

## **Department of Energy**

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AUG 2 5 2009

PPPO-02-638-09

Mr. W. Turpin Ballard U.S. Environmental Protection Agency, Region 4 Federal Facilities Branch 61 Forsyth Street Atlanta, Georgia 30303

Mr. Edward Winner, FFA Manager Kentucky Department for Environmental Protection Division of Waste Management 200 Fair Oaks Lane, 2<sup>nd</sup> Floor Frankfort, Kentucky 40601

Dear Mr. Ballard and Mr. Winner:

### TRANSMITTAL OF THE REMOVAL NOTIFICATION FOR DECOMMISSIONING OF THE C-340 METALS REDUCTION PLANT COMPLEX AND THE C-746-A EAST END SMELTER AT THE PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY (DOE/LX07-0184&D2)

Please find enclosed the D2 Removal Notification for Decommissioning of the C-340 Metals Reduction Plant Complex and the C-746-A East End Smelter at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, (DOE/LX/07-0184&D2) for your review. Also enclosed is a summary table in response to comments received from the Kentucky Department for Environmental Protection and U.S. Environmental Protection Agency.

Because this project is being funded by the American Recovery and Reinvestment Act (ARRA), it is important that your review of this document be completed within the agreed upon time frames. This will ensure that our project schedules will not be jeopardized.

If you have any questions or require additional information, please contact Rob Seifert at (270) 441-6823.

Sincerely,

Reinhard Knerr Paducah Site Lead Portsmouth/Paducah Project Office

Enclosures:

- 1. Certification Page
- 2. D2 RN for Decommissioning of C-340 and C-746-A
- 3. Comment Response Summary

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### CERTIFICATION

#### **Document Identification:**

Removal Notification for Decommissioning of the C-340 Metals Reduction Plant Complex and the C-746-A East End Smelter at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0184&D2

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Paducah Remediation Services, LLC Operator

W. Isoth

Pete W. Coutts, Manager of projects/Deputy Site Manager Paducah Remediation Services, LLC

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

U.S. Department of Energy (DOE) Owner

Reinhard Knerr, Paducah Site Lead Portsmouth/Paducah Project Office

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### DOE/LX/07-0184&D2 Primary Document

Removal Notification for Decommissioning of the C-340 Metals Reduction Plant Complex and the C-746-A East End Smelter at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky



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### DOE/LX/07-0184&D2 Primary Document

### Removal Notification for Decommissioning of the C-340 Metals Reduction Plant Complex and the C-746-A East End Smelter at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky

Date Issued—August 2009

#### Prepared for the U.S. DEPARTMENT OF ENERGY Office of Environmental Management

Prepared by PADUCAH REMEDIATION SERVICES, LLC managing the Environmental Remediation Activities at the Paducah Gaseous Diffusion Plant under contract DE-AC30-06EW05001

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## ACRONYMS

AEA	Atomic Energy Act
AM	Action Memorandum
AR	Administrative Record
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
D&D	decontamination and decommissioning
DOE	U.S. Department of Energy
EE/CA	Engineering Evaluation/Cost Analysis
EPA	U.S. Environmental Protection Agency
FFA	Federal Facility Agreement
HF	hydrogen fluoride
KDEP	Kentucky Department for Environmental Protection
NTCRA	Non-Time-Critical Removal Action
PCB	polychlorinated biphenyl
PGDP	Paducah Gaseous Diffusion Plant
RCRA	Resource Conservation and Recovery Act
RN	Removal Notification
SE	Site Evaluation
SWMU	solid waste management unit
TSCA	Toxic Substances Control Act
$UF_4$	uranium tetrafluoride
$UF_6$	uranium hexafluoride

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### **1. INTRODUCTION**

In accordance with Section X.B of the *Federal Facility Agreement for the Paducah Gaseous Diffusion Plant* (FFA) (EPA 1998), the U.S. Department of Energy (DOE) is hereby providing a written Removal Notification (RN) for decommissioning of the C-340 Metals Reduction Plant Complex and the C-746-A East End Smelter at the Paducah Gaseous Diffusion Plant (PGDP). The basis for the Non-Time-Critical Removal Action (NTCRA) is the criteria in 40 *CFR* § 300.415(b)(2) and a policy between DOE and the U. S. Department of Environmental Protection (EPA) (DOE and EPA 1995). The DOE and EPA policy states that decommissioning activities should be conducted as NTCRAs unless circumstances of the situation make it inappropriate. The determining criterion in 40 *CFR* § 300.415(b)(4) is that the action should have a planning period longer than six months. Because this action will have a planning period greater than six months before on-site decommissioning activities will commence, this removal will be conducted as a NTCRA. Both of these removal actions are being funded by the American Recovery and Reinvestment Act.

Deactivation activities for these facilities are being conducted as a DOE maintenance action under DOE's Atomic Energy Act (AEA) authority, in accordance with applicable environmental laws and regulations, and consistent with DOE's letter to both the Kentucky Department for Environmental Protection (KDEP) and EPA, dated June 6, 2009. The letter subsequently was approved by EPA by letter dated July 1, 2009.

The intent of the deactivation process is to prepare the C-340 Complex and the C-746-A East End Smelter for decommissioning, which will be conducted as an NTCRA under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). During the deactivation, activities including, but not limited to, the following will be performed.

- Isolate utilities from shared plant systems;
- Install temporary utilities to support deactivation and decommissioning activities;
- Construct, repair, or refurbish cranes and elevators as needed (e.g., equipment needed for demolition);
- Establish boundary control stations;
- Conduct field inventories/surveys and marking of equipment and materials;
- Apply fixatives and sealants;
- Disconnect and/or isolate equipment;
- Remove stored materials including both hazardous and nonhazardous loose and fixed materials to the extent practicable;
- Abate asbestos;
- Characterize the building to facilitate segregation of waste streams and planning for the appropriate treatment/disposal facility and to support worker safety;

- Decontaminate building components, as needed, to protect deactivation and decommissioning workers, meet regulatory requirements, facilitate conventional demolition, or meet the waste acceptance criteria for a disposal facility;
- Remove, disassemble, and process for disposition any equipment and piping that contains hazardous, including radiological, contamination.

At the completion of deactivation, remaining contaminants are likely to include radiological contamination on the structure, polychlorinated biphenyls (PCBs) in paint, transite on external walls at the C-340 Complex, and minor quantities of hazardous materials, such as lead in circuit boards or similar items that cannot be accessed easily for removal. The volume of these items is expected to be small enough that if the facility is demolished the overall demolition waste stream will not be hazardous waste based on representative sampling. Following the deactivation process, the C-340 Complex and the C-746-A East End Smelter will be ready for decommissioning as a CERCLA NTCRA.

Should the decommissioning alternative be approved to address the C-340 Complex and the C-746-A East End Smelter, it is expected that the transite siding on the C-340 Complex and metal siding on the C-746-A East End Smelter will be removed and packaged for disposition; the building structures, including any remaining piping and equipment, will be demolished and packaged; sumps and pits will be backfilled with flowable fill or similar material; and slabs will be decontaminated or a fixative will be applied. Wastes generated will be packaged and dispositioned.

Section 104 of CERCLA addresses the response to releases or threats of releases of hazardous substances through removal actions. Section 2(d) of Executive Order 12580, "Superfund Implementation," delegates to the Secretary of Energy the authority to address releases or threatened releases where the release is from any facility under the jurisdiction, custody, or control of DOE.

Alternatives for implementing the removal actions will be evaluated in one Engineering Evaluation/Cost Analysis (EE/CA) for the decommissioning of the C-340 Metals Reduction Plant Complex and the C-746-A East End Smelter. Sufficient data exist and will be used in the EE/CA to evaluate decommissioning as an effective response action. Data pertaining to the nature and extent of contamination, worker health and safety, and the potential threats of releases from the C-340 Metals Reduction Complex and the C-746-A East End Smelter is available currently and will be augmented by additional data collected and process knowledge gathered during the deactivation phase of the project to ensure further that all wastes will be dispositioned correctly and that worker health and safety will be protected.

This EE/CA will be made available to the public for review and comment once approved by the regulators. Following consideration of comments from the public, an Action Memorandum (AM) identifying and documenting the selected action will be prepared and submitted for regulatory review and approval. The AM will include a summary of comments received during the public comment period.

Following finalization of the AM, DOE will prepare and submit a Removal Action Work Plan for the C-340 Metals Reduction Plant Complex and the C-746-A East End Smelter for regulator review and approval. Once finalized, DOE will initiate decommissioning activities at the facilities in accordance with the approved work plan. Following completion of the activities, DOE will include a summary of the completed removal activities in the annual Removal Action Report, as required by Section X.A. of the FFA.

### 2. REMOVAL SITE EVALUATIONS

Subsection B of Section X of the FFA requires that the RN include the Removal Site Evaluation (SE) or summary of the Administrative Record (AR) constituting an equivalent removal site evaluation and a description of the factors considered in determining the appropriateness of the removal action [i.e., 40 *CFR* 300.415(b)(2)]. (See Section 6, Removal Action Justification.) Section IX of the FFA states that an Integrated Removal/Remedial SE and Solid Waste Management Unit (SWMU) Assessment Report (SE Report) will be submitted to EPA and KDEP in accordance with FFA Appendix D, utilizing the Preliminary Assessment/Site Inspection format.

The following two sections present information for the two facilities that are the subject of this RN, the C-340 Metals Reduction Plant Complex and the C-746-A East End Smelter. The information was taken from the existing SWMU Assessment Reports and other sources of data and information, such as remedial investigations that were conducted in the vicinity of either facility, radiological contamination surveys, documented recollections of personnel who worked in the facilities, and other existing documentation for the facilities. The SE Reports presented here address each facility in its entirety, rather than individual SWMUs that are located within or in the near vicinity of either the C-340 Metals Reduction Plant Complex or the C-746-A East End Smelter.

### **3. C-340 METALS REDUCTION PLANT COMPLEX**

Unit numbers and names (See Table 1)

Description	SWMU No.
C-340 Hydraulic System	101
G-340-01 Generator Staging Area	378
G-340-03 Generator Staging Area	379
G-340-04 Generator Staging Area	380
G-340-05 Generator Staging Area	381
G-340-06 Generator Staging Area <sup>1</sup>	382
S-340-01 Satellite Accumulation Area	434
C-340-B Metals Plant	477
C-340-D Reject Magnesium Fluoride Storage Silo	514
C-340 "Dirty" Dust Collection System	515
C-340 Derby Preparation Area Sludge Collection System	516
C-340 Saw System Degreaser	521
C-340 Work Pit Located at Ground Floor Level at B-7-B-9	522
C-340 Metals Plant Pit Ground Floor at F-6-F-11	523
C-340 Pickling Spray Booth Sump at B-10 and B-11	524
C-340 Powder Plant Sump at Ground Floor Level	529

#### Table 1. SWMUs in the C-340 Metals Reduction Plant Complex

The proposed NTCRA will address the entire facility, including each of the SWMUs listed above.

<sup>&</sup>lt;sup>1</sup> SWMU 382 has been determined to be a "No Further Action" site in the PGDP Site Management Plan for 2009.

#### Date—May 2009

#### **Regulatory status**—Decontamination and Decommissioning (D&D) Operable Unit

**Location**—The C-340 Metals Reduction Plant Complex is located on the east side of the plant inside the security fence (Figure 1).

**Approximate dimensions**—The C-340 Metals Reduction Plant Complex has a combined footprint of approximately 65,000 ft<sup>2</sup>. It is made up of the C-340-A Powder Building (42,000 ft<sup>2</sup>); C-340-B Metals Building (17,920 ft<sup>2</sup>); and the C-340-C Slag Building (4,400 ft<sup>2</sup>). C-340-A, B, and C are co-located under a single roof. They are metal frame structures with transite exterior walls and built-up roofs. The south end of the C-340-A, B, and C structure houses locker rooms, breakrooms, and administrative offices. This section will be demolished under DOE's AEA authority. C-340-A and C-340-B are single level or single level with operating platforms. C-340-C includes four floors.

**Function**—The C-340 Metals Reduction Plant Complex was operated to convert depleted uranium hexafluoride (UF<sub>6</sub>) to uranium tetrafluoride (UF<sub>4</sub>) using a hydrogenation process and to convert UF<sub>4</sub> to uranium metal by reaction with magnesium.

**Operational status**—Inactive.

#### Dates operated—1957 until 1991

**Brief history and process description**—The C-340 Metals Reduction Plant Complex operated from 1956 into the 1980s. Its purpose was to produce  $UF_4$  and uranium metal. The powder unit located in the C-340-A, -B, and -C Building, which produced  $UF_4$  in the C-340 Metals Reduction Plant Complex, operated from 1956 until 1977. The  $UF_4$  production process used  $H_2$  to reduce  $UF_6$  to  $UF_4$  in thermal reaction towers located on the top floor of the building according to the following reaction:

 $H_2 + UF_6 \rightarrow 2HF + UF_4$ 

The H<sub>2</sub> was produced by thermal dissociation of ammonia in C-342.

The UF<sub>4</sub>, a solid green powder called "green salt," accumulated in hoppers and was transferred either to a drumming station for containerization and subsequent storage or to the uranium metal process. The anhydrous hydrogen fluoride (HF) vapor created by the UF<sub>6</sub> to UF<sub>4</sub> process was condensed and drained to storage tanks on the west side of the C-340-A, -B, -C Structure. When sufficient liquid HF accumulated in the tanks, it was transferred to the C-410 HF tank farm via a pipeline. The tank was pressurized with nitrogen to force the HF through the lines to the tank farm.

These operations are the source of contamination in the C-340 Complex structures and contamination resulting from it would pose a risk to human health and the environment should they be released either by an uncontrolled collapse of the building or a breach in any of the process systems. At the completion of deactivation, remaining contaminants are likely to include radiological contamination on the structure, PCBs in paint, transite on external walls at the C-340 Complex, and minor quantities of hazardous materials, such as lead in circuit boards or similar items that cannot be accessed for removal. The volume of these items is likely to be small enough that the overall demolition waste stream will not be hazardous waste based on a representative sampling, should that alternative be selected.

**Waste description**—It is expected that demolition of the C-340 Metals Reduction Plant Complex structure will generate low-level waste, should that alternative be selected. Small quantities of Resource Conservation and Recovery Act (RCRA) and/or Toxic Substances Control Act (TSCA)-regulated wastes also are likely to be generated.



Figure 1. Location of Individual Facilities within the C-340 Metals Reduction Plant Complex

#### Waste quantity—Approximately 80,000 ft<sup>3</sup>

**Summary of environmental sampling data**—This project will address the structure of the C-340 Metals Reduction Plant Complex, instead of environmental media. The elements of the structure and its contents will be characterized for waste disposal as part of this proposed project.

**Description of release and media affected**—The action proposed by this RN will not address environmental media; consequently, a summary of the radiological and chemical contamination of the facility, equipment, and infrastructure is provided.

<u>Radiological Contamination</u>—The radiological inventory of the C-340 Metals Reduction Plant Complex is comprised of surface contamination from the historical processes performed in the facility. The activity associated with the uranium radionuclides constitutes the majority of the inventory present in the facility. Uranium currently present in the C-340 Metals Reduction Plant Complex exists as residual UF<sub>4</sub> powder, present in the facility as residual/leftover material in process equipment, and uranium metal. The uranium originally was received as  $UF_{6}$ , consisting mostly of depleted uranium. The uranium currently in the facility is depleted uranium at 0.0015 wt % uranium-234 and 0.2 wt % uranium-235, with the remainder being uranium-238. Various radionuclides are present as surface contamination. Some recycled uranium, or reactor returns, was processed at the Paducah Site in the 1960s and 1970s, resulting in the potential for the presence of fission and activation products. Beta-gamma contamination that may be present consists entirely of uranium, plutonium daughters, and strontium-90. Alpha contamination other than uranium consists entirely of plutonium.

<u>Chemical Contamination</u>—The chemical hazards that are known to exist in the C-340 Metals Reduction Plant Complex include lead and/or other heavy metals and polychlorinated biphenyls (PCBs) in paint; asbestos-containing materials in the original building construction; mercury; metals-contaminated dusts (potentially containing lead, arsenic, beryllium, or other heavy metals); Mg and MgF<sub>2</sub> contained in process piping, vessels, feed hoppers and equipment; hydrogen; HF; corrosive chemicals such as fluorides, potassium, hydroxides, etc.; PCBs; and volatile organic compounds.

**Impact on or by other SWMUs**—The work at the C-340 Metals Reduction Plant Complex will affect all of the SWMUs that are located within it; these are listed in Table 1. RCRA hazardous waste or CERCLA hazardous substances in any of the SWMUs will be addressed to the extent practicable according to applicable regulations and permit conditions prior to decommissioning the structure.

#### Preliminary Remediation Goal comparison—Not applicable.

#### RCRA Facility Investigation necessary—No.

### 4. C-746-A EAST END SMELTER

#### Unit names and numbers (See Table 2)

#### Table 2. SWMUs in the C-746-A East End Smelter

Description	SWMU No.
C-746-A Inactive PCB Transformer Area	137
C-746-A East End Smelter	463

The proposed NTCRA will address the entire facility, including both of the SWMUs listed here.

#### Date—May 2009

Regulatory status—D&D Operable Unit.

**Location**—The C-746-A East End Smelter is located on the north side of the PGDP inside the security fence (Figure 2).

**Approximate dimensions**—The C-746-A East End Smelter is 126 ft x 20 ft x 165 ft. The structure is an on-grade, pre-engineered metal building on a concrete slab.

**Function, process description, and brief history**—The C-746-A East End Smelter was used to recover metal from various pieces of process equipment. The structure also housed a gold recovery process. After these processes were shut down, the building has been used as a storage area.

**Operational status**—Inactive.

**Dates operated**—The year that C-746-A was constructed is unknown. The operations were shut down in the late 1980s.

**Waste description**—Demolition of the C-746-A East End Smelter structure will generate primarily nonhazardous, nonradioactive waste. Small quantities of RCRA and/or TSCA-regulated and low-level wastes also are likely to be generated.

**Waste quantity**—Approximately 16,300 ft<sup>3</sup>

**Summary of environmental sampling data**—This project will address the structure of the C-746-A East End Smelter (Figure 2), instead of environmental media. The elements of the structure and its contents will be characterized for waste disposal as part of this proposed project.

**Description of release and media affected**—The smelter stack vented to the atmosphere. Any environmental media contamination for which the East End Smelter is suspected of being a source will be addressed by the appropriate media-specific operable unit, such as the Soils OU, but not the D&D Operable Unit. This NTCRA addressed herein will address the structure only, however, and not the environmental media affected by releases outside the structure. Some chemical and radiological hazards, including asbestos insulation present on the process equipment in the facility, will be abated as part of the

facility deactivation process prior to initiating the CERCLA action for the structure. The facility is being addressed as an NTCRA according to the DOE and EPA agreement of 1995 and according to verbal agreements that were reached in early 2009 among DOE's Paducah Site office, EPA, and KDEP.

**Impact on or by other SWMUs**—The work at the C-746-A East End Smelter will affect only those SWMUs that are located within it; these are listed in Table 2.

Preliminary Remediation Goal comparison—Not applicable.

RCRA Facility Investigation necessary—No.



Figure 2. Location of the C-746-A East End Smelter

## **5. REMOVAL ACTION OBJECTIVES**

The following removal action objectives have been developed for this removal action and form the basis for identifying and evaluating appropriate response actions.

- Reduce the potential exposure to on-site personnel from hazardous substances due to the structural deterioration of these facilities; and
- Reduce risks of releases to the environment and exposure to future industrial workers that may result from uncontrolled releases of hazardous substances, including radiological contamination, from these facilities.

## 6. REMOVAL ACTION JUSTIFICATION

A removal action is appropriate for the C-340 Metals Reduction Plant Complex and the C-746-A East End Smelter given the potential risk to workers from exposure to hazardous substances, including radiological contamination, combined with the potential for migration of hazardous substances, including radiological contamination, associated with the deterioration of facilities, structures, and ancillary materials. Also, the factors described in 40 *CFR* § 300.415 (b)(2)(i), (v), and (viii) were considered in determining whether a removal action is appropriate. These factors are as follows:

(*i*) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

Building degradation over time could result in potential structural failure and contaminant migration. This degradation, including roof and wall deterioration, could allow rainwater to infiltrate the buildings. Infiltration of rainwater could wash transferable or soluble contaminants out of the buildings through cracks in the floor or walls. Over time, asbestos-containing building materials, such as transite wall panels, may degrade into finer particles or become friable. Furthermore, there is an increased potential for site personnel not involved with surveillance and maintenance activities to be exposed to hazardous substances, including radiological contamination, associated with deteriorating structural components. There is a potential risk from hazardous substances, including radiological contamination, that could be released to the environment if the structural elements that contain the contamination were to fail. Decommissioning will reduce the risk of exposure to workers located near these deteriorating facilities.

(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

As the facilities continue to age, they will become more susceptible to damage from weather, thereby increasing the likelihood of a contaminant release. The structural instability of deteriorating facilities will make them more difficult to repair should either of them be damaged by a weather-related event, such as high winds and/or ice, thereby increasing the probability of a contaminant release. High-risk repairs could lead to a higher potential for other site personnel to be exposed to chemical and radiological hazards.

(viii) Other situations or factors that may pose threats to public health or welfare of the United States or the environment.

The controlled demolition of these facilities will ensure that risks to human health and the environment from exposure to hazardous substances, including radiological contamination, are reduced or eliminated. Controlled demolition using engineered safety measures is safer and reduces the probability of risks posed by releases of hazardous substances, including radiological contamination, that would result from an uncontrolled collapse (i.e., building "falling in on itself"). Uncontrolled collapse likely would result in spread of hazardous substances and radiological contamination to site personnel and the environment because contamination in buildings would no longer be contained by structures.

### 7. ADMINISTRATIVE RECORD FOR THE C-340 METALS REDUCTION PLANT AND C-746-A EAST END SMELTER COMPLEXES

A new AR file will be started upon approval of this RN and the subsequent C-340 Metals Reduction Plant Complex and C-746-A East End Smelter EE/CA. No CERCLA activities have been initiated for either the C-340 Metals Reduction Plant Complex or the C-746-A East End Smelter prior to this RN. This RN and the ensuing EE/CA and Action Memorandum will be the initial documents in the AR for the C-340 Metals Reduction Plant Complex and the C-746-A East End Smelter; the AR also will include any other documents or information utilized for response selection.

### 8. SUMMARY AND PATH FORWARD

DOE proposes to proceed with this NTCRA. The EE/CA will be prepared and will incorporate the appropriate response actions that are consistent with the final actions for PGDP. The dates for submittal of the CERCLA documents for this project are shown in Table  $3^2$ .

Milestone	Date
Submittal of RN to the Commonwealth of Kentucky and EPA	June 30, 2009
Submittal of EE/CA to the Commonwealth of Kentucky and EPA	September 4, 2009
Submittal of AM to the Commonwealth of Kentucky and EPA	October 30, 2009

Table 3. Planning Dates for the Non-Time-Critical Removal Actions for the
C-340 Metals Reduction Plant Complex and the C-746-A East End Smelter

 $<sup>^2</sup>$  Note that these are general planning dates for submittal of the CERCLA decision documents. Any extensions for reviewing documents, submitting comments, or responding to comments will impact the schedule. This schedule is included in this document for information purposes only and is not intended to establish enforceable schedules or milestones. Enforceable milestones, if any, will be established in the FFA or Site Management Plan and will be updated in accordance with Sections XXIX and/or XXXIX of the FFA.

### 9. REFERENCES

- DOE (U.S. Department of Energy) and EPA (U.S. Environmental Protection Agency) 1995. "Policy on Decommissioning of Department of Energy Facilities under the Comprehensive Environmental Response, Compensation, and Liability Act," Washington, DC, May.
- EPA (U. S. Environmental Protection Agency) 1998. *Federal Facility Agreement for the Paducah Gaseous Diffusion Plant*, DOE/OR/07-1707, U.S. Environmental Protection Agency, Atlanta, GA, April.
- DOE 2009, Action Memorandum for Contaminated Sediment Associated with the Surface Water Operable Unit (On-Site) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0119&D2/R1, April.