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Environmental Compliance

Abstract

The policy of DOE and its contractors and subcontractors at the Paducah Site is to conduct operations safely and minimize the adverse impact of operations on the environment. Protection of the environment is considered a responsibility of paramount importance. The Paducah Site maintains an environmental compliance program aimed at satisfying all applicable requirements and minimizing impacts. In 2004, DOE received a new hazardous waste management permit and a new C-746-U Landfill operating permit.

Introduction

State and federal agencies, including DOE, are responsible for enforcing the environmental regulations at the Paducah Site. Principle regulating agencies are the U.S. Environmental Protection Agency (EPA), Region 4, and the Kentucky Department for Environmental Protection (KDEP). These agencies issue permits, review compliance reports, participate in joint monitoring programs, inspect facilities and operations, and oversee compliance with applicable laws and regulations.

The EPA develops, promulgates, and enforces environmental protection regulations and technology-based standards as directed by statutes passed by the U.S. Congress. In some instances, the EPA has delegated regulatory authority to KDEP when the Kentucky program meets or exceeds EPA requirements. Table 2.1 provides a summary of the Paducah Site environmental permits maintained by DOE in 2004.

Table 2.1 Environmental permit and compliance agreement summary

Permit Type	Issued By	Permit Number	Issued To
<i>State Agency Interest ID# 3059</i>			
<i>Water</i>			
KPDES	KDOW	KY0004049	DOE
<i>Solid Waste</i>			
Residential Landfill (closed)	KDWM	073-00014	DOE
Inert Landfill (closed)	KDWM	073-00015	DOE
Solid Waste Contained Landfill (construction/operation)	KDWM	073-00045	DOE
<i>RCRA/Toxic Substances Control Act</i>			
State Hazardous Waste Management Permit	KDWM	KY8-890-008-982	DOE/BJC
Federal Facility Compliance Act Site Treatment Plan: Agreed Order	EPA	NA	DOE
FFA	EPA KDWM	NA	DOE
TSCA FFCA	EPA	NA	DOE
DMSA Agreed Order DWM-31434-042, DAQ-31740-030, and DOW-26141-042	KDWM KDAQ KDOW	NA	DOE
DUF ₆ Agreed Order DWM-32434-030	KDWM	NA	DOE
KDOW – Kentucky Division of Water KDWM – Kentucky Division of Waste Management			

Compliance Activities

Resource Conservation and Recovery Act

Regulatory standards for the characterization, treatment, storage, and disposal of solid and hazardous waste are established by RCRA. Waste generators must follow specific requirements outlined in RCRA regulations for handling solid and hazardous wastes. Owners and operators of hazardous waste treatment, storage, disposal, and recycling facilities are required to obtain operating and closure permits for waste treatment, storage, disposal, and recycling activities. The Paducah Site generates solid, hazardous waste, and mixed waste (i.e., hazardous waste mixed with radionuclides) and operates four permitted hazardous waste storage and treatment facilities.

Resource Conservation and Recovery Act Hazardous Waste Permit

Part A and Part B permit applications of RCRA for storage and treatment of hazardous wastes were initially submitted for the Paducah Site in the late 1980s. At that time, EPA had authorized the Commonwealth of Kentucky to

exclusively administer the RCRA-based program for treatment, storage, and disposal units, but had not given the authorization to administer 1984 Hazardous and Solid Waste Amendments (HSWA) provisions. Therefore, a permit application was submitted to EPA and the KDWM for treatment and storage of hazardous wastes.

On July 16, 1991, KDWM and EPA issued a 10-year RCRA permit (No. KY8890008982) to DOE as owner and operator and to DOE's prime contractor (currently BJC) as co-operator. This RCRA permit consisted of the following two individual permits: (1) a hazardous waste management permit administered by the Commonwealth of Kentucky and (2) a HSWA permit administered by EPA. The hazardous waste management permit contained regulatory provisions for the treatment, storage, and disposal activities at PGDP, as authorized under the RCRA-based program (pre-HSWA), as well as HSWA provisions. The HSWA permit addressed only the provisions of the HSWA, which include corrective actions for solid waste management units (SWMUs), and the land disposal restrictions. In 1996, Kentucky received authorization to administer the HSWA provisions in lieu of EPA.

On February 21, 2001, DOE submitted a RCRA permit renewal application to KDWM. On September 28, 2001, KDWM requested additional information. DOE submitted a revised permit application in February 2002. Additional revisions to the application were

required. The revised Part A and Part B permit applications were submitted to KDWM on April 13, 2004. The new hazardous waste management facility permit was issued to DOE on September 30, 2004. The permit became effective on October 31, 2004, and is valid until October 31, 2014.

Modifications to the Resource Conservation and Recovery Act Hazardous Waste Permit

There were no modifications to this permit in 2004.

Resource Conservation and Recovery Act Hazardous Waste Facilities Closure Activities

In 2004, DOE submitted closure plans to KDWM for 14 DMSAs.

Resource Conservation and Recovery Act Notices of Violation

The DOE did not receive any RCRA notices of violation (NOVs) during 2004.

2003 Agreed Order with Commonwealth of Kentucky

October 2003 AO requirements were met in 2004. Seventeen SWMU Assessment Reports were revised in accordance with the AO to identify newly discovered hazardous waste in DMSAs. Part A of the RCRA Permit was revised to include fifteen of these DMSAs.

All Priority A DMSAs were characterized by September 30, 2004 in accordance with the AO. Material from 12 of the Priority A DMSAs was dispositioned from the DMSA. Three Priority A DMSAs were turned over for re-use and six were characterized for waste material.

Land Disposal Restrictions

Hazardous waste is subject to land disposal restrictions and storage prohibitions that permit storage only for accumulation of sufficient quantities of hazardous waste to facilitate proper treatment, recycling, or disposal. Typically, hazardous wastes are not to be stored for more than one year. The Paducah Site generates mostly mixed waste, which is a combination of hazardous and radioactive waste. Nationally, there are limited opportunities for treatment and disposal of mixed waste. Therefore, the Paducah Site stores some of

its mixed waste for longer than one year. If not for the radioactive constituents, this waste would not pose a compliance problem for the site because there would be treatment and disposal options readily available. On June 30, 1992, DOE entered into an FFCA with EPA Region 4 to regulate the treatment and storage of land-disposal restricted mixed waste at the Paducah Site. On April 13, 1998, EPA Region 4 released DOE from the FFCA.

Federal Facility Compliance Act – Site Treatment Plan

The Federal Facility Compliance Act (FFC Act) was enacted in October 1992. This act waived the immunity from fines and penalties that had existed for federal facilities for violations of hazardous waste management as defined by RCRA. It also contained provisions for the development of site treatment plans for the treatment of DOE mixed waste and for the approval of such plans by the States. As a result of the complex issues and problems associated with the treatment of mixed chemical hazardous and radioactive waste (mixed waste), DOE and KDEP signed, after consideration of stakeholder input, an AO/Site Treatment Plan (STP) on September 10, 1997. The STP would facilitate compliance with the FFC Act. A series of mixed waste treatment milestones are detailed in the STP. DOE's implementation of and progress under the STP is documented annually to KDEP in March. Since inception of the STP, approximately 33,000 cubic ft of mixed waste have been treated either onsite or shipped offsite for treatment to commercial or other DOE facilities.

Solid Waste Management

The PGDP disposes a portion of its solid waste at its on-site contained landfill facility, C-746-U. Construction of the C-746-U Landfill began in 1995 and was completed in 1996. The operation permit was received from KDWM in November 1996. Disposal of waste at the landfill began in February 1997. In November 1999, waste acceptance activities at the C-746-U Landfill were suspended for all waste streams with the exception of wastes classified as no-rad-added (not contaminated with radioactivity). The DOE completed an *Environmental Assessment (EA) for the Implementation of the Authorized Limits Process for Waste Acceptance at the C-746-U Landfill, Paducah, Kentucky* (DOE/EA-1414), in September

2000 that resulted in a finding of no significant impact (FONSI) on August 6, 2002, and the suspension thereafter was lifted. The DOE received the latest C-746-U Landfill operating permit on July 14, 2004, which has an expiration date of November 4, 2006.

In late 2000, potential corrosion problems were discovered in the monitoring wells (MWs) surrounding the C-746-U Landfill. On August 10, 2001, KDWM issued a letter ordering DOE to cease the placement of waste in the landfill until the MW network could be replaced. As a result, a long-term cover was installed. The KDWM required two sampling events, no less than 30 days apart, prior to authorizing the reopening of the landfill. Activities were initiated to replace MWs at the landfill in late 2001 and completed in 2002. After completion of the EA in August 2002 and installation and sampling of the new MWs, the landfill resumed disposal operations in November 2002. From November 2002 through December 2002, 142 tons (129 metric tons) of waste were disposed. During 2003 and 2004, the amount of waste disposed of in the landfill was 9151 tons and 35,000 tons (8302 and 31,773 metric tons), respectively.

In lieu of disposing of office waste at the C-746-U Landfill, office waste generated by DOE and its contractors at the plant site is taken offsite for disposal. Only office waste generated at the C-746-U Landfill itself was disposed at the landfill. Commercial Waste Incorporated in Mayfield, Kentucky, provides off-site disposal of the office waste. A site-wide recycling program exists for office waste (see Section 3 for details).

The DOE did not receive any NOV's during 2004 for the active C-746-U and inactive C-746-S & T landfills.

Underground Storage Tanks

Underground storage tank (UST) systems at the Paducah Site have been used to store petroleum products, such as gasoline, diesel fuel, and waste oil. These USTs are regulated under RCRA Subtitle I [40 Code of Federal Regulations (C.F.R.) Part 280] and Kentucky UST regulations [401 Kentucky Administrative Regulations (K.A.R.) Chapter 42].

The DOE is responsible for 16 of the 18 site USTs that have been reported to KDWM. Of DOE's 16 USTs, none are currently in use. Six were removed from the ground (including C-746-A1 in

2003), seven were filled in place with inert material, one (C-611-1) was "clean closed in place," and two were determined not to exist. Table 2.2 provides a current list of DOE USTs and their status.

At the end of 2004, one DOE UST (C-746-A1) had been "clean closed" but regulatory approval of the closure had not yet been received by DOE.

Comprehensive Environmental Response, Compensation, and Liability Act

The DOE and EPA Region 4 entered into an Administrative Order by Consent (ACO) in August 1988 under sections 104 and 106 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The ACO was in response to the off-site groundwater contamination detected at the Paducah Site in July 1988.

On May 31, 1994, the Paducah Site was placed on the EPA National Priorities List (NPL), which is a list of sites across the nation designated by EPA as having the highest priority for site remediation. The EPA uses the Hazard Ranking System to determine which sites should be included on the NPL.

Section 120 of CERCLA requires federal facilities on the NPL to enter into an FFA with the appropriate regulatory agencies. The FFA, which was signed February 13, 1998, established a decision-making process for remediation of the Paducah Site, and coordinates CERCLA remedial action requirements with RCRA corrective action requirements. Under the FFA, the parties agreed to terminate the CERCLA ACO because those activities could be continued under the FFA. According to the FFA, DOE is required to submit an annual site management plan (SMP) to EPA and KDEP. The SMP summarizes the remediation work completed to date, outlines remedial priorities, and contains schedules for completing future work. The SMP is submitted to the regulators annually in November to update the enforceable milestones and to include any new strategic approaches.

The Agency for Toxic Substances and Disease Registry (ATSDR), based in Atlanta, Georgia, is part of the U.S. Public Health Service. As required by CERCLA, this agency conducts

Table 2.2 Summary of USTs

UST	State ID	Date Installed	Operational Status	Regulatory Status
C-750-A	0001	1955	Removed from ground 3/91	Closure complete per KDWM letter of 3/25/99
C-750-B	0002	1955	Removed from ground 3/91	Closure complete per KDWM letter of 3/25/99
C-750-C	0003	1957 (Estimated)	Removed from ground 10/93	Clean closed under RCRA Subtitle C
C-750-D	0004	1957	Rinsed with trichloroethene and emptied 6/79, filled with cement 10/97	Closure complete per KDWM letter of 11/23/99
C-746-A1	0005	1960	Emptied 9/88, filled with cement 10/97, removed from ground 4/03	Final closure awaits approval from KDWM
C-710-B	0006	1956 (Estimated)	Emptied 7/85, filled with cement 10/97	Closure complete per KDWM letter of 2/19/02
C-200-A	0007	1956 (Estimated)	Filled with grout in 1977	Closure complete per KDWM letter of 11/23/99
C-746-A2	0008	—	Determined during Waste Area Group 15 site investigation not to exist	Documented during Waste Area Group 15 site investigation not to exist
C-751-W	0009	1992	In use by USEC	In use by USEC
C-751-E	0010	1992	In use by USEC	In use by USEC
C-611-1	0011	1943 (Estimated)	Last used before 1975	Clean closed in place per KDWM letter of 12/6/96
C-611-3	0012	1953	Last used before 1975, filled with cement 9/97	Clean closed in place per KDWM letter of 12/6/96
C-611-2	0013	—	Determined not to exist	No further action required per state correspondence of 12/6/96
C-611-4	0014	1943 (Estimated)	Last used before 1975, filled with sand	Clean closed in place per KDWM letter of 12/6/96
C-611-5	0015	Unknown	Filled with grout before 1975	Clean closed in place per KDWM letter of 12/6/96
C-200-B	0016	1967	Filled with concrete in 1981	Closure complete per KDWM letter of 2/19/02
C-745-K	0017	1951 (Estimated)	Removed from ground 2/02	Closure complete per KDWM letter of 12/4/02
C-746-K	0018	1951 (Estimated)	Removed from ground 4/02	Closure complete per KDWM letter of 12/4/02

public health assessments (PHAs) of hazardous waste sites listed on or proposed for the NPL. Representatives from the ATSDR made their initial site visit to Paducah in May 1994 to assign a ranking to the site for priority in scheduling the health assessment. The ATSDR is informed of the actions the site has taken since 1988 to address the risks from the potential use of contaminated water. In 1995, the ATSDR visited the Paducah Site to initiate a PHA. The PHA report was issued in May 2002. This document is available on the Internet at http://www.atsdr.cdc.gov/HAC/PHA/paducah2/pgd_toc.html.

Comprehensive Environmental Response, Compensation, and Liability Act Reportable Quantities

On June 11, 2004 a track hoe leaked approximately 30 gallons of hydraulic fluid within the operating cell of the C-746-U Landfill. The Kentucky spill reportable quantity is 25 gallons of oil. A notification of the spill was submitted to the state. Hydraulic oil spills are not a federal agency reportable event. The spill was cleaned in accordance with site procedures.

National Environmental Policy Act

An evaluation of the potential environmental impact of certain proposed federal activities is required by the National Environmental Policy Act (NEPA). In addition, an examination of alternatives to certain proposed actions is required. Compliance with NEPA, as administered by DOE's NEPA Implementing Procedures (10 C.F.R. 1021) and the Council on Environmental Quality Regulations (40 C.F.R. 1500–1508), ensures that consideration is given to environmental values and factors in federal planning and decision making. In accordance with 10 C.F.R. 1021, the Paducah Site conducts NEPA reviews for proposed actions and determines if any proposal requires preparation of an environmental impact statement (EIS), an EA, or is categorically excluded (CX) from preparation of either an EIS or an EA. The Paducah Site maintains records of all NEPA reviews.

The DOE issued a record of decision (ROD) on July 27, 2004 for *Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Paducah, KY, Site* (DOE/EIS-0359). The facility will convert the stored inventory of DUF_6 into a more stable uranium oxide for reuse or disposal. The DOE also approved two CXs for refurbishing the C-745-F cylinder storage yard and repair of the access road to the C-745-C cylinder storage yard.

In addition, numerous minor activities were within the scope of the previously approved CXs for routine maintenance, small-scale facility modifications, and site characterization. The DOE Paducah Site Office and the DOE Oak Ridge Operations Office NEPA compliance officer approve and monitor the internal applications of previously approved CX determinations.

In accordance with the 1994 DOE Secretarial Policy Statement on NEPA, preparation of separate NEPA documents for environmental restoration activities conducted under CERCLA is no longer required. Instead, DOE CERCLA documents incorporate "NEPA values," to the extent practical. The NEPA values are environmental issues that affect the quality of the human environment. Incorporation of NEPA values into CERCLA documents allows the decision makers to consider the potential effects of proposed actions on the human environment. Actions conducted under CERCLA are discussed in Section 3 of this report.

National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA) is the primary law governing a federal agency's responsibility for identifying and protecting historic properties (cultural resources included in, or eligible for inclusion in, the National Register of Historic Places).

The *Cultural Resources Survey for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (BJC/PAD-688/R1), March 2006, identified an NRHP-eligible historic district at the facility. The PGDP Historic District contains 101 contributing properties and is eligible for the NRHP under National Register Criterion A for its military significance during the Cold War, and for its role in commercial nuclear power development.

A Phase I archaeological reconnaissance was conducted in 1993 in McCracken County, Kentucky, by Archaeology Resources Consultant Services Inc. of Louisville, Kentucky. The reconnaissance was part of an Environmental Assessment by Martin Marietta Energy Systems, Inc., which was proposing to design and construct a solid waste landfill at PGDP. The entire project area was approximately 40 acres located directly north of the C-746-S&T landfill. The reconnaissance identified two historic sites.

Endangered Species Act

The Endangered Species Act of 1973, as amended, provides for the designation and protection of endangered and threatened animals and plants. The act also serves to protect ecosystems on which such species depend. At the Paducah Site, proposed projects are reviewed, in conjunction with NEPA project reviews, to determine if activities have the potential to impact these species. If necessary, project-specific field surveys are performed to identify threatened and endangered species and their habitats, and mitigating measures are designed as needed. When appropriate, DOE initiates consultation with the U.S. Fish and Wildlife Service and Kentucky Department for Fish and Wildlife Resources prior to implementing a proposed project.

Table 2.3 includes seven federally listed, proposed, or candidate species that have been identified as potentially occurring at or near the Paducah Site. Project NEPA reviews and

Table 2.3 Federally listed, proposed, and candidate species potentially occurring within the Paducah Site study area in 2004^a

Common Name	Scientific Name	Endangered Species Act Status
Indiana Bat ^b	<i>Myotis sodalis</i>	Listed Endangered
Interior Least Tern	<i>Sterna antillarum athalassos</i>	Listed Endangered
Pink Mucket	<i>Lampsilis abrupta</i>	Listed Endangered
Ring Pink	<i>Obovaria retusa</i>	Listed Endangered
Orangefoot Pimpleback	<i>Plethobasus cooperianus</i>	Listed Endangered
Fat Pocketbook	<i>Potamilus capax</i>	Listed Endangered
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Listed Threatened

^a All of the listed species are discussed in *Environmental Investigations at the Paducah Gaseous Diffusion Plant and Surrounding Area, McCracken County, Kentucky, Volume III*, COE Nashville District, May 1994. Note that the study area encompasses 11,719 acres and extends to include the Ohio River, which is over three miles north of the DOE reservation. None of these species have been reported as sighted on the DOE reservation, although potential summer habitat exists there for the Indiana bat. No critical habitat for any of these species has been designated anywhere in the study area.

^b Specimens of the Indiana bat were collected from WKWMA property in 1991 and 1999.

associated field surveys indicated that in 2004, DOE projects at the Paducah Site did not impact any of these seven species. Potential habitats of these species also were not impacted.

Floodplain/Wetlands Environmental Review Requirements

Title 10 C.F.R., Part 1022, establishes procedures for compliance with Executive Order 11988, "Floodplain Management," and Executive Order 11990, "Protection of Wetlands."

In 2004, no floodplain or wetlands assessments were prepared or approved. Also, no floodplain or wetlands notices of involvement were published in the Federal Register for the Paducah Site. In addition, DOE did not apply for any individual permits from COE or for any water quality certifications from the state. Some DOE projects were authorized through the COE nationwide permit program for activities involving waters of the United States. DOE activities did not result in significant impacts to floodplains or wetlands at the Paducah Site in 2004.

Clean Water Act

The Clean Water Act (CWA) was established primarily through the passage of the Federal Water Pollution Control Act Amendments of 1972. The CWA established the following four major programs for control of water pollution: (1) a permit program regulating point-source discharges into waters of the United States, (2) a program to control and prevent spills of oil and hazardous substances, (3) a program to regulate discharges of dredge and fill materials into "waters of the United States," and (4) a program to provide financial assistance for construction of publicly owned sewage treatment works. The Paducah Site is primarily affected by the regulations for point-source discharges regulated under the KPDES permit.

Kentucky Pollutant Discharge Elimination System Permits

The CWA applies to all non-radiological DOE discharges to waters of the United States. At the Paducah Site, the regulations are applied through issuance of a KPDES permit for effluent discharges

discharges to Bayou Creek and Little Bayou Creek. The Kentucky Division of Water (KDOW) issued KPDES Permit No. KY0004049 to the Paducah Site. This permit became effective April 1, 1998, and is enforced by KDOW. This permit applies to the following four DOE outfalls: 001, 015, 017, and 019. The KPDES permit calls for chemical and biological monitoring as an indicator of discharge-related effects in the receiving streams. The permit was set to expire at the end of March 2003, but by regulation, it is automatically extended until the regulators issue a final decision on the DOE renewal application. A permit renewal application was submitted to KDOW in September 2002 and a minor revision to the application was submitted in May 2003. As of the end of 2003, KDOW had not approved or denied the application; therefore, KPDES Permit No. KY0004049 remained in effect throughout 2004 and into 2005.

In correspondence dated March 17, 2003, from the Enforcement Branch of KDOW, an NOV was received for alleged violations of Kentucky Revised Statute (KRS) 224, 401 K.A.R. 5:065 1(1). Specifically, Paducah KPDES Outfall 001 allegedly exceeded the permit limit for chronic toxicity in samples collected in October, November, and December 2002. A Toxicity Reduction Evaluation (TRE) Plan was prepared and submitted to KDOW on March 21, 2003; approved on April 14, 2003; and immediately implemented. Implementation has included monthly compliance monitoring for chronic toxicity at Outfall 001, additional testing to determine the cause of the toxicity, and quarterly update reporting to KDOW. One apparent failure for chronic toxicity occurred at Outfall 001 in April 2004. No direct impacts on the receiving stream (Bayou Creek) have been noted. No permit exceedances for other parameters occurred at Outfall 001 in 2004.

On July 9, 2004, DOE and BJC received an NOV dated July 6, 2004, from the KDOW. The NOV cited two alleged KPDES permit noncompliances. The first alleged noncompliance cited was a recurrence of failure for chronic toxicity at PGDP KDPEs Outfall 001 for the April 18–23, 2004, sampling event. The DOE/BJC was conducting the monthly sampling of Outfall 001 in accordance with the TRE Plan approved by the KDOW in April 2003. The NOV required continuation of the monthly sampling and other

measures in the TRE Plan, and these efforts were ongoing at the end of 2004.

The second NOV alleged failure to follow the EPA test method regarding chilling and maintaining samples at 4° Celsius (39° Fahrenheit) until the samples reach the testing laboratory. The temperatures cited in the NOV correspond to the temperatures measured directly in the receiving stream flow at Outfall 001 and recorded by sampling personnel. The temperature values cited in the NOV do not reflect either the composite sampler temperature or the temperature recorded by the laboratory at the time of sample receipt. Temperatures recorded at the receiving laboratory indicate that the samples were chilled and shipped at the proper temperature in accordance with the permit requirements. No additional concerns were identified by KDOW.

On September 16, 2004, DOE and BJC received an NOV dated September 14, 2004, from the KDOW. The NOV cited three KPDES permit noncompliances. The first noncompliance cited an alleged violation of the acute toxicity limit at KPDES Outfall 017 (discussed below). The second KDOW allegation contends that samples collected at Outfall 001 during the June 2004 sampling event were improperly collected in accordance with KPDES permit sample temperature requirements (same issue as discussed above). The KDOW states in the third alleged violation cited on the NOV that DOE and BJC did not conduct a monthly PGDP chronic toxicity test at Outfall 001 as required based on the test being invalid due to the alleged sampling temperature violations. The DOE evaluated the sampling process and no additional concerns have been identified by KDOW.

Acute toxicity exceedances were reported to KDOW for Outfall 017 in April 2004, based on samples collected on April 12 and April 22. The KDOW issued an NOV for this on May 21. The NOV required that acute toxicity testing frequency be increased from the routine quarterly testing to monthly testing, and that a TRE Plan be submitted. Formal monthly testing was initiated in June and the plan was submitted to KDOW on June 22.

On May 10, prior to receipt of the May 21 NOV and initiation of required monthly sampling, an additional acute toxicity sample was collected from Outfall 017. This sample showed lower toxicity than in April, but still above the regulatory limit. This

sample was reported to the KDOW in the quarterly Discharge Monitoring Report in July 2004.

The September 14, 2004, NOV cites the acute toxicity exceedance identified on the voluntary May sample from Outfall 017, and states that Paducah must continue monthly sampling and other measures in the TRE Plan, submit quarterly progress reports, and comply with the toxicity limit by June 1, 2005. These efforts were ongoing at the end of 2004 and there were no additional toxicity failures in 2004 at Outfall 017 after May 10. No direct impacts on the receiving stream (Bayou Creek) have been noted. No permit exceedances for other parameters occurred at Outfall 017 in 2004.

No exceedances of effluent permit limits occurred at Outfalls 015 or 019 in 2004.

Toxic Substances Control Act

In 1976, the Toxic Substances Control Act (TSCA) was enacted with a twofold purpose: (1) to ensure that information on the production, use, and environmental and health effects of chemical substances or mixtures are obtained by the EPA, and (2) to provide the means by which the EPA can regulate chemical substances/mixtures.

Polychlorinated Biphenyls

The Paducah Site complies with polychlorinated biphenyl (PCB) regulations (40 C.F.R. 761) and the Uranium Enrichment (UE) FFCA. The major activities performed in 2004 to ensure compliance included the following: maintaining compliant storage of PCB waste and PCB-contaminated wastewater, shipping PCB waste for treatment and disposal, treatment and discharge of PCB-contaminated wastewater, maintenance to the troughing system, and reporting and record keeping.

The UE TSCA FFCA between EPA and DOE was signed in February 1992. To meet the compliance goals at the Paducah Site, the UE TSCA FFCA is occasionally revised and updated. Under this agreement, action plans have been developed and implemented for removal and disposal of large volumes of PCB material at the Paducah Site. Table 2.4 shows a summary of PCB items in service at the Paducah Site at the end of 2004. These items are utilized in USEC operations.

Table 2.4 Summary of PCBs and PCB items in service at the end of 2004

Type	Number in Service	Volume (gal)	PCBs (kg)
PCB Transformers	66**	95,148	277,421
PCB-Contaminated Transformers	9	2,299	0.95
PCB-Contaminated Electrical Equipment	7	2,094	1.13
PCB Capacitors	682	2,042*	12,528.6
PCB Open Systems	3	235	7.02

** 1 replacement transformer is awaiting installation

* assumed 540,000 parts per million (ppm) PCB, 13.5 lbs/gal

The PCB annual document, due July 1, provides details of facility activities associated with the management of PCB materials. The annual report provides details from the previous year on all PCB items that are in use, stored for reuse, generated as waste, stored for disposal, or shipped offsite for disposal. All Paducah Site UE TSCA FFCA milestones for 2004 were completed.

The facilities operated by USEC utilize equipment that contains PCB capacitors as well as transformers, electrical equipment, and other miscellaneous PCB equipment. Both radioactive and non-radioactive PCB wastes are stored onsite in units that meet TSCA and/or UE TSCA FFCA compliance requirements, as applicable. Upon approval, nonradioactive PCBs are transported offsite to EPA-approved facilities for disposal.

Radioactive-contaminated PCB wastes are authorized by the UE TSCA FFCA for long-term on-site storage at the Paducah Site, i.e. beyond two years. Technology for the treatment and/or disposal of radioactively contaminated PCB wastes is being evaluated.

Emergency Planning and Community Right-to-Know Act

Also referred to as Title III of the Superfund Amendments and Reauthorization Act, the Emergency Planning and Community Right-to-Know Act (EPCRA) requires reporting of emergency planning information, hazardous chemical inventories, and releases to the environment. Reports under EPCRA are submitted to federal, state, and local authorities. Executive Order 12856, signed in August 1993, subjects all federal agencies to EPCRA.

The Paducah Site did not have any releases that were subject to Section 304 notification requirements during 2004. No Section 311 notifications were required in 2004. The Section 312 Tier II report of inventories for 2004 included UF₆, uranium tetrafluoride (UF₄), iron filings, activated carbon pellets, magnesium fluoride, diesel fuel, and PCBs associated with DOE activities. The Paducah Site reported PCBs on the Section 313 report because DOE accepts legacy PCB material from USEC when disposal of electrical equipment is required.

Clean Air Act

Authority for enforcing compliance with the Clean Air Act (CAA) and subsequent amendments resides with EPA Region 4 and/or the Kentucky Division for Air Quality (KDAQ). The Paducah Site complies with federal and state rules by implementing the CAA and its amendments.

Clean Air Act Compliance Status

The Paducah Site had two air emission point sources in 2004. The Northwest Plume Groundwater System and the Northeast Plume Containment System. These systems are interim remedial actions (IRAs) under CERCLA that address the containment of groundwater contamination at the Paducah Site. These systems remove trichloroethene (TCE) contamination from the groundwater by air stripping. At the Northwest Plume Groundwater System, the TCE-laden groundwater passes through an air stripper to remove the TCE. The off-gas from the air stripper then passes through a carbon adsorption system to remove the TCE prior to atmosphere discharge. At the Northeast Plume Containment System, a cooling tower system acts as an air stripper for TCE.

Asbestos Program

Numerous facilities at the Paducah Site contain asbestos materials. Compliance programs for asbestos management include identification of asbestos materials, monitoring, abatement, and disposal. Procedures and program plans are maintained that delineate scope, roles, and responsibilities for maintaining compliance, as applicable, with EPA Region 4, Occupational Safety and Health Administration, and Kentucky regulatory requirements. There were no noncompliances with environmental protection standards identified in 2004.

Radionuclide National Emission Standards for Hazardous Air Pollutants Program

Airborne emission of radionuclides from DOE facilities are regulated under 40 CFR 61 Subpart H, the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations. Potential radionuclide sources at the Paducah Site in 2004 arose from scrap metal removal/handling, the Northwest Plume Groundwater System, C-410 D&D activities, and fugitive dust source emissions. The fugitive dust source emissions include piles of contaminated scrap metal, roads, and roofs. The DOE utilized ambient air monitoring data to verify insignificant levels of radionuclides in off-site ambient air. The Radiation/Environmental Monitoring Section of the Radiation Health and Toxic Agents Branch of the Department for Public Health of the Kentucky Cabinet for Health Services conducted ambient air monitoring during 2004. Ambient air data were collected at 11 sites surrounding the plant in order to measure radionuclides emitted from Paducah Site sources, including fugitive emissions. These results are discussed in Section 4.

Pollutants and Sources Subject to Regulation

Any stationary source emitting more than 10 tons/year of any hazardous air pollutant (HAP) or 25 tons/year of any combination of HAPs is considered a major source and is subject to regulation. Region 4 of the EPA must examine other sources for regulation under an "area source" program. The Paducah Site is not a major source by virtue of its individual or total HAP emissions.

Stratospheric Ozone Protection

The DOE refrigeration units contain less than 50 pounds of ozone-depleting substances; therefore, the only CAA Title VI provision that applies to the Paducah Site is the requirement to control refrigerants from leaking systems.

Clean Air Act Notices of Violation

The PGDP did not receive any CAA violations in 2004.

Kentucky/Department of Energy Agreement in Principle

The Kentucky/DOE Agreement in Principle (AIP) reflects the understanding and commitments between DOE and the Commonwealth of Kentucky regarding DOE's provision of technical and financial support to Kentucky for environmental oversight, surveillance, remediation, and emergency response activities. The goal of the AIP is to maintain an independent, impartial, and qualified

assessment of the potential environmental impacts from present and future DOE activities at the Paducah Site. The AIP is intended to support non-regulated activities whereas the FFA covers regulated activities. The AIP includes a grant to support the Commonwealth of Kentucky in conducting independent monitoring and sampling, both onsite and offsite, and to provide support in a number of emergency response planning initiatives. Included are cooperative planning, conducting joint training exercises, and developing public information about preparedness activities.

Regulatory Inspections

Paducah Site EM programs are overseen by several organizations, both inside and outside the DOE complex. Each year, numerous appraisals, audits, and surveillances of various aspects of the environmental compliance program are conducted. Table 2.5 summarizes the regulatory inspections conducted in 2004.

Table 2.5 State and federal regulatory inspections at the Paducah Site in 2004

Date	Agency	Description
January	KDWM	C-746-U Landfill Inspection RCRA Inspection
February	None	None
March	None	None
April	KDWM	Requested No Further Action SWMUs C-746-U Landfill Inspections
May	KDOW KDWM	Outfall Inspection North-South Diversion Ditch Project
June	None	None
July	None	None
August	KDWM	C-746-U Landfill Inspections
September	None	None
October	KDWM	C-746-U Landfill Inspection
November	KDWM	C-746-U Landfill Inspection
December	KDWM	C-746-K Landfill Wells Split Sampling

