCE, a liquid that is heavier than water, has migrated downward to the aquifer and formed areas of high concentration that are resistant to degradation, thereby creating long-term sources of groundwater contamination that can remain for hundreds of years.

In addition to existing lease agreements and site contamination, input from both internal and external stakeholders continues to be considered through public meetings, workshops, and briefings. In general, most stakeholders support an industrial/commercial presence at the site to preserve existing jobs and to continue contributing to the regional economy.

3.2 SITE CLEANUP OBJECTIVES

To achieve the end state goal discussed in Section 3.1, specific site cleanup objectives have been developed as part of the risk-based strategy. The site cleanup objectives serve as guiding principles for creating more detailed RAOs to focus OUs on site-specific problems. Defining the site cleanup objectives for the PGDP requires consideration of the land use, exposure pathways, and the potentially affected receptors. The point of exposure represents the most likely location where a potential receptor *can* come in contact with contaminated media. Therefore, defining the points of exposure that properly correspond to current and reasonably anticipated future land use is essential to establishing cleanup objectives that effectively protect human health and the environment. Based on the current and anticipated future land use, on-site industrial workers, recreational users, and off-site residents are the primary human receptors having the greatest potential for exposure to site contamination originating from the PGDP. The primary pathways of exposure are 1) the groundwater pathway for the off-site residents, 2) the surface water pathway (i.e., surface water and sediments) for recreational users, and 3) direct contact with waste, soils, and sediments for industrial workers.

Site Cleanup Objectives

- Protect residential receptors from exposure to contaminated groundwater in areas off DOE property.
- Protect recreational users from exposure to contaminated surface water, sediments, and biota in areas outside the security fence.
- Protect industrial workers from exposure to waste and contaminated soils and sediments in areas inside the security fence.

The selected remedies must attain protectiveness at the points of exposure. The National Contingency Plan (NCP) of CERCLA, which defines protectiveness in terms of risk-based levels, states that acceptable health-based exposure levels for known or suspected carcinogens are concentration levels that represent an excess upper bound lifetime cancer risk between 10^{-4} to 10^{-6}. For systemic toxicants, EPA guidance defines a hazard index of 1 as an acceptable health-based exposure level.

As noted in EPA's Directive 9355.0-30, cleanup levels can be applicable or relevant and appropriate requirement- (ARAR-) based when a chemical-specific ARAR exists. Generally, if an ARAR-based concentration is available, it can supercede any calculated risk-based concentration. When a selected cleanup standard cannot be cost-effectively achieved because of site-specific conditions (e.g., dense non-aqueous phase liquids), certain options may be available, including technical impracticability and interim measure waivers, as well as alternate Concentration limits. Pursuing any such options requires appropriate CERCLA documentation

To attain protective levels, a response action can target removal of the source of contamination, focus on the migration pathway, restrict certain actions of the receptor to limit exposure, or use a combination of the above. The CERCLA risk range and ARAR-based standards are used for developing cleanup levels. Although risk exceeding 10'' may meet cleanup standards or otherwise not require the performance of a response action, Section XII of the FFA requires that an evaluation of alternatives (i.e., an FS) be conducted to address any release when the following conditions are present:

- The baseline risk assessment shows that the potential cumulative cancer risk to an individual exposed to a release under current or future land use using reasonable maximum exposure is greater than 10^{-6}.
- The baseline risk assessment shows that the potential hazard to an individual exposed to a release under current or future land use using reasonable maximum exposure results in a hazard quotient greater than 1.
- A determination is made that the release has caused adverse environmental impacts.
- Maximum contaminant levels, non-zero maximum contaminant level goals, or other chemical-specific ARARs are exceeded.

3.3 OPERABLE UNITS STRATEGY

Site cleanup objectives have been developed consistent with the end state goal, as presented in Section 3.2. The site cleanup objectives serve as guiding principles for creating more detailed RAOs and for focusing OUs on specific site problems. Cleanup activities will be implemented both before and after plant shutdown. As depicted in Fig. 4, activities to be completed before plant shutdown consist of a focused evaluation of five potential OUs with an emphasis on identifying and implementing early actions. In addition, activities during this time include evaluating areas that require additional RI/FSs and implementing response actions, as needed. The post-plant-shutdown activities will be implemented after the gaseous diffusion plant (GDP) ceases operation and include D&D of the current operating facilities followed by the [final Comprehensive Site Operable Unit (CSOU)].

Prior to the FFA, the solid waste management units (SWMUs) and areas of concern (AOCs) were segregated under the RCRA Permit into approximately 30 Waste Area Groupings (WAGs) based on common characteristics (e.g., geographic locations or contaminants). As a better understanding of site conditions was gained through the various WAG investigations, EPA, KNREPC, and DOE concluded it would be more

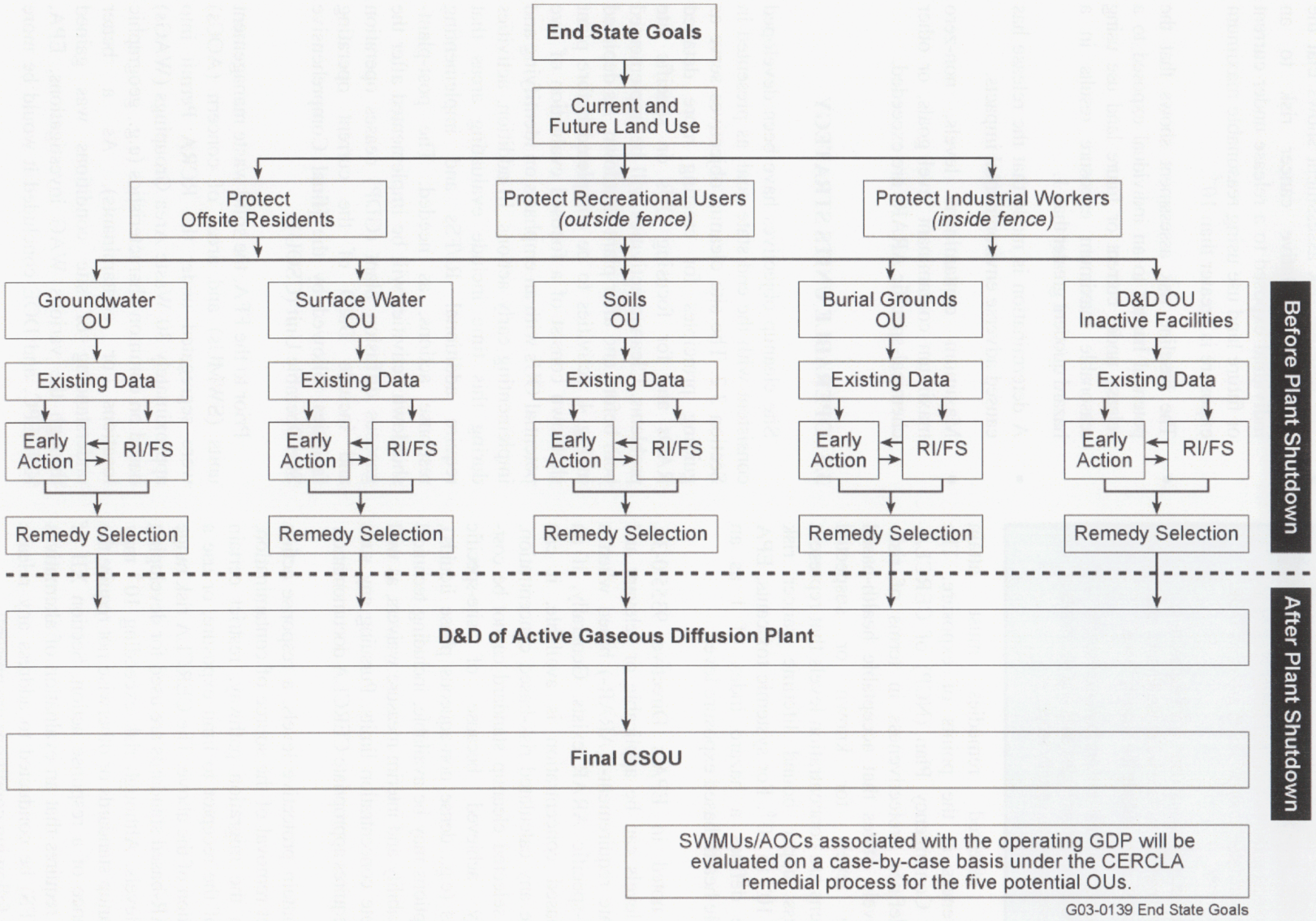

Fig. 4. OU strategy.

effective if the existing WAGs were grouped into broader OUs, thereby providing a more comprehensive framework to assess risks, identify and prioritize response actions across the site, and develop integrated remedial solutions.

The OUs were established by developing a site conceptual risk model for each source area (SWMUs/AOCs). This process included an evaluation of contaminant types and concentration, release mechanisms, exposure pathways, points of exposure, and receptors based on current and reasonably anticipated future land use. The source areas were then grouped considering the primary exposure pathways and receptors that may be impacted by contamination at or migrating from the area (i.e., identify primary risk contribution). For example, all sources suspected as being primary risk contributors to off-site residents via the groundwater pathway were grouped under a single groundwater OU. Similarly, the surface water OU contains source areas posing the greatest risks to recreational users. The soils, D&D, and burial grounds OUs contain the sources posing the greatest risks to on-site industrial workers via direct contact.

Section XI.2. of the FFA specifies that the SWMUs and AOCs contained in Appendix B of the agreement be segregated into potential OUs in the SMP to facilitate effective planning and RI/FS scoping. Appendix 2 of the SMP contains lists of SWMUs and AOCs sorted by potential OU. These lists show that some SWMUs and AOCs are placed in more than one potential OU because of the nature of the contamination present. Some SWMUs and AOCs are not listed because they will be addressed under another regulatory program. Section IV.F. of the FFA states that treatment, storage, and disposal units for which KNREPC has regulatory authority and has issued a RCRA Hazardous Waste Permit establishing that operating, closure, or post-closure standards shall not be subject to the agreement. Furthermore, some units have already been assigned no further action or are being addressed under other regulatory programs, permits, or enforcement orders (e.g., DMSAs, permitted solid waste landfills, etc.).

3.3.1 Pre-GDP Shutdown

The FFA states one purpose of the agreement is to expedite response actions with minimal delay. Sections X and XIV of the FFA contain considerable flexibility for implementing early response actions through removal and interim remedial actions to achieve significant risk reduction quickly, expedite total site cleanup, or respond to immediate risks. The primary goal of the site cleanup strategy is to demonstrate a bias for action, with emphasis on identifying and implementing early actions that provide significant risk reduction; however, this also includes lower risk projects that promote mortgage reduction opportunities to free up funding for potential acceleration of other work.

PGDP has been subject to extensive RI characterization since the CERCLA ACO in 1988. Consequently, a considerable amount of data is available for each OU. The existing data have been subject to an ongoing risk evaluation, which has resulted in the identification of a series of early actions. These early actions are focused in nature and represent a significant step toward reducing potential site risks. However, these actions are not intended to provide comprehensive solutions for the entire site or particular OU. Therefore, additional RI/FS evaluation may be necessary.

When additional data are determined to be necessary, existing data will be evaluated in RI/FS work plans to define data gaps and direct the field sampling plan. In accordance with the FFA, these investigations will include a baseline risk assessment, which examines both site risks and the potential for risks from commingled releases from other sources. These assessments will support the ongoing development of the site-wide risk model and enhance DOE's ability to develop integrated remedial solutions. Integrated assessments of both the groundwater OU and surface water OU will be completed consistent with the FFA and earlier versions of the SMP.

Some OUs contain active units associated with the operating GDP (e.g., electrical

switchyards). Because of access restrictions, operating hazards, or potential for recontamination, many of those units cannot be fully characterized or remediated until they cease operation. Therefore, prior to plant shutdown RI/FS process will be focused, with an emphasis on the migration pathways leading from the OUs. This will determine whether there is an ongoing release posing an imminent threat that warrants early action. The extent of the investigation and remedial action for such areas will be determined on a case-by-case basis after consideration of the site-specific conditions. In cases where the RI/FS process determines that there is no unacceptable direct contact risk or potential for off-site migration, additional action may be deferred until the final CSOU.

3.3.2 Final Comprehensive Site Operable Unit – Post-GDP Shutdown

In accordance with Section XIII.B of the FFA, the final CSOU will occur when the plant ceases operation. As part of the final CSOU, the future land use assumptions discussed previously will be reassessed and modified, if necessary, to ensure consistency with any reuse initiatives that may be considered at that time. The scope of the final CSOU will include a site-wide baseline human health and ecological risk assessment to evaluate the residual risks remaining after completing pre-plant-shutdown activities and D&D. At that time, the SMP and FFA will be modified to incorporate the final CSOU schedule and milestones.

3.4 SITE PRIORITIZATION

DOE uses a combination of factors to prioritize work being implemented under the EM program at PGDP. These include risk-based criteria, compliance with other programs, mortgage reduction, and demonstrated progress toward completing the EM mission.

The risk-based prioritization criteria incorporate the general program management principles of the NCP, which emphasizes the use of early actions to address imminent threats and to reduce migration of off-site contamination.

Consistent with those principles, the following risk-based prioritization criteria are used as guidelines, in conjunction with the other previously mentioned factors, to prioritize response actions.

Risk-Based Prioritization

- Mitigate immediate threats, both on- and off-site.
- Reduce further migration of off-site Contamination.
- Address sources contributing to off-site contamination.
- Address remaining sources contributing to on-site contamination.
- Implement the final site-wide action to aadress D&D of the plant and address remaining sources of contamination.

The prioritization criteria have been applied to each of the OUs at PGDP. A prioritized list of projects within each OU is presented in Table 1 of Section 4.

3.5 RISK ASSESSMENT AND EVALUATION

Integral to the risk-based cleanup approach at PGDP are the methods used to complete screening and baseline risk assessments and risk evaluations, including the development of risk-based screening levels and cleanup levels. This section briefly discusses how these are integrated into the risk-based strategy. Additional information, including tables of risk-based action and no action screening values, background concentrations, and selected regulatory values, are in the PGDP risk methods documents.

The overall integration of the risk assessment and OU strategies is depicted in Fig. 5. Following are the major risk assessment activities.

- Develop a site-wide risk baseline against which progress toward the end state goal can be measured.
- Evaluate existing baseline and screening risk assessments to support early action decisions.

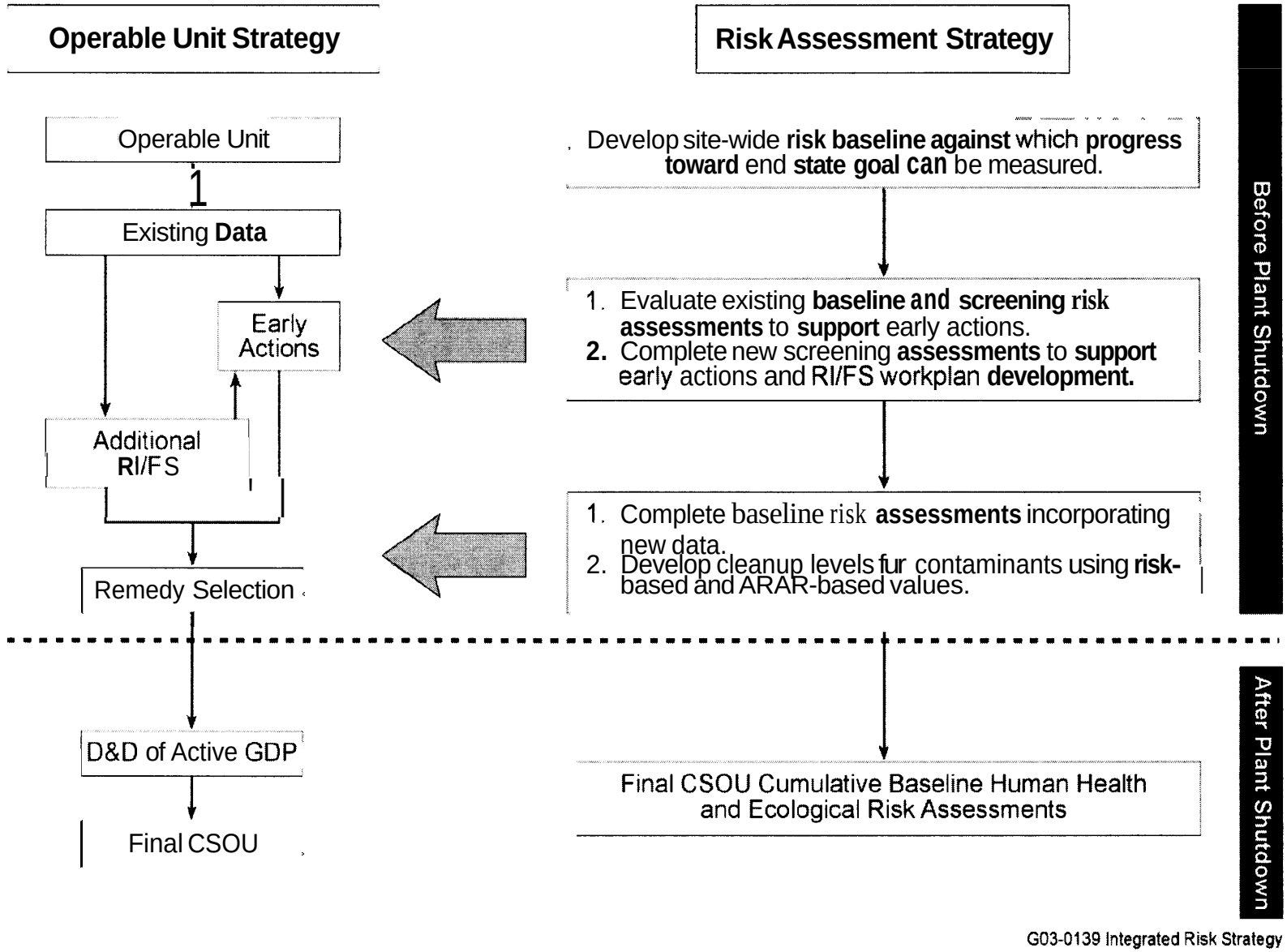

Fig. 5. Integrated risk strategy.

- Complete baseline risk assessments to support decisions and to assist in planning the completion of the final comprehensive baseline risk assessment.
- Complete the final comprehensive baseline human health and ecological risk assessment as part of the final CSOU to examine cumulative effects from remaining contamination and to support the final decision.

DOE established an integrated environmental monitoring program that consists of data collection under multiple regulatory programs. The compilation of these data will be used when completing the RI/FS and final CSOU cumulative baseline risk assessments, as depicted in Fig. 6. These data and their evaluation are critical to the consideration of the trends in ecological risk throughout site cleanup.

When completing each of these risk assessment activities, risk-based cleanup levels will be calculated if an ARARs-based standard is not available. Methods used to calculate the risk-based levels, including probabilistic risk assessment, are explained in the PGDP risk methods documents. When applying the cleanup levels during a response action, the concepts of co-contamination and field screening will be used.

3.6 WASTE DISPOSAL STRATEGY

Also integral to the completion of the cleanup strategy is cost-effective disposition of wastes generated under the FFA. Based on the nature of the wastes, both on- and off-site disposal options may be evaluated during the remedy selection process. For the purpose of developing planning assumptions, waste generated under FFA response actions that meet the approved waste acceptance criteria (e.g., non-RCRA hazardous) currently are assumed to be disposed in the C-746-U Landfill. However, actual waste disposition determinations will be made on a project-by-projectbasis with the disposal method selected in the appropriate CERCLA document. Unavailability of the U-Landfill will significantly impact DOE's ability to meet the schedules and milestones proposed in Section4 of the SMP. Uncertainty about the U-Landfill's full and open availability is anticipated to be reflected in future CERCLA decisions through assumptions and alternatives analyses based on off-site disposal. Current decisions that depend on the U-Landfill may require reexamination of their cost-effectiveness if the U-Landfill is not permitted consistent with the decision documents. **As** part of the pre-plant-shutdown activities and depending on the scope of actions under consideration and corresponding wastes volumes, an on-site CERCLA disposal cell may be evaluated to support the site-wide waste disposal program.

Wastes generated under the FFA that require off-site disposal will be shipped to an approved off-site waste disposal facility in accordance with Section IV.G of the FFA. Mixed waste generated by actions under the FFA will be regulated by the approved Site Treatment Plan.

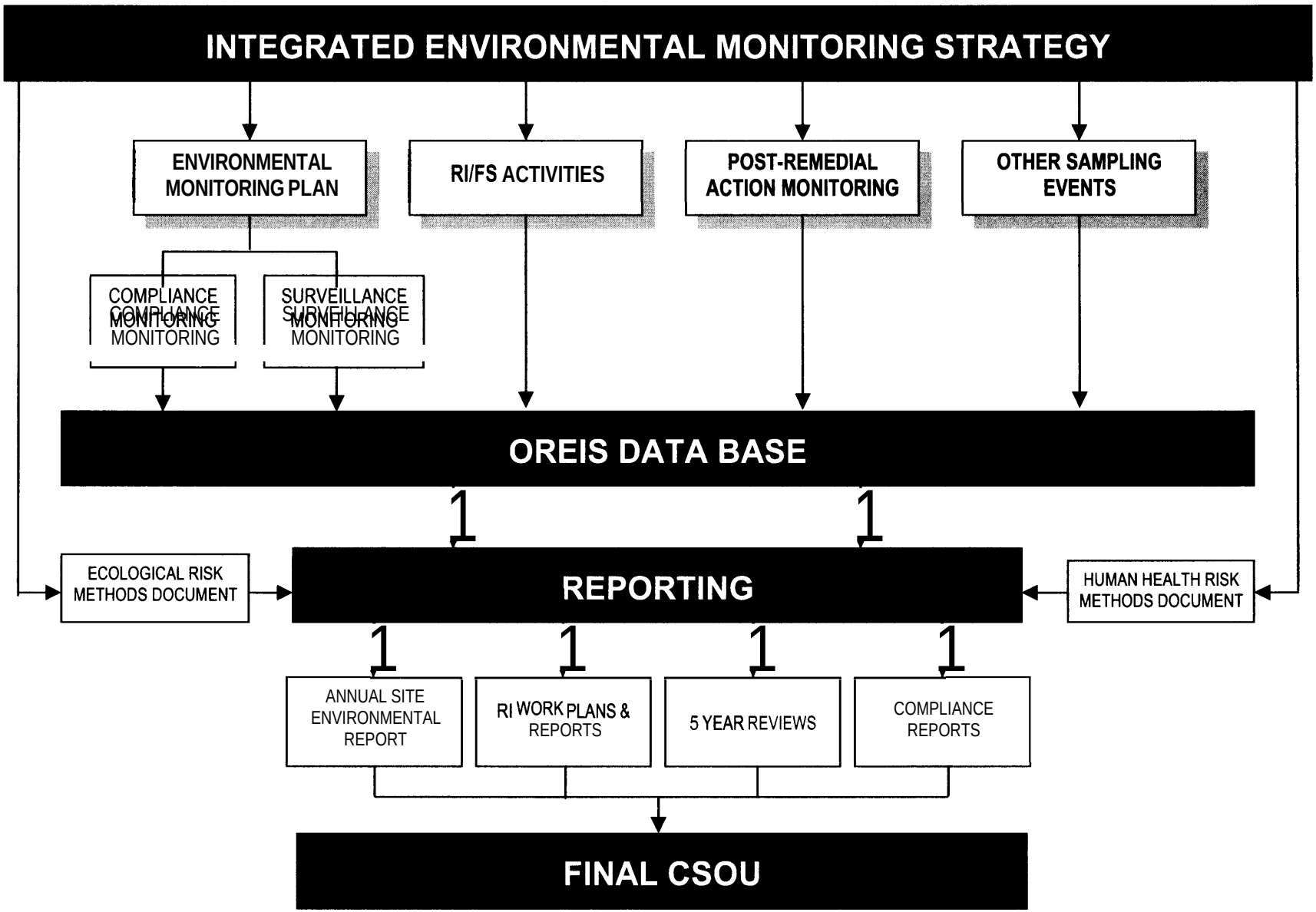

Fig. 6. Integrated environmental monitoring strategy.

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4. SCOPE AND SCHEDULES

This section outlines the scope, schedule, and objectives for each OU, as well as the projected end-state goals. The schedules are used as the basis to establish key milestones that will serve as enforceable timetables and deadlines and long-term completion goals under the FFA. The schedule and milestones for the final CSOU will be included when the plant ceases operation.

As noted previously, this revision of the SMP amends the FY 2003 Annual SMP (D1) version submitted for review on November 15, 2003, by officially incorporating the provisions of the SMP dispute agreement signed by DOE, EPA, and KNREPC on April 14, 2003. Specifically, this revision of the SMP incorporates enforceable milestones for FY 2003, FY 2004, and FY 2005. The milestones for the remaining outyear scope will be determined during negotiations held prior to September 15, 2003. As noted in the April 14, 2003, agreement, the FFA parties shall continue negotiations and agree to work in good faith to finalize the schedules and milestones for the remaining outyear scope by September 15, 2003. The provisions in the agreement to be reached by September 15, 2003, will be incorporated into the FY 2004 Annual SMP Update, which is scheduled to be submitted November 15,2003.

To support the long-term planning process associated with implementation of the FFA, DOE has developed a lifecycle baseline (LCB) that serves as the strategic roadmap for completing site remediation. Because many of the areas subject to remediation have not yet undergone complete characterization or the remedy selection process, planning assumptions were based on current understanding of site problems and available cleanup alternatives. These planning assumptions were used to help estimate the necessary resources needed to achieve site cleanup and are not meant to be predecisional. Planning assumptions will be updated as new information is generated from ongoing investigations and technology evaluations. The actual scope and schedule associated with remedy selection and implementation will be proposed in the appropriate CERCLA document and subjected to public comment in accordance with CERCLA and RCRA, as specified by the FFA. Throughout the planning process, it is DOE's intent to work closely with the regulators to obtain input on the assumptions used.

4.1 SCOPE

The objective of the pre-plant shutdown activities is to implement projects that achieve significant risk reduction and close out all projects to the extent possible given the operating GDP. The most important sources targeted have been identified as major contributors to off-site contamination during consultation with the stakeholders and include the following:

- TCE sources associated with C-400,
- TCE sources associated with the Southwest Plume,
- Scrap metal yards, and
- North-South Diversion Ditch Sections 1 and 2.

Although pre-plant-shutdown scope includes D&D of C-410 and C-340 Facilities, as well as 15 other inactive facilities, there is general agreement that these facilities do not pose a potential risk comparable ***to*** the other projects that are planned during this period. However, the D&D projects are essential to demonstrate visible progress toward completing the EM mission and providing mortgage reduction opportunities that will potentially free up funding to accelerate additional work.

Throughout pre-plant-shutdown activities, the cleanup program will evaluate existing data and determine whether additional data are required to complete investigations and remedy selection. Additionally, consistent with the FFA, these activities will include baseline risk assessments of the multiple sources contributing contamination to the groundwater and surface water OUs **as** part of the integrated assessment of the PGDP. If any investigation indicates that a response action is warranted according to the criteria in the FFA, then an evaluation of cleanup alternatives will be conducted, and response actions will be implemented as necessary.

4.2 SCHEDULE

The FFA requires the annual **SMP** to include a list of commitments and long-term projections, developed in a manner consistent with the FFA and **SMP** prioritization criteria, that identifies the submittal dates for deliverables that correspond to work activities for FY+1 and FY+2, as well as any outyear enforceable commitments. The agreement specifically states that the ***SMP*** should identify ROD milestones for FY+1 and FY+2, and ROD targets by FY quarters for FY+3 and beyond for all potential OUs, CSOUs, and remedial action OUs. The agreement further states the targets for FY+3 and beyond are not enforceable and will be used by all parties for planning purposes only.

When project-specific scoping for a given OU has not been conducted and a detailed schedule based on actual agreed upon scope has not been finalized within the appropriate CERCLA document, planning assumptions are used to estimate implementation timeframes and milestones under the FFA. To support outyear projections, a generic WAG Schedule is used.

4.2.1 Generic WAG Schedule

A generic WAG schedule was developed to estimate implementation timeframes and milestones for outyear projects that have not undergone project-specific scoping. The generic WAG schedule, which is presented at a summary level in Fig. 7, reflects the lifecycle process a potential OU would undergo if it were subject to CERCLA remediation under the FFA. The generic WAG schedule incorporates the FFA scheduling protocols, such as the document review and approval timeframes contained in Appendix F of the FFA, as well as other scheduling requirements.

The generic WAG schedule is not based on a specific scope and, once project-specific scoping is conducted for a given OU, the schedule for implementation may be shorter or longer. For example, the FFA contains several streamlining provisions that will shorten a project's schedule by allowing for expedited actions through removal and interim remedial actions

4.2.2 Enforceable Commitments

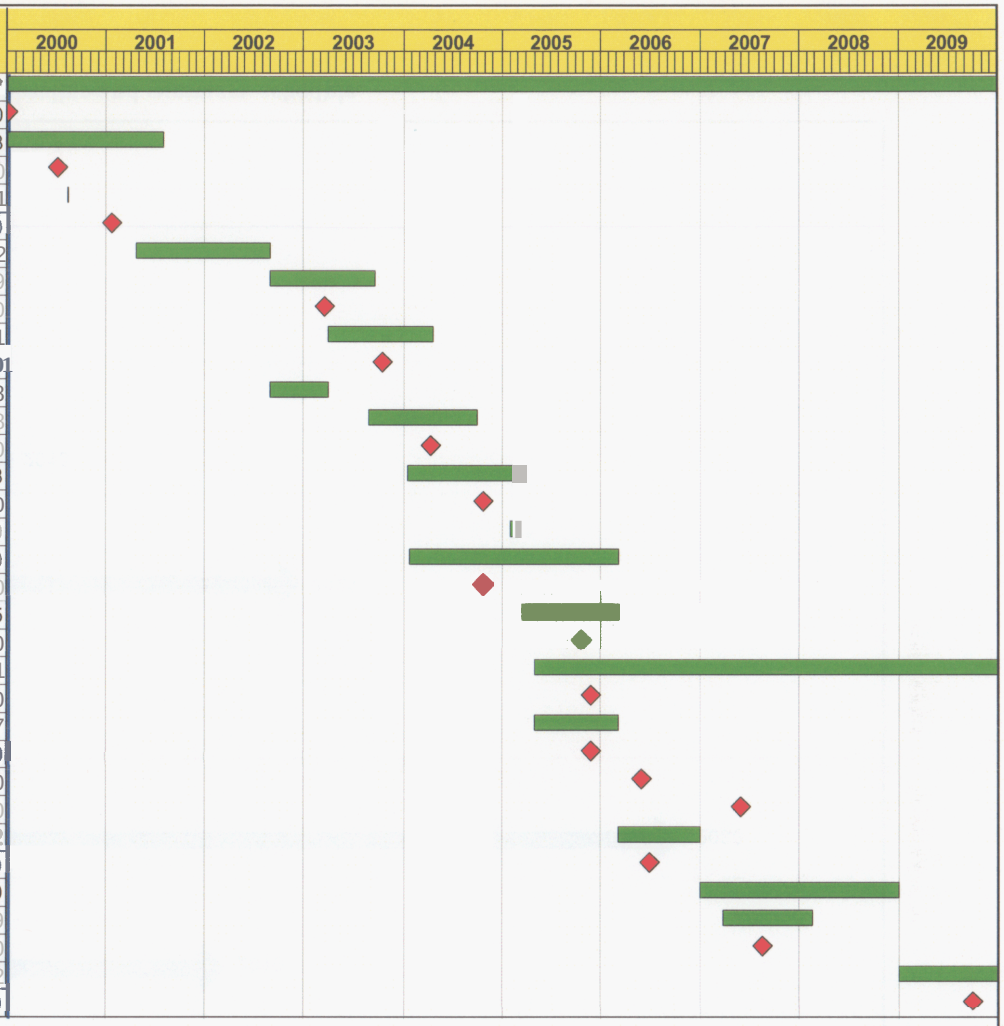
The FFA states enforceable timetables and deadlines under the agreement will be limited to FY, FY+1, and FY+2, and completion dates for surface water and groundwater OUs. The FFA specifies the current FY commitments shall be included in Appendix C of the agreement, while the FY+1, FY+2, and outyear enforceable commitments shall be included in the ***SMP***. In developing the enforceable timetables and deadlines, DOE considered the 18 factors contained in Section XVIII.A of the FFA. Appendix 3 of the ***SMP*** contains proposed Enforceable Timetables and Deadlines, as well **as** the long-term projections. The milestones defined for FY 2003 through FY 2005 are presented in Appendix 3 of this ***SMP***. These milestones have been agreed upon by the principals as part of a dispute resolution signed on April 14,2003.

Section XVIII.C of the FFA specifically identifies outyear completion dates for surface water and groundwater OUs as enforceable timetables and deadlines under the agreement. The scope for the groundwater and surface water OUs will be completed as part of the cleanup performed during pre-plant-shutdown activities. The completion of these OUs is defined as issuance of the D1 post-construction reports consistent with the approach applied in the FFA. The FFA parties recognize that long-term O&M activities, such as groundwater treatment and/or monitoring, may extend for several decades beyond the completion dates represented by the post-construction report.

The completion date for some projects has been projected based on the generic WAG schedule. Once these projects undergo project-specific scoping, the completion milestones will be revised to incorporate the project-specific schedule that is approved in the appropriate CERCLA document.

Based on certain planning assumptions and reasonably anticipated funding levels, the current LCB projects completion of site cleanup by 2030 (Fig. 8); however, DOE is committed to working with the regulators and stakeholders to develop a strategy to accelerate the cleanup process beyond the current LCB. If DOE, the regulators, and stakeholders are successful in reaching agreement on

Activity ID	Activity Description	Early Start	Early Finish	Orig Dur
CS0006	WASTE AREA GROUP X	01JAN00	25JAN10	3,678*
CS000A	START MILESTONE	01JAN00		0
CSD000	**RI/FS WORK PLAN**	01JAN00	31JUL01	578
CSD305	ISSUE SCOPING DOCUMENT TO EPAKDEP (DI)		06JUL00	0
CSD308	RI/FS SCOPING MEETING	06AUG00	06AUG00	1
CSD399	ISSUE **DRAFT** RI/FS WORK PLAN TO EPA/KDEP (D1)		20JAN01*	0
CSE000	REMEDIAL INVESTGATION PHASE I	24APR01	28AUG02	492
CSF000	REMEDIAL INVESTIGATION REPORT	29AUG02	21SEP03	389
CSF799	ISSUE DRAFT RI RPT TO EPA/FDEP (D1)		19MAR03	0
CSJ000	FEASIBILITY STUDY/EA RPT TP EPA/KDEP (D1)	04APR03	18APR04	381
CSJ399	ISS DRAFT FEASIBILITY STUDY/EA TO EPMDEP (D1)		15OCT03	01
CSK000	TREATABILITY STUDY	29AUG02	03APR03	218
CSL000	PROPOSED PLAN	01SEP03	02OCT04	398
CSL399	ISSUE DRAFT PROPOSED PLAN TO EPA/KDEP (D1)		15APR04	0
CSN000	RECORD OF DECISION	17JAN04	29MAR05	438
CSN399	ISSUE DRAFT RECORD OF DECISION TO EPA/FDEP (DI)		24OCT04	0
CSN499	RECORD OF DECISION SIGNATURE	29JAN05	27FEB05	30
CSR000	REMEDIAL DESIGN	24JAN04	03MAR06	770
CSR135	ISSUE RD WORK PLAN/SCHEDULE TO EPA/KDEP (D1)		24OCT04	0
CSR200	REMEDIAL DESIGN REPORT	24MAR05	03MAR06	345
CSR399	ISSUE DRAFT REMEDIAL DESIGN TO EPA/KDEP (DI)		20OCT05	0
CST090	REMEMALACTON	01MAY05	25JAN10	1,731
CST135	ISSUE REMEDIAL ACTION WORK PLAN TO EPA/KY (DI)		27NOV05	0
CST199	CONSTRUCTION QA PLAN	01MAY05	03MAR06	307
CST235	ISSUE CONSTRUCTION QA PLAN TO EPA/KY (D1)		27NOV05	0
CST420	REMEMALACTON-START		02JUN06	0
CST440	REMEDIAL ACTION - FINISH		27MAY07	0
CST599	O&M PLAN	04MAR06	30DEC06	302
CST635	ISSUE O&M PLAN TO EPA/KY (D1)		30JUN06	0
CST680	IMPLEMENT O&M	01JAN07	30DEC08	730
CSW200	POST CONSTRUCTION REPORT	29MAR07	20FEB08	329
CSW399	ISS DRAFT POST CONSTR REPORT TO EPA/KDEP (DI)		**18AUG07**	0
CSW700	FINAL REMEDIATION REPORT	30DEC08	25JAN10	392
CSW745	ISSUE FINAL REMEDIATION REPORT TO EPA/KY (D1)		27SEP09	0



* Developed from full generic WAG schedule as part of original SMP in FFA signed January 13, 1998 and as revised in the conditionally approved FY2000 SMP.

Start Date	31DEC99	Early Bar	
Finish Date	25JAN10	Progress Bar	
Data Date	01JAN00	critical Activity	
Run Date	07NOV02 11:42		

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CSOU — Sheet 1 of 1

Bechtel Jacobs Co LLC

Oak Ridge Shell program

BECHTEL JACOBS
Bechtel Jacobs Company LLC

Fig. 7. Generic WAG schedule.

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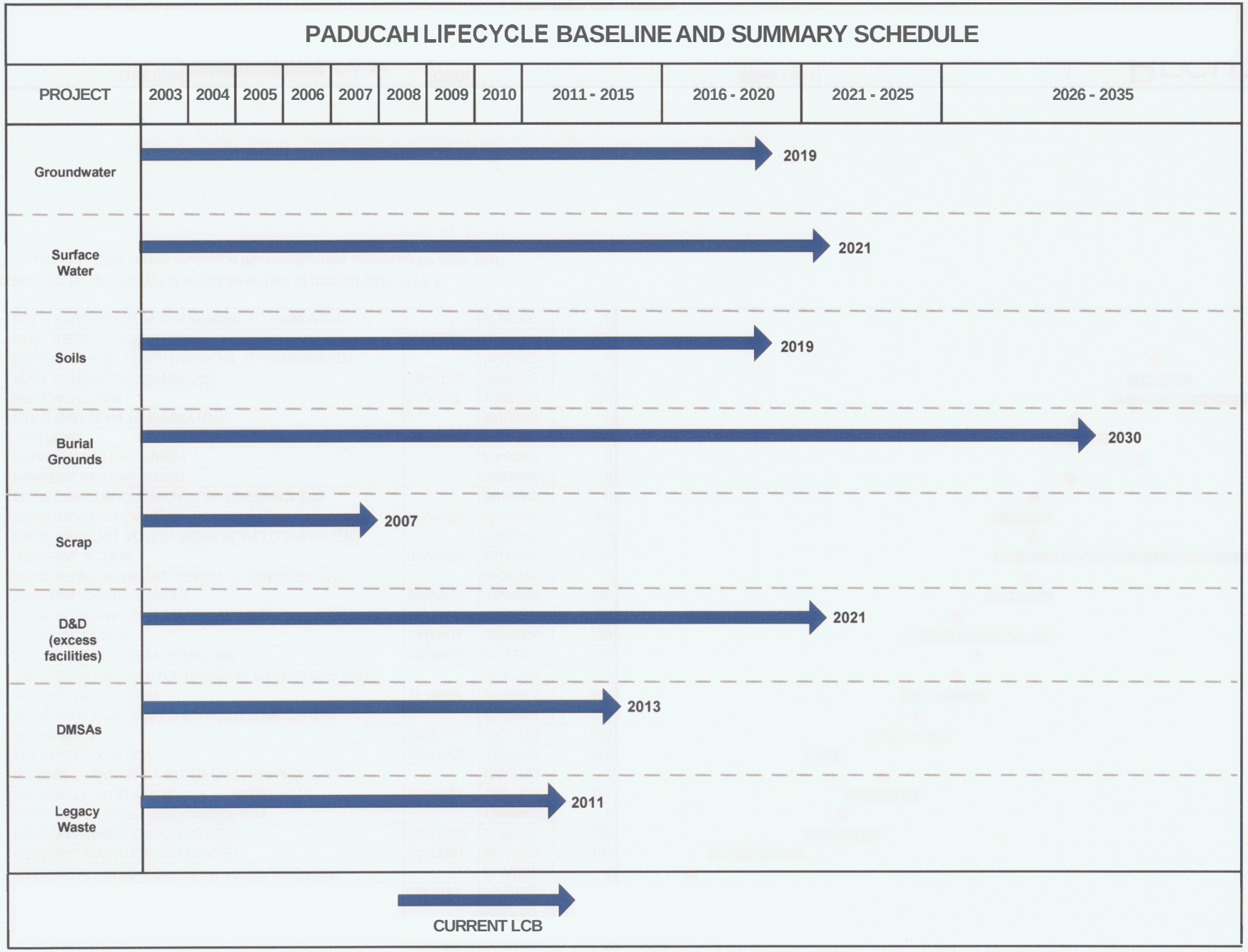

Fig. 8. Paducah lifecycle baseline and summary schedule.

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an acceleration strategy, DOE is committed to seeking additional funding to expedite completion of the planned activities. Figure 9 depicts a conceptual strategy for implementing the planned activities in accordance with the risk-based prioritization criteria presented in Sect. 3.4.

As part of the SMP dispute resolution agreement, the FFA parties committed to finalizing schedules and milestones for remaining outyear scope by September 15,2003; therefore, Appendix 3 does not contain outyear enforceable milestones or long-term projections. Once those negotiations are complete and the FFA parties reach consensus on outyear work scope and schedules, Appendix 3 will be updated to incorporate the agreed-upon dates in the next annual SMP submittal.

4.2.3 Projected End State Conditions

To support long-term planning, certain assumptions have been developed to help estimate the resources needed to implement the SMP. These assumptions include the end state conditions that are assumed to exist at program completion. As previously mentioned in Section 3.1, the end state goal is to maximize use of on- and off-site locations consistent with current and reasonably anticipated future land use patterns.

To obtain the end state goal, the OUs proposed focus on achieving the site cleanup objectives. When selecting actions to achieve this goal, many factors, such as site contamination, technology limitations, and cost-effectiveness, must be considered. Table 1 contains a summary of all currently defined primary OUs, the corresponding site cleanup objectives, target completion dates (to be negotiated as part of the September 15, 2003, agreement), and the planning assumptions for the scope and projected end state conditions. The target completion dates in Table 1, which correspond to the summary schedules in Fig. 7, are only provided as long-term planning projections. The enforceable timetables and deadlines associated with the subject schedules are discussed in Section 4.2.2 and are provided in Appendix 3. The actual scope, selected remedies, and end state determinations will be addressed on a project-by-project basis and will be proposed in the appropriate CERCLA document.

When the end state is achieved at completion of the various response actions, Section XXX of the FFA requires DOE to conduct 5-year reviews if contamination remains at the site above levels that allow for unlimited use and unrestricted exposure. To support this process, a surveillance and maintenance program will be implemented to ensure compliance with cleanup objectives and ensure the implemented response actions continue to provide long-term protectiveness. Additional information regarding long-term surveillance and maintenance is provided in the approved PGDP land use control assurance plan and in the land use implementation plans prepared as part of response action documentation.

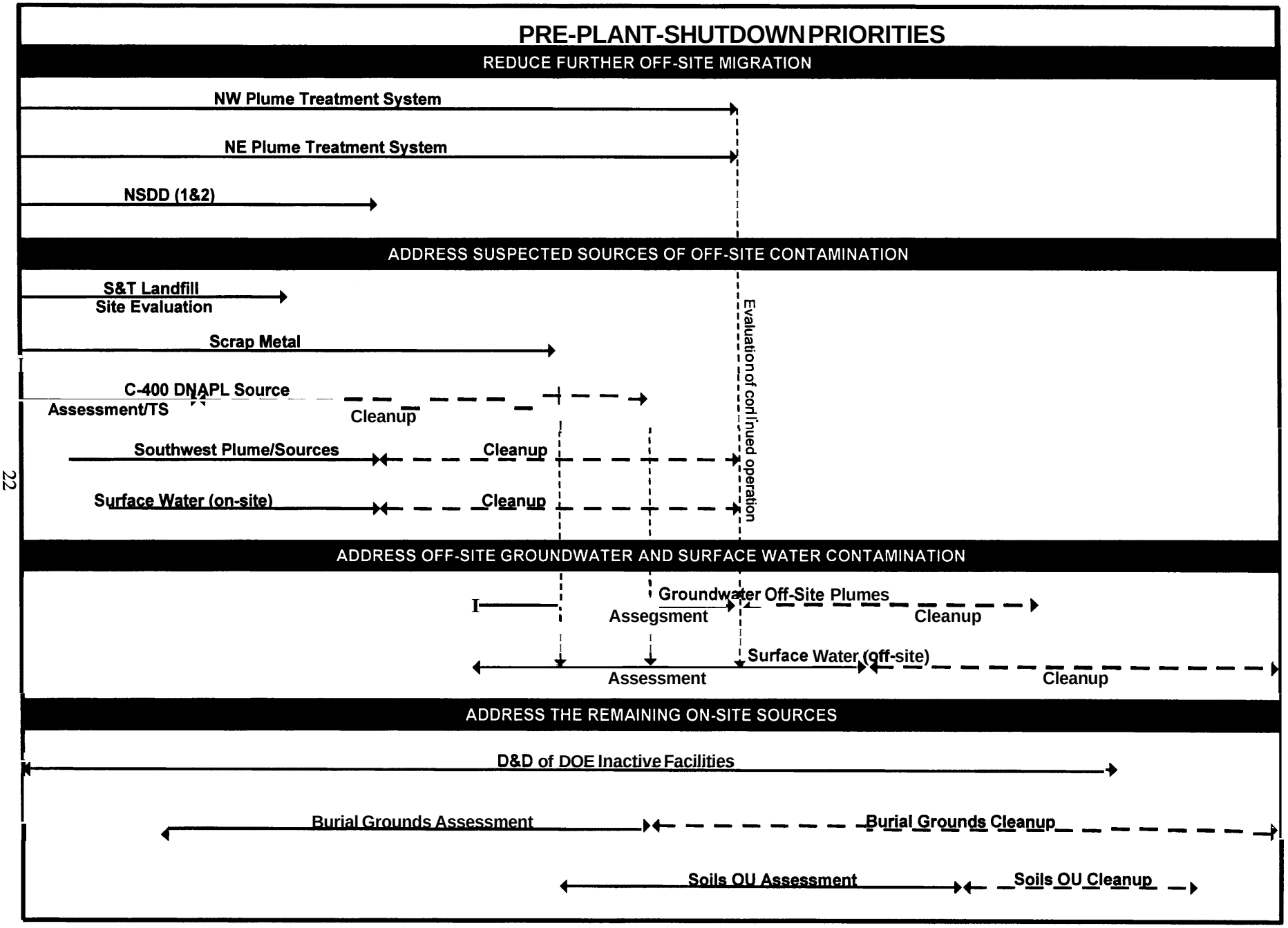

Fig. 9. Pre-plant-shutdown priorities.

Note: Assumes funding targets consistent with the President's FY 2004 Budget Request.

M:VISIO/SMP Schedule Summary-050603.vsd

Table 1. SMP strategic planning assumptions

Operable unit	Prioritized projects	Assumed scope	Target completion date[a]	Site cleanup objective	Projected end-state assumption[b]
Groundwater OU	Southwest Plume/sources	To investigate and identify sources contributing to the Southwest Plume, including evaluation and implementation of appropriate actions.		• Protect off-site residents by preventing exposure to contaminated groundwater. • Protect on-site industrial workers and recreational users by preventing exposure to contaminated groundwater. • Reduce the remediation timeframe for the off-site plumes.	Industrial areas (worker): • "Hot spots" addressed. • Burial grounds addressed. • Excavation prohibited. • Groundwater use prohibited. • Access to some areas restricted. Recreational areas (worker): • "Hot spots" addressed. • On-site sources of contamination to off-site areas addressed. • Monitoring continued. • Excavation prohibited. Recreational areas (public): • "Hot spots" addressed. • On-site sources of contamination to off-site areas addressed. • Monitoring continued. • Excavation prohibited. • Groundwater use prohibited. Residential areas (public): • Level of contamination in source zone(s) reduced or migration limited. • Monitoring continued. • Alternate source of water supplied until contaminant levels fall below those restricting use. • Groundwater use prohibited until contaminant levels fall below those restricting use.
	C-400	To conduct treatability study and implement response action at C-400 to reduce DNAPL source.			
	S&T Landfills	To investigate S&T Landfills to determine if they are sources of off-site groundwater Contamination.			
	Groundwater off-site plumes	To evaluate remedial alternatives and implement remedy as appropriate. Includes evaluation of continued operation of Northwest and Northeast Plume Treatment Systems.			
Surface water OU	Scrap metal	To characterize, package, transport, and dispose of ~ 44,000 tons of contaminated scrap metal ingots in accordance with the signed Action Memo and approved Removal Action Work Plan.		• Protect on-site industrial workers from direct contact exposure to contaminated scrap and soils. • Protect recreational users by preventing off-site migration of contaminated surface water and sediments.	
	North-South Diversion Ditch, Sections 1 and 2	To eliminate off-site discharges at plant fence by plugging culverts that lead off-site; install surge basin and reroute storm water flow to C-616 Water Treatment Facility; and excavate unacceptable contaminated soils/sediments inside fence and install cover.		• Protect recreational users from exposure resulting from off-site migration of contaminated surface water and sediments. • Protect on-site industrial workers from direct contact exposure to contaminated soils and sediments.	
	Surface Water (on-site)[c]	To investigate and identify contamination, including evaluation and implementation of appropriate action. The scope of this action includes internal ditches, outfalls, Sections 3, 4, and 5 of the North-South Diversion Ditch, and the need for sediment controls.		• Protect recreational users from exposure resulting from off-site migration of contaminated surface water and sediments. • Protect industrial workers from direct contact exposure to contaminated soils and sediments.	
	Surface Water (off-site)[c]	To investigate and identify contamination, including evaluation and implementation of appropriate action. The scope of this action includes Bayou and Little Bayou Creeks.		• Protect recreational users from exposure resulting from off-site migration of contaminated surface water and sediments.	
D&D OU	Inactive DOE facilities	Non-time-critical removal action for D&D of C-410, C-340, and the remaining 15 inactive facilities.		• Protect on-site industrial workers from direct contact exposure. • Demonstrate visible progress toward completion of the EM mission. • Reduce mortgage costs.	

Table 1. SMP strategic planning assumptions (continued)

Operable unit	Prioritized projects	Assumed scope	Target completion date'	Site cleanup objective	Projected end-state assumption*
Burial Grounds OU	Burial Grounds assessment	To investigate and identify contamination, including evaluation and implementation of appropriate actions.		o Protect industrial workers from direct contact exposure to contaminated soils and sediments. • Protect industrial workers from direct contact exposure to contaminated soils and sediments. o Protect off-site residents by preventing exposure to contaminated groundwater.	
Soils OU	Soils OU assessment	To investigate and identify contamination, including evaluation and implementation of appropriate actions.		• Protect on-site industrial workers from direct contact exposure to contaminated soils and sediments.	
Final CSOU	Site-wide	To conduct final remedial action, as necessary, upon shutdown of the operating plant, including D&D of the plant and a site-wide cumulative baseline and ecological risk assessment evaluating residual risk from all previously implemented actions.	To be determined	o Protect off-site residents from exposure to contaminated groundwater. o Protect on-site industrial workers from direct contact exposure. o Protect recreational users from exposure to contaminated surface water and sediments. o Minimize ecological impacts.	

[a] Target completion dates are only planning assumptions and are not intended to be enforceable commitments.

[b] All projected end-state assumptions, except for those in residential areas, refer to the status of DOE-owned property and are only for planning purposes. Final end-state determinations will be addressed in the appropriate CERCLA decision documents.

'Surface water (on-site) and surface water (off-site) were referred to as Surface Water Phase I Assessment and Surface Water Phase II Assessment, respectively, in the April 14,2003, dispute agreement. References to Phases I and II have been deleted here to better describe the scope of planned activities.

*Does not include DMSAs or legacy waste.

APPENDIX 1
ACTIONS TAKEN TO DATE

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OU SUMMARY

	WAGs/Media	Response Type	ROD/Action Memorandum	Response Description	Status
1	Groundwater/WAG 26	Emergency removal action	N/A	Provided temporary water to local residences whose private wells are contaminated by TCE and Tc-99.	Complete
2	Groundwater/WAG 26	Removal action	August 30,1994	Extended municipal water line to residents affected by off-site groundwater contamination.	Construction Complete/Operational
3	Groundwater/WAG 26 (Northwest Plume)	IRA	July 23, 1993	Hydraulic containment and treatment of high concentrations of off-site TCE contamination in the Northwest Plume.	Construction Complete/Operational
4	Groundwater/WAG 26 (Northeast Plume)	IRA	June 15, 1995	Hydraulic containment and treatment of high concentrations of off-site TCE contamination in the Northeast Plume.	Construction Complete/Operational
5	WAG25 (N-S Diversion Ditch)	IRA	March 28, 1994	Instituted action to treat certain plant effluent and control the migration of contaminated sediment associated with the N-S Diversion Ditch.	Construction Complete/Operational
6	(Surface Water/Ditches)	IRA	N/A	Institutional controls (fencing/posting) for off-site contamination in surface water, outfalls, and lagoons.	Construction Complete/Operational
7	WAG 24 (Scrapyards)	IRA	N/A	Installation of sediment controls to mitigate surface water/sediment runoff from scrapyards.	Construction Complete/Operational
8	WAG 22 (SWMU 2--Burial Ground)	IRA	September 11, 1995	Installation of an impermeable cap to reduce leachate migration from surface infiltration.	Deferred
9	C-750-A, -B, and -C Underground Storage Tanks	N/A	N/A	Tank removal	Complete
10	WAG 7 (C-746-K Landfill)	IRA	N/A	Enhanced existing cap to reduce leachate migration from surface infiltration.	Complete
11	AOC 124 WAG 17 (Concrete Rubble Piles)	Removal action	N/A	Excavated soil associated with AOC 124	Complete

OU SUMMARY

	WAGs/Media	Response Type	ROD/Action Memorandum	Response Description	Status
12	WAG 23	Removal action	September 11, 1997	Excavated PCB-contaminated surface soils to reduce risks to plant industrial workers	Complete
13	SWMU 91	IRA	August 10,1998	In situ treatment of TCE-contaminated soils using the Lasagna Technology™	Complete
14	WAGs 1&7	IRA	August 10,1998	Installed rip-rap along creek bank to prevent direct contact, implemented institutional controls, and long-term monitoring.	Complete
15	WAG 24, WAG 14, and SWMU 99	Non-Time Critical Removal Action	September 26,2001	Removal and disposition of scrap metal with enhanced sediment control measures.	Sediment control basin constructed. Mobilization complete and field work started.
16	SWMU's 76 and 519	Time Critical Removal Action	July 1,2002	Remove empty sulfuric acid tanks, size reduce for containerization, and disposal.	Tanks are removed and containerized. Waiting sampling results prior to shipment for disposal.
17	SWMU 478	IRA	August 3,2002	Remove process equipment and piping	Waiting on approval of the D2 RAWP prior to work being initiated.
18	SWMU 59	Removal Action	September 25,2002	Removal action for Sections 1 & 2 of the NSDD	Design complete and field work initiated.

APPENDIX 2
SOURCE AREA BY OPERABLE UNIT

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Solid Waste Management Units Sorted by Operable Unit

NO.	Groundwater OU SWMUs
1	C-747-C Oil Land Farm
2	C-749 Uranium Burial Ground
4	C-747 Contaminated Burial Ground
7	C-747-A Burial Ground
9	C-746-S Residential Landfill
10	C-746-T Inert Landfill
11	C-400 Trichloroethvlene Leak Site
26	C-400 to C-404 Underground Transfer Line
30	C-747-A Bum Area
40	C-403 Neutralization Tank
47	C-400 Technetium Storage Tank Area
91	UF6 Cylinder Drop Test Area
99	C-745 Kellogg Bldg. Site
183	McGraw UST
193	McGraw Construction Facilities (Southside Cylinder Yards)
194	McGraw Construction Facilities (Southside)
201	Northwest Groundwater Plume
202	Northeast Groundwater Plume
203	C-400 Sump
204	Dykes Road Historical Staging Area
209	C-720 Compressor Shop Pit Sump
210	Southwest Groundwater Plume
211	C-720 TCE Spill Site Northwest
533	TCE Spill Site from TCE Unloading Operations at C-400
No.	**Surface Water OU SWMUs**
8	C-746-K Inactive Sanitary Landfill
12	C-747-A UF4 Drum Yard
13	C-746-P Clean Scrapyard
14	C-746-E Contaminated Scrapyard
15	C-746-C Scrapyard
16	C-746-D Scrapyard
17	C-616-E Sludge Lagoon
18	C-616-F Full-Flow Lagoon
21	C-611-W Sludge Lagoon
22	C-611-Y Overflow Lagoon
23	C-611-V Lagoon
42	C-616 Chromate Reduction Facility
58	N-S Diversion Ditch (Outside)
59	N-S Diversion Ditch (Inside)
60	C-375-E2 Effluent Ditch (KPDES 002)
61	C-375-E5 Effluent Ditch (KPDES 013)
62	C-375-S6 SW Ditch (KPDES 009)
63	C-375-W7 Oil Skimmer Ditch (KPDES 008)
64	Little Bayou Creek
65	Big Bayou Creek
66	C-375-E3 Effluent Ditch (KPDES 010)
67	C-375-E4 Effluent Ditch (C-340 Ditch)
68	C-375-W8 Effluent Ditch (KPDES 015)
69	C-375-W9 Effluent Ditch (KPDES 001)

Solid Waste Management Units Sorted by Operable Unit (continued)

No.	Surface Water OU SWMUs (continued)
70	C-333-A Vaporizer
71	C-337-A Vaporizer
82	C-531 Electric Switchyard
83	C-533 Electric Switchyard
84	C-535 Electric Switchyard
85	C-537 Electric Switchyard
93	Concrete Disposal Area East of Plant Security Area
102	Plant Storm Sewer
105	Concrete Rubble Pile (3)
106	Concrete Rubble Pile (4)
107	Concrete Rubble Pile (5)
108	Concrete Rubble Pile (6)
109	Concrete Rubble Pile (7)
113	Concrete Rubble Pile (11)
129	Concrete Rubble Pile (27)
168	KPDES Outfall Ditch 012
171	C-617-A Lagoons
175	Concrete Rubble Pile (28)
185	C-611-4 Horseshoe Lagoon
199	Big Bayou Creek Monitoring Station
205	Eastern Portion of Yellow Water Line
526	Internal Plant Drainage Ditches
No.	**Soil OU SWMUs**
1	C-747-C Oil Land Farm
11	C-400 Trichloroethylene Leak Site
12	C-747-A UF4 Drum Yard
13	C-746-P Clean Scrapyard
14	C-746-E Contaminated Scrapyard
15	C-746-C Scrapyard
16	C-746-D Scrapyard
19	C-410-B HF Neutralization Lagoon
20	C-410-E Emergency Holding Pond
26	C-400 to C-404 Underground Transfer Line
27	C-722 Acid Neutralization Tank
28	C-712 Acid Neutralization Lagoon
31	C-720 Compressor Pit Water Storage Tank
32	C-728 Clean Waste Oil Tank
38	C-615 Sewage Treatment Plant
40	C-403 Neutralization Tank
41	C-410-C Neutralization Tank
47	C-400 Technetium Storage Tank Area
56	C-540-A PCB Staging Area
57	C-541-A PCB Waste Staging Area
74	C-340 PCB Transformer Spill Site
75	C-633 PCB Spill Site
76	C-632-B Sulfuric Acid Storage Tank
77	C-634-B Sulfuric Acid Storage Tank
78	C-420 PCB Spill Site
79	C-611 PCB Spill Site

Solid Waste Management Units Sorted by Operable Unit (continued)

No.	Soil OU SWMUs (continued)
80	C-540 PCB Spill Site
81	C-541 PCB Spill Site
86	C-631 Pumphouse and Cooling Tower
87	C-633 Pumphouse and Cooling Tower
88	C-635 Pumphouse and Cooling Tower
89	C-637 Pumphouse and Cooling Tower
92	Fill area for dirt from the C-420 PCB Spill Site
98	C-400 Basement Sump
99	C-745 Kellogg Bldg. Site
101	C-340 Hydraulic System
135	C-333 PCB Soil Contamination
137	C-746-A Inactive PCB Area
138	C-100 Southside Berm
153	C-331 PCB Soil Contamination (West)
154	C-331 PCB Soil Contamination (Southeast)
155	C-333 PCB Soil Contamination (West)
156	C-310 PCB Soil Contamination (West Side)
158	Chilled-Water System Leak Site
159	C-746-H3 Storage Pad
160	C-745 Cylinder Yard Spoils (PCB Soils)
161	C-743-T-01 Trailer Site (Soil Backfill)
162	C-617-A sanitary Water Line (Soil Backfill)
163	C-304 Bldg/HVAC Piping System (Soil Backfill)
164	KPDES Outfall Ditch 017 (Soil Backfill)
165	C-616-L Pipeline & Vault Soil Contamination
166	C-100 Trailer Complex Soil Contamination
167	C-720 Whiteroom Sump
169	C-410-E HF Vent Surge Protection Tank
170	C-729 Acetylene Bldg. Drain Pits
172	C-726 Sandblasting Facility
176	C-331 RCW Leak Northwest Side
177	C-331 Leak East Side
178	C-724-A Paint Spray Booth
179	Plant Sewer System
180	Outdoor Firing Range (WKWMA)
181	Outdoor Firing Range (PGDP)
183	McGraw UST
192	C-710 Acid Interceptor Pit
193	McGraw Construction Facilities (Southside Cylinder Yards)
194	McGraw Construction Facilities (Southside)
195	Curlee Road Contaminated Soil Mounds
196	C-746-A Septic System
198	C-410-D Area Soil Contamination
200	Soil Contamination South of TSCA Waste Storage Fac.
203	C-400 Sump
204	Dykes Road Historical Staging Area
209	C-720 Compressor Shop Pit Sump
212	C-745-A Radiological Contamination Area
213	OS-02
215	OS-04

Solid Waste Management Units Sorted by Operable Unit (continued)

No.	Soil OU SWMUs (continued)
217	OS-06
223	OS-12
226	OS-15
229	OS-18
488	PCB Contamination Area by the C-410 Trailer Complex
492	Contaminated Soil Area, North of Outfall 10
493	Concrete Rubble Piles Near Outfall 001
518	Field South of C-746-P1 Clean Scrap Yard
520	Scrap Material West of C-746-A
531	Aluminum Slag Reacting Area
533	TCE Spill Site from TCE Unloading Operations at C-400
541	Contamination area by Outfall 011
No	**Burial Ground OU SWMUs**
2	C-749 Uranium Burial Ground
4	C-747 Contaminated Burial Ground
5	C-746-F Burial Ground
6	C-747-B Burial Area
7	C-747-A Burial Ground
30	C-747-A Bum Area
145	Residential/Inert Landfill Borrow Area
489	Septic Tank. North of C-710
517	Rubble and Debris Erosion Control Fill Area
No	**D&D OU SWMUs**
33	C-728 Motor Cleaning Facility
55	C-405 Incinerator
378	G-340-01
379	G-340-03
380	G-340-04
381	G-340-05
434	S-340-01
477	C-340 Metals Plant
478	C-410/420 Feed Plant
480	C-402 Lime House
482	C-415 Feed Plant Storage Building
494	Ash Receiver Area in C-410/420
495	C-410/420 Ash Receiver Shed
496	C-410/420 F2 filters in Northeast Mezzanine
497	C-410/420 F2 Cell Neutralization Room Vats
498	C-410/420 Sump at Column C&D-1&2
499	C-410/420 Sump at Column H-9&10
500	C-410/420 Sump at Column U-10&11
501	C-410/420 UF6 Scale Pit Sumps A&B
502	C-410/420 Sump at Column U-9
503	C-410/420 Sump at Column G-1
504	C-410/420 Sump at Column L-10
505	C-410/420 Sump at Column A-3N
506	C-410/420 Sump at Column Wa-9
507	C-410/420 Condensate Tank Pit
508	C-410/420 Settling Basin
509	C-410/420 Drain pit

Solid Waste Management Units Sorted by Operable Unit (continued)

No	D&D OU SWMUs (continued)
510	C-410/420 Sump at Column P&Q-2
511	C-410/420 Sump at Column Q&R-2
512	C-410/420 Sumu at Column R-2
513	C-411 Cell Maintenance Room Sump
514	C-340 Magnesium Fluoride Reject Silo
515	C-340 "Dirty" Dust Collection System
516	C-340 Derby Preparation Area Sludge Collection System
521	C-340 Saw System Degreaser
522	Pit - Ground Floor at B-7 - B-9
523	Pit - Ground Floor at F-6 - F-11
524	Pickling Spray Booth Sump at B-10 & 11
529	C-340 Powder Plant Sumu at Ground Floor Level

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APPENDIX 3
ENFORCEABLE TIMETABLES AND DEADLINES

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FFA COMMITMENTS
PADUCAH PROJECT

Subproject	Deliverable	Enforceable Timetable and Deadlines		Long-Term Projections*"
		FY 2003 – FY 2005	Outyear	
GWOU (Southwest Plume/Sources)	D1 Sampling and Analysis Plan (SAP)	10/30/03		
	D1 Site Investigation/Risk Assessment Report[b]	1/03/05		
	D1 Proposed Plan	7/02/05		
	D1 ROD			
GWOU (C-400)	D1 Proposed Plan	1/30/04		
	D1 ROD	8/3/04		
	ROD Signature	12/1/04		
	D1 RD WP	1/30/05		
	D1 RD Report	7/14/05		
	D1 RA WP	8/13/05		
GWOU (S&T Landfills)	Scoping Plan	9/30/03		
	Site Evaluation	9/30/05		
D&D (Inactive Facilities)	RA Start	Complete		
D&D Sulfuric Acid Tanks	Complete Field Work	Complete		
Sediment Controls	Incorporated in SWOU (On-Site)			
SWOU NSDD (Sections & 2)[c]	ROD Signature	Complete		
	D1 RD/RA Phase I WP	Complete		
	RA Phase I – Field Start	Complete		
	Complete (Phase I) Field Work	1/27/04		
	D1 RD/RA Phase II WP	9/30/03		
	RA Phase II – Field Start	4/28/04		
SWOU NSDD (Sections 3, 4, 5)	Incorporated in SWOU (On-Site)			
Surface Water OU (On-Site)	D1 Sampling and Analysis Plan **(SAP)**	4/30/04		
	Removal Notification	7/22/05		
	D1 Site Investigation/Risk Assessment Report[b]	5/26/05		
	D1 Action Memo			

FFA COMMITMENTS
PADUCAH PROJECT (continued)

Subproject	Deliverable	Enforceable Timetable and Deadlines		Long-Term Projections"
		FY 2003 – FY 2005	Outyear	
Burial Grounds OU	D1 RI/FS WP	6/30/05		
	D1 ROD			
Soil OU	D1 ROD			
Groundwater Off-Site Plumes	D1 ROD			
	D1 Post-Construction Report			
Surface Water OU (Off-Site)	D1 ROD			
	D1 Post-Construction Report			

Note:

Outyear and long-term projections will be provided following completion of the ongoing SMP negotiations. The FFA parties have committed to finalizing the schedules and milestones for FY 2006 and beyond by September 15,2003.

[a] Not enforceable dates. Used for planning purposes only.
[b] The Sampling and Analysis Plans and the Site Investigation/Risk Assessment Reports for the GWOU ROD 1 (Southwest Plume/Sources), **SWOU** Phase 1, including the sediment controls, and N/S Diversion Ditch Sections 3, 4, and **5**, will be treated as primary documents for purposes of the FFA review/approval/dispute procedures.
[c] The phases listed for this project are as shown in the approved ROD. As described in the approved ROD, Phase **I** includes construction of a surge basin and hard piping, and Phase II includes the excavation of waste from Sections 1 and 2 of the NSDD.

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Carl R. Froede, Jr., Project Manager, FFA, DOE Remedial Section, Federal Facilities Branch			
		The Environmental Protection Agency (EPA) has completed review of the draft Site Management Plan (SMP) for the Paducah Gaseous Diffusion Plant (PGDP) provided by the Department of Energy (DOE) under cover of its letter dated November 14,2002. This document presents a clean-up strategy that is a significant departure from previously-approved SMPs for this Site, and lacks the specific dates required by the PGDP Federal Facility Agreement (FFA) for commitments and long-term projections. According to the FFA Section **SVIII,** Section B: DOE agrees to establish a basis for prioritizing response actions with the input and consultation of EPA and KNREPC, and to document the prioritization criteria in the annual SMP. This new SMP was not developed in this manner, and is inconsistent with groundwater and surface water priorities that have been expressed by EPA and KNREPC both in numerous meetings and correspondence. This draft document, including its "Enforceable Timetables and Deadlines" Appendix, should be revised to include the number, scope and sequence of remediation projects previously identified in the enclosures to the jointly issued letters on PGDP remediation sent by KNREPC Secretary Bickford and EPA Regional Administrator Palmer to Assistant Secretary of Energy Roberson on August 29, 2002, and September 25,2002. Additionally, the draft must be revised to identify specific dates for DOE's commitments and long-term projections. FFA Section XVIII.B, plainly requires that: The D1 annual SMP shall include a list of commitments and long-term projections, developed in a manner consistent with the prioritization ..., which <u>identify the submittal dates for deliverables</u> that correspond to work activities for FY+1 and FY+2, and any enforceable outyear commitments, <u>ROD issuance dates</u> for FY+1	The amended SMP (D2) was produced using input obtained from the SMP dispute resolution meetings with the regulatory agencies. At these meetings, the prioritization of response actions and projects was a main focus; therefore, the changes made when producing the amended SMP are consistent with the intent of the first part of the comment, which requests consultation with the regulatory agencies. The amended SMP includes the milestones for FY 2003, FY 2004, and FY 2005 as agreed upon by the principals **as** part of the dispute resolution process, which were incorporated into a dispute resolution agreement signed on April 14,2003. The milestones for the outyear scope will be finalized as part of the ongoing SMP negotiations, which are scheduled to continue through September 15,2003. Agreements reached on the outyear scope will be incorporated into the FY 2004 annual ***SMP*** update, which is scheduled to be submitted on November 15,2003.

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		and FY+2, ROD issuance target dates by fiscal year quarters for FY+3 and beyond for all Potential, CS and RA OUs defined pursuant to this agreement. [Emphasis added.] This D1 SMP does not provide this information. DOE's current draft replaces project specific date commitment and long-term projections included in all approved prior SMP's with mere descriptions of intervals from future events for which no start date is specified and/or vague representations that a project timetable "will be defined" later. While operable unit end dates are provided, there is no clear path (i.e., schedule) presented to get us to those dates. In addition to being required by the FFA, such specific dates are necessary to make the Federal Government's cleanup commitments and projections visible to the public and to allow meaningful evaluation by stakeholders of the pace and progress of DOE's remediation of its PGDP National Priorities List Site. EPA recognizes that the underlying issues conveyed in this letter are the same as reflected in the content of the ongoing SMP dispute elevation, and that resolution of the dispute should provide the means for DOE to develop an appropriate FY03 Site Management Plan.	
		The Division of Waste Management has received the Annual Revision–FY 2003 to the Site Management Plan (SMP). According to Section XVIII.B of the FFA, Site Management Plan – Scoping Work Priorities: DOE agrees to establish a basis for prioritizing response actions with the input and consultation of EPA and KNREPC, and to document the prioritization criteria in the annual SMP. The Division views DOE's failure to allow the input and consultation from EPA and KNREPC in the formulation of the Annual Revision to the SMP as disregard for the FFA. Section SVIII (Site Management, Timetables and Deadlines, Budget Planning and Execution, Cost and Productivity Savings) also requires DOE to develop a list of Potential Operable Units, which includes the units in Appendix B to effectively manage the implementation of RI/FS activities at the site. In the Site Management Plan – FY 2000 annual revision, DOE identified the following	The amended SMP (D2) was produced using input obtained from the SMP dispute resolution meetings with the regulatory agencies. Participation in these meetings has met the intent of Section XVIII.B of the FFA. The OU crosswalk will be developed and discussed with the regulatory agencies as part of the ongoing SMP negotiations. All references to an interim CSOU have been deleted from the amended *SMP*.

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		five potential operable units 1) Groundwater OU, 2) Surface Water OU, 3) Burial Grounds OU, 4) Soils OU and ***5)*** D&D OU. This list of potential operable units was developed with the input, consultation and agreement of EPA and KNREPC. However, in the Site Management Plan – FY 2003 annual revision, the DOE has abandoned the agreed upon management of RI/FS activities under five potential operable units in favor of an Interim CSOU. Not only was this change in strategy proposed without input or consultation from EPA and KNREPC, it is in discord with Section XIII.B of the FFA which states: *The final RA for any given CS OU shall be evaluated after issuance of al RODs concerning the environmental medium at issue and after completion (excluding long term monitoring and/or Operation and Maintenance) of all final RA(s)* ***for*** *the sources contributing to the commingled contamination*. The Division finds the subject document to run contrary to the requirements and conditions of the FFA and the agreed upon operable unit strategy developed by all parties to the FFA. Please find attached, the Division's comments on the subject document. Submit a revised Annual Revision for FY 2003 to the Site Management Plant within thirty (30) days of your receipt of these comments in accordance with Section XX of the FFA. The Division's expectations for enforceable timetables for FY 2003,2004 and 2005 are contained in the Regulator Parties Resolution of Disputes, which was forwarded to DOE on September 25,2002. If you have any questions, please contact Tuss Taylor at (502) **564-6716.**	
		General Comments	
1.		The 2003 D1 SMP fails to include a section which established Priorities, Timetables, and Deadlines for commitments and long-term projections which discusses the relevant factors identified in Section XVIII, Part A, of the FFA.	The schedules in the amended SMP are based upon the criteria listed in Sect. 3.4. Additionally, material was added to Chap. **4** and Appendices 1 through **3** of the amended SMP to meet the requirements concerning priorities, timetables, and deadlines for commitments found in Section XVIII, Part **A** of the FFA.

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			The amended SMP includes the milestones for FY 2003, FY 2004, and FY 2005 as agreed upon by the principals as part of the dispute resolution process, which were incorporated into a dispute resolution agreement signed on April 14,2003. The milestones for the outyear scope will be finalized as part of the ongoing SMP negotiations, which are scheduled to continue through September 15,2003. Agreements reached on the outyear scope will be incorporated into the FY 2004 annual ***SMP*** update, which is scheduled to be submitted on November 15.2003.
2.		Section XVIII Section B of the FFA states: "DOE agrees to establish a basis for prioritizing response actions with the input and consultation of EPA and KNREPC, and to document the prioritization criteria in the annual SMP." The strategy in the 2003 D1 draft was imposed unilaterally by DOE, which is inconsistent with the FFA.	The amended **SMP** (D2) was produced using input obtained from the SMP dispute resolution meetings with the regulatory agencies. Participation in these meetings has met the intent of Section XVIII.B of the FFA.
3.		Section XVIII, Part B of the FFA requires that: "The D1 annual SMP shall include a list of commitments and long-term projections, developed in a manner consistent with the prioritization … which <u>identify the submittal dates for deliverables</u> that correspond to work activities for FY+1 and FY+2, and any enforceable outyear commitments, <u>ROD issuance dates</u> for FY+1 and FY+2, <u>ROD issuance target dates</u> by fiscal year quarters for FY+3 and beyond for all Potential, **CS** and RA OUs defined pursuant to this agreement." [Emphasis added.] This D1 SMP does not provide this information. DOE's current draft replaces the specific date commitments and projections included in all approved prior SMP's with mere descriptions of intervals from future events for which no date is specified and/or vague representations that a timetable "will be defined" later.	**As** noted earlier, DOE has added detail to the ***SMP*** in regards to specific dates for its commitments and long-term projections consistent with Section XVIII.B of the FFA. This detail includes descriptions of the path (i.e., a schedule) for reaching the OU end dates; however, the milestones for the outyear scope will be finalized as part of the ongoing SMP negotiations, which are scheduled to continue through September 15,2003. Agreements reached on the outyear scope will be incorporated into the FY 2004 annual ***SMP*** update, which is scheduled to be submitted on November 15,2003.

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4.		The 2003 D1 SMP was formulated by DOE without engaging in budgetary discussions with EPA and the KNREPC as required under Section XVIII(A)(6) and Section SVIII(D) of the FFA.	At the meetings referenced earlier, DOE also discussed budgetary issues consistent with requirements of the FFA under Section XVIII(A)(6); therefore, the changes made when producing the amended SMP are consistent with the referenced section of the FFA.
5.		Section XVIII Part ***C*** of the FFA states: "Enforceable timetables and deadlines under this Agreement shall be limited to FY, FY+1, FY+2, and completion dates for the surface water and ground water OUs." In the first SMP attached to the FFA dated October 1996, the Surface Water and Ground Water Integrated OUs were scheduled to be completed by 2010. The Integrated OUs were to address the surface water and ground water on a site wide basis. In the 2003 SMP D1, DOE has eliminated the site wide concept of the GWOU and SWMU OUs and has narrowed their scope to include only certain ground water and surface water sources. Thus, DOE has reduced the scope of work required to be completed in those operable units by 2010, and is therefore in violation of the FFA by not completing the required cleanup work required under the agreement.	The amended SMP provides additional detail that makes clearer the concept of how the groundwater and surface water OUs are "integrated assessments." It was not the intention of DOE to defer any parts of the groundwater or surface water OU that might create unacceptable risk to human health or the environment or threaten compliance. Rather, DOE will evaluate each project relative to the prioritization criteria defined in the SMP.
6.		Deferral of environmental investigation, environmental remediation, and the evaluation of ecological risk to an unspecified date in the future is inconsistent with the Kentucky Hazardous Waste Permit, KRS 224.46-530. Ecological risk must be evaluated throughout the remedial process.	DOE recognizes that the revision of the ***SMP*** provided for review did not adequately convey its intention to continue ecological evaluations throughout the remedial process. The amended SMP contains information clarifying the importance of these continued evaluations.
7.		Deferring work to an unspecified date such as "plant shutdown," is inconsistent with the FFA.	DOE will not defer responses for OUs that might have environmental impacts but rather will evaluate each project on a case-by-case basis in consultation with the regulators using the criteria defined in the SMP. Response actions for some SWMUs, such as those associated with facility infrastructure, ongoing missions critical to plant operation, and other

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			programs, might be limited prior to plant shutdown because of factors such as accessibility. The amended SMP includes additional discussion concerning this concept and clarifies the "plant shutdown" date to the extent possible at this time. As noted earlier, the milestones for the outyear scope will be finalized as part of the ongoing ***SMP*** negotiations, which are scheduled to continue through September 15,2003. Agreements reached on the outyear scope will be incorporated into the FY 2004 annual ***SMP*** update, which is scheduled to be submitted on November 15,2003.
8.		The D1 Draft SMP fails to adequately summarize all SWMUs at the PGDP and their status. While many of the SWMUs are addressed in the Phase I, it is unclear that various other units will require further investigation. Provide a detailed summary of individual SWMU and its status.	Detailed lists of **SWMUs** and AOCs are presented in Appendix 2 of the amended SMP and will be further delineated in the crosswalk.
		Specific Comments	
1.	Sect. 1, Intro., pg. 2	DOE lists the following as a component of the site cleanup strategy: "Ensure that enforceable milestones and funding requests are based on clearly defined work scope and objectives." The Division maintains that enforceable milestones adhering to the CERCLA remedial process and corrective action processes in the Hazardous Waste Permit are required by the **FFA.** In many cases a clearly defined work scope will not exist prior to stakeholder involvement in the remedial decision making process. Revise the language to incorporate the CERCLA and RCRA coordination for decision processes.	The amended SMP has been expanded to better note the importance of CERCLA and RCRA coordination, including stakeholder involvement.
2.	Sect. 3, Risk Based Approach, pg. 6	DOE lists the following as a key element of their risk-based strategy: "OUs: Establish projects with clearly defined scope, schedule, and exit strategies that achieve site cleanup objectives in a timely and cost-effective manner. A clearly defined work scope may not exist prior to stakeholder involvement in the remedial decision making process." Revise the language to incorporate the CERCLA and RCRA coordination for decision processes.	The referenced discussion was modified to include recognition of the importance of stakeholder involvement. As noted in the response to Specific Comment # 1, discussion of CERCLA and RCRA coordination and stakeholder involvement has been expanded in the amended SMP.

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3.	Sect. 3.2	DOE fails to identify the Hazardous Waste Permit, which requires cleanup to achieve 10^{-6} risk levels and a Hazard Index of 1.	DOE was unable to locate the reference in the Kentucky permit or regulation that requires cleanup to 10^{-6} and an HI=1. DOE requests that Kentucky please identify the specific references.
4.	Sect. 3.3, Operable Units Strategy	The strategy discusses a first phase that consists of a focused evaluation of five potential OUs with an emphasis on implementing early actions. The Division has always agreed with a strategy to employ appropriate early actions. However, a strategy for these potential OUs that only employs existing data evaluation and possible early actions is unacceptable to the Division. In fact, the five potential OUs, whereby DOE proposes no remedials, would no longer meet the definition of Potential Operable Unit as defined in Section II.D of the FFA. Enforceable milestones for RI/FSs, Proposed Plans, etc. will be required. Revise the strategy to include CERCLA remedials and milestones, for remedials for each potential Operable Unit.	The OU strategy contained in Sect. 3.3 was revised to incorporate the concerns raised in the comment and expressed at the meetings referenced earlier. The revised strategy notes that DOE will use both existing and new data developed through the CERCLA process when making decisions for each OU. The amended *SMP* includes the milestones for FY 2003, FY 2004, and FY 2005 as agreed upon by the principals as part of the dispute resolution process, which were incorporated into a dispute resolution agreement signed on April 14,2003. The milestones for the outyear scope will be finalized as part of the ongoing SMP negotiations, which are scheduled to continue through September 15,2003. Agreements reached on the outyear scope will be incorporated into the FY 2004 annual *SMP* update, which is scheduled to be submitted on November 15,2003.
5.	Sect. 3.3.1, pg. 10	Phase I (early action) does not include any characterization. Page 11, Section 332, notes that Phase I will focus on OU's that have "ongoing releases posing an imminent threat that warrants early action." This Strategy is inconsistent with provision in the Hazardous Waste Permit. Phase I risk evaluation will be conducted with "methods used to calculate the risk based levels, including probabilistic risk assessment."	Recognition of the need to complete risk evaluations as part of completion of the decision documents was added to the revised document. Note that it is not DOE's intent to complete any action for which data are insufficient. The document was modified to make it clear that sufficient characterization data are required when making decisions concerning each proposed action.

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6.	Sect. 3.3.2	Phase II Interim Comprehensive Site Operable Unit. DOE's discussion of their proposed Interim CSOU to evaluate existing data needs for each operable unit, define data collection strategies as needed, provide a baseline risk assessment that cumulatively evaluates and integrates data and risks for all operable units, and serves as the basis for identifying early actions, runs counter to the strategy agreed to by all parties to the FFA. DOE stated in an Oct. 4,2002 correspondence the following: ***Potential scope (of the Interim** CSOU) **would include the** C-720 **Groundwater Source Area, Sediment Controls, and Burial Grounds.*** Further, DOE's discussion of deferring active units associated with the operating gaseous diffusion plant to the Final CSOU is both premature and pre-decisional. The Division agrees that SWMUs associated with operating areas of the plant need to be evaluated on a case-by-case basis, but this evaluation should occur under the CERCLA remedial process for the five potential OUs.	The interim CSOU is not discussed in the amended SMP. Rather, the amended SMP provides the timetables for the projects consistent with agreements reached at the aforementioned dispute meetings. Note that it is not the intent of DOE to defer responses for active units that might have environmental impacts. Such units will be evaluated relative to the prioritization criteria as discussed in the SMP, and schedules will be developed as appropriate. When developing schedules, it will be recognized that certain projects, such as those associated with the GDP facility infrastructure and ongoing mission-critical programs, might be hampered prior to plant shutdown by accessibility concerns. As noted earlier, the milestones for the outyear scope will be finalized as part of the ongoing SMP negotiations, which are scheduled to continue through September 15,2003. Agreements reached on the outyear scope will be incorporated into the FY 2004 annual SMP update, which is scheduled to be submitted on November 15,2003.
7.	Sect. 3.3.2, Phase 11, 2nd para.	This Section noted that operational units cannot be evaluated until operations cease. The Division does not view this as a foregone conclusion. Each unit will be evaluated and a management decision will be made as to the viability of interim controls, investigation and corrections action or deferral.	OUs that have accessibility limitations because of ongoing operations will be evaluated on a case-by-case basis to determine the feasibility of response actions prior to shutdown. Such units will be evaluated usng the prioritization criteria defined in the amended SMP.
8.	Sect. 3.5, Risk Assess. and Eval.	The FFA requires an RI and Baseline Risk Assessment for each Potential OU. DOE's proposed strategy to employ only screening assessment for the potential OUs is unacceptable to the Division and runs contrary to the FFA.	Consistent with the FFA, DOE will complete **an** RI and baseline risk assessment to support the decision-making process documented in each final action ROD. This fact is clarified in the amended ***SMP.***

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9.	Sect. **3.6,** Waste Disposal, 2nd para.	The basis of the Site Treatment Plan (STP) was to address legacy waste in storage. Newly generated mixed waste from environmental remediation will not automatically be included into the STP. This statement must be revised.	DOE disagrees with the basis of this comment. As stated in Section IV.B of the FFA, "The Parties agree that all mixed wastes generated by actions under this Agreement will be regulated by the approved Site Treatment Plan and Order enforced by KNREPC in lieu of being regulated under this Agreement."
10.	Sect. 4.1; Scope	The scope of work was inadequate and was developed absent input and consultation from EPA and KNREPC. A collaborative year round effort between parties of the FFA to produce acceptable scope and schedules in the annual revision to the SMP is required.	DOE has incorporated the comments provided by EPA and KNREPC into the amended SMP. DOE is committed to working with both agencies in develonment of future SMP revisions.
11.	Sect. 4.2, Schedule	The Division disagrees with basing enforceable commitments on the Generic WAG Schedule. Section XVIII, Part B of the FFA states: "The D1 annual SMP shall include a list of commitments and long-term projections, developed in a manner consistent with the prioritization described herein, which identify the submittal dates for deliverables that correspond to work activities for FY+1 and FY+2, and any enforceable outyear commitments, ROD issuance dates-for FY+1 and FY+2, ROD issuance target dates by fiscal year quarters for FY+3 and beyond for all Potential, **CS** and RA OUs defined pursuant to this Agreement." DOE's utilization of the Generic WAG Schedule and failure to submit deliverable dates in the D1 SMP is contrary to the requirements of the FFA.	The document was reviewed to be sure it is clear that the **WAG** schedule is used to develop schedules when scoping is not complete, making its use necessary. If scoping is complete, then project-specific schedules are used. The amended SMP includes the milestones for FY 2003, FY 2004, and FY 2005 as agreed upon by the principals as part of the dispute resolution process, which were incorporated into a dispute resolution agreement signed on April 14,2003. The milestones for the outyear scope will be finalized as part of the ongoing SMP negotiations, which are scheduled to continue through September 15,2003. Agreements reached on the outyear scope will be incorporated into the FY 2004 annual SMP update, which is scheduled to be submitted on November 15,2003.
12.	Sect. 4.2, Schedule, 2nd para.	The unilateral uses and placement of generic schedule into the ***SMP*** is in direct conflicts with numerous conditions in the FFA and defeats the purpose of any plans for an accelerated cleanup.	As noted above, the document was reviewed to be sure it is clear that the WAG schedule is used to develop schedules when scoping is not complete, making its use necessary. After scoping, project-snecific schedules are used.

Comments for the
Fiscal Year 2003 Annual Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE/OR/07-1849&D1)
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13.	Table 1, SMP Strategic Planning Assumption	The assumptions outlined in Table 1 were independently developed by DOE without consultation with the State or EPA. Consequently, the Division disagrees with numerous aspects of the strategy in Table 1. a. The strategy does not fully address all the **SWMUs** at the PGDP. The use of the OU concept is flawed due to the lack of incompleteness in the accounting of SWMUs at the site. The OU concept is intended to group units that contributed to like environmental media and address them as a whole (i.e., Operable Unit). However, DOE has opted for a fragmented strategy that utilizes several removal actions to be followed by an interim CSOU that relies on risk assessments as a characterization tool. b. DOE has proposed a cleanup schedule that exceeds 2010 in violation of the FFA.	Table 1 was updated to be consistent with the results obtained at the meetings concerning the ***SMP*** dispute. The milestones for the outyear scope will be finalized as part of the ongoing ***SMP*** negotiations, which are scheduled to continue through September 15,2003. Agreements reached on the outyear scope will be incorporated into the FY **2004** annual ***SMP*** update, which is scheduled to be submitted on November 15,2003.