FPDP-RPT-0066 Errata

Uranium Enrichment Toxic Substances Control Act Compliance Agreement Quarterly Progress Report for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky October 1 through December 31, 2016

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This document is approved for public release per review by:

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Uranium Enrichment
Toxic Substances Control Act
Compliance Agreement Quarterly
Progress Report for the
Paducah Gaseous Diffusion Plant, Paducah, Kentucky
October 1 through December 31, 2016

Date Issued—February 2017

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U.S. DEPARTMENT OF ENERGY
Office of Environmental Management

FLUOR FEDERAL SERVICES, INC.,
Paducah Deactivation Project
managing the
Deactivation Project at the
Paducah Gaseous Diffusion Plant
under Task Order DE-DT0007774

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TABLES

FIGURE

ACRONYMS

BEJ	best engineering judgment
CA	Compliance Agreement
CFR	*Code of Federal Regulations*
CY	calendar year
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
NESHAP	National Emission Standard for Hazardous Air Pollutants
PGDP	Paducah Gaseous Diffusion Plant
RCRA	Resource Conservation and Recovery Act
TSCA	Toxic Substances Control Act
UE	uranium enrichment

1. INTRODUCTION

The Uranium Enrichment (UE) Toxic Substances Control Act (TSCA) Compliance Agreement (CA), signed by the U.S. Department of Energy (DOE) and the U.S. Environmental Protection Agency (EPA) on February 20, 1992, and modified in 1997, requires quarterly reports that summarize progress toward completing polychlorinated biphenyl (PCB)-related compliance measures. These measures include troughing, air sampling, process lubrication oil removal, spill cleanup, and disposal. As of March 30, 1994, the troughing interim measure was completed. Ongoing inspections of ventilation duct and troughing systems are performed to identify leaks or spills requiring additional troughing or trough maintenance. The quarterly reports will be maintained at the DOE Site Office and available to EPA, upon request, 45 days following the end of the quarter. The quarterly reports are required to be included in DOE's Annual Compliance Agreement Report. The following summaries satisfy the UE TSCA CA quarterly reporting requirements for October 1 through December 31, 2016.

2. INTERIM MEASURES

2.1 AIR SAMPLING

2.1.1 Requirements

Attachment I, Section 1 (D), of the UE TSCA CA states the following:

> **Air Sampling –** Consistent with DOE's monitoring at the facilities, PCB air sampling will be continued in process buildings with motor exhaust systems. At least 5 samples will be taken per process building per year. For each of these buildings, samples will be taken quarterly every calendar year, at least 30 days apart, with an additional set of samples taken sometime during the year. For each periodic (annual) air monitoring activity in a building, there are two kinds of sampling sites: best engineering judgment (BEJ) selected sites and randomly selected sites. The same BEJ sites may be selected for more than one monitoring period. The randomly selected sites shall be different from the BEJ sites and shall be newly selected for each periodic monitoring activity according to the attached guidance provided in the appended "Selection of Random Sampling Sites." It would be a rare coincidence for the same randomly selected location in the same building to be sampled in more than one periodic monitoring activity. DOE shall report quarterly to the EPA any PCB concentrations greater than 0.5 micrograms per cubic meter measured from any air-monitoring sampler at any location. Upon receipt of any such measurement data, EPA will contact DOE to address further monitoring requirements and any other required actions. Should EPA conclude that air sampling results produced pursuant to this Agreement so warrant, EPA and DOE shall meet and shall agree upon additional protective measures to be taken by DOE.

2.1.2 Work Completion Date

United States Enrichment Corporation stopped enriching uranium in May 2013 and returned leased facilities to DOE on October 21, 2014. DOE continues deactivation activities in the facility and has continued air monitoring in accordance with the requirement above. The CA stated that work must be complete one year after facility shutdown, and notification will be provided to EPA upon work

completion. DOE currently is in discussions with EPA concerning modifications to and future implementation of the agreement.

2.1.3 Activity for this Quarter

The UE TSCA CA requires that PCB air sampling be conducted in process buildings with motor exhaust duct ventilation systems. These buildings include the C-331, C-333, C-335, and C-337 process buildings at the Paducah facility. At least five samples are required to be taken per building per year; at least one of the five samples will be taken at a BEJ selected site, with the remainder of the sites to be selected randomly. For each of the buildings, the samples must be taken quarterly every calendar year (CY), at least 30 days apart. DOE is required to report quarterly to EPA any PCB concentrations greater than 0.5 $\mu g/m^3$ measured from any air-monitoring sampler at any location.

Air samples for the fourth quarter were collected November 9, 2016. The results of all the samples collected for the fourth quarter of CY 2016 are shown in Table 1. The quarterly sample sets were obtained more than 30 days apart, as required. The sampling was conducted as described in National Institute for Occupational Safety and Health 5503. The volumes and flow rates, as noted, were necessary to achieve the detection limit required by the UE TSCA CA. All samples met the required detection limit, and sample results did not exceed the UE TSCA CA reporting level of 0.5 $\mu g/m^3$.

Table 1. Fourth Quarter CY 2016 TSCA CA Air Sampling Results

Sample Numbers	Sample Date	Building	Floor	Sample Coordinates	Method of Selection	Results* ($\mu g/m^3$)	Pump Flow Rate (liters/ minute)	Air Volume Sampled (liters)
PCB17-AIR-01-01	11/9/2016	C-331	Cell	S of B-21	Random	PCBs not detected above laboratory reporting limits	1.04	518
PCB17-AIR-01-02	11/9/2016	C-333	Cell	NE of La-06	Random	PCBs not detected above laboratory reporting limits	1.08	536
PCB17-AIR-01-03	11/9/2016	C-335	Ground	SW of DD-25	Random	PCBs not detected above laboratory reporting limits	1.04	518
PCB17-AIR-01-04	11/9/2016	C-337	Cell	S of Mb-38	Random	PCBs not detected above laboratory reporting limits	1.02	515
PCB17-AIR-01-05	11/9/2016	C-337	Ground	at Eb-29	BEJ	PCBs not detected above laboratory reporting limits	1.04	522

*Limit of detection 0.01 $\mu g/m^3$

3. COMPLIANCE MEASURES

3.1 PROCESS LUBRICATION OIL REMOVAL

Section 3.1 does not apply to Paducah Gaseous Diffusion Plant (PGDP). There are no PCB process lubrication oil systems at PGDP.

3.2 SPILL CLEANUP

3.2.1 Requirements

Attachment I, Section 2 (C), of the UE TSCA CA states the following:

> **Spill Cleanup –** PCBs and PCB contaminated oil that may leak onto building floors shall be cleaned up in accordance with the EPA Spill Cleanup Policy. For spills > 500 parts per million (ppm) PCBs, this shall consist of cleanup to 10 μg PCB/100 cm^2 with 95% confidence, based on the statistical sampling approach set forth in Attachment III, which shall be used within the spill area to verify cleanup to appropriate levels or, alternatively, to 100 μg PCB/100 cm^2 with 95% confidence, based on the statistical sampling approach set forth in Attachment III, which shall be used within the spill area to verify cleanup to appropriate levels followed by application of an appropriate sealant, such as a 2-layered epoxy type paint. All spill cleanups will be initiated within 24 hours of discovery, excluding historic spills which are defined as PCB stains resulting from spills which have occurred prior to the effective date of this Agreement. Historic spills may be left in place until demolition of the facility, provided public access to the facility is restricted to prevent unauthorized entry. In the event that a new spill should occur on a historic spill site, and the appropriate standard specified above cannot be met after best efforts to meet the standard are made, DOE may request that EPA consider the efforts DOE has made and classify the spill area as a historic spill for purposes of the cleanup under this Agreement.

3.2.2 Work Completion Date

None listed.

3.2.3 Activity for this Quarter

Fifteen gasket spill sites were pending post-cleanup verification at the beginning of this reporting period. No new gasket spills to the building floor were identified during the reporting period. Four gasket spill sites were closed during the reporting period by verifying sampling data. Eleven gasket spill sites were pending post-cleanup verification at the end of this reporting period. PCB spill cleanup progress for CY 2016 is illustrated in Figure 1.

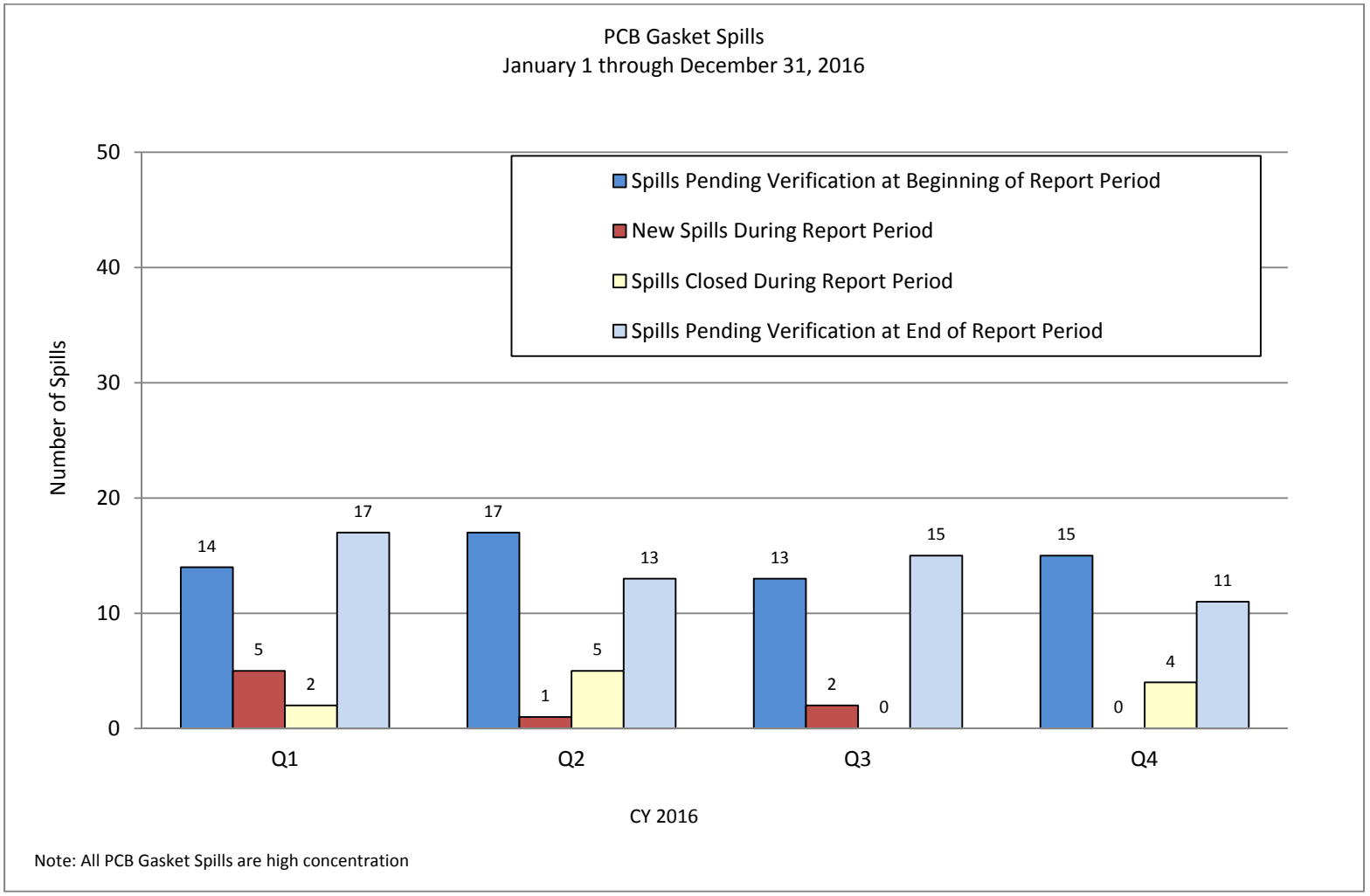

Figure 1. Quarterly Summary of PCB Gasket Spills

All PCB gasket spills identified were high concentration PCB spills (i.e., from a source of 500 ppm or greater in PCB concentration). Cleanup of each identified spill site was initiated within 24 hours, in accordance with the UE TSCA CA. Clearly visible signs have been posted at each spill site advising personnel to avoid the area in order to minimize the spread of contamination and the potential for human exposure. Fluor Federal Services, Inc., Paducah Deactivation Project maintains the cleanup documentation, and the records are available for inspection.

3.3 ELECTRICAL CABLES AND ASSOCIATED EQUIPMENT

3.3.1 Requirements

Attachment I, Section 2 (F), of the UE TSCA CA states the following:

> **Electrical Cables and Associated Equipment –** PCB contaminated electrical cables and associated equipment shall be removed from the facilities upon decommissioning, unless they require maintenance, servicing or replacement during plant operations, or gasket removal. If maintained or serviced, the cables, cable trays, and associated equipment shall be removed or cleaned up to 10 μg PCB/100 cm^2 or 100 μg PCB/100 cm^2 with 95% confidence followed by application of appropriate sealant.

3.3.2 Work Completion Date

Work must be complete upon demolition.

3.3.3 Activity for this Quarter

No Request for Disposal forms for cables, cable trays, and associated equipment were received, and no maintenance activities were performed during the fourth quarter of CY 2016.

3.4 DISPOSAL

3.4.1 Requirements

Attachment I, Section 2 (G) of the UE TSCA CA states the following:

> **Disposal –** All waste PCBs, PCB Items and ventilation ducts (and associated flanges), electrical cables and associated equipment contaminated with PCBs which were not decontaminated pursuant to Sections 2(C), 2(E), and 2(F) of this Attachment, shall be disposed of in accordance with 40 *CFR* § 761.60. All waste PCBs and PCB Items contaminated with hazardous waste and/or asbestos shall be disposed of in accordance with TSCA, NESHAP [National Emission Standard for Hazardous Air Pollutants] and RCRA [Resource Conservation and Recovery Act] requirements, and/or alternate disposal methods approved by EPA.

3.4.2 Work Completion Date

- Nonradioactive PCBs and PCB Items—within one year after the date the materials were placed into storage for disposal in accordance with Section 2(D) of the attachment of the UE TSCA CA.

- Co-contaminated, radioactive PCBs, and PCB items stored for disposal—within 10 years of work initiation date for materials already in storage; 2016, or within 10 years of storage, whichever date is earlier, for materials placed into storage after the effective date of the UE TSCA CA.

- Ventilation gaskets, ductwork and flanges, electrical cable, associated equipment, and historic spill material—2016 or within 10 years of work initiation date, whichever date is earlier.

DOE currently is in discussions with EPA concerning modifications to these work completion dates.

3.4.3 Activity for this Quarter

During the fourth quarter CY 2016, 2,857 kg of PCB waste was shipped for disposal. Six Certificates of Disposal were received for 19 disposed of items totaling 5,024 kg. The PCB waste disposal summary for this reporting period is shown in Table 2. Waste generated as a result of site cleanup and operations is included in this report, including Comprehensive Environmental Response, Compensation, and Liability Act waste, which is provided for information only and is intended to show progress toward removal of PCBs at Paducah.

Table 2. PCB Waste Shipped Off-Site Disposal Activities:
Waste Shipped Off-Site and Certificates of Disposal Received October 1, 2016, through December 31, 2016

PCB Item Count	Description	Weight (kg)	Earliest Date Removed from Service	Date Shipped	Manifest	Shipment No.	Disposal Location	Disposal Method	Disposal Date	CD Rec'd No. of Items Disposed of
5	(5) Drums of LLW/RCRA/PCB Waste	880	9/15/2016	10/27/2016	006841822JJK	DSSI-16-112	DSSI-Perma-Fix, Kingston, TN			
1	(1) ST-90 of LLW/RCRA/PCB Waste	317	4/5/2016	10/28/2016	006841824JJK	9701-02-0016	Energy*Solutions*, Clive, UT	Landfill	11/14/2016	11/29/2016 1
1	(1) ST-90 LLW/RCRA/PCB Waste	233	9/14/2016	10/28/2016	006841825JJK	7307-03-0002	Energy*Solutions*, Clive, UT	Landfill	11/29/2016	12/13/2016 1
2	(2) Totes of LLW/RCRA/PCB Waste	1,427	9/14/2016	10/28/2016	006841826JJK	9701-24-0003	Energy*Solutions*, Clive, UT			
1	(1) Drum of PCB Waste	57	8/12/2015	4/28/2016	006841802JJK[2]	9701-15-0007	Energy*Solutions*, Clive, UT	Landfill	12/6/2016	12/12/2016 1
1	(1) Drum of PCB/LLW	177	1/5/2016	6/30/2016	006841813JJK[3]	9701-21-0014	Energy*Solutions*, Clive, UT	Landfill	10/27/2016	11/30/2016 1
12	(12) Drums of PCB Waste	276	12/29/2015	6/30/2016	006841811JJK[2]	9701-17-0001	Energy*Solutions*, Clive, UT	Landfill	8/30/2016	10/7/2016 12
2	(1) ST-90 of LLW/PCB Remediation Debris and (1) Excepted packaged motor (Scrap Equipment)	3,960	2/25/2016	7/19/2016	006841814JJK[2]	9701-21-0015	Energy*Solutions*, Clive, UT	Landfill	10/27/2016	11/30/2016 2
1	(1) Drum of Contaminated Chemical waste with PCBs	4	8/17/2016	8/26/2016	006841819JJK[1, 2]	9701-15-0008	Energy*Solutions*, Clive, UT	Landfill	12/6/2016	12/12/2016 1
9	**Total Shipped**	**2,857**								
	Total Disposed of	**5,024**								

Total CDs Received **6**
Total No. of Items Disposed of **19**

CD = Certificate of Disposal
LLW = low-level waste
PCB = polychlorinated biphenyl
All PCB waste listed is PCB/radioactive waste.
Weights and volumes are taken from the Uniform Hazardous Waste Manifests.

Table 2. PCB Waste Shipped Off-Site Disposal Activities:
Waste Shipped Off-Site and Certificates of Disposal Received October 1, 2016, through December 31, 2016 (Continued)

[1] This shipment is a lab pack with items containing > 500 ppm PCBs, but less than DOT Reportable Quantities.
[2] Shipments were captured in previous reports as shipped; however, CDs are captured on this report.
[3] The CD for shipment 006841813JJK inadvertently was not included within this report (February 2017). It now has been included as of June 2017.