

Site Management Plan Paducah Gaseous Diffusion Plant Paducah, Kentucky

Annual Revision—FY 2008



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This document is approved for public release per review by:

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**SITE MANAGEMENT PLAN
PADUCAH GASEOUS DIFFUSION PLANT
PADUCAH, KENTUCKY**

ANNUAL REVISION—FY 2008

Date Issued—June 2008

Prepared for
U.S. Department of Energy
PADUCAH GASEOUS DIFFUSION PLANT
Paducah, Kentucky 42002
by
PADUCAH REMEDIATION SERVICES, LLC
under contract DE-AC30-06EW05001
with contributions by
U.S. Environmental Protection Agency
Kentucky Environmental and Public Protection Cabinet
Kentucky Cabinet for Health Services

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FIGURE

Figure 1. Current and Reasonably Anticipated Future Land Use at PGDP. 2

ACRONYMS

AOC	area of concern
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSOU	Comprehensive Site Operable Unit
D&D	decontamination and decommissioning
DOE	U.S. Department of Energy
EM	Environmental Management
EPA	U.S. Environmental Protection Agency
FFA	Federal Facility Agreement
FY	fiscal year
GDP	gaseous diffusion plant
KEPPC	Kentucky Environmental and Public Protection Cabinet
LOI	Letter of Intent
NCP	National Contingency Plan
OU	operable unit
PGDP	Paducah Gaseous Diffusion Plant
RCRA	Resource Conservation and Recovery Act
SMP	Site Management Plan
SWMU	solid waste management unit

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1. INTRODUCTION

The Paducah Gaseous Diffusion Plant (PGDP) was placed on the National Priorities List 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 Kentucky on February 13, 1998. The FFA established one set of consistent requirements for achieving comprehensive site remediation in accordance with the Resource Conservation and Recovery Act (RCRA) and CERCLA, including stakeholder involvement.

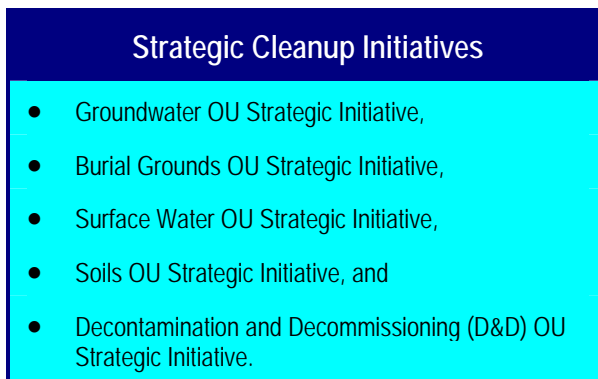
Section XVIII of the FFA requires DOE to submit an annual Site Management Plan (SMP), which outlines DOE's strategic approach for achieving cleanup under the FFA, to EPA and the Kentucky Environmental and Public Protection Cabinet (KEPPC) by November 15th of each year. The FFA states that the purpose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

DOE and Kentucky entered into a Letter of Intent (LOI) in August 2003. EPA was not a signatory to the LOI. The LOI documents the commitment by Kentucky and DOE to promote accelerated cleanup at PGDP, develop an integrated planning and funding request, meet commitments under the FFA, and settle all identified outstanding enforcement and compliance issues through an Agreed Order. The LOI does not affect DOE's legal obligation to comply with the National Contingency Plan (NCP) or FFA. An Agreed Order between DOE and Kentucky, which incorporated certain provisions of the LOI related to waste management, was signed in 2003.

The fiscal year (FY) 2004 SMP officially incorporated the provisions of the SMP Agreement signed by DOE, EPA, and KEPPC on April 14,

2003, and input from various strategic planning meetings between DOE and the regulators. Specifically, the FY 2004 SMP established enforceable milestones for FY 2004, FY 2005, and FY 2006, and outlined enforceable completion dates for investigation and response actions associated with the strategic cleanup initiatives below.

This annual update of the SMP sets forth enforceable milestones for FY 2008, FY 2009, and FY 2010, and maintains the enforceable completion dates for investigation and response actions associated with the strategic cleanup initiatives (See Appendix 5).



A blue-bordered box with a dark blue header containing the text "Strategic Cleanup Initiatives". Below the header is a light blue background with a dark blue border containing a bulleted list of five strategic cleanup initiatives.

- Groundwater OU Strategic Initiative,
- Burial Grounds OU Strategic Initiative,
- Surface Water OU Strategic Initiative,
- Soils OU Strategic Initiative, and
- Decontamination and Decommissioning (D&D) OU Strategic Initiative.

These initiatives include a series of prioritized response actions, ongoing site characterization activities to support future response action decisions, and D&D of the currently operating gaseous diffusion plant (GDP) once it ceases operation. After completion of these activities, the Comprehensive Site OU (CSOU) evaluation will be conducted, with implementation of additional actions, as needed, to ensure long-term protectiveness.

2. LAND USE

As depicted in Figure 1, the planning assumption for current and reasonably foreseeable future land uses at and adjacent to PGDP is for industrial areas located primarily inside the security fence, recreational areas located outside the security fence, and off-site residential areas.

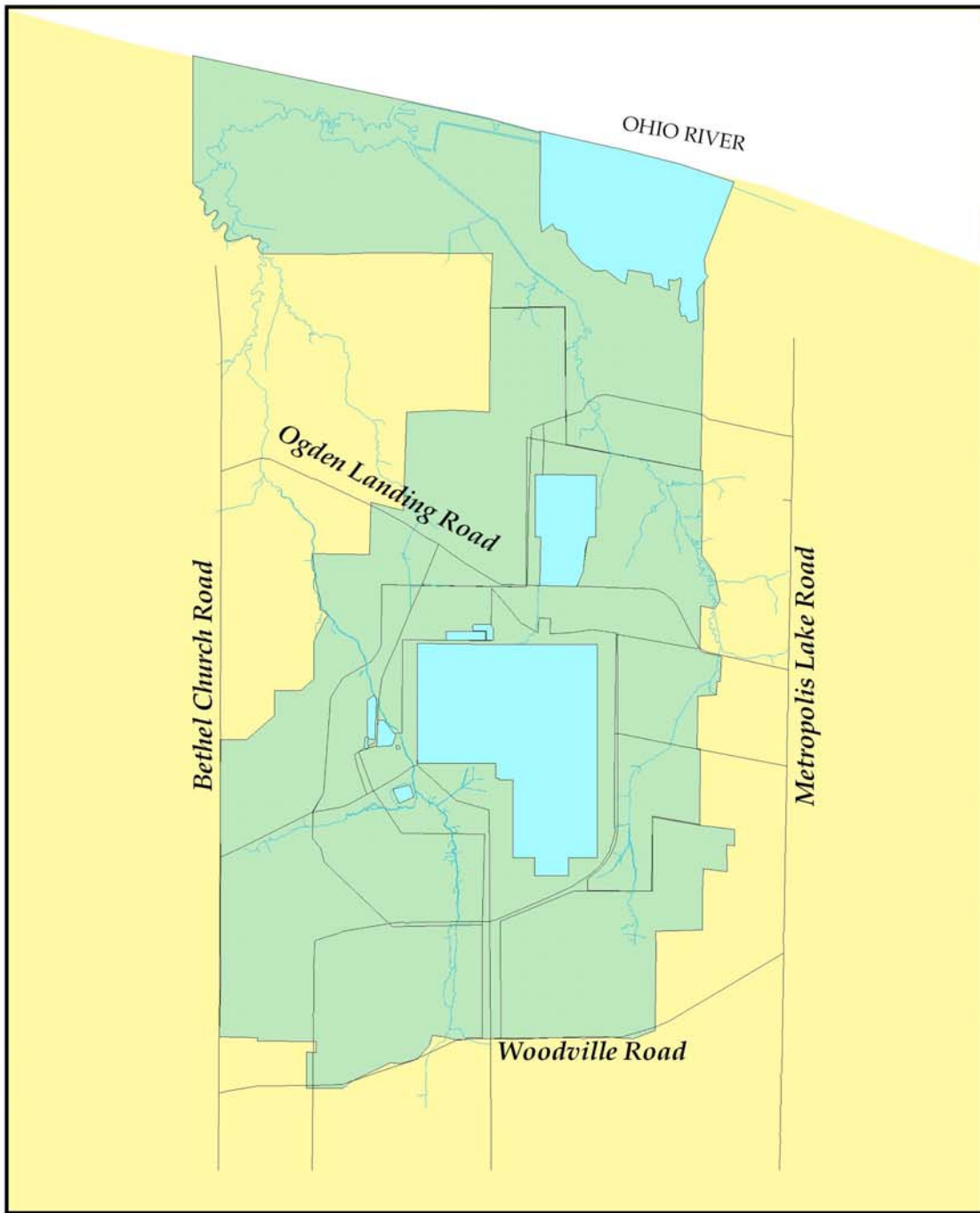
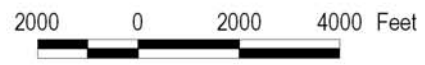


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- Industrial
- Recreational
- Rural Residential

Figure 1. Current and Reasonably Anticipated Future Land Use at PGDP

Several factors were considered in establishing the land-use assumptions under this strategy, including current and past land use, existing lease commitments, future industrial missions planned at the site, the nature of site contamination, and stakeholder input.

3. OPERABLE UNITS

The OUs were established by developing a site conceptual risk model for each source area (SWMUs/AOCs). This process included a qualitative evaluation of contaminant types and concentration, release mechanisms, likely exposure pathways, estimated points of exposure, and potential receptors based on current and reasonably foreseeable future land groundwater uses. The source areas initially were grouped into these media-specific OU:

- Groundwater OU
- Surface Water OU
- Soils OU
- Burial Grounds OU
- D&D OU
- CSOU

4. SITE PRIORITIZATION

DOE uses a combination of factors to prioritize work being implemented under the Environmental Management (EM) program at PGDP. These include considerations such as regulator expectations, risk-based decision making, compliance with other programs, technical considerations associated with GDP operations, mortgage reduction, and demonstrated progress toward completing the EM mission.

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

Consistent with those principles, the risk prioritization criteria described above are used as guidelines, in conjunction with the other previously

mentioned factors, to prioritize response actions. The prioritization criteria have been applied to each of the OUs at PGDP.

Risk Prioritization Criteria
<ul style="list-style-type: none">• 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.• Perform D&D of the currently operating gaseous diffusion plant units impacted by plant operations.• Evaluate the final CSOU.

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APPENDIX 1

ACTIONS TAKEN TO DATE

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Operable Unit Summary

WAGs/Media	Response Type	ROD/Action Memorandum	Response Description	Status
GROUNDWATER OPERABLE UNIT				
WAG 26/Groundwater	Emergency removal action	N/A	Provided temporary water to local residences whose private wells are contaminated by TCE and ⁹⁹ Tc.	Complete
WAG 26/Groundwater	Removal action	August 30, 1994	Extended municipal water line to residents affected by off-site groundwater contamination.	Construction Complete/Operational
WAG 26/Groundwater (Northwest Plume)	Interim Remedial Action (IRA)	July 23, 1993	Hydraulic containment and treatment of high concentrations of off-site TCE contamination in the Northwest Plume.	Construction Complete/Operational
WAG 26/Groundwater (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
SWMU 91/Soil	IRA	August 10, 1998	In situ treatment of TCE-contaminated soils using the LASAGNA™ technology.	Complete
SWMU 11 and SWMU 533/Groundwater (C-400 Source Action)	IRA	August 9, 2005	In-situ treatment of TCE source areas in the UCRS and RGA located in the southeast and southwest corners of the C-400 building using electrical resistance heating technology.	ROD signed; RDSI completed; design work in progress.
SURFACE WATER OPERABLE UNIT				
WAG 25/Surface water (NSDD)	IRA	March 28, 1994	Instituted action to treat certain plant effluent and control the migration of contaminated sediment associated with the NSDD.	Construction Complete/Operational
WAGs 18 & 25/Surface water and sediment (Surface Water/Ditches)	IRA	N/A	Institutional controls (fencing/posting) for off-site contamination in surface water, outfalls, and lagoons.	Construction Complete/Operational
WAG 24/Scrap (Scrapyards)	IRA	N/A	Installation of sediment controls to mitigate surface water/sediment runoff from Scrap Yards.	Construction Complete/Operational
WAGs 1&7/Surface water and sediment	IRA	August 10, 1998	Installed rip-rap along creek bank to prevent direct contact, implemented institutional controls, and long-term monitoring.	Complete

SURFACE WATER OPERABLE UNIT (CONTINUED)

Drum Mountain (Scrap)	Non-time-critical removal action	March 27, 2000	Removed and dispositioned Drum Mountain	Complete
WAG 24, WAG 14, and SWMU 99/Scrap	Non-time-critical removal action	September 26, 2001	Removal and disposition of scrap metal with enhanced sediment control measures.	Sediment control basin constructed. Scrap Metal removal fieldwork completed .
SWMU 59/Sediment	IRA	September 25, 2002	Remedial action for Sections 1 and 2 of the NSDD	Complete

BURIAL GROUND OPERABLE UNIT

WAG 22/Waste and soil (SWMU 2--Burial Ground)	IRA	September 11, 1995	Installation of an impermeable cap to reduce leachate migration from surface infiltration.	Deferred
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SOILS OPERABLE UNIT

C-750-A, -B, and -C Underground Storage Tanks	N/A	N/A	Tank removal	Complete
WAG 7/Soil (C-746-K Landfill)	IRA	N/A	Enhanced existing cap to reduce leachate migration from surface infiltration.	Complete
AOC 124 WAG 17/Soil (Concrete Rubble Piles)	Removal action	N/A	Excavated soil associated with AOC 124	Complete
WAG 23/Soil	Removal action	September 11, 1997	Excavated PCB-contaminated surface soils to reduce risks to plant industrial workers	Complete
SWMU 193/Soil	Time-critical removal action	February 19, 2002	Removed petroleum-contaminated soils	Complete
SWMUs 76 and 519/Soil	Time-critical removal action	July 1, 2002	Remove empty sulfuric acid tanks, size reduce for containerization, and disposal.	Complete

D&D OPERABLE UNIT				
SWMU 478/Infrastructure (C-410)	Non-time-critical removal action	August 3, 2002	Remove process equipment and piping	Fieldwork in progress.
SWMU 480 (C-402 Lime House); SWMU 55(C-405 Incinerator); and SWMU 464 (C-746A West End Smelter)	Non-time-critical removal action	December 5, 2005	Remove, characterize, and dispose of building structure and contents.	Removal action completed for C-402-Lime House, fieldwork completed for C-405 Incinerator, and fieldwork in progress for C-746-A West End Smelter.

AOC = area of concern
 IRA = interim remedial action
 N/A = not applicable
 NSDD = North-South Diversion Ditch
 PCB = polychlorinated biphenyl
 RAWP = Remedial Action Work Plan
 RDSI = remedial design /support investigation
 RGA = Regional Gravel Aquifer
 ROD = Record of Decision
 SWMU = solid waste management unit
 Tc-99 = technetium-99
 TCE = trichloroethene
 UCRS = Upper Continental Recharge System
 WAG = waste area group

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APPENDIX 2

CERTIFICATION OF LUCIPS

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CERTIFICATION OF LUCIPS

In accordance with Section 2.9 of the *Land Use Control Assurance Plan for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/07-1799&D2, the U.S. Department of Energy (DOE) certifies that requirements of the *Land Use Control Implementation Plan for the North-South Diversion Ditch at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/07-1949&D2, are being implemented by DOE at Paducah Gaseous Diffusion Plant.

There have been no changes in the designated officials identified under the Land Use Control Implementation Plan/Land Use Control Assurance Plan. There have been no major or “non-major” changes of land use.

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APPENDIX 3

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APPENDIX 4

SOURCE AREA BY OPERABLE UNIT

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Solid Waste Management Units/Areas of Concern by Operable Unit

GROUNDWATER OPERABLE UNIT		
Subproject	SWMU No.	Description
C-400 Action	11	C-400 TCE Leak Site
	533	TCE Spill Site from TCE Unloading Operations at C-400
Southwest Plume Sources	1	C-747-C Oil Land Farm
	209	C-720 Compressor Shop Pit Sump
	211	C-720 TCE Spill Site Northeast
Dissolved-Phase Plumes	201	Northwest Groundwater Plume
	202	Northeast Groundwater Plume
	210	Southwest Groundwater Plume
SURFACE WATER OPERABLE UNIT		
NSDD	59	NSDD (Inside)
Scrap Metal	13	C-746-P Clean Scrap Yard
	14	C-746-E Contaminated Scrap Yard
	15	C-746-C Scrap Yard
	16	C-746-D Classified Scrap Yard
SWOU On-Site	58	NSDD (Outside)
	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)
	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)
	92	Fill area for dirt from the C-420 PCB Spill Site
	97	C-601 Diesel Spill
	102	Plant Storm Sewer
	168	KPDES Outfall Ditch 012
	526	Internal Plant Drainage Ditches
	SWOU Off-site	64
65		Bayou Creek
93		Concrete Disposal Area East of Plant Security Area
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)
175		Concrete Rubble Pile (28)
185		C-611-4 Horseshoe Lagoon
199		Bayou Creek Monitoring Station
205		Eastern Portion of Yellow Water Line
549		Concrete Rubble Pile by Outfall 8
550	Concrete Culvert Sections, west of Outfall 001 ditch	

Solid Waste Management Units/Areas of Concern by Operable Unit (Continued)

BURIAL GROUND OPERABLE UNIT		
Subproject	SWMU No.	Description
BGOU	2	C-749 Uranium Burial Ground
	3	C-404 Low-Level Radioactive Waste Burial Ground
	4	C-747 Contaminated Burial Ground
	5	C-746-F Classified Burial Ground
	6	C-747-B Burial Area
	7	C-747-A Burial Ground
	30	C-747-A Burn Area
	13	C-746-P Clean Scrap Yard
	145	Residential/Inert Landfill Borrow Area (P-landfill)
	9	C-746-S Residential Landfill
10	C-746-T Inert Landfill	
SOILS OPERABLE UNIT¹		
Sitewide Soils Operable Unit	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 Scrap Yard
	14	C-746-E Contaminated Scrap Yard
	15	C-746-C Scrap Yard
	16	C-746-D Classified Scrap Yard
	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
	31	C-720 Compressor Pit Water Storage Tank
	32	C-728 Clean Waste Oil Tanks
	40	C-403 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
	80	C-540 PCB Spill Site
	81	C-541 PCB Spill Site
	92	Fill area for dirt from the C-420 PCB Spill Site
	97	C-601 Diesel Spill
	99	C-745 Kellogg Bldg. Site
	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)	

¹ Remediation of the Soils Operable Unit will be conducted as a sitewide remedial action with a hot spot removal action coordinated with the remedial investigation characterization.

Solid Waste Management Units/Areas of Concern by Operable Unit (Continued)

Subproject	SWMU No.	Description
Sitewide Soils Operable Unit (Continued)	158	Chilled-Water System Leak Site
	160	C-745 Cylinder Yard Spoils (PCB Soils)
	163	C-304 Bldg./HVAC Piping System (Soil Backfill)
	165	C-616-L Pipeline & Vault Soil Contamination
	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
	180	Outdoor Firing Range (WKWMA)
	181	Outdoor Firing Range (PGDP)
	194	McGraw Construction Facilities (Southside)
	195	Curlee Road Contaminated Soil Mounds
	196	C-746-A Septic System
	200	Soil Contamination South of TSCA Waste Storage Facility
	204	Dykes Road Historical Staging Area
	211	C-720 TCE Spill Site Northwest
	212	C-745-A Radiological Contamination Area
	213	OS-02
	214	OS-03
	215	OS-04
	216	OS-05
	217	OS-06
	218	OS-07
	219	OS-08
	220	OS-09
	221	OS-10
	222	OS-11
	223	OS-12
	224	OS-13
	225	OS-14
	226	OS-15
	227	OS-16
	228	OS-17
	229	OS-18
	387	G-416-01
	483	Nitrogen Generating Facilities
	488	PCB Contamination Area by the C-410 Trailer Complex
	489	Septic Tank, North of C-710
	492	Contaminated Soil Area, North of Outfall 10
	493	Concrete Rubble Piles Near Outfall 001
517	Rubble and Debris Erosion Control Fill Area	
518	Field South of C-746-P1 Clean Scrap Yard	
520	Scrap Material West of C-746-A	
531	Aluminum Slag Reacting Area	
541	Contamination area by Outfall 011	

Solid Waste Management Units/Areas of Concern by Operable Unit (Continued)

DECONTAMINATION AND DECOMMISSION OPERABLE UNIT		
Subproject	SWMU No.	Description
Inactive Facilities (C-410 D&D)	41	C-410-C Neutralization Tank
	478	C-410/420 Feed Plant
	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
	510	C-410/420 Sump at Column P&Q-2
	511	C-410/420 Sump at Column Q&R-2
512	C-410/420 Sump at Column R-2	
513	C-411 Cell Maintenance Room Sump	
Inactive Facilities (C-340 D&D)	101	C-340 Hydraulic System
	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
	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 Sump at Ground Floor Level
Inactive Facilities D&D	55	C-405 Incinerator
	464	C-746-A West End Smelter
	480	C-402 Lime House
GDP D&D	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
	28	C-712 Laboratory Equalization Tank
	33	C-728 Motor Cleaning Facility
	38	C-615 Sewage Treatment Plant
	42	C-616 Chromate Reduction Facility
	70	C-333-A Vaporizer

Solid Waste Management Units/Areas of Concern by Operable Unit (Continued)

Subproject	SWMU No.	Description
GDP D&D (Continued)	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
	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
	98	C-400 Basement Sump
	159	C-746-H3 Storage Pad
	161	C-743-T-01 Trailer Site (Soil Backfill)
	162	C-617-A Sanitary Water Line (Soil Backfill)
	164	KPDES Outfall Ditch 017 (Soil Backfill)
	166	C-100 Trailer Complex Soil Contamination
	167	C-720 White Room Sump
	171	C-617-A Lagoons
	172	C-726 Sandblasting Facility
	178	C-724-A Paint Spray Booth
	179	Plant Sanitary Sewer System
192	C-710 Acid Interceptor Pit	
198	C-410-D Area Soil Contamination	
203	C-400 Sump	
209	C-720 Compressor Shop Pit Sump	
463	C-746-A East End Smelter	
482	C-415 Feed Plant Storage Building	
DUF ₆ D&D	183	McGraw UST
	193	McGraw Construction Facilities (Southside Cylinder Yards)
	194	McGraw Construction Facilities (Southside)
FINAL COMPREHENSIVE SITE OPERABLE UNIT		
SWMU No.	Description	
8	C-746-K Inactive Sanitary Landfill	
91	UF ₆ Cylinder Drop Test Area	
100	Fire Training Area	
PERMITTED		
3	C-404 Low-Level Radioactive Waste Burial Ground	
9	C-746-S Residential Landfill	
10	C-746-T Inert Landfill	
44	C-733 Hazardous Waste Storage Area	
46A	C-746-Q Hazardous and Low-Level Mixed Waste Storage Facility	
144	C-746-A Hazardous and Mixed Waste Storage Facility	
207	C-752-A ER Waste Storage Bldg.	
208	C-746-U Solid Waste Contained Landfill	

Solid Waste Management Units/Areas of Concern by Operable Unit (Continued)

NO FURTHER ACTION²	
SWMU No.	Description
24	C-750-D UST
25	C-750 1000-gallon Waste Oil Tank (UST)
29	C-746-B TRU Storage Area
34	C-746-M PCB Waste Storage Area
35	C-337 PCB Waste Storage Area
36	C-337 PCB Waste Staging Area
37	C-333 PCB Waste Staging Area
39	C-746-B PCB Waste Storage Area
43	C-746-B Waste Chemical Storage Area
45	C-746-R Waste Solvent Storage Area
46	C-409 Hazardous Waste Pilot Plant
48	C-400-A Gold Dissolver Storage Tank
49	C-400-B Waste Solution Storage Tank
50	C-400-C Nickel Stripper Evaporation Tank
51	C-400-D Lime Precipitation Tank
52	C-400 Waste Decontamination Solution Storage Tanks
53	C-400 NaOH Precipitation Unit
54	C-400 Degreaser Solvent Recovery Unit
72	C-200 Underground Gasoline Tanks
73	C-710 Underground Gasoline Tanks
90	C-720 Underground Petroleum Naphtha Pipe
96	Cooling Tower Scrap Wood Pile
100	Fire Training Area
103	Concrete Rubble Pile (1)
104	Concrete Rubble Pile (2)
110	Concrete Rubble Pile (8)
111	Concrete Rubble Pile (9)
112	Concrete Rubble Pile (10)
114	Concrete Rubble Pile (12)
115	Concrete Rubble Pile (13)
116	Concrete Rubble Pile (14)
117	Concrete Rubble Pile (15)
118	Concrete Rubble Pile (16)
119	Concrete Rubble Pile (17)
120	Concrete Rubble Pile (18)
121	Concrete Rubble Pile (19)
122	Concrete Rubble Pile (20)
123	Concrete Rubble Pile (21)
124	Concrete Rubble Pile (22)
125	Concrete Rubble Pile (23)
126	Concrete Rubble Pile (24)
127	Concrete Rubble Pile (25)
128	Concrete Rubble Pile (26)
130	C-611 550-gal Gasoline UST
131	C-611 50-gal Gasoline UST

² A portion of the SWMUs/areas of concerns listed may not qualify as NFAs per CERCLA and may require additional characterization for radionuclides under the final CSOU.

Solid Waste Management Units/Areas of Concern by Operable Unit (Continued)

NO FURTHER ACTION (CONTINUED)	
SWMU No.	Description
132	C-611 2000-gal Oil UST
133	C-611 (unknown size) Grouted UST
134	C-611 1000-gal Diesel/Gasoline Tank
136	C-740 TCE Spill Site
139	C-746-A1 UST
140	C-746-A2 UST
141	C-720 Inactive TCE Degreaser
142	C-750-A 10,000-gal Gasoline Tank (UST)
143	C-750-B 10,000-gal Diesel Tank (UST)
146	Concrete Rubble Pile (40)
147	Concrete Rubble Pile (41)
148	Concrete Rubble Pile (42)
149	Concrete Rubble Pile (43)
150	Concrete Rubble Pile (44)
151	Concrete Rubble Pile (45)
152	Concrete Rubble Pile (46)
173	C-746-A Trash-Sorting Facility
174	C-745-K Low-Level Storage Area
184	Concrete Rubble Pile (29)
186	C-751 Fuel Facility
187	C-611 Septic System
188	C-633 Septic System
189	C-637 Septic System
190	C-337A Sewage Treatment Aeration Tank
191	C-333-A Sewage Treatment Aeration Tank
197	Concrete Rubble Pile (30)
206	C-753-A Toxic Substances Control Act Waste Storage Bldg.
208	C-746-U Solid Waste Contained Landfill
360	C-535
361	C-727 – 90 day
362	G-310-04
363	G-331-03
364	G-331-05
365	G-333-02
366	G-333-03
367	G-333-04
368	G-333-08
369	G-333-10
370	G-333-20
371	G-335-01
372	G-337-02
373	G-337-03
374	G-337-13
375	G-337-14
376	G-337-15
377	C-337-22
382	G-340-06
383	G-400-01
384	G-400-02
385	G-409-25
386	G-410-01

Solid Waste Management Units/Areas of Concern by Operable Unit (Continued)

NO FURTHER ACTION (CONTINUED)	
SWMU No.	Description
387	C-416-01
388	C-416
389	G-533-01
390	G-535-02
391	G-537-01
392	G-540-A-01
394	G-541-A-01
395	G-600-01
396	C-611-U-01
397	G-612-01
398	G-612-02
399	G-612-A-01
400	G-635-01
401	G-710
402	G-710-04
403	G-710-20
404	G-710-24
405	G-720-22
406	G-743-T-17-01
407	G-743-T-17-02
408	G-745-B-01
409	G-745-T-01
410	G-746-G-01
411	G-746-G-1-01
412	G-746-G-2-01
413	G-746-G-3-01
414	G-746-F-01
415	G-746-S-01
416	G-746-X-01
417	G-746-X-01
418	G-748-B-01
419	G-752-C-01
420	G-752-C-02
421	G-754-01
422	G-755-A-01
423	G-755-C-01
424	G-755-T-07-01
425	G-755-T-08
426	G-755-T-2-3-01
427	G-755-T-3-1-01
428	G-755-T-3-2-01
429	S-310-04
430	S-331-02
431	S-333-12
432	S-335-09
433	S-337-11
435	S-409-100
436	S-409-20
437	S-409-40
438	S-409-60
439	S-409-80

Solid Waste Management Units/Areas of Concern by Operable Unit (Continued)

NO FURTHER ACTION (CONTINUED)	
SWMU No.	Description
440	S-410-05
441	S-540-A-2-01
442	S-612-01
443	S-709-01
444	S-709-02
445	S-710-05
446	S-710-06
447	S-710-09
448	S-710-16
449	S-710-18
450	S-710-32
451	S-710-41
452	S-710-44
453	S-710-46
454	S-743-T-17-01
455	S-755-T-16-01
456	S-755-T-16-02
457	S-755-T-16-03
458	S-755-T-2-3-01
459	S-755-T-3-1-01
460	S-755-T-3-2-01
461	S-755-T-3-2-02
462	S-755-T-3-2-03
468	Area West of plant, North of Outfall 015
473	West of C-746-B
475	C0745-G5 Paint Enclosure GSA
476	Concrete Crusher
479	C-204 Disintegrator Building
481	C-410-A Hydrogen Cylinder
484	C-611-M North Sanitary Water Storage Tank
485	C-611-N North Sanitary Water Storage Tank
490	McGraw Fuel Facility Waste Oil Storage Tank
491	Mercury Spill at the C-611 Water Treatment Plant Vault
519	C-410 Sulfuric Acid Tank (C-634-B)
525	KOW Water Tower Concrete Supports
527	C-410 GSA/SAA at Column J-6
528	GSA/SAA at the Northwest corner of C-745-G3 Paint Enclosure
530	Soil and Debris Storage Area by C-745-T Yard
532	Photographic Solution Treatment Area
534	UST #18, within SWMU 193
535	Satellite Accumulation Area at C-755 Trailer 8
536	Concrete Truck Washout Area
537	SAA Located Outside at the Southeast Corner of the C-400 building (S-400-01)
538	S-MST-01-01 & S-MST-01-02 (Mobile Trailer 01)
539	S-MST-01-01 & S-MST-01-02 (Mobile Trailer 02)
540	S-MST-01-01 & S-MST-01-02 (Mobile Trailer 03)
542 a & b	GSA/SAAs located outside C-746-A
543	T-746-S-01, 90 Day Storage Area
544	T-752-C-01, 90 Day Storage Area
545	SWMUs 545, Generator Staging Area at C-755-T-2
546	Diesel Fuel Spill/Leak @ Post 67

Solid Waste Management Units/Areas of Concern by Operable Unit (Continued)

547	Diesel Spill/Leak @ Post 38
548	Concrete Piers, Wood, and Rubble North of C-745-B Cylinder Yard
551	GSA at C-755 east fence line
552	C-760 90-Day Storage Area
PENDING NO FURTHER ACTION DECISION	
465	G Yard Rubble Pile
466	South of Dykes Road, Pond Area
467	WKWMA on KOW
469	C-745-J
470	West of C-752-A
471	South Area Outside C-746-B
472	West of C-746-B
474	West of Vortec Site
486	Rubble Pile WKWMA
487	Rubble Pile WKWMA
SWMUS THAT WILL BE INVESTIGATED AND REMEDIATED BY THE U.S. ARMY CORPS OF ENGINEERS	
94	KOW Trickling Filter and Leach Field
95	KOW Burn Area
157	KOW Toluene Spill Area
182	Western Portion of Yellow Water Line

ER = environmental remediation
GSA = generator staging area
HVAC = heating, ventilating, and air-conditioning
KOW = Kentucky Ordinance Works
KPDES = Kentucky Pollutant Discharge Elimination System
NSDD = North-South Diversion Ditch
PCB = polychlorinated biphenyl
PGDP = Paducah Gaseous Diffusion Plant
RCW = recirculating cooling water
SAA = satellite accumulation area
TCE = trichloroethene
TSCA = Toxic Substances Control Act
UST = underground storage tank
WKWMA = West Kentucky Wildlife Management Area

APPENDIX 5

ENFORCEABLE TIMETABLES AND DEADLINES; PLANNING DATES WITH LONG-TERM TARGETS

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Enforceable Timetables and Deadlines; Planning Dates with Long-Term Targets

Subproject	Deliverable	Enforceable timetable and deadlines		Planning dates with long-term targets for decision documents ^{2,3}	Comments
		FY 2008–FY 2010	Out-year		
Groundwater OU (Southwest Plume Sources) ^c	D1 Feasibility Study	7/28/09			
	D1 Proposed Plan	3/25/10			D1 Proposed Plan is submitted 60 days after EPA and KY approval of the Feasibility Study.
	D1 ROD	9/17/10			Consistent with trigger date in 2007 SMP – 177 days after issuance of D1 Proposed Plan.
	D1 Remedial Action Completion Report		6/28/15 ¹		D1 Remedial Action Completion Report is submitted 150 days after Remedial Action is completed.
Groundwater OU (C-400)	D1 Remedial Action Completion Report		04/26/11		D1 Remedial Action Completion Report is submitted 150 days after Remedial Action is completed.
Groundwater OU (Dissolved-Phase Plumes)	D1 RI/FS Work Plan			3/10/11	Project scoping will be initiated following the completion of the TCE degradation study (projected for September 30, 2009) and completion of C-400 O&M activities.
	D1 ROD			4 th quarter - 2015	D1 ROD is submitted 30 days after close of public comment period on the Proposed Plan.

Subproject	Deliverable	Enforceable timetable and deadlines		Planning dates with long-term targets for decision documents ^{2,3}	Comments
		FY 2008–FY 2010	Out-year		
Decontamination and Decommissioning (C-410/420 Complex, C-340 Complex and 15 Inactive Facilities)	D1 C-746-A Removal Action Completion Report	6/03/08			Completed. Document sent to EPA and KY on 6/2/08.
	D1 C-405 Removal Action Completion Report	9/30/08			Completed. Document sent to EPA and KY on 6/18/08.
	D1 Removal Action Completion Report (C-410/420 Complex, C-340 Complex, and 15 Inactive Facilities)		9/30/17		D1 Removal Action Completion Report is submitted 150 days after Removal Action is completed.
	D&D Generic EE/CA	2/10/10		9/30/08	The proposed out-year enforceable date of 2/10/2010 is currently consistent with DOE's baseline for C-340 facility, which is the next scheduled EE/CA for inactive facilities. It is DOE's goal to accelerate project implementation to meet the FY08 planning date of 9/30/08 and expand the scope of the EE/CA to include D&D of other future inactive facilities.
	D1 Generic Action Memorandum	9/30/10			D1 Generic Action Memorandum is submitted 30 days after close of Public Comment period on the EE/CA.

Subproject	Deliverable	Enforceable timetable and deadlines		Planning dates with long-term targets for decision documents ^{2,3}	Comments
		FY 2008–FY 2010	Out-year		
Surface Water OU (Scrap Metal)	D1 Removal Action Completion Report	12/30/07			Completed. RACR submitted to EPA and KY on 12/27/07.
Surface Water OU (On-Site)	D1 EE/CA	2/28/08			Completed. EE/CA submitted to EPA and KY on 2/8/08.
	D1 Action Memorandum	10/08/08			D1 Action Memorandum is submitted 30 days after close of Public Comment period on the EE/CA.
	D1 Removal Action Work Plan	2/05/09			D1 Removal Action Work Plan is submitted 30 days after EPA and KY approval of Action Memorandum.
Surface Water OU (Off-Site)	D1 ROD			3rd quarter – 2015	D1 ROD is submitted 30 days after close of public comment period on the Proposed Plan.
	D1 Remedial Action Completion Report		12/13/17		D1 Remedial Action Completion Report is submitted 150 days after Remedial Action is completed.
Soils OU (Sitewide Removal)	D1 Decision Document			4th quarter – 2011	Implementation of the Soils Removal Action will be timed to occur upon completion of RI characterization under the Sitewide Soils OU remedial project. D1 Decision Document is submitted 30 days after close of public comment period on the Proposed Plan or EE/CA.

Subproject	Deliverable	Enforceable timetable and deadlines		Planning dates with long-term targets for decision documents ^{2,3}	Comments
		FY 2008–FY 2010	Out-year		
Soils OU (3 Inactive Soils Facilities) Soils OU	D1 EE/CA	3/22/08			Completed. EE/CA submitted to EPA and KY on 3/24/08.
	D1 Action Memorandum	12/10/08			D1 Action Memorandum is submitted 30 days after close of Public Comment period on the EE/CA.
	D1 Removal Action Work Plan	4/09/09			D1 Removal Action Work Plan is submitted 30 days after EPA and KY approval of Action Memorandum.
Soils OU (Sitewide Remedial)	D1 Remedial Investigation Work Plan	3/12/09			
	D1 Remedial Investigation Report	9/30/10			
	D1 ROD			3rd quarter – 2012	D1 ROD is submitted 30 days after close of public comment period on the Proposed Plan.
	D1 Remedial Action Completion Report		9/30/15 ¹		D1 Remedial Action Completion Report is submitted 150 days after Remedial Action is completed.

Subproject	Deliverable	Enforceable timetable and deadlines		Planning dates with long-term targets for decision documents ^{2,3}	Comments
		FY 2008–FY 2010	Out-year		
Soils OU (Soils and Rubble Areas)	Sitewide Evaluation Work Plan (EI)			9/30/09	Site Evaluation Work Plan is submitted 30 days after EPA and KY approve the Soils and Rubble Areas Sampling and Analysis Plans, as outlined in the 2/16/07 DOE letter, and the FFA Managers reach consensus on the walk-over scope by 1/03/09.
Burial Grounds OU	D1 Remedial Investigation Report	7/25/08			
	D1 Feasibility Study	7/02/09			D1 Feasibility Study is submitted 60 days after EPA and KY approve the RI Report.
	D1 Proposed Plan	2/24/10			D1 Proposed Plan is submitted 60 days after EPA and KY approval of the Feasibility Study.
	D1 ROD			1 st quarter - 2011	D1 ROD is submitted 30 days after close of public comment period on the Proposed Plan.
	D1 Remedial Action Completion Report		9/30/2019 ¹		D1 Remedial Action Completion Report is submitted 150 days after Remedial Action is completed.

¹ Enforceable Timetables and Deadlines are based on the planning scope assumptions contained in the approved FY 2007 SMP, the Southwest Plume Dispute Resolution Agreement, and the funding levels in DOE's approved lifecycle baseline. The FFA Parties are in the process of reviewing the planning assumptions as part of the scoping process for the FY 2009 SMP. Based on the results of these discussions, the planning assumptions and milestones dates may be adjusted in the FY 2009 SMP as the FFA Parties deem appropriate.

² Not enforceable dates. Used for planning purposes only.

³ Long-term decision document target dates are intended to represent either D1 ROD and/or D1 Action Memorandum dates.

BRA = baseline risk assessment

O&M = operations and maintenance

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
DOE = U.S. Department of Energy
EE/CA = engineering evaluation/cost analysis
EI = Environmental Indicators
EPA = U.S. Environmental Protection Agency
FFA = Federal Facility Agreement
FS = feasibility study
FY = fiscal year

OU = operable unit
PP = proposed plan
RI = remedial investigation
ROD = record of decision
SI = site investigation
SWMU = solid waste management unit