PAD-SO-0051/V4

Uranium Enrichment
Toxic Substances Control Act
Federal Facilities Compliance Agreement
Quarterly Progress Report for the
Paducah Gaseous Diffusion Plant, Paducah, Kentucky
October 1 through December 31, 2013

This document is approved for public release per review by:

David Hayden — 2-6-14

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October 1 through December 31, 2013

Date Issued—February 2014

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

LATA ENVIRONMENTAL SERVICES OF KENTUCKY, LLC
managing the
Environmental Remediation Activities at the
Paducah Gaseous Diffusion Plant
under contract DE-AC30-10CC40020

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FIGURE

ACRONYMS

BEJ	best engineering judgment
CFR	*Code of Federal Regulations*
CY	calendar year
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
FFCA	Federal Facilities Compliance Agreement
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) Federal Facilities Compliance Agreement (FFCA) 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 FFCA quarterly reporting requirements for October 1 through December 31, 2013.

2. INTERIM MEASURES

2.1 AIR SAMPLING

2.1.1 Requirements

Attachment I, Section 1 (D), of the UE TSCA FFCA 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

Work must be complete one year after facility shutdown, and notification will be provided to EPA upon work completion.

2.1.3 Activity for this Quarter

The UE TSCA FFCA 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 October 31, 2013. The results of all the samples collected for the fourth quarter of CY 2013 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 FFCA. All samples met the required detection limit and sample results did not exceed the UE TSCA FFCA reporting level of 0.5 $\mu g/m^3$.

Table 1. Fourth Quarter CY 2013 TSCA FFCA 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)
PCB14-AIR-01-01	10/31/13	C-331	CELL	49,84 S of T-29	Random	PCBs not detected above laboratory reporting limits	1.02	545
PCB14-AIR-01-02	10/31/13	C-333	CELL	5,111 W of C-12	Random	PCBs not detected above laboratory reporting limits	1.02	523
PCB14-AIR-01-03	10/31/13	C-335	CELL	55,85 NE of V-29	Random	PCBs not detected above laboratory reporting limits	1.02	533
PCB14-AIR-01-04	10/31/13	C-337	CELL	125,113 SE of Wa-11	Random	PCBs not detected above laboratory reporting limits	1.02	533
PCB14-AIR-01-05	10/31/13	C-337	GROUND	at Gb-29	BEJ	PCBs not detected above laboratory reporting limits	1.04	539

*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 FFCA 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

Nine gasket spill sites were pending post-cleanup verification at the beginning of this reporting period. One gasket spill to the building floor was identified during the reporting period. Two gasket spill sites were closed during this reporting period by verifying sampling data. Eight gasket spill sites were pending post-cleanup verification at the end of this reporting period. PCB spill cleanup progress for CY 2013 is illustrated in Figure 1.

All PCB 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 FFCA. 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. The DOE remediation contractor maintains the cleanup documentation, and the records are available for inspection.

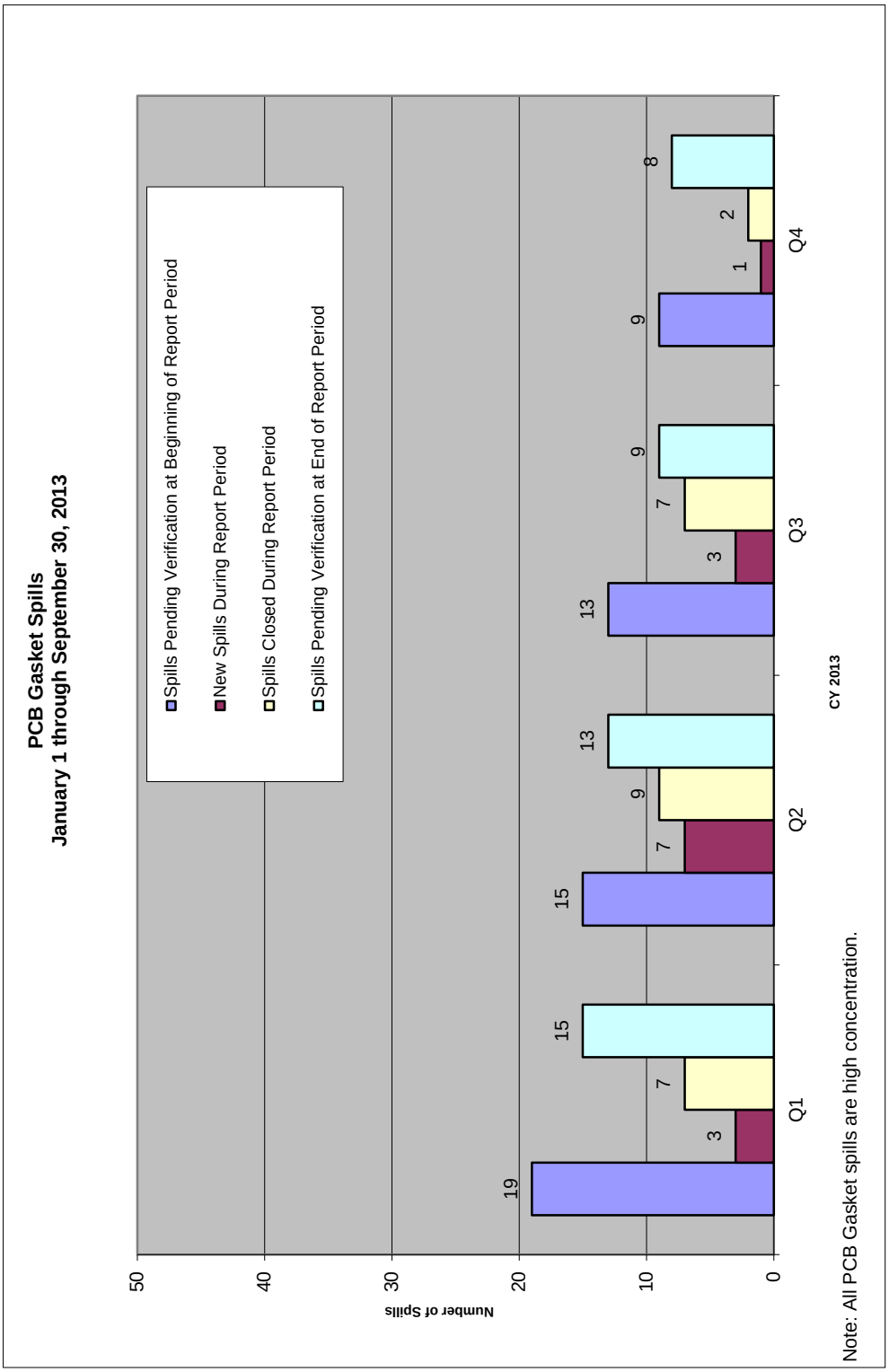

Figure 1. Quarterly Summary of PCB Gasket Spills

3.3 ELECTRICAL CABLES AND ASSOCIATED EQUIPMENT

3.3.1 Requirements

Attachment I, Section 2 (F), of the UE TSCA FFCA 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 2013.

3.4 DISPOSAL

3.4.1 Requirements

Attachment I, Section 2 (G) of the UE TSCA FFCA 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 FFCA.

- 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 FFCA.

- 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.

3.4.3 Activity for this Quarter

During the fourth quarter CY 2013, 7,962 kg of PCB waste was shipped for disposal and three notifications of receipt were received. Five Certificates of Disposal were received. 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 through December 30, 2013

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
1*	(1) 55-gal drum of PCB Liquid > 500 ppm	307	5/23/2013	8/16/2013	006894418FLE	CH66325	Clean Harbors, Coffeeville, KS/Deer Park, TX	Incineration	11/22/2013	12/10/2013 1
5*	(5) 5-gal drums of RCRA/PCB Liquid > 500 ppm	93	9/20/2012	8/16/2013	006894419FLE	CH668752	Clean Harbors, LA Porte, TX/Deer Park, TX	Incineration	10/1/2013	10/23/2013 5
3*	(2) Drums of RCRA/TSCA Oil/Water, (1) Drum of LLW/RCRA/TSCA Oil	348	8/17/2011	5/16/2013	006841653JJK	DSSI-13-044	DSSI, Oak Ridge, TN	Alternate Thermal Treatment and Disposal	9/12/2013	10/1/2013 3
2*	(1) ACM/PCB/LLW Heater Box and (1) Intermodal of ACM/LLW/PCB Debris	7,720	12/19/2012	7/26/2013	006841659JJK	6228-15-0048	Energy*Solutions*, Clive, Utah	Landfill	8/23/2013	10/1/2013 2
1**	(1) Intermodal of PCB Remediation Waste, RFD #118127-01	5,253	7/30/2013	9/23/2013	006841661JJK	9501-21-0001	Energy*Solutions*, Clive, Utah			
4	Drums of RCRA/TSCA/LLW	24	10/12/2005	10/10/2013	006841664JJK	ETTP-13-241	M&EC, Oak Ridge, TN			
1	ST-90 of PCB Remediation Debris	1,004	2/17/2011	11/18/2013	006841665JJK	PDL14009	NNSS, Mercury, NV	Landfill	11/21/2013	11/24/2013 1
6***	Drums of RCRA/TSCA/LLW	1,681	11/7/2012	10/10/2013	06841668JJK	DSSI-13-107	DSSI, Oak Ridge, TN			

Table 2. PCB Waste Shipped Off-Site Disposal Activities:
Waste Shipped Off-Site and Certificates of Disposal Received
October 1 through December 31, 2013 (Continued)

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
13	**Total Shipped**	7,962						**Total CDs Received**		5
	Total Disposed	9,472						**Total No. of Items Disposed**		12

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.

*Manifests 006894418FLE, 006894419FLE, and 06841659JJK were captured in report for third quarter 2013; however were not yet disposed. 006841653JJK was captured in report for 2nd quarter 2013; however was not yet disposed.
**Manifest 006841661JJK was captured on call list in report for third quarter 2013 as being shipped; however the returned signed manifest with management codes was not received by the end of 3rd quarter and was not captured on table 2 of the report for 2013, 3rd quarter.
***Manifest 006841668JJK has been signed and returned, however management codes were not included because facility is waiting for results of additional analysis. Email pertaining to this is included with manifest.

Note 1: Only the weights and items <u>shipped</u> during this reporting period are included in the table summaries.