PAD-REG-1005/R1

Spill Prevention, Control, and Countermeasure Plan for the U.S. Department of Energy Paducah Site, McCracken County, Kentucky

This document is approved for public release per review by:

Richie Byrd — LATA Kentucky Classification Support

10-9-14 — Date

PAD-REG-1005/R1

Spill Prevention, Control, and Countermeasure Plan for the U.S. Department of Energy Paducah Site, McCracken County, Kentucky

Date Issued—October 2014

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

Prepared by
LATA Environmental Services of Kentucky, LLC
managing the
Environmental Remediation Activities at the
Paducah Gaseous Diffusion Plant
under contract DE-AC30-10CC40020

THIS PAGE INTENTIONALLY LEFT BLANK

PROFESSIONAL ENGINEER'S CERTIFICATION [40 *CFR* § 112.3(d)]

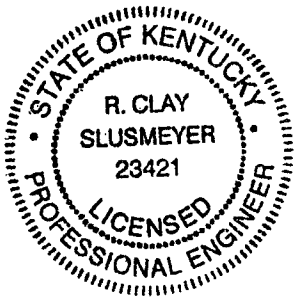
By means of this certification, I attest that I am familiar with the requirements of this part; that I or my agent has visited and examined the facility; that this Spill Prevention, Control, and Countermeasure Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards and with the requirements of 40 *CFR* Part 112; that procedures or work practices for required inspections and testing have been established; and that this plan has been fully implemented. The plan and individual(s) responsible for implementing the plan have full approval of management, and the facility owner or operator has committed the necessary resources to fully implement the plan.

R. Clay Slusmeyer

R. Clay Slusmeyer, P.E.
KY Professional Engineer # 23421

11/03/2014
Date

SEAL



THIS PAGE INTENTIONALLY LEFT BLANK

MANAGEMENT APPROVAL (40 *CFR* § 112.7)

This Spill Prevention, Control, and Countermeasure (SPCC) Plan was prepared in accordance with good engineering practices and has the full approval of the U.S. Department of Energy (DOE); Fluor Federal Services, Inc., Paducah Deactivation Project; LATA Environmental Services of Kentucky, LLC (LATA Kentucky); and Swift & Staley Team (SST). Implementation of this plan minimizes the potential for discharges of oil and oil-related products at the U.S. Department of Energy Paducah Site located in McCracken County, Kentucky. Management will make available personnel, equipment, and materials necessary to implement this SPCC Plan and control and mitigate any discharges that should occur. The priorities of response team members are based upon protection of human life, prevention of environmental harm, and protection of property, respectively.

This SPCC Plan will be reviewed and evaluated at least once every five years. This review will be documented in the SPCC Plan Management Review Record located on the following page of this SPCC Plan and will include a statement as to whether the SPCC Plan will be amended. Any technical amendments to the SPCC Plan will be certified by a professional engineer.

Paducah Site management is fully committed to the proper implementation of this SPCC Plan.

Mark J. Duff/LATA Kentucky
Paducah Project Manager

11-4-14
Date Signed

Cornelius Murphy/Fluor Federal Services, Inc.,
Program Manager

11-6-14
Date Signed

Diane Snow/SST
Program Manager

11-7-14
Date Signed

Jennifer Woodard/DOE
PPPO Paducah Site Lead

11/7/14
Date Signed

THIS PAGE INTENTIONALLY LEFT BLANK

SPCC PLAN MANAGEMENT REVIEW RECORD

(40 *CFR* § 112.5(b))

I have completed review and evaluation of the SPCC Plan for the Paducah Site and ___will ___will not amend the SPCC Plan within six months of the date of my review.

Signature	Date Signed
Printed Name	Title

I have completed review and evaluation of the SPCC Plan for the Paducah Site and ___will ___will not amend the SPCC Plan within six months of the date of my review.

Signature	Date Signed
Printed Name	Title

THIS PAGE INTENTIONALLY LEFT BLANK

CONTENTS

ACRONYMS

AST	aboveground storage tank
BWCS	Babcock & Wilcox Conversion Services, LLC
CFR	*Code of Federal Regulations*
DOE	U.S. Department of Energy
EMS	Environmental Management System
EPA	U.S. Environmental Protection Agency
IC	incident commander
ISMS	Integrated Safety Management System
KDEP	Kentucky Department for Environmental Protection
KPDES	Kentucky Pollutant Discharge Elimination System
KRS	Kentucky Revised Statute
LATA Kentucky	LATA Environmental Services of Kentucky, LLC
MGD	million gal per day
OCB	oil circuit breaker
OSHA	Occupational Safety and Health Administration
PA	public address system
PPE	personal protective equipment
PSS	plant shift superintendent
RCRA	Resource, Conservation, and Recovery Act
RQ	reportable quantity
SOP	standard operating procedure
SPCC	Spill Prevention, Control, and Countermeasure
SST	Swift & Staley Team
TSCA	Toxic Substances Control Act
UL®	Underwriters Laboratories Inc.®
USEC	United States Enrichment Corporation
UST	underground storage tank

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

This Spill Prevention, Control, and Countermeasure (SPCC) Plan for the U.S. Department of Energy (DOE) Paducah Site is written to comply with federal oil pollution prevention regulations (40 *CFR* Part 112). The purpose of this SPCC Plan is to form a comprehensive spill prevention program that minimizes the potential for discharges. This SPCC Plan guides DOE personnel and DOE contractor and subcontractor personnel on the proper steps to take to avoid and respond to discharges of oil and oil products into the environment from containers of such products associated with DOE projects and activities. This SPCC Plan will be reviewed and evaluated at least once every five years. This SPCC Plan will be revised when there is a change in facility design, construction, operation, or maintenance that materially affects the potential for a discharge of oil into or upon the navigable waters of the United States or if the SPCC Plan fails in an emergency. Any technical revisions to the SPCC Plan will be reviewed and certified by a professional engineer.

As a non-transportation related on-shore facility, the Paducah Site engages in activities that reasonably could be expected to discharge oil and other hazardous materials into navigable waters of the United States and is therefore subject to the spill prevention requirements of 40 *CFR* § 112-Oil Pollution Prevention.
.

THIS PAGE INTENTIONALLY LEFT BLANK

1. INTRODUCTION

Federal and state regulations prohibit the unauthorized discharge of oil and oil products (e.g., gasoline, diesel fuel, hydraulic oil, waste oil). It is the policy of the U.S. Department of Energy (DOE) and its contractors/subcontractors to require all oil and oil products to be handled in a manner that prevents discharges and protects persons and the environment from harm. The purpose of this Spill Prevention, Control, and Countermeasure (SPCC) Plan is to form a comprehensive spill prevention program that minimizes the potential for discharges. This SPCC Plan guides DOE and Paducah Site contractor/subcontractor personnel on the proper steps to take to avoid and respond to discharges of oil and oil products into the environment from containers of such products associated with projects and activities. Copies of this SPCC Plan will be kept at the DOE Paducah Site Office and other locations, as appropriate. Additionally, copies of this SPCC Plan are available electronically. This SPCC Plan has been prepared for remediation and infrastructure-related projects and activities at the DOE Paducah site. This SPCC Plan does not address Babcock & Wilcox Conversion Services, LLC, (BWCS) projects and activities, including DOE-owned facilities and equipment operated by BWCS. DOE provides for emergency response personnel, spill cleanup, and external agency coordination through contracts and agreements.

Delease of the Paducah Gaseous Diffusion Plant by the United States Enrichment Corporation (USEC) to DOE occurred in October 2014. Oil and oil product storage previously covered by the USEC SPCC have been included in this update.

THIS PAGE INTENTIONALLY LEFT BLANK

2. REGULATORY BACKGROUND

2.1 GENERAL REQUIREMENTS—40 *CFR* § 112.7

Requirements to prevent the discharge of oil and oil products into navigable waters of the United States are established in 40 *CFR* Part 112. These regulations are applicable to facilities that have oil and oil products and that reasonably could be expected to discharge oil into navigable waters of the United States, and that

- Have an aggregate aboveground capacity of more than 1,320 gal (counting only containers of 55 gal or greater) or

- Have an aggregate underground capacity of more than 42,000 gal [excluding tanks subject to underground storage tank regulations (40 *CFR* Parts 280–281) and permanently closed tanks].

40 *CFR* Part 112 does not apply to any container with a storage capacity of less than 55 gal of oil or oil products. Although the regulations do not specifically define "container," they do define "bulk storage container" as "any container used to store oil" except for "oil-filled electrical, operating, or manufacturing equipment." This means that oil-filled electrical, operating, or manufacturing equipment containing 55 gal or greater of oil or oil products is subject to these regulations, but not to the specific requirements for bulk storage containers.

2.2 REQUIREMENTS FOR SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLANS—40 *CFR* § 112.7 (a)(1)

The main requirement of 40 *CFR* Part 112 is to compel regulated facilities to prepare and implement an SPCC Plan. The purpose of an SPCC Plan is to form a comprehensive spill prevention program that minimizes the potential for discharges. The SPCC Plan will address all relevant spill prevention, control, and countermeasures necessary at the specific facility. Copies of this SPCC Plan will be kept at the DOE Paducah Site Office along with the name(s) of the person(s) responsible for each regulated container/equipment containing oil or oil products.

This SPCC Plan will be reviewed and evaluated at least once every five years. Documentation of the review shall be provided on the SPCC Plan Management Review Record, located near the front of this SPCC Plan. Additionally, this SPCC Plan will be revised within six months of a change in facility design, construction, operation, or maintenance that materially affects the potential for a discharge of oil into or upon the navigable waters of the United States or if the SPCC Plan fails in an emergency. Any technical revisions, as defined in 40 *CFR* § 112.5 to the SPCC Plan, will be reviewed and certified by a professional engineer.

The Paducah Site also stores many containers, oil-filled electrical equipment, and other items containing oil or oil products with capacities of 55 gal or greater that are regulated under the Resource Conservation and Recovery Act (RCRA) or the Toxic Substances Control Act (TSCA). RCRA and TSCA impose strict storage requirements on regulated items. Any items stored in an area that meets RCRA or TSCA storage requirements are considered to meet all SPCC requirements necessary to prevent discharges and are not covered by this SPCC Plan.

2.3 FACILITY RESPONSE PLAN

A facility response plan, as described in 40 *CFR* § 112.20, will be required because the Paducah Site meets the substantial harm criteria of 40 *CFR* Part 112, Appendix C. A form for Certification of the Applicability of the Substantial Harm Criteria has been completed and is included in this SPCC Plan (Appendix A).

3. DESCRIPTION OF SITE AND ENVIRONS

3.1 PADUCAH SITE GENERAL DESCRIPTION—40 *CFR* § 112.7

The Paducah Site is a former uranium enrichment facility consisting of a diffusion cascade and extensive support facilities. Plant construction began in 1951 and operations began in 1952. DOE owns the reservation and facilities at the Paducah Site that produced enriched uranium for national defense and energy through private operating contractors. From 1993 to 2014, the United States Enrichment Corporation (USEC) leased and operated the production facilities and most of the support facilities. DOE, as the owner of all facilities, retained responsibility for environmental restoration activities. In May 2013, enrichment operations ceased and the facility began shutdown and cleanout of the process equipment. In October 2014, USEC deleased and returned facilities to DOE.

The Paducah Site consists of approximately 3,556 acres located in a generally rural area of McCracken County, Kentucky, about 10 miles west of Paducah, Kentucky, and 3.5 miles south of the Ohio River. The industrial portion of the Paducah Site is situated within a fenced security area at the Paducah Site on approximately 650 acres. The fenced security area is designated as secured industrial land use and consists of numerous active and inactive production buildings, offices, equipment and material storage units, active and inactive waste management units, and other support facilities. Other acreage of DOE-owned land at the Paducah Site includes approximately 680 acres of "buffer zone" designated as unsecured industrial land use. DOE has licensed 1,986 acres to the Commonwealth of Kentucky as part of the 6,823-acre West Kentucky Wildlife Management Area. DOE also has acquired approximately 133 acres in easements. There are no residences at the Paducah Site.

Three small communities are located within 3 miles of the Paducah Site: Heath and Grahamville to the east and Kevil to the southwest. The closest commercial airport is Barkley Regional Airport, approximately 5 miles to the southeast. The population within a 50-mile radius of the Paducah Site is approximately 534,000, 66,000 of which are located within a 10-mile radius.

3.2 SITE DRAINAGE CHARACTERISTICS—40 *CFR* § 112.8(b)

Surface runoff drains from the site through a series of ditches to two small tributaries of the Ohio River. Bayou Creek on the west (also referred to as Big Bayou Creek) and Little Bayou Creek on the east. These two streams join north of the site and discharge into the Ohio River. The approximate average flow in Bayou Creek below permitted plant effluent discharges is 3 million gal per day (MGD) and in Little Bayou Creek below permitted plant effluent discharges is 0.5 MGD. Natural runoff makes up a small portion of the flow during dry periods.

These creeks are not used as drinking water supplies but are accessible to wildlife and recreationists. Both creeks are classified by the Commonwealth of Kentucky as being for "all uses" and, therefore, are subject to warm water aquatic habitat criteria standards in the creeks and drinking water standards at the nearest drinking water withdrawal location (Cairo, Illinois).

In general, plant drainage is divided into east and west systems with some overlap (see Figure B.1 in Appendix B). Liquid discharges (including potentially released oil and oil products) would be expected to flow to the major drainage ditches and potentially to Bayou Creek or Little Bayou Creek. The flow rate would vary according to the size and location of the discharge and the weather conditions at the time.

3.2.1 Drainage from Diked Storage Areas—40 *CFR* §§ 112.8(b)(1) & (2)

Secondary containment areas outdoors will hold at least 110% of the largest tank or container in the containment area. This will allow enough containment capacity for both expected rainfall and the contents of the container or tank. All dikes are equipped with manual drain valves that remain closed unless rainwater is being discharged following the determination that no material has been spilled within the containment area in accordance with plant procedures.

Historically, the C-600 Steam Plant was the source of an oil sheen in the Paducah Site effluent ditch leading to Kentucky Pollutant Discharge Elimination System (KPDES) Outfall 008. The oil sheen was skimmed above the inverted pipe dam. An oil control area has been established at C-600 and a belt skimmer installed. If any oil escapes the control area, it will be trapped downstream in the oil control structures established for the outfall.

The skimmer at Outfall 008 underflow dam consists of a dam, quiet zone, and weir. Adjacent to the dam is an oil containment pond. The dam creates a quiet zone with a three-hour retention time to allow oil and other buoyant materials to separate from the water. A skirted oil boom diverts floating materials to a slightly submerged float-controlled weir. Most of the ditch flow will underflow the floating boom and then overflow the dam. Diverted materials will flow to the containment pond and remain there for remediation. An underflow dam maintains the water level in the containment area.

The facility manager of any area with secondary containment is responsible for inspecting and maintaining dikes in accordance with procedures.

3.2.2 Drainage from Undiked Storage Areas—40 *CFR* §§ 112.8(b)(3) & (4)

Areas with industrial activities such as tanker truck loading/unloading areas, oil-filled equipment, and plant switchyards flow into facility drainage systems that are equipped with engineered, oil diversion/retention structures. Underflow dams designed to permit the passage of water, but contain floating materials such as oil, have been constructed in the Paducah Site drainage ditches with the potential to receive a medium or worst case oil discharge. The dams are designed to provide effective oil containment and are installed on 8 of the 15 outfalls at the Paducah Site, specifically Outfalls 001, 002, 008, 009, 010, 011, 012, and 015 to contain the oil on facility property prior to reaching Bayou Creek or Little Bayou Creek.

Should an oil or chemical spill reach a drainage ditch, inflatable pipe stoppers are available to fit any of the culverts in these ditches. Spill containment can be provided within the perimeter fence, if necessary. Booms and absorbent pads can be used in the event a spill reached the creeks.

3.2.3 Treatment—40 *CFR* § 112.8(b)(5)

Facility drainage waters are not continuously treated at the site prior to discharge.

3.3 LOCATIONS OF OIL AND OIL PRODUCTS—40 *CFR* § 112.7(A)(3)

Tanks, containers, and equipment containing oil and oil products and having capacities of 55 gal or greater are listed in Table B.1 and shown in Figure B.1. The Paducah Site uses bulk oil and fuel storage tanks, large oil-filled electrical transformers, and bulk chemical storage areas. Hazardous waste storage and treatment areas also are in operation. All storage tanks are labeled according to criteria set forth in Occupational Safety and Health Administration (OSHA) 29 *CFR* § 1910.1200. All major storage tanks

either are diked or of double-wall construction for spill control. In accordance with applicable regulatory requirements, hazardous waste accumulation areas also use containment dikes and other material control provisions.

The C-600 Steam Plant is a coal-fired steam plant that produces steam that is used for the facility. A number 2 fuel oil is used to start up two boilers and can be used for the major fuel source in a third boiler. Three fuel oil tanks are located at the facility. Two of the tanks are 420,000 gal each and are located in the same containment area. These tanks (C-601-A and C-601-B) are built to American Petroleum Institute (API) Standard 650. The third tank is a 1,000,000-gal tank that is empty and no longer is used. A 6,000-gal tanker truck replenishes the tanks. The location where fuel is transferred from a tanker truck is not diked.

The transformer oil and oil circuit breaker (OCB) oil tanks located at the C-531, C-533, C-535, and C-537 Switchyards receive new oil approximately once per year. While not considered bulk storage tanks, electrical transformers, circuit breakers, and other electrical devices located in the four switchyards at the Paducah Site are listed in Appendix B. Appendix B includes the specific capacity of each of these equipment types. This equipment is located outdoors and does not have secondary containment due to electrical hazards associated with accumulated water in switchyards. This oil is delivered by a 6,000-gal tanker truck. The location where fuel is transferred from a tanker truck is not diked.

Two 10,000-gal fuel underground storage tanks (USTs) are located at C-751. The C-751 USTs are equipped with a containment basin, an audible alarm, and a 90% overfill prevention automatic shutoff to ensure that no overfills occur.

The three gasoline aboveground storage tanks (ASTs) located at C-333, C-337, and C-540 are equipped with an overfill prevention valve. Appendix B includes the specific capacity of each of these tanks. Fuel facility personnel monitor the filling operations to ensure that there are no overfills. The tanks are designed with double-wall construction with leak detection monitors for the interstitial space; however, the location where fuel is transferred from a tanker truck is not diked.

The fifteen diesel ASTs located at C-200, C-331, C-333, C-335, C-337, C-607, C-611, and C-631 are equipped with an overfill prevention valve. Appendix B includes the specific capacity of each of these tanks. Fuel facility personnel monitor the filling operations to ensure that there are no overfills. The tanks are designed with double-wall construction with leak detection monitors for the interstitial space; however, the location where fuel is transferred from a tanker truck is not diked.

Up to 10 55-gal drums of kerosene are stored at any one time inside a structure at C-733. C-733 is a partially enclosed facility permitted for storage/treatment of hazardous waste with secondary containment.

A 1,000-gal AST used to store diesel fuel for heavy equipment and a 500-gal AST that stores gasoline for vehicles are located outside C-746-U.

Two 4,000-gal Underwriters Laboratories Inc.® (UL®) listed, dual-wall tanks are located at the concrete-bermed C-752-B pad. Each tank contains an interstitial leak detection device, which is a continuous monitor with visible and audible alarms. Both tanks have a capacity of 4,000 gal; however, each tank is split internally into a 3,000 gal and a 1,000 gal tank to allow the tank to hold two different types of fuel at the same time. Personnel are instructed by posted signs to use portable containment pans below the filling point each time a vehicle or piece of equipment is refueled.

There also is a 150-gal tank at C-755-Y that contains used oil.

The lube oil systems in each process building use tanks for reservoirs. Each of the C-310, C-310-A, and C-315 Buildings has one supply tank located on the cell floor and one drain tank located on the ground floor. Each of the C-331 and C-335 Buildings has 4 drain tanks located on the ground floor and 4 supply tanks located on the cell floor. Each of the C-333 and C-337 Buildings has 12 drain tanks located on the ground floor and 6 supply tanks located in housing on the building roofs. The lube oil flows from the supply tanks though the various lubricating points throughout each facility to the drain tanks. The oil then is pumped back to the supply tank. All of the lube oil drain tanks are diked, and any oil spill would be inside of the process buildings; therefore, a lube oil spill that would migrate outside the building and to navigable waters is highly unlikely.

Each of the above items is described further in Section 4.

Figure B.1 identifies the locations of the tanks identified above. Table B.1 identifies a list of containers/tanks, location, material, and location.

Heavy equipment may be staged between projects at C-745-C in the center of the Paducah Site. This storage yard drains to Outfall 001, which is protected with an underflow dam. Equipment staged for long periods will be drained of oil/oil products to the extent practical prior to placing in storage.

Other systems (e.g., hydraulic systems) located throughout the facility also pose a risk of a release of material due to routine operation and maintenance activities such as, transfer of material from one tank to another, the recycling of oil within a system, or the transfer of material from a system or tank into containers or equipment. Other tanks and equipment on-site that typically contain 55 gal (or greater) of oil products; these items include mobile equipment/vehicles and temporarily located equipment (e.g., generators). In addition, fuel tanker trucks periodically come on-site to refill on-site tanks and equipment. These mobile and temporary items are addressed in this SPCC Plan, but are not included in Figure B.1 or Table B.1 because they range over a wide on-site area or are not at one location for a substantial period of time. When practical, temporary storage of equipment is done on temporary secondary containment. Transfer of fuel and fueling of mobile vehicles/equipment is performed over drip pads/pans to the extent practical.

3.4 SPILL PREDICTION

The Paducah Site has installed oil check inverted pipe dams in ditches leading to 8 of 15 site outfalls, including Outfalls 001, 002, 008, 009, 010, 011, 012, and 015, to reduce the potential for discharges of the oil or oil products discussed above to enter Bayou Creek or Little Bayou Creek via outfall drainage ditches. Outfalls 019 and 020 include sufficient holdup capacities to allow removal of visible oil sheens prior to discharge. Table B.1 indicates the most likely drainage ditch that such discharges would enter. Flow rates of a discharge would vary according to the size and location of the discharge and the weather conditions at the time. Remaining Outfalls 004, 006, 016, and 017 drain areas not reasonably expected to receive spills from oils or oil products.

3.5 NEW OIL-CONTAINING ITEMS

Project/activity managers are required to complete a form (Appendix C) for any new containers or equipment to be brought on-site that would contain oil or oil products and have a capacity of 55 gal or greater. The form is to be submitted to regulatory compliance personnel. The responsible person(s) will be made aware of his/her responsibilities under this SPCC Plan and will comply with the requirements spelled out herein.

4. SPILL PREVENTION AND CONTROL

4.1 ADMINISTRATIVE CONTROLS

4.1.1 Management Support—40 *CFR* § 112.7

Paducah Site management strongly supports the prevention of discharges of oil and oil products. It is impressed upon all Paducah Site personnel that pollution prevention is an integral part of job performance and that Paducah Site personnel are responsible for reporting and, where appropriate, correcting conditions that could lead to a discharge.

Each of the contractors at the Paducah Site is required to implement an Integrated Safety Management System Description and Environmental Management System (ISMS/EMS) Plan. The basic tenet of the ISMS/EMS plan is protection of the environment and conservation of resources. The ISMS/EMS plans require regulatory compliance personnel to review procedures and work instructions to ensure that any steps involving storage/transfers of oils or oil products include measures to protect the environment and minimize potential releases.

All Paducah Site personnel are expected to follow applicable procedures and perform their jobs in a manner as to prevent discharges. Discharge prevention is also a key element of Paducah Site quality assurance assessments. This SPCC plan has the approval of management at a level and authority to commit the necessary resources toward spill prevention.

4.1.2 Compliance Assistance

Regulatory compliance specialists, knowledgeable in the requirements related to discharge/spill prevention and response, are available to provide technical assistance to operating groups responsible for Paducah Site projects and activities. They also assist in developing training programs for employees related to discharge/spill prevention and response.

4.1.3 Procedures

Standard operating procedures (SOPs) have been developed for the operation and maintenance of equipment (e.g., PAD-SM-0006 and PAD-WD-0619). Proper operation and maintenance minimize failures that could result in a leak or a spill. Operating groups that store, use, transfer, or otherwise handle oil and oil products will develop and implement appropriate work instructions/procedures (or follow existing ones). In particular, these work instruction/procedures are developed and implemented for the transfer of oil and oil products (including fuel) to or from containers/equipment with a capacity of 55 gal or more (e.g., filling of bulk storage tanks, refueling of vehicles). These work instructions/procedures identify best management practices (e.g., drip pads, pans, use of secondary containment and staging of spill control equipment) to prevent and control spills/leaks.

4.1.4 Inspections—40 *CFR* § 112.7(e)

All equipment, containers, tanks, piping, and secondary containment with a capacity of 55 gal or more of oil or oil products will be inspected/tested on a regular basis. The methods and frequency of inspections/testing will be appropriate for the item as discussed below. Each inspection report will be signed by the qualified employee performing the inspection. Each Paducah Site contractor maintains procedures and work controls that provide content and type of inspection/testing and the way the inspection/testing is recorded. Inspection/testing records are maintained as specified in Section 4.8.

Adequate lighting is provided for stationary equipment to allow for the discovery of discharges during hours of darkness and for the prevention of discharges. Visible leaks, evidence of past leaks, faulty equipment, or any situation with the potential to cause a discharge will be reported to the manager of that facility or operating group manager and regulatory compliance, and be promptly addressed. In the event of a discharge of oil or oil products where the discharge has the potential to migrate from the area or otherwise cause harm to the environment, the Paducah Site shift superintendent (PSS) will be contacted immediately (see Section 5.1). The PSS is responsible for coordinating emergency response actions including direction of personnel/equipment, communications, and external agency notifications, until the emergency is contained. After the emergency is contained, the responsible organization will clean up any spill and properly manage/dispose of residues.

4.1.4.1 Stationary tanks and containers

Stationary tanks and containers are inspected as indicated in Table 1.

Table 1. Inspection of Stationary Tanks and Containers

Type of Stationary Tank/Container	Location(s)	Inspection Criteria	Frequency
AST with Secondary Containment	C-600 (C-601-A/B), C-746-U, C-755-Y	Visual inspection for leaks, rusting of tank, and damage to secondary containment.	Monthly; Secondary containment is inspected and drained following rain events, as appropriate
ASTs >10,000 gal	C-601-A/C-601-B	Inspected/Tested per API-653	As specified in API-653.
Dual-wall AST	C-752-B	Interstitial leak detection device	Monthly visual and/or continuous with audible alarms
UST	C-751	Testing for liquid-tightness or leaking	As specified in 401 *KAR* 42:030
Transformer and OCB oil tanks	C-531, C-533, C-535, C-537	Leaks, oil levels, and other operational issues.	Daily

4.1.4.2 Portable tanks and 55-gal drums

Portable tanks, such as transfer tanks secured in the beds of trucks, are inspected each time they are used.

4.1.4.3 Mobile or temporary equipment

Mobile or temporary equipment, such as trackhoes or generators, are inspected prior to use and each time they are refueled for leaks/drips. Heavy duty equipment, such as loaders and cranes, are inspected for leaks during use. Equipment staged for long periods will be drained of oil/oil products to the extent practical prior to placing in storage.

4.1.5 Spill Control Materials

An emergency response vehicle is maintained at C-200 that contains absorbent pads, pillows, booms, and granular material that may be used to contain and cleanup oil from the ground, drainage ditches, or surface waters. Floating plastic booms may be used to divert or contain the flow of oil or oil products on surface waters. Inflatable pipe stoppers and spill cleanup kits also are stored in this vehicle. Self-contained breathing apparatus cylinders in the emergency response vehicle supply the inflating gas. Additional spill containment and cleanup materials are kept at various locations throughout the Paducah Site near tanks and equipment listed in Table B.1.

Various portable pumps and containers capable of handling the oil and oil products used at the Paducah Site also are readily available to response personnel. Absorbent materials are stored throughout the Paducah Site A King Vac® truck is available and capable of removing up to 3,000 gal of liquid or solid materials. The King Vac® truck may be emptied into temporary storage tanks available on-site and refilled, as necessary.

Storage capacity for spilled material is available in the form of one million-gal tank formerly used to store fuel oil east of C-600 and four 3,000-gal tanks in C-733. In addition, the Paducah Site maintains several large poly tanks for spill control operations, as well as, other various containers that could be used in an emergency. A number of treatment options such as neutralization, precipitation, or evaporation are available.

4.1.6 Training—40 *CFR* § 112.7(f)

Paducah Site personnel handling oil and oil products or who assist in the transfer of such products to or from bulk storage containers will be trained appropriately. In addition, a responsible person will be designated for each tank, container, and equipment item containing oil or oil products and having capacities of 55 gal or greater, and these persons will have additional training. At a minimum, training will consist of proper operation and maintenance of equipment to prevent discharges, discharge procedure protocols, applicable regulations and SOPs, descriptions of recent known discharges, and the contents of this SPCC Plan. Trained personnel are to receive refresher briefings at least once per calendar year. Additionally, any emergency response personnel will be trained according to the Paducah Site procedures. This training will incorporate proper spill prevention training to ensure that personnel have adequate knowledge of this SPCC Plan.

Regulatory Compliance Manager has the primary responsibility to prevent discharges of oil and oil products. Regulatory Compliance group reviews work procedures and instructions to identify the potential for discharge (aka hazards) and appropriate control measures. Regulatory Management also reviews employee training provided to ensure personnel are aware of precautions/mitigations used to transfer oil and oil products.

Project managers and frontline supervisors cover hazards and control measures each morning for the work to be accomplished that day.

4.1.7 Security—40 *CFR* § 112.7(g)

Tanks, containers, and equipment containing oil and oil products and having capacities of 55 gal or greater will be located within the Paducah Site security fence or in fully fenced or locked areas with controlled access. Also, associated valves and pumps will be secured and locked in “closed” or “off” positions when they are not operational or on standby status. Vehicles/equipment may be locked to secure unauthorized access. In addition, adequate lighting is provided for stationary equipment to allow for the

discovery of discharges during hours of darkness and for the prevention of discharges occurring through acts of vandalism. Transfer/loading areas are locked to prevent access by unauthorized personnel. Delivery/vendor personnel, if involved, will be escorted by facility personnel during loading/unloading operations. Administrative controls and SOPs/protocols dictate how equipment is operated to minimize the potential for inadvertent releases.

4.2 ENGINEERED CONTROLS

4.2.1 Secondary Containment—40 *CFR* § 112.7(c)

4.2.1.1 Stationary tanks and containers

All oil and hazardous material storage tanks at the Paducah Site are provided with secondary containment dikes that are constructed to be impervious to the materials stored. Typically, the dikes are concrete and painted or otherwise sealed. The in-service fuel oil storage tanks at C-600 have an earthen dike lined with a synthetic material impervious to oil. Secondary containment areas located outside will hold at least 110% of the largest tank in the containment area. This will allow enough containment capacity for both expected rainfall and the entire contents of the tank. Secondary containment areas located inside the buildings will hold 100% of the largest tank in the containment area.

The two 10,000-gal USTs and piping at C-751 are constructed of double-walled, fiberglass-reinforced plastic. The piping is designed so that if the main piping leaks, the secondary piping will drain into the pump area, and a fluid sensor will sound an alarm. These fuel tanks also are equipped with spill containment basins around the fill pipes. These containment basins were installed to prevent releases of product to the environment during transfer operations.

The two 1,000-gal tanks at C-333 and C-337 are of double-wall construction with leak detection monitors for the interstitial space.

The 1,000-gal and 500-gal tanks located outside at C-746-U are manufactured by ConVault® and are UL® listed. Each system consists of a primary steel tank and secondary containment consisting of a 30-mil (0.78-millimeters) thick polyethylene membrane enclosing the steel tank and insulation material. The primary steel tank and the secondary containment are encased in 6 inches of reinforced concrete, but no steel or insulating material comes in contact with the concrete. The tanks located at C-746-U are provided with a UL®-listed spill containment system that includes a normally closed valve to release any spilled product from refilling into the primary steel tank. During refilling, all equipment will be grounded properly. These tanks are equipped with standard pumps for refueling vehicles and other equipment. Personnel are required by procedure to use portable containment pans below the filling point each time the vehicle or equipment is refueled. The C-746-U area, including where the diesel and gasoline tanks are located, drains to a man-made containment lagoon. Runoff of precipitation is accumulated in the sediment basin and manually discharged directly to Outfall 019 when it gets near full and KPDES permit conditions can be met. The accumulated water will be examined before discharge to Outfall 019 to ensure that no oil will be discharged.

The two 4,000-gal steel tanks at C-752-B are UL®-listed, double walled, and staged on a concrete bermed pad. These two tanks are split internally into a 1,000 and 3,000 gallon tank. The second wall of the tanks is sufficiently impervious to contain oil per 40 *CFR §* 112.7(c)(1)(i) requirement for secondary containment. Additional containment is provided by the bermed concrete pad [40 *CFR* § 112.7 (c)(1)(iii)] and absorbent materials [40 *CFR* § 112.7 (c)(1)(viii)] are available as a backup/defense in depth. Precipitation that is accumulated on the pad will be examined prior to manual discharging to ensure no

oily products are discharged. Appropriate and non-expended absorbent devices will be used as needed to ensure only clean water is discharged. A spill collection pad along with spill collection devices (pans, pads, etc.) also may be used at the dispensing pumps to help ensure that oily products do not impact the environment if a spill occurs.

While not considered bulk storage tanks, electrical transformers, circuit breakers, and other electrical devices located in the four switchyards at the Paducah Site are listed in Appendix A. This equipment is located outdoors and does not have secondary containment due to electrical hazards associated with accumulated water in switchyards. Areas such as tanker truck loading/unloading areas and piping associated with switchyard equipment also do not have secondary containment dikes. These tanker truck loading/unloading areas and switchyards do, however, flow into facility drainage systems that are equipped with engineered, oil diversion/retention structures. Underflow dams designed to permit the passage of water but contain floating materials, such as oil, have been constructed in the Paducah Site drainage ditches with the potential to receive an oil discharge. The dams are designed to provide effective oil containment and were installed on ditches to 8 of the 15 outfalls at the Paducah Site, specifically Outfalls 001, 002, 008, 009, 010, 011, 012, and 015, to contain the oil on facility property and prevent it from reaching Bayou or Little Bayou Creeks.

4.2.1.2 Portable tanks and 55-gal drums—40 *CFR* §112.8(d)(11)

Product containers such as drums are stored in areas with secondary containment. Typically, this is a portable system such as a drip pan. The 55-gal drums of kerosene that are stored at C-733 are provided with secondary containment and a floor sump that is inspected in accordance with the Hazardous Waste Facility Permit, KY8-890-008-982. The facility has a roof and secondary containment, but no walls to prevent buildup of explosive gas if a leak were to occur. Portable tanks usually are not provided with secondary containment because it is not practical or considered necessary. These items are designed and maintained to minimize discharges, and they are inspected regularly. Where appropriate and practical, portable containment pans should be placed below the filling point each time a tank is filled or emptied. Similarly, 55-gal drums will be opened and the contents removed in accordance with applicable procedures, and portable containment pans should be placed below filling points, as appropriate.

4.2.1.3 Mobile or temporary equipment

Mobile and temporary equipment, such as trackhoes and generators, usually are not provided with secondary containment because it is not practical or considered necessary. These items are designed and maintained to minimize discharges, and they are inspected regularly. Where appropriate and practical, portable containment pans will be placed below the filling point each time the equipment is filled or emptied. For example, large trucks are refueled in accordance with applicable procedures that require the use of portable containment pans. Other controls are in place, as discussed in this SPCC Plan, to prevent discharges.

4.2.2 Spill/Discharge Containment

Major drainage ditches are equipped with inverted pipe dams designed to permit the passage of water but contain floating material, such as oil. The dams are designed to provide effective oil containment in the event of a discharge. Furthermore, should a discharge reach a drainage ditch, inflatable pipe stoppers are available to fit any of the culverts in these ditches. Discharges can be contained within the Paducah Site, if acted upon quickly. Booms and absorbent pads used to cleanup spills on-site also can be used to prevent off-site release when used in the creeks in the unlikely event a spill reaches the creeks.

4.3 ADDITIONAL REQUIREMENTS FOR BULK STORAGE CONTAINERS—40 *CFR* § 112.8(c)

Bulk storage containers (defined in Section 2.1) are identified in Table B.1. Bulk storage containers will meet all other requirements outlined in this SPCC Plan and the following additional requirements.

4.3.1 Container Compatibility—40 *CFR* § 112.8(c)(1)

Storage containers will be of a material and construction that are compatible with the material to be stored in them and conditions of storage, such as pressure and temperature.

4.3.2 Quarterly Inspection—40 *CFR* § 112.8(c)(1)(ii)

The following requirements apply to the inspection of nonmobile tanks, as applicable.

- Visual inspection of tank and tank site, signage, fire extinguisher and bollards; rusted areas will be cleaned and painted.
- Visual inspection of secondary containment, tank pad, and foundation for erosion, corrosion, cracking, and settling.
- Visual inspection of grout exterior (top, sides) for abrasion, cracking, holes, and excess wear.
- Visual inspection of venting systems, vent caps, level indicators, gauges, pumping systems, including hose and nozzle, fill spouts, and security systems.
- Insert dip stick into leak detection tube and record presence of liquids and hydrocarbon odor.
- Record inspections on an inspection form and file in the office of the tank owner or designee.
- Any findings related to safety and as-designed operations will be repaired promptly using the designated work release program, as necessary.
- Repair records will be filed in the office of the tank owner or designee.
- Quarterly inspection to be performed by competent personnel and reviewed by the tank owner and a copy sent to tank owner or designee, if applicable.

4.4 DRAINAGE FROM BULK STORAGE AREAS—40 *CFR* § 112.8(c)(3)

4.4.1 Valve Closure & Drainage—40 *CFR* §§ 112.8(c)(1)(i)&(iii)

All dikes are equipped with manual drain valves that remain closed unless rainwater is being discharged following the determination that no material has been spilled within the containment area in accordance with plant procedures.

4.5 LIQUID LEVEL SENSING—40 *CFR* § 112.8(c)(8)

Two of the Paducah Site's major fuel storage locations are equipped with spill detection alarms and automatic shut-off devices. The oil supply line from the fuel oil storage tanks to the C-600 boiler system

is equipped with a flow alarm that will detect abnormal flow in the event of a leak. A remote shut-off valve has been installed in the supply line. If the flow reaches 42 gal per minute, a valve will close automatically and shut off the flow of fuel oil.

Other smaller containers are monitored directly by personnel during transfer operations using gauges, sight glasses, or other visual measurements.

Discovery of alarms or a spill will be reported immediately to the PSS. The PSS will respond to the scene and determine if a spill actually has occurred, and if so, what level of response is needed. The respective SOP for each of these systems includes action steps regarding alarm detection.

4.6 LEAKAGE RESPONSE—40 *CFR* § 112.8(C)(10)

It is the responsibility of the facility managers to inspect and drain dikes. If any visible discharge or leak has occurred, the material must be reported, removed, and properly dispositioned in accordance with plant procedures. If necessary, repairs to storage container or associated equipment will be initiated immediately.

4.7 FACILITY TRANSFER OPERATIONS—40 *CFR* § 112.8(d)

4.7.1 Terminal Connections at Transfer Operations—40 *CFR* § 112.8(d)(2)

The primary oil transfer operations are associated with filling the C-600 fuel oil storage tanks and operation of electrical switchyard equipment. The terminal connections for piping systems associated with these systems are capped or plugged with appropriate fittings to prevent leakage in the event a valve fails or is not properly sealed.

4.7.2 Pipe Supports at Transfer Operations—40 *CFR* § 112.8(d)(3)

Support structures for aboveground oil transfer piping are engineered in accordance with established specifications to prevent abrasion and corrosion. Typically, these supports consist of painted metal structures anchored to concrete footings. The piping is attached to the supports using "U"-type bolts or piping hangers that will allow for proper expansion and contraction of the piping.

4.7.3 Inspections for Transfer Operations—40 *CFR* § 112.8(d)(4)

The piping systems associated with the facility transfer operations primarily related to switchyard equipment maintenance are inspected for leaks during use in accordance with plant SOPs.

4.7.4 Posting for Aboveground Piping—40 *CFR* § 112.8(d)(5)

Aboveground piping is primarily used for oil transfers in the electrical switchyards areas. The majority of this system is located so that vehicle traffic is not an issue. Access to the areas where it does cross roadways typically is restricted to authorized individuals only. Delivery and/or vendor vehicles, if allowed in the area, would be escorted by facility personnel.

4.8 RECORDS—40 *CFR* § 112.8(C)(1)(iv)

Inspection reports, maintenance records, and other pertinent records will be kept with the responsible persons copies of the SPCC Plan for a minimum of three years.

5. SPILL/DISCHARGE REPORTING AND RESPONSE

5.1 IMMEDIATE RESPONSE

All uncontained or emergency spills or other unauthorized discharges of oil or oil products will be reported IMMEDIATELY to the PSS on duty. The PSS is located at the C-300 Building and may be reached by phone at (270) 441-6211, or by dialing 6211 or 333 on the Paducah Site telephones, or 511 on the Paducah Site PAX system, or by two-way radio.

Small leaks and drips are to be reported to management and a Regulatory Compliance and Policy subject matter expert. These small leaks and drips are tracked to ensure they are cleaned adequately to prevent contamination of surface and/or groundwater.

5.2 CONTAINMENT AND CLEANUP

Emergency response personnel, spill cleanup equipment, communication systems, and external agency coordination are maintained and available on-site to respond to any spills/releases. Small spills are cleaned up quickly by operating personnel.

Upon the reporting of a spill/discharge, the PSS serves as, or appoints, the on-scene incident commander (IC). The IC will direct the emergency containment of any spill/discharge that may egress a building or immediate area, or have the possibility of entering a plant drainage ditch. Following containment, the cleanup of spill/discharge materials may be accomplished by using various portable pumps, containers, and other equipment and materials (see Section 5.4). All cleanup wastes generated will be managed properly and disposed of in accordance with applicable regulations and Paducah Site procedures. The IC will follow this SPCC Plan. The PSS tracks spills because the reportable quantity (RQ) is based on 24-hour period. Spill emergency response includes collection and containment of spilled material, whereas emergency response under OSHA is limited to the containment of spilled material. Because the Paducah Site's emergency management organization is based on OSHA requirements, containment of a spill to the environment would be conducted by Fire Services and E-Squad personnel. In addition to this, collection of the spilled material and residues may be conducted by other plant organizations, as required. Minor spills within indoor containment areas will be contained by the project. The PSS directs containment, treatment, and initial cleanup activities, with the assistance of other plant groups, until the spill is under control.

5.3 REGULATORY REPORTING

The IC, in consultation with DOE and environmental compliance personnel, will determine if a spill/discharge will be reported to the National Response Center (800-424-8802), and/or the Kentucky Environmental Response Team (800-928-2380), and/or other regulatory or emergency agencies. LATA Kentucky reserves the right to make notifications upon consultation with DOE.

5.3.1 National Response Center

The U.S. Environmental Protection Agency (EPA) has established requirements to report spills/discharges to navigable waters or adjoining shorelines. Specifically, EPA requires owners or operators of facilities that discharge oil in quantities that may be harmful to public health or welfare or to the environment to report the spill to the federal government (National Response Center). EPA has determined that discharges of oil in quantities that may be harmful include the following:

- Violate applicable water quality standards;

- Cause a film or "sheen" upon or discoloration of the surface of the water or adjoining shorelines; or

- Cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

5.3.2 Kentucky Environmental Response Team

Per *Kentucky Revised Statutes* [*KRS* 224.1-400(11)], RQs are 25 gal or more of a petroleum product within a 24-hour period and 75 gal or more of diesel fuel in a 24-hour period or any amount that creates a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines (40 *CFR* § 110.3).

5.3.3 EPA Region 4 Administrator

If the Paducah Site were to discharge more than 1,000 gal of oil or oil products in a single discharge, or more than 42 gal in each of two discharges occurring within any 12-month period, a report will be submitted within 60 days to the EPA Region 4 administrator and Kentucky Department for Environmental Protection. The report will contain the information required by 40 *CFR* § 112.4.

5.4 SPILL EQUIPMENT

In the event of an emergency, appropriate spill control and cleanup equipment is available as indicated in Section 4.1.5.

5.5 RECOVERED MATERIAL DISPOSAL—40 *CFR* § 112.7(A)(3)(V)

Materials generated from a spill response may include wastes such as unusable product, personal protective equipment (PPE), wastewater from decontamination, RCRA hazardous waste, and radioactive or polychlorinated biphenyl (PCB) mixed wastes. Wastes transferred or moved within the facility boundary to respond to the release will not require permits. Wastes being shipped for off-site treatment and disposal will be transported in accordance with applicable state and federal regulations.

The decontamination of equipment will be conducted near the spill site or at an existing on-site decontamination facility. If needed, a temporary decontamination facility will be constructed by placing an impermeable membrane on the ground, diking the perimeter of the membrane, and, if necessary, constructing curtains to contain water spray. Depending on the product, several techniques for decontaminating equipment will be employed. These techniques may include hand washing with water and detergents or power washing with water detergents.

After containing a spill, as much product as possible will be salvaged and returned to bulk storage for reuse. If salvage is not possible or if the product has been mixed with other liquids such as fire suppressants or water, liquids will be pumped into containers and characterized to determine disposal alternatives.

All wastes, including decontamination solutions, contaminated soils, PPE, and absorbents, will be containerized properly and characterized. Disposal options may include, but will not be limited to, on-site

treatment for discharge, disposal as solid waste in the on-site C-746-U contained landfill, on-site hazardous waste treatments, or off-site treatment/disposal.

5.6 COMMUNICATION SYSTEMS

In an emergency situation, effective and rapid communication is essential. The four forms of communication available at the Paducah Site are these:

(1) Telephones—Telephones are located throughout the Paducah Site. An emergency situation can be reported to the PSS by dialing 333 or 6211 on the normal (BellSouth) system or 555 on the interplant PAX system. Emergency calls are answered by or at the C-300 Central Control Facility.

(2) Two-Way Radios—Two-way radios are used by the PSS, fire services members, security guards, and other response personnel to aid in emergency communications. Any radio at the Paducah Site can be used to summon emergency assistance. The C-300 Central Control Facility monitors radio communications on all radio channels used at the Paducah Site.

(3) Public Address (PA) System—The PA system is used to communicate emergency instructions to all personnel. The PSS is in charge of all announcements made on the PA system.

(4) Messenger—A messenger may be sent to the C-300 Central Control Facility to notify the PSS of an emergency if it is determined to be a faster means of notification.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A

CERTIFICATION OF THE APPLICABILITY OF THE SUBSTANTIAL HARM CRITERIA

THIS PAGE INTENTIONALLY LEFT BLANK

CERTIFICATION OF THE APPLICABILITY OF THE SUBSTANTIAL HARM CRITERIA

Facility Name: DOE Paducah Site Facility Address: McCracken County, Kentucky

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gal?

Yes _____ No__X__

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gal **and** does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?

Yes _____ No__X__

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gal **and** is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to this appendix or a comparable formula)[1] such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (see Appendix E to this part, section 13, for availability) and the applicable Area Contingency Plan.

Yes X_ No_____

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gal **and** is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to this appendix or a comparable formula)[1] such that a discharge from the facility would shut down a public drinking water intake?[2]

[1] If a comparable formula is used, documentation of the reliability and analytical soundness of the comparable formula will be attached to this form.
[2] For the purposes of 40 *CFR* Part 112, public drinking water intakes are analogous to public water systems as described at 40 *CFR* § 143.2(c).

Yes _____ No__X__

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gal **and** has the facility experienced a reportable oil discharge in an amount greater than or equal to 10,000 gal within the last 5 years?

Yes _____ No__X__

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Signature_____

Name (please type or print) _____

Title _____

Date _____

CALCULATION COVER SHEET

Project Title _____ Job No. N/A

Area Regulatory Compliance

Discipline Regulatory Compliance *Calc. No. CAV-0000ES-P165

Subject SPCC FRP Planning Distance Determination

Computer Program N/A Program No. N/A

Committed Calculation ☒ Preliminary ☐ Superseded ☐

Rev.	Sheet Numbers	Originator	Checker	Approval	Date
0	2	David Veach	Michael Gerle	T.A. Crabtree for K.A.S.	8/11/14

SUMMARY OF REVISION

Rev. 1	
Rev. 2	

Microfilmed	Rev.	Date	Reel No.	Rev.	Date	Reel No.

*Obtain Calculation Number from Engineering and Technical Services Manager

CALCULATION SHEET

1.0 PURPOSE

Planning distance calculation to determine if a substantial harm criteria is met for harm to public drinking water intake. (40 CFR Part 112, Appendix C to Part 112)

2.0 INPUT DATA

1. 40 CFR 112, Appendix C to Part 112 Planning Distance Formula – d=v*t*c
2. Velocity (v) based on National Weather Service River Forecast Center Ohio River measurements at Smithland Lock and Dam – 0.3 MPH
3. Time (t) based on specified time interval 40 CFR 112, App. C to Part 112 Table 3 – 27 hours
4. Constant conversion factor (c) based on 40 CFR 112, App. C to Part 112 – 0.68 secω mile/hrω ft

3.0 ASSUMPTIONS

1. Release of oil would be to storm drains located just outside secondary containment which would result in substantial harm to Bayou Creek and/or Little Bayou Creek (environmentally sensitive areas).
2. The closest public water intake is on the Ohio River at RM 977, approximately 30 miles downstream.
3. All discharges would flow to engineered outfalls that allow for containment before discharging into Bayou Creek.
4. Outfalls are engineered with inverted dams and have counter measures in place including booms, and plugs for the inverted piping.
5. Secondary containment devices are installed around storage tanks.
6. Distance calculation for potential public drinking water harm is conservative because it does not account for the 6.3 mile length of Bayou Creek between Outfall 008 and the Ohio River.

4.0 REFERENCES

1. 40 CFR Part 112, Appendix C to Part 112: Table 3 of this attachment; Section 2.1
2. National Weather Service River Forecast Center (http://www.erh.noaa.gov/er/ohrfc/flows.shtml)
3. Online Unit Conversions http://www.onlineconversion.com/speed_common.htm

5.0 CALCULATIONS

Given: **d**(miles)=**v**(fps)*__t__(hrs)*__c__(secω mile/hrω ft);
Where: **t**=27 hours; **c**=0.68 secω mile/hrω ft; **v**=0.3 MPH
Find: Planning Distance in miles
SOL: Velocity unit conversion: FPS =(x MPH) * (1.4667 FPS/MPH)
= (0.3 MPH)*(1.4667 FPS/MPH)
= 0.44 FPS

Planning Distance: d= v*t*c
= (0.44 FPS)*(27 hrs)*(0.68 secω mile/hrω ft)
= 8.07 miles

6.0 CONCLUSION

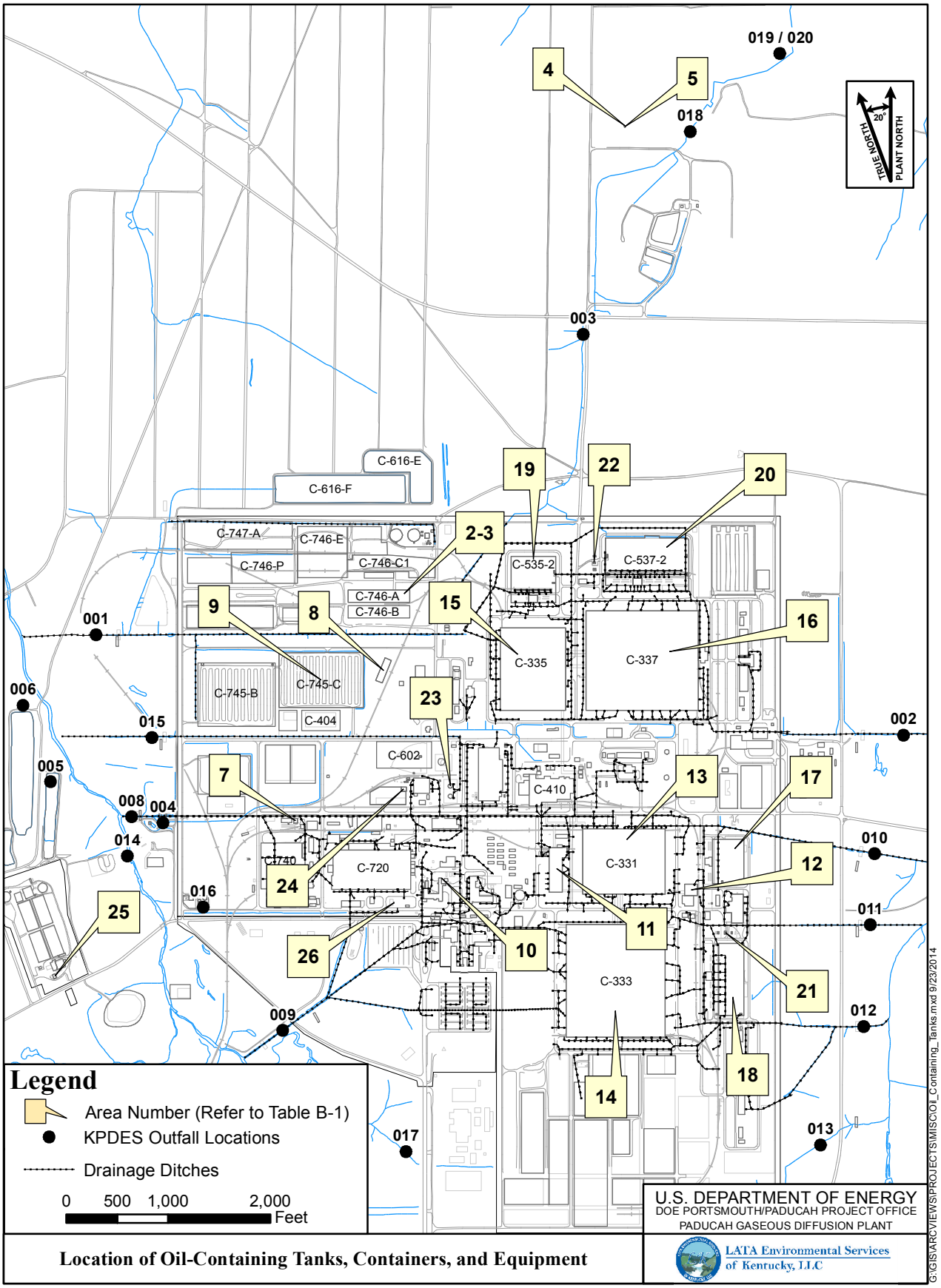
A planning distance of 8.07 miles concludes that the closest public water intake at Cairo, IL (RM 977) is located outside the substantial harm distance during a worst case discharge.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B

CONTAINER DESCRIPTIONS AND LOCATIONS

THIS PAGE INTENTIONALLY LEFT BLANK


019 / 020
018
003
001
002
004
005
006
008
009
010
011
012
013
014
015
016
017
TRUE NORTH
PLANT NORTH
20°
C-616-E
C-616-F
C-747-A
C-746-E
C-746-P
C-746-C1
C-746-A
C-746-B
C-745-B
C-745-C
C-404
C-602
C-740
C-720
C-535-2
C-537-2
C-335
C-337
C-410
C-331
C-333
Legend
Area Number (Refer to Table B-1)
KPDES Outfall Locations
Drainage Ditches
0 500 1,000 2,000
Feet
U.S. DEPARTMENT OF ENERGY
DOE PORTSMOUTH/PADUCAH PROJECT OFFICE
PADUCAH GASEOUS DIFFUSION PLANT
LATA Environmental Services of Kentucky, LLC
Location of Oil-Containing Tanks, Containers, and Equipment
G:\GIS\ARCVIEW\PROJECTS\MISC\Oil_Containing_Tanks.mxd 9/23/2014

THIS PAGE INTENTIONALLY LEFT BLANK

Table B.1. Oil-Containing Tanks, Containers, and Equipment

Container Type	Area No.[A]	Location	Maximum Capacity (Gal)	Contents	Bulk Storage Container?	Drainage Ditch[B]
DRUMS (APPROX. 10)	7	C-733 (inside)	55 EACH	KEROSENE	YES	008
TANKS (HW PERMITTED)	7	C-733 (inside)	3,000 EACH	Hazardous Waste—Currently empty	YES	008
TANK	4	C-746-U (outside)	1,000	DIESEL	YES	019
TANK	5	C-746-U (outside)	500	GASOLINE	YES	019
TANK (NOT USED)	2	C-746-A	500	GASOLINE	YES	001
TANK (NOT USED)	3	C-746-A	500	DIESEL	YES	001
TAYLOR FORK LIFT CA06195	*		60 72	DIESEL HYDRAULIC	NO	VARIES
TAYLOR FORK LIFT CA06220	*		60 72	DIESEL HYDRAULIC	NO	VARIES
2004 FORD F250 TRUCK	*		89	DIESEL	NO	VARIES
GROVE CRANE MODEL RT58C	*	C-410 AREA	60 83	DIESEL HYDRAULIC	NO	008
AGGREKO GENERATOR	*	SW CORNER OF C-415	100	DIESEL	NO	008
DODGE TRUCK (E-110937)	*		105	DIESEL	NO	VARIES
DODGE TRUCK	*	C-400	100	DIESEL	NO	
KABOTA RENTAL GENERATOR	*	C-301	60	DIESEL	NO	002
CHEVY TRUCK (G43-0777H)	*	C-755	100	DIESEL	NO	VARIES
FORD TRUCK(G43-3777A)	*	C-755	100	DIESEL	NO	VARIES
CHEVY TRUCK (G62-1063K)	*		70	DIESEL	NO	VARIES
SHUTTLE WAGON SWY	*		90 60	DIESEL HYDRAULIC	NO	VARIES
GMC TRUCK (609TSK)	*		110	DIESEL	NO	VARIES
CHEVY TRUCK (ESS-137)	*	C-755	100	DIESEL	NO	VARIES
TANK		C-755-Y	150	USED OIL	YES	

Table B.1. Oil-Containing Tanks, Containers, and Equipment (Continued)

Container Type	Area No.[A]	Location	Maximum Capacity (Gal)	Contents	Bulk Storage Container?	Drainage Ditch[B]
INGERSOLL RAND GENERATOR (7)		C-745-C	150 (each)	DIESEL	NO	001
MOBILE 800kw GENERATOR	*		2,000	DIESEL	NO	VARIES
MOBILE 300kw GENERATOR (2)	*		250	DIESEL	NO	VARIES
MOBILE 100kw GENERATOR (2)	*		150	DIESEL	NO	VARIES
CAT D-7 DOZER C-900042	*	LANDFILL: REAR ENGINE	115	DIESEL	NO	019
JOHN DEERE 646 COMPACTOR C-900012	*	LANDFILL	60	DIESEL	NO	VARIES
FORD DUMP TRUCK E-110940	*	LANDFILL	100	DIESEL	NO	019
CAT 816B COMPACTOR C-900011	*	LANDFILL	106	DIESEL	NO	019
CAT 953B TRACK LOADER C-9000117	*	LANDFILL	58	DIESEL	NO	019
JOHN DEERE 230LC TRACKHOE C-900362	*	LANDFILL	82	DIESEL	NO	019
CAT 330C TRACKHOE CA06217	*	LANDFILL	163	DIESEL	NO	019
CAT 637 SCRAPER -900025	*	LANDFILL: FRONT ENGINE REAR ENGINE	210 150	DIESEL DIESEL	NO NO	019 019
TANK	8	C-752-B	1,000 3,000	E85 GASOLINE UNLEADED GASOLINE	YES	009
TANK	8	C-752-B	1,000 3,000	ON ROAD DIESEL BIO-DIESEL	YES	009
CHEVY SILVERADO E303628	*	C-755	100	DIESEL	NO	VARIES
JOHN DEERE 770C MOTER GRADER CA02847	*	C-755	106	DIESEL	NO	VARIES
TANK A1	14	C-333	1,000	GASOLINE	YES	9
TANK A2	16	C-337	1,000	GASOLINE	YES	1
TANK A8	21	C-540	250	KEROSENE	YES	11

Table B.1. Oil-Containing Tanks, Containers, and Equipment (Continued)

Container Type	Area No.[A]	Location	Maximum Capacity (Gal)	Contents	Bulk Storage Container?	Drainage Ditch[B]
TANK A9	10	C-200	550	DIESEL	YES	9
TANK A10	11	C-310	250	DIESEL	YES	9
TANKS A11–A12 (2)	13	C-331	250	DIESEL	YES	9
TANKS A13–A15 (3)	14	C-333	250	DIESEL	YES	9
TANKS A17–A18 (2)	15	C-335	250	DIESEL	YES	1
TANK A19	16	C-337	250	DIESEL	YES	1
TANKS A20–A21 (2)	16	C-337	250	DIESEL	YES	2
TANK A23	24	C-607	550	DIESEL	YES	8
TANK A24	25	C-611	1,500	DIESEL	YES	6
TANKS A28–A29 (2)	23	C-600	420,000	Fuel oil	YES	8
TANK A30 (EMPTY)	23	C-600	1,000,000	Fuel oil	YES	8
TANK A33	21	C-540 (NW)	15,000	Transformer oil	YES	11
TANK A34	21	C-540 (SW)	15,000	Transformer oil	YES	11
TANK A35	21	C-540 (NE)	7,500	OCB oil	YES	11
TANK A36	21	C-540 (SE)	7,500	OCB oil	YES	11
TANK A37	22	C-541 (SE)	15,000	Transformer oil	YES	1
TANK A38	22	C-541 (SW)	15,000	Transformer oil	YES	1
TANK A39	22	C-541 (NE)	7,500	OCB oil	YES	1
TANK A40	22	C-541 (NW)	7,500	OCB oil	YES	1
TANK A42	11	C-310	14,700	Lube Oil	YES	8
TANK A43	11	C-310	9,320	Lube Oil	YES	8
TANK A44	12	C-315	380	Lube Oil	YES	11
TANK A45	12	C-315	270	Lube Oil	YES	11
TANKS A46–A49 (4)	13	C-331	13,600	Lube Oil	YES	8, 9, 10, 11
TANKS A50–A53 (4)	13	C-331	7,200	Lube Oil	YES	8, 9, 10, 11

Table B.1. Oil-Containing Tanks, Containers, and Equipment (Continued)

Container Type	Area No.[A]	Location	Maximum Capacity (Gal)	Contents	Bulk Storage Container?	Drainage Ditch[B]
TANKS A54–A65 (12)	14	C-333	10,100	Lube Oil	YES	9, 11, 12
TANKS A66–A71 (6)	14	C-333	13,000	Lube Oil	YES	9, 11, 12
TANKS A72–A75 (4)	15	C-335	13,600	Lube Oil	YES	1
TANKS A76–A79 (4)	15	C-335	7,200	Lube Oil	YES	1
TANKS A80–A91 (12)	16	C-337	10,100	Lube Oil	YES	1, 2
TANKS A92–A97 (6)	16	C-337	13,000	Lube Oil	YES	1, 2
UNDERGROUND TANK	26	C-751 West	10,000	Diesel	YES	9
UNDERGROUND TANK	26	C-751 East	10,000	Gasoline	YES	9
POTENTIAL TRANSFORMER	17	C-531	250	Oil	NO	10
POWER TRANSFORMER (6)	17	C-531	12,000	Oil	NO	10
GROUNDING TRANSFORMER (5)	17	C-531	400	Oil	NO	10
OCBS (14)	17	C-531	4,300	Oil	NO	10
REACTORS (2)	17	C-531	17,650	Oil	NO	10
NEUTRAL REACTOR (6)	17	C-531	300	Oil	NO	10
LINE CTS (3)	17	C-531	50	Oil	NO	10
POTENTIAL TRANSFORMER (12)	18	C-533	250	Oil	NO	12
POWER TRANSFORMER (12)	18	C-533	12,000	Oil	NO	12
GROUNDING TRANSFORMER (12)	18	C-533	400	Oil	NO	12
OCBS (35)	18	C-533	4,300	Oil	NO	12
REACTORS (2)	18	C-533	17,650	Oil	NO	12
NEUTRAL REACTOR (12)	18	C-533	300	Oil	NO	12
LINE CTS (21)	18	C-533	50	Oil	NO	12
POTENTIAL TRANSFORMER (6)	19	C-535	250	Oil	NO	1
POWER TRANSFORMER (5)	19	C-535	12,000	Oil	NO	1
GROUNDING TRANSFORMER (5)	19	C-535	400	Oil	NO	1

Table B.1. Oil-Containing Tanks, Containers, and Equipment (Continued)

Container Type	Area No.[A]	Location	Maximum Capacity (Gal)	Contents	Bulk Storage Container?	Drainage Ditch[B]
OCBS (16)	19	C-535	4,300	Oil	NO	1
NEUTRAL REACTOR (5)	19	C-535	300	Oil	NO	1
LINE CTS (6)	19	C-535	50	Oil	NO	1
POTENTIAL TRANSFORMER (12)	20	C-537	250	Oil	NO	1
POWER TRANSFORMER (13)	20	C-537	12,000	Oil	NO	1
GROUNDING TRANSFORMER (13)	20	C-537	400	Oil	NO	1
OCBS (35)	20	C-537	4,300	Oil	NO	1
REACTORS (3)	20	C-537	17,650	Oil	NO	1
NEUTRAL REACTOR (13)	20	C-537	300	Oil	NO	1
LINE CTS (10)	20	C-537	50	Oil	NO	1

[A] Items marked with an * are mobile or temporary motive power containers and not included on Figure B-1.
[B] This is the drainage ditch most likely to be affected in the event of a significant discharge (see also Figure B-1).

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C

FORMS

THIS PAGE INTENTIONALLY LEFT BLANK

Oil-Containing Tanks, Containers, and Equipment

Container Type (tank, drum, etc.)	Responsible Person/Phone #	Size	Contents	Use	Material of Construction	Location (provide map if available)
1.						
2.						
3.						
4.						
5.						

DIRECTIONS: Please complete both top and bottom portions for each item containing 55 gal or greater of oil or oil byproducts.

Secondary Containment (describe)	Inspections for Leaks (describe)	Integrity/Leak Tests (describe)	Spill Controls/Materials (describe)	Procedure # for Transfer of Contents	Spill History (describe releases and who they were reported to)
1.					
2.					
3.					
4.					
5.					

Attach additional sheet if needed.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX D

REPORTING GUIDANCE

THIS PAGE INTENTIONALLY LEFT BLANK

KENTUCKY'S ENVIRONMENTAL RELEASE REPORTING AND CLEANUP LAW

What must be reported? Any spill, leak, discharge, dumping, or other "release" of any of the following classifications of substances in excess of a reportable quantity will be reported immediately.

- **Hazardous substances**—Substances designated under the federal Superfund Act (Comprehensive Environmental Response, Compensation, and Liability Act) and those extremely hazardous substances designated under Title III of the Superfund Amendments and Reauthorization Act (SARA) are to be reported according to quantities listed in the respective laws and regulations. Also reportable as a hazardous substance is any quantity of nerve or blister agents designated under *KRS* 224.50-130(l)d.

- **Pollutants or contaminants**—A release or threatened release of any element, substance, compound, or mixture into the environment in a quantity that may present an imminent or substantial danger to the public health or welfare is reportable.

- **Petroleum or petroleum products**—Any release including a fuel, oil, or lubricant in excess of 25 gal within a 24-hour period will be reported. The reportable quantity of diesel fuel is 75 gal or more in a 24-hour period; however, any release that causes a visible sheen or that violates any other provision of Section 311 of the Clean Water Act will be reported.

Who must report? Any person possessing or controlling a regulated substance must immediately report a release or threatened release covered by this law. This law affects any person, trust, firm, joint-stock company, corporation (including a government corporation), partnership, association, federal agency, state agency, city, commission, county, transporter, or any interstate body. Any release that must be reported to a federal agency must also be reported to the Kentucky Department for Environmental Protection.

How are reports to be made? All reports will be made immediately to the 24-hour Environmental Response telephone number: (502) 564-2380 or (800) 928-2380 (to be used only for emergencies and spill reporting required by law). A written follow-up report may be required by the Kentucky Energy and Environment Cabinet and will be submitted within seven days of the Cabinet's demand. The report will contain information such as the following:

- The precise location of the release;
- The name, address, and phone number of the person in charge at the time of the release;
- Persons knowledgeable of the release, and a contact person for additional information;
- The concentration and quantity of the release;
- The circumstances and cause of the release;
- Efforts taken to control or mitigate the release;
- Any harmful effects of the release;
- Where the release occurred and the potential for movement away from the site;
- Any present or proposed action at the site to correct the release or its effects; and
- Any other information that may assist in the response at the site.

What are the clean-up requirements? Once a release has occurred, even if it is less than reportable quantity, the responsible person must characterize the full extent of the release and determine its effect on

the environment and correct the effect of the release on the environment. For releases that exceed the reportable quantity, the cabinet must approve site characterization and remedial actions. For releases that exceed the reportable quantity, the cabinet must approve site characterization and remedial actions. The cabinet may require submittal of the demonstration of characterization and remediation on releases of less than a reportable quantity.

For questions concerning the Environmental Release Reporting and Cleanup Law, write to the:

Department for Environmental Protection
Environmental Emergencies
300 Fair Oaks
Frankfort, Kentucky 40601
(502) 564-2150

Source Kentucky Department for Environmental Protection Environmental Permitting Programs, p. 60–61.