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Best Management Practices Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky

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

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ACRONYMS

BMP	Best Management Practices
BWCS	Babcock & Wilcox Conversion Services, LLC
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CWA	Clean Water Act
CAA	Controlled Access Area
CR^{+6}	hexavalent chromium
CR^{+3}	trivalent chromium
D&D	decontamination and decommissioning
DMSA	DOE Material Storage Area
DOE	U.S. Department of Energy
DUF_6	Depleted Uranium Hexafluoride
EMS	Environmental Management System
EPA	U.S. Environmental Protection Agency
ES&H	Environment, Safety, and Health
FFA	Federal Facility Agreement
FRP	Facility Response Plan
GET	General Employee Training
IC	incident commander
ICM	Interim Corrective Measures
IRA	Interim Remedial Action
KAR	*Kentucky Administrative Regulations*
KDOW	Kentucky Division of Water
KEEC	Kentucky Energy and Environment Cabinet
KPDES	Kentucky Pollutant Discharge Elimination System
KRS	*Kentucky Revised Statutes*
LATA Kentucky	LATA Environmental Services of Kentucky, LLC
LLW	low-level waste
NCS	Nuclear Criticality Safety
NEPCS	Northeast Plume Containment System
NWPGS	Northwest Plume Groundwater System
O&M	operations and maintenance
OSHA	Occupational Safety and Health Act
PA	public address
PCB	polychlorinated biphenyls
PED	plant emergency director
PGDP	Paducah Gaseous Diffusion Plant
PSS	plant shift superintendent
RCRA	Resource Conservation and Recovery Act
RCW	Recirculating Cooling Water
ROD	Record of Decision
SPCC	Spill Prevention Control and Countermeasures
SWMU	solid waste management unit
TSCA	Toxic Substances Control Act
USEC	United States Enrichment Corporation
WPCP	Work Planning and Control Program

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EXECUTIVE SUMMARY

The Best Management Practices (BMP) plan is required per Part V of the Kentucky Pollutant Discharge Elimination System for the Paducah Gaseous Diffusion Plant. The plan is required for "all permittees who use, manufacture, store, handle, or discharge any pollutant listed as: (1) toxic under Section 307(a)(1) of the Clean Water Act (CWA); (2) oil, as defined in Section 311(a)(1) of the [CWA]; (3) any pollutant listed as hazardous under Section 311 of the [CWA]; or is defined as a pollutant pursuant to *KRS* § 224.01-010(35) and who have ancillary manufacturing operations which could result in the (1) release of a hazardous substance, pollutant, or contaminant, or (2) an environmental emergency, as defined in *KRS* § 224.01-400, as amended, or any regulation promulgated pursuant thereto."

The plan must be maintained consistent with 401 *KAR* 5:065, Section 2(10) pursuant to *KRS* § 224.70-110, which prevents or minimizes the potential for the release of "BMP pollutants" throughout DOE facilities and activities. The BMP has general requirements for all operations and specific requirements for individual operations. The plan discusses a required BMP committee, the reporting of BMP incidents, and risk identification and assessment. The plan also discusses employee training, inspection records, preventative maintenance, housekeeping requirements, materials inventory, and security.

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1. INTRODUCTION

1.1 REGULATORY BACKGROUND

This Best Management Practices (BMP) Plan implements the regulatory requirements of U.S. Environmental Protection Agency (EPA) regulations promulgated pursuant to the Federal Water Pollution Control Act and subsequent amendments, which is generally referred to as the Clean Water Act (CWA). A BMP Plan is required for facilities that use, manufacture, store, handle, or discharge any pollutants listed in Sect. 307(a)(1) or Sect. 311 of the CWA. Furthermore, Kentucky Pollutant Discharge Elimination System (KPDES) No. KY0004049, Section V, establishes requirements for a BMP Plan pertaining to the U.S. Department of Energy (DOE) and LATA Environmental Services of Kentucky, LLC, (LATA Kentucky) activities at the Paducah Gaseous Diffusion Plant (PGDP). Nothing in this BMP plan alters or supersedes obligations imposed in the KPDES permit. References herein to any plan or procedure refer to the most recent version of the plan or procedure in effect as of the date of this BMP Plan or, if subsequently revised, to the revised version of such plan or procedure.

1.2 PGDP BACKGROUND AND INTERFACE

PGDP is a uranium enrichment facility consisting of a diffusion cascade and extensive support facilities. Plant construction began in 1951 and operations began in 1952. PGDP is located on a reservation consisting of approximately 3,556 acres in western McCracken County, approximately 10 miles west of Paducah, Kentucky. DOE owns the reservation and facilities at the plant and, until 1993, produced enriched uranium for national defense and energy through private operating contractors. In 1993, the United States Enrichment Corporation (USEC), a newly formed private corporation, leased the production facilities and most of the support facilities and assumed responsibility for uranium enrichment. DOE remains as the owner of all facilities and retains responsibility for environmental restoration activities. Through a lease agreement between DOE and USEC, the facility is divided into USEC-leased space and DOE-retained space. USEC assumed responsibility for regulatory compliance for activities occurring in leased space, and DOE retained regulatory compliance responsibility for nonleased space activities. Appendix A depicts leased and nonleased space at PGDP.

Until March 13, 1998, USEC and DOE were both listed as permittees on KPDES Permit No. KY0004049. On March 13, 1998, the Kentucky Division of Water (KDOW) issued separate permits to USEC and DOE; DOE retained the Permit No. KY0004049. LATA Kentucky and Babcock & Wilcox Conversion Services, LLC, (BWCS) are the current operators at PGDP. This document represents the BMP Plan for DOE infrastructure and remediation contractor activities, including activities subcontracted by LATA Kentucky. The Depleted Uranium Hexafluoride (DUF_6) Conversion contractor (currently BWCS) has its own BMP that addresses discharges from the DUF_6 Conversion facilities and associated cylinder storage yards.

DOE's activities at PGDP are carried out through its contractor. A portion of the required work is accomplished through subcontractors. Thus, various DOE activities are accomplished via direction from LATA Kentucky to a number of subcontractors. In some cases, USEC serves as a subcontractor to LATA Kentucky. This relationship between DOE and USEC is pertinent to this BMP Plan. Through various contractual agreements, USEC personnel are responsible for some activities outlined in this BMP Plan. These relationships between DOE, LATA Kentucky, and subcontractors will be clarified further, as applicable, throughout this BMP plan. Requirements of this BMP plan are communicated to projects and subcontractors through the Work Planning and Control Program (WPCP). The scope of work required for each contract, project, or other work activity is evaluated through the WPCP to ensure that environmental

and safety controls such as BMPs are implemented. As a part of the WPCP, inspection schedules and recordkeeping associated with the BMP Plan are established.

1.3 BMP PLAN FORMAT

The remainder of this BMP Plan is structured so that it parallels as closely as possible the requirements in KPDES Permit No. KY0004049. This structure facilitates ease of compliance demonstration. The plan generally follows the order of requirements in Part V of the permit so that compliance with each requirement is easily found in the plan. This format results in some redundant information throughout the plan, but ensures compliance with the content requirements of the KPDES permit.

2. GENERAL CONDITIONS AND GENERAL REQUIREMENTS (SECTION 4 OF KPDES PERMIT KY0004049)

2.1 DOCUMENTATION

This BMP is documented in narrative form and all necessary plot plans, drawings, and plans are included as appendices.

2.2 BMPS

Although each facility has specific BMPs, general BMPs cover plantwide activities. Some of these BMPs are implemented by USEC through the Master Service Agreement between DOE and USEC. Other plantwide BMPs are implemented through the DOE infrastructure or remediation contractor. Examples of general, plant wide BMPs are as follows.

2.2.1 Training

General Employee Training (GET) is required and provided to all employees annually. Included in this training are instructions to report any spill or release to the USEC plant shift superintendent (PSS), who serves as the incident commander (IC) during such occurrences. The training includes elements of this plan as well as other environmental training requirements. Additional training also is required for employees and their supervisors who work with hazardous Resource Conservation and Recovery Act (RCRA) waste. Employees who operate mobile industrial equipment also are trained in accordance with Occupational Safety and Health Act (OSHA) requirements. In addition, standard operating procedures include preoperational inspections of equipment to identify and investigate potential releases.

2.2.2 Inspections/Walkthroughs

LATA Kentucky and subcontractors are assigned responsibility to perform monthly walkthroughs of DOE facilities, including those with the potential to release BMP pollutants. The walkthroughs are performed according to various procedures and include a walkthrough checklist that includes criteria for leaks or spills, proper drainage, and proper chemical containment and storage. These walkthroughs help identify conditions that could result in release of BMP pollutants. Furthermore, each DOE facility's operating procedures (if applicable) contain inspection and/or maintenance requirements.

2.2.3 Engineered Controls

Major plant drainage ditches are equipped with inverted pipe dams designed to permit the passage of water, but contain floating material such as oil. [This section is incorporated from the Spill Prevention Control and Countermeasures Plan (SPCC).]

2.2.4 Spill Reporting and Countermeasures

USEC plant procedures show the reporting process that is followed if a spill should occur. All spills are to be reported immediately to the PSS, who then will serve as the on-scene IC. He will direct the emergency containment of any spill that may egress the building or immediate area or have the possibility of entering the environment. The IC, along with environment, safety, and health (ES&H) personnel, will determine the reportability of the spill. [This section is incorporated from the USEC SPCC; this is listed in the Facility Response Plan (FRP) and the SPCC cross-references the FRP.]

2.2.5 Spill Equipment

An emergency response vehicle is maintained at C-200, which contains absorbent pads, pillows, booms, and loose material that may be used to clean up spilled chemicals or oil from the ground, ditches, or the surface of the quiet zone immediately upstream from the inverted pipe dams. Floating plastic booms may be used to divert or contain the flow of floating material to facilitate cleanup. The inflatable pipe stoppers and small spill cleanup kits also are stored in this truck. Self-contained breathing apparatus cylinders in the truck supply the inflating gas. Various operating groups in the plant also stock absorbent materials.

Following containment, the cleanup of spilled materials may be accomplished by using various portable pumps and containers capable of handling most of the liquids used at PGDP. Portable pumps are used by a number of plant operating maintenance support groups and may be used during cleanup operations. Storage capacity for spilled material is available in the form of one million-gal tanks formerly used to store fuel oil east of C-600. In addition, USEC Chemical Operations maintains two 1,200-gal poly tanks for spill control operations in addition to other various containers that could be utilized in an emergency. Absorbent materials are stored in areas using chemicals and oils to use in containing and cleaning up small spills. USEC Chemical Operations also has a King Vac-truck. This truck is capable of removing up to 3,000 gal of liquid or solid materials. A number of treatment options such as neutralization, precipitation, or evaporation are available. (This section is incorporated from the USEC SPCC: this is listed in the FRP and the SPCC cross-references the FRP.)

2.2.6 Communication Systems

In an emergency situation, effective and rapid communication must be maintained throughout the emergency response and control organization. The four forms of communications that are available at PGDP are (1) emergency phone system, (2) radios, (3) public address (PA) system, and (4) messenger. (This section is incorporated from the SPCC.)

Emergency Phone System. Bell and PAX (interplant phone systems) are located throughout the plant. An emergency situation can be reported by dialing 333 Bell or 555 PAX. Emergency calls are answered by the C-300 Central Control Facility.

Radios. Radios are used by the PSS, Fire Services members, environmental personnel, security, and other response personnel to aid in emergency communications. Any radio in the plant can be used to summon emergency assistance. The C-300 Central Control Facility is utilized as the base station and monitors radio communications on all radio channels used at PGDP.

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.

Messenger. A messenger may be used to notify the C-300 Central Control Facility of an emergency if it is determined to be a faster means of notification.

Characterization of Wastewaters. All wastewaters are characterized either by sampling/analysis or by process knowledge prior to discharge. Each building, area, process, SWMU, and waste stream is different; therefore, the nature and extent of the characterization is determined on a case by case basis.

2.3 DOE FACILITY COMPONENTS OR SYSTEMS

Much of PGDP consists of the uranium enrichment facilities and support operations, which are leased and operated by USEC. Those operations are covered under USEC's KPDES permit No. KY0102083. The following facility components or systems and the associated BMPs are not covered by the USEC permit. Each facility components or system was examined for its potential to cause a release of BMP pollutants (as established in applicable laws and regulations). Many of the facilities listed in this document are solid waste management units (SWMUs) and will be addressed according to the "Specific Conditions" (Section 4) of this BMP Plan, as required by KPDES Permit requirements for the BMP Plan.

The following existing DOE facilities, components, or systems were examined for potential to cause a release of BMP pollutants. In addition to the general, plantwide BMPs noted previously, facility specific BMPs are listed in this document with each facility.

- Northwest Plume Groundwater System
- Northeast Plume Containment System
- Decontamination Facilities
- Hazardous Waste Storage and Treatment Facilities
- C-746-B South Warehouse
- C-404 Hazardous Landfills
- C-746-U Landfill
- C-746-U Fuel Storage Tanks
- Runoff Due to Disturbance of Historic Release/Spill Sites
- D&D Projects and Other Projects Addressing Shutdown DOE Facilities
- DOE Outfalls, Creeks, and Ditches
- SWMUs
- C-616-E Chromium Sludge Lagoon
- C-616-F Phosphate Sludge Lagoon (leased by USEC)
- Water Quality Monitoring Stations
- Contaminated Scrap Yards
- PCB Waste Storage Facilities
- DOE Laboratories
- C-752-B Refueling Station

2.4 SITUATION OUTLINES

The following information outlines situations in which a reasonable potential for release of BMP pollutants from each DOE facility component or system could occur due to equipment failure, natural condition, or other circumstance. The map depicting the direction of flow of pollutants released is indicated on "Outfall Drainage Areas, Paducah Gaseous Diffusion Plant, Site Plan," which is presented as Appendix B to the BMP Plan.

2.4.1 Northwest Plume Groundwater System

Previous operations at PGDP resulted in contamination of groundwater with technetium-99 (Tc-99) and trichloroethene (TCE) in the Northwest Plume and TCE in the Northeast Plume. The contamination is traveling in the groundwater from the plant in two general directions, known as the Northwest Plume and the Northeast Plume. The Northwest Plume Groundwater System (NWPGS) goal is to control contamination and mitigate the spread of the highest TCE concentration portion of the northwest plume

through groundwater extraction. The NWPGS consists of two extraction wells in one well field; a groundwater treatment system, including an air stripper with treatment for off-gas emissions; and four ion exchange units in two parallel trains. The NWPGS is located outside the DOE security fence at the northwest corner of the plant.

The reasonable potential for release of BMP pollutants from the NWPGS arises with a release of untreated groundwater that is contaminated with TCE and Tc-99. Also, pumps, motors, and mobile industrial equipment in the facility contain lubricating oil. A small amount of waste also is stored at the facility. Releases from the NWPGS would drain through DOE KPDES Outfall 001.

NWPGS BMPs. The perimeter of the foundation of the building that houses the NWPGS includes an 8-inch raised "lip" for containment of spills and releases. Leaks or releases within the building will flow to the building sump. The sump has a liquid level indicator, which shuts down the entire operation if the sump liquid level is raised beyond a specified point. Thus, leaks in the building will flow to the sump and result in automatic shutdown of the operation. Operation of the NWPGS is governed by the Operations and Maintenance (O&M) Plan. The *Operations and Maintenance Plan for the Northwest Plume (O&M) Groundwater System Interim Remedial Action at the Paducah Gaseous Diffusion Plant,* DOE/OR/07-1253, outlines several BMPs including required daily inspections and walkdowns. Oil-absorbent pads are placed around operating motors for oil leak/spill control. The facility also is equipped with a spill response kit. Mobile industrial equipment is leased and inspected daily, when used, per OSHA regulations. In addition, the leasing contractor performs semiannual inspections. The LATA Kentucky regulatory compliance organization and the USEC PSS will be notified of leaks or spills of significant amounts of equipment oil into the sump. Waste at the facility is handled according to the *Waste Management Plan for the Paducah Environmental Remediation Project,* PAD-PLA-ENV-001. The NWGPS General Operational Health and Safety Plan establishes training, chemical inventory, spill reporting, and containment requirements for NWPGS personnel.

2.4.2 Northeast Plume Containment System

The Northeast Plume Containment System (NEPCS) is a TCE treatment system that consists of two extraction wells, an equalization tank, a transfer pump, approximately 6,000 ft of total pipeline, and an existing USEC recirculating cooling tower (C-637) for air stripping. The air-stripped groundwater then joins the water in the cooling tower basin. From the basin, the water is transferred to the C-616 Complex for further treatment before it discharges via DOE KPDES Outfall 001. The objective of this system is to retard the migration of the highest concentration of TCE in the northeast plume. Unlike the NWPGS, there is no building housing equipment associated with this facility.

The potential for release from this system is associated with a release of untreated groundwater from the aboveground piping that connects the extraction wells and equalization tank to the cooling tower. Approximately 500 ft of the piping is aboveground. A release from piping near the C-637 Cooling Tower would drain to USEC KPDES Outfall 002. If the release occurred north of Washington Avenue (which runs east-west, north of C-337), it would drain to DOE KPDES Outfall 001.

NEPCS BMPs. The NEPCS is an automated system with failure alarms and interlocks that will shut down the system on the occurrence of certain alarm conditions. During normal operations, the system has the capability to operate with minimal operational support. O&M of the NEPCS is operated and governed by the *Operations and Maintenance Plan for the Northeast Plume Containment System Interim Remedial Action at the Paducah Gaseous Diffusion Plant,* DOE/OR/07-1535/D3. The operator conducts equipment inspections and system checks of key process variables, records system operational data and ensures effective and safe system operation whenever the system is operating. The aboveground piping also is inspected during the daily facility inspection. NEPCS corrective and preventive maintenance and

calibration are performed in accordance with manufacturer's recommendations and sound engineering practices. A precision test will be performed on the underground equalization tank, and a hydrostatic test will be conducted on the system pipeline every five years of operation to verify integrity. Process information can be accessed locally by the main system control panel or remotely by a computer located at the NWPGS. The NEPCS contains a dedicated automatic telephone dialer (autodialer) for calling designated on-call personnel when system alarm conditions occur. Abnormal operating conditions trigger alarms to the main system control panel. The autodialer, upon receipt of an alarm signal from the programmable logic controller, dials on-call personnel and delivers an alarm message.

2.4.3 Decontamination Facilities

DOE, through LATA Kentucky and subcontractors, operates several decontamination (decon) facilities at PGDP. The decon facilities consist generally of a concrete pad, a spray apparatus, and decon water storage. A decon pad sump collects decon water. The water is transferred to storage tanks, treated, analyzed, and appropriately disposed of in accordance with applicable requirements. The selection of the decon pad to be used during remediation projects is governed by LATA Kentucky, based on the location of the project, size of the facility, and available facilities such as roof or water supply.

C-752-C Decon Pad. The C-752-C decon pad is located outside the DOE security fence near the southwest corner of the plant, along Ohio street, south of the C-743 Trailer Complex. The pad is predominantly used for decon purposes for various remediation projects around the plant. Each of four sumps has an estimated 1,000-gal capacity. Also, if any sump is full, the pad is designed so that some overflow from the sump can be contained on the pad itself. Also, the fenced area surrounding the decon pad is used for supply and waste storage. Used decon water is stored in large poly or frac tanks located on the concrete pad. The potential for release of BMP pollutants from this facility would arise with a leak or rupture from the storage tanks. Pollutants could include those similar to remediation projects, such as TCE, trichloroethane, radionuclides, lead, or polychlorinated biphenyls (PCBs). Discharges or releases from this facility would flow to USEC KPDES Outfall 009 or Outfall 016.

C-416 Decon Pad. The C-416 decon pad is located between the C-631 Cooling Towers, and C-337 is used for decon of equipment used in remediation projects. It is not equipped with a sump; therefore, the decon water is collected in a small trough and transferred to holding tanks which are located on the pad. There are generally three 1,200-gal holding tanks on the pad, although this number can change depending upon the decon project requirements. This decon pad is used by LATA Kentucky and subcontractors involved in remediation projects. Discharges or releases from C-416 would flow to USEC KPDES Outfall 002.

Decon Facility BMPs. In addition to the general monthly inspection, decon pads are inspected daily prior to use by personnel assigned to the facility. The pads are designed so that releases on the pad will drain to the pad sumps. The decon pads are operated in accordance with procedures that comply with LATA Kentucky environmental protection procedures. Surveillances and audits also occur at the pads, and usually are associated with the various remediation projects that use the pads for decon purposes. Sump water is collected and characterized prior to discharge either by analytical data or process knowledge. Waters that meet KPDES requirements may be discharged to the ground outside of the facility or transported to an Outfall 001 conveyance. At the end of each project's use of the pads, collected water from the sumps is sampled. If the waters meet KPDES discharge requirements, the sumps no longer are sampled prior to discharge until a new project uses the facility.

2.4.4 Hazardous Waste Storage Facilities

The following are hazardous waste storage facilities at PGDP.

C-733 Hazardous Waste Storage Area. This facility is located in the southwestern area of the plant, west of C-744. It is used to store spent solvents, paint waste, mineral spirits, waste chemicals, and other hazardous waste. It is considered the flammable storage area. The facility is diked with sumps. The facility has limited sides to help any fumes that may be generated from the waste to dissipate quickly and not develop explosive levels if a leak were to occur. Rainfall that blows into the facility is collected in sumps. The sumps are pumped to collection containers, sampled, and the results assessed for environmental effects prior to discharge to Outfall 001. PCBs also are stored here. PCB waste is contained in drums within covered storage boxes that protect the waste from the weather and prevent any discharges if a drum were to rupture or develop a leak. The facility is inspected at least weekly and daily when RCRA tanks are in use. Leaks are cleaned promptly and leaking containers are repackaged to contain the waste materials. Releases from C-733 would flow to USEC KPDES Outfall 008.

C-746-Q Hazardous Waste Storage and Treatment Area. This area is located inside the western portion of C-746-Q and is used for batch chemical treatment of hazardous waste by neutralization, precipitation, oxidation, reduction, and stabilization. A bulb crusher is also located here. The facility is diked and protected from the weather. The facility is inspected at least weekly for leaking containers or loss of building integrity. Leaks are promptly cleaned and leaking containers are repackaged to contain the waste materials. Releases from C-746-Q would flow to USEC KPDES Outfall 012.

C-752-A Environmental Restoration Waste Storage Facility. This facility is an indoor permanent structure that stores environmental restoration derived waste as well as PCBs, low-level waste (LLW), and other miscellaneous waste. Permitted treatment activities include batch chemical treatment of hazardous waste by neutralization, precipitation, oxidation, reduction, absorption, decanting, filtration, and stabilization. The facility is diked and protected from the weather. The facility is inspected at least weekly for leaking containers or loss of building integrity. Leaks are promptly cleaned and leaking containers are repackaged to contain the waste materials. Discharges of treated wastewaters are characterized prior to discharge to Outfall 001. Releases from C-752-A would flow to DOE KPDES Outfall 001.

C-746-H3 90-Day Accumulation Area. This facility is located near the center of the plant and is used to temporarily stage and segregate waste derived from environmental restoration activities. A temporary dike is provided when liquid wastes are stored or processed in this area. Releases from C-746-H3 would flow to DOE KPDES Outfall 015.

Hazardous Waste Storage Areas BMPs. DOE has been issued a Hazardous Waste Facility permit to store and treat hazardous waste at PGDP at the facilities listed above. The permit is EPA ID No. KY8 890 008 982. In accordance with that permit and applicable state and federal regulations, DOE has developed and implemented a Contingency Plan for the Hazardous Waste Facilities at PGDP.

The DOE Contingency Plan establishes policy and creates procedures for hazardous waste spills, containment, and countermeasures to minimize any adverse impact to the environment, to reduce safety and health hazards, and to meet standards that define the acceptable management of hazardous waste. The Contingency Plan uses past experience and BMPs to minimize hazards to human health or the environment from fires, explosions, or any unplanned release of hazardous waste to air, soil, or surface water. This plan is revised as necessary in accordance with applicable requirements.

This BMP Plan hereby incorporates the policies, procedures, and BMPs established in the current revision of the Contingency Plan to prevent and mitigate releases from hazardous waste storage and treatment areas at PGDP. Reference that document for additional information. Discharges of treated wastewaters are characterized prior to discharge to Outfall 001.

2.4.5 C-746-B South Warehouse

The C-746-B South Warehouse facility is used to store TSCA/radioactive wastes, asbestos, non-regulated, waste water, nuclear criticality safety (NCS) exempt, NCS spacing exempt, and low-level radioactive wastes (LLW) in the west section, and classified and low-level radioactive wastes or materials in the east section. The wastes are both solid and liquid and are in various size containers. The majority of the waste is stored in 55-gal drums. Releases from C-746-B would flow to DOE KPDES Outfall 001.

C-746-B South Warehouse BMPs. The facility is totally enclosed and protected from the weather. The materials stored in C-746-B do not meet the criterion for incompatible chemicals; thus, a harmful interaction between the materials stored in these facilities will not occur. Any spills or leaks are cleaned promptly and containers that are of questionable integrity are repackaged promptly.

2.4.6 C-404 Hazardous Waste Landfill

The C-404 Landfill contains drummed, RCRA-hazardous radiologically contaminated filter cake. The facility includes a leachate collection system and collection sump. The sump is pumped to collection containers prior to reaching the overflow level of the sump and transferred to a RCRA permitted storage facility. This facility was certified closed in July 1987. Releases would flow to DOE KPDES Outfall 015 and would be responded to in accordance with any applicable provisions of the Hazardous Waste Facility Operating Permit (KY8-890-008-982).

C-404 Hazardous Waste Landfill BMPs. Information and BMPs pertaining to the C-404 Landfill are contained in Attachment I-2 of DOE's Hazardous Waste Facility Permit, as of the publication date of this plan. These BMPs include a series of groundwater monitoring wells, a cap inspection schedule, and the requirements to maintain the cover. The BMPs pertaining to the C-404 Landfill listed in the current version of the DOE's Hazardous Waste Facility Permit are hereby incorporated into this BMP Plan. Collected leachate is moved to permitted storage, sampled, and then assessed for treatment and disposal options. The leachate may be shipped off-site for treatment/disposal or treated as necessary for any contaminants and discharged to DOE KPDES Outfall 001.

2.4.7 C-746-U Landfill

The C-746-U Landfill is a permitted solid waste contained landfill. This landfill is permitted to receive industrial, construction, and sanitary waste. The surface runoff at the landfill flows to a sedimentation lagoon and is discharged to Outfall 019. Leachate is collected from both C-746-U and C-746-S Landfills and placed back on the phases of the landfill that have not received final cover, disposed in the USEC sewage treatment facility, or will be treated in a leachate treatment facility at the landfill. Leachate treated at the landfill is discharged to Outfall 020 to facilitate sampling analysis.

C-746-U Landfill BMPs. The burial area of the landfill where waste is disposed of is covered daily with 6 inches of soil to promote runoff. A minimum of 6 additional inches of cover is placed over all areas that will not receive additional waste within 30 days. A minimum of an additional 18 inches of cover is placed over all areas that will not receive any additional waste within four months by September 15. The landfill is inspected each day of operation and after each large storm event to assure that erosion does not occur. Eroded areas are repaired and seeded to prevent further erosion. Other storm water management tools, as described in Appendix C, are utilized as necessary. The entire landfill drains to a large sedimentation lagoon. The lagoon has treatment capabilities and enough holdup capacity to hold months of runoff under normal conditions. Water is treated/tested to ensure total suspended solids are in compliance prior to pumping to Outfall 019.

Water that penetrates the soil covering and percolates through the buried waste is collected through a leachate collection system. The landfill is lined to prevent leachate from escaping into the environment. Berms and diversion ditches are placed around the active area of the landfill where waste may be exposed to prevent surface runoff from entering that area. The leachate is treated prior to discharge. A leachate treatment facility at C-746-U is capable of treating organics and suspended solids. Additional treatment capabilities may be added as needed.

2.4.8 C-746-U Fuel Storage Tanks

These tanks are located at the C-746-U Solid Waste Landfill, northeast of PGDP. There is one 1,000-gal diesel tank and one 500-gal gasoline tank. The fuel is used in equipment associated with the C-746-U Landfill.

C-746-U Storage Tanks BMPs. BMPs for these storage tanks are established in the DOE SPCC Plan, PAD-REG-1005. The BMPs for these tanks include secondary containment, administrative controls, integrity testing, and inspections. Releases from these tanks would flow to the C-746-U Lagoon, which flows to DOE KPDES Outfall 019. The lagoon is not discharged until sample analysis indicates compliance with applicable KPDES requirements.

This BMP Plan hereby incorporates the policies, procedures, and BMPs established in the current revision of the SPCC for these tanks to prevent and mitigate releases from this facility. Refer to the SPCC document for additional information. This includes an annual inner tank integrity test performed by LATA Kentucky or its contractors. USEC provides emergency response services for these tanks.

2.4.9 Runoff Due to Disturbance of Historic Release/Spill Sites

Construction of PGDP was begun in 1951 and operation commenced in 1952. There have been a number of releases throughout the years of operation and the soil and groundwater within and around the vicinity of the plant has experienced varying degrees of contamination with radionuclides, PCBs, TCE, polycyclic aromatic hydrocarbons, and other industrial chemicals. The potential of release arises when remediation or other projects disturb the soil in areas and the contaminated soil is carried by precipitation runoff to storm sewers and/or KPDES outfalls. The outfall affected is dependent upon the location of the project.

Runoff BMPs. Various controls have been implemented to prevent pollutants from entering plant outfalls during rainfall events. Each project is required to provide the BMPs that will be utilized during the project to the LATA Kentucky Regulatory Compliance Group through the WPCP. The protective BMPs are evaluated on a project by project basis to assure protection of the environment during rainfall events. Appendix C provides examples of storm water controls that may be used to control run off from resulting in a spread of contamination.

2.4.10 Decontamination and Decommissioning Projects and other Projects Addressing Shutdown DOE Facilities

DOE facilities at PGDP that are no longer in service will be scheduled for decontamination and decommissioning (D&D) if they are radiologically or chemically contaminated. In addition, in some cases, other DOE facilities that are not contaminated also will be scheduled for shutdown and/or deconstruction. These projects will be accomplished through LATA Kentucky and subcontracts. Major facilities presently slated for D&D are C-410 and C-340. As D&D progresses or other facilities are shutdown, these facilities will be scheduled for D&D or deconstruction. The potential for release from D&D and associated activities is unique to each project. Furthermore, the KPDES outfall, which would be affected, also is dependent upon the location of the project.

D&D and Other Projects BMPs. Each D&D and other shutdown projects at PGDP are unique and effective BMPs should be established during the planning phase of the project; therefore, the LATA Kentucky ES&H function will review each project during the planning phase and through the WPCP to ensure that BMPs are included in the project requirements. For projects accomplished by a subcontractor, the LATA Kentucky will ensure that appropriate BMPs are included in the requirements of the subcontract for the project. For LATA Kentucky self-performed work, regulatory compliance will ensure that appropriate BMPs are included in the work packages for all self-performed work. Examples of storm water control BMPs are identified in Appendix C.

2.4.11 DOE Outfalls, Creeks, and Ditches

Although these DOE outfalls, creeks, and ditches are not "facilities," BMPs associated with them can help prevent environmental damages due to the release of hazardous materials. The potential for release through the outfalls is dependent upon activities and facilities throughout the plant and the frequency and volume of precipitation events.

DOE Outfalls, Creeks, and Ditches BMPs. Permitted DOE outfalls at PGDP include KPDES Outfalls 001, 015, 017, 019, and 020. DOE KPDES Outfalls 001 and 015 have inverted piped dams. Inverted pipe dams are engineered so that water is allowed to pass through the dam, but floating material, such as oil and debris, are contained. Outfall 019 is designed to discharge surface water runoff from the C-746-U Landfill during rainfall events, but BMP plans for the facility dictate holding the area runoff in a sedimentation pond until the pond is nearly full and the water meets KPDES discharge limits. At that time, the pond is pumped to Outfall 019. Outfall 020 discharges landfill leachate treated to meet KPDES discharge criteria. Treatment process precludes introduction of oils or other floating material. Outfall 017 is downstream of the confluence of the surface water runoff from the cylinder yards associated with the DUF_6 project and the detention basin discharge where the potential release of floating materials would not be a probable scenario. During DUF_6 operations, the nominal but continuous effluent will be noncontact cooling waters and would not be expected to release any floating materials.

The Outfall 019 ditch is used for the leachate treatment discharge. It is administratively controlled and sampled at the same location as Outfall 020.

All DOE outfalls are inspected on a regular basis. Outfalls 015 and 017 are inspected monthly during rainfall events. Outfalls 019 and 20 are inspected when discharging. Outfall 001 is inspected weekly, to determine if there is a potential for or visual sign of release of pollutants.

These inspections look for signs of a release, blockage of the discharge path, or any other unusual condition that could indicate the presence or potential presence of a BMP Pollutant.

2.4.12 SWMUs

When USEC assumed responsibility for the uranium enrichment enterprise in 1993, it leased a large portion of PGDP from DOE. In 1997, USEC deleased a number of areas and facilities back to DOE. These areas were termed DOE Material Storage Areas (DMSAs) and generally contained a variety of process-related material. The DMSAs no longer contain any materials that would be subject to the BMP Plan. In addition, a number of SWMUs have been identified at PGDP. These SWMUs are the responsibility of DOE and are addressed in the Specific Conditions section of DOE's KPDES permit requirement for this BMP Plan. BMPs associated with SWMUs are addressed in the Specific Conditions section of this BMP Plan, as required by the KPDES Permit. The potential for releases from SWMUs originates with the possibility historic waste or other material located in these areas. A potential exists for

leaks, such as lubricating or cooling liquids, from equipment or supplies utilized in the characterization and disposal of the materials located in the SWMUs.

SWMU BMPs. All work in SWMUs requires approval from regulatory compliance. For work by the DOE remediation contractor, approval is captured on the review of the work instructions and releases. For work performed by other groups at PGDP, approval is indicated on a shared site form, which is used to route work schedules and performance information between the parties at the site. Regulatory compliance reviews work requests to ensure BMPs based upon this plan and Appendix C are addressed if work has potential to disturb contaminants in a SWMU.

Several SWMUs at PGDP are located in areas without an outfall. These areas are grass covered and under normal conditions would not have discharges. During extreme rainfall events these areas may become saturated, which may allow storm water to flow over or through the SWMU increasing the potential for surface water discharge. If the soils covering the SWMU become saturated, the SWMUs will be checked for signs of erosion. Storm water runoff periodically will be visually inspected to look for signs of contamination (i.e., an oily sheen, cloudy or discolored water, etc.) and, if necessary, sampled.

2.4.13 C-616-E Chromium Sludge Lagoon

The lagoon is unlined and formerly received treated wastewater from the USEC Recirculating Cooling Water (RCW) Treatment Facility (C-616). The C-616 facility previously treated RCW, which contained hexavalent chromium (Cr^{+6}). Hexavalent chromium use as a corrosion inhibitor in RCW was discontinued in the early 1990s. In 1998, USEC deleased this facility back to DOE and rerouted the RCW to the C-616-F Lagoon, bypassing the C-616-E Sludge Lagoon. This lagoon contains sludge and water from the C-616 RCW Treatment Facility. The sludge and water contain trivalent chromium (Cr^{+3}) left from Cr^{+6} reduction/treatment at C-616. The potential for release from this facility comes with a degradation of the lagoon walls through erosion or damage. Releases from this lagoon would travel through DOE KPDES Outfall 001.

C-616-E Chromium Sludge Lagoon BMP. The heavy metals (Cr^{+3}) that constitute the major potential pollutant from this facility do not readily migrate to groundwater. Overflow from the lagoon discharges into the C-616-F lagoon which discharges to Outfall 001. This lagoon is inspected at least annually to ensure integrity of the structure of the lagoon.

2.4.14 C-616-F Phosphate Sludge Lagoon (USEC Leased)

Blowdown from each of the USEC cooling towers is routed to a common line and piped to C-616-F. The purpose of the facility is to reduce the phosphates concentration discharged from the RCW system. Phosphate treatment is accomplished by precipitation in a clarifier. The effluent from the clarifier is discharged to the C-616-F sludge lagoon. The lagoon has a 26,000,000-gal capacity and a retention time of approximately 60 days. The lagoon also receives effluents from the North-South Diversion Ditch.

C-616-F Phosphate Sludge Lagoon BMPs. The lagoon is inspected daily by USEC operations personnel. They look for any releases, blockage, or unusual conditions. The lagoon is sampled on a monthly basis for all KPDES parameters associated with Outfall 001. The results of that sampling effort are examined each month by LATA Kentucky to insure that discharges from the lagoon meet KPDES discharge criteria. Carbon dioxide is fed to the effluent of the lagoon to control pH as necessary to comply with KPDES permit limits.

2.4.15 Water Quality Monitoring Stations

Two abandoned facilities are located on the banks of Bayou Creek and Little Bayou Creek outside the PGDP security fence, downstream of all plant activity. Little Bayou Creek consisted of a small building with water quality monitoring equipment. The wall and roof of the Bayou Creek monitoring station have been removed leaving only the concrete floor. There were mercury-filled manometers in the facilities for water flow measurements. During high water flow, the mercury was forced from the manometers. The spilled mercury seeped through the cracks in the concrete floors of the facilities and into the soil underneath. The potential for release from these facilities comes from the infiltration of water into the contaminated soil under the concrete floors. Any further releases from these facilities would enter Bayou Creek and Little Bayou Creek directly. (These areas also are SWMUs. See the Specific Conditions Section of this BMP Plan for SWMU BMPs.)

Water Quality Monitoring Station BMPs. These facilities will be inspected at least annually to ensure the concrete floor cracks remain sealed to prevent water entry. The cracks in the floor of the facility were sealed to prevent further infiltration and to prevent entry of water that would facilitate transfer of the mercury from the soil under the concrete floors into the environment.

2.4.16 Contaminated Scrap Yards

The contaminated scrap yards were located in the northwest corner of PGDP and contained many types of contaminated scrap. The scrap was removed for disposal with only small residual pieces of metal left in the soils beneath the scrap metal piles. Removal of the scrap left unvegetated ground. Much of the scrap that was disturbed during the removal process was contaminated with radioactive components. The potential for contamination from these scrap yards is from runoff from precipitation events. Releases from these scrap yards would flow to DOE KPDES Outfall 001.

Contaminated Scrap Yard BMPs. Scrap yard BMPs are contained in the Interim Corrective Measures (ICM) Work Plan for Containment of Scrap Yard Sediment Runoff, DOE/OR/06-1114. Primary controls include silt fences, silt traps employed in the ditches draining the scrap yards, and the C-613 Sedimentation Lagoon that captures all of the runoff from the scrap yards and allows sedimentation and treatment, if necessary, of contaminants. The yard was vegetated following removal of the scrap materials. The ICM also includes documented inspections conducted monthly for the fences, traps, and sedimentation basin. It also included inspections after severe storms and when construction is conducted in the area. When silt levels approach a level where discharge of the solids may occur, cleanout will be evaluated.

2.4.17 PCB Waste Storage Areas

PCBs have been in use at PGDP for years, and there is a significant amount remaining at the plant. PCBs are still used in electrical equipment and are present in ventilation gaskets in the process buildings. There are six areas where PCB waste is stored at PGDP:

- C-746-B
- C-746-Q
- C-733
- C-752-A
- C-753-A
- C-337

Additionally temporary staging of PCB waste may be done in Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) storage areas near the SWMU or area of concern where PCB waste was removed based upon applicable or relevant and appropriate requirements.

PCB Waste Storage Area BMPs. PCB waste storage is diked per 40 *CFR* § 761.65(b) or protected from run-on/run-off per 40 *CFR* § 761.65(c). Regular inspections are performed and documented on PCB waste storage areas. Each storage facility is controlled by operating procedures. Stored PCB waste is protected from the weather, thus preventing runoff of PCB contaminants. Personnel assigned to work with PCB waste are required to complete PCB Awareness Training. The Toxic Substances Control Act (TSCA) Uranium Enrichment Federal Facilities Compliance Agreement of February 1992, modified in 1997, and subsequent concurrence agreements between DOE and EPA establish requirements pertaining to PCB/TSCA compliance.

2.4.18 DOE Laboratories

Investigation and remediation projects performed by DOE contractors occasionally include the use of laboratories for analysis of soils, water, effluents, etc. Some laboratories are permanently located on-site; others are temporary laboratories established by subcontractors in trailers. The laboratories generate hazardous and nonhazardous waste.

Laboratories BMPs. Laboratory sink drains are tied into the plant sanitary sewer systems where treatment of wastewater occurs at the C-615 Sewage Treatment Facility. Laboratory procedures prohibit hazardous wastewater from being released to the sink drains. Waste generated in the laboratories is containerized for proper disposal.

3. BMP PLAN SPECIFIC REQUIREMENTS AND GENERAL CONDITIONS

Part V (5) of KPDES Permit 00004049 establishes specific BMPs for the DOE BMP Plan at PGDP. The following BMPs establish the implementation of those requirements. This BMP Plan was developed to be consistent with the general guidance in EPA document EPA 833-B-93-004, "Guidance Manual for Developing Best Management Practices."

3.1 BMP COMMITTEE

The PGDP BMP committee is chaired by the regulatory compliance manager. Its members can include personnel from LATA Kentucky D&D projects, and waste projects. Other members may include subcontractors responsible for environmental compliance activities. The membership is not static and may include temporary members based on initiation, shutdown, or completion of DOE projects at PGDP that potentially could impact on water quality. USEC, BWCS, and DOE participate in the BMP committee, as necessary. The BMP Committee shall meet periodically as deemed necessary by new projects or the BMP chairperson. Minutes of the meeting shall be documented as evidence.

Major responsibilities of the BMP Committee include the following:

- Development and approval of the BMP Plan
- Review and revision of the BMP Plan as necessary
- Determination of BMPs for DOE projects at PGDP
- Reduce pollutant discharges (improve water discharge quality)
- Review changes to KPDES discharges

3.2 REPORTING OF BMP INCIDENTS

As established in GET, it is the responsibility of every person on-site to report the spill or release of any oil or suspected pollutant to the PSS. This is established in the plant "See and Flee" policy that requires employees to ensure their personal safety if any release or danger is seen, and then report the incident to the PSS. The PSS is a USEC employee who serves as the plant emergency director (PED), the OSHA on-scene commander, and as the incident commander or fire ground commander by the National Fire Protection Association. Reportable spills are those that enter or have the potential to enter the environment and/or are above the reportable quantity under Comprehensive Environmental Response, CERCLA. In the event of a reportable spill, USEC, DOE, LATA Kentucky, appropriate subcontractor personnel, the Kentucky Department for Environmental Protection, and other agencies will be notified. DOE Order 232.1A, *Occurrence Reporting and Processing of Operations Information* also requires system for notification, investigation, and reporting of unusual occurrences, such as BMP incidents. LATA Kentucky procedures (e.g., PAD-REG-0003) also implement requirements for employees to report release of hazardous substances as required by CERCLA.

3.3 RISK IDENTIFICATION AND ASSESSMENT

Effluent discharges from PGDP generally are well defined, with little change to the operations of plant since the mid-1990s. Changes to effluent discharges are from specific work scopes that result from site

clean-up and/or maintenance activities. These activities are administered through the WPCP, discharge approval process, and/or PGDP shared site process.

Work instructions/procedures are reviewed for the potential for the scope to cause a release of BMP pollutants. If a potential exists, appropriate controls from this plan are incorporated into the work instruction.

New or periodic discharges are approved on a case-by-case process using available analytical data and process knowledge to ensure compliance with in stream water quality criteria under 401 *KAR* 10:031. This approval obtained in accordance with contractor procedures.

The PGDP shared site process is used to coordinate activities among various groups and contractors. Work is evaluated to determine the potential to affect the discharges from each of the plant outfalls.

Weekly, monthly, and quarterly sampling of outfalls provides a verification of the effectiveness of this BMP. Additionally, LATA Kentucky performs periodic assessment of work controls and projects to ensure BMPs are being implemented and remain effective. If issues are identified, LATA Kentucky will implement additional BMPs necessary to prevent/minimize impacts to the environment.

3.4 EMPLOYEE TRAINING

GET is conducted for any employee (USEC, DOE, LATA Kentucky, or subcontractor) who works inside the DOE security fence on a regular basis. Included in this training are instructions to report any spill or release to the USEC PSS, who serves as the PED during such occurrences. GET includes training relating to hazard communication, which establishes employee requirements for handling hazardous materials. GET also provides basic information to employees on BMP requirements (e.g., sediment controls, leaks, drips control, and housekeeping). Additional training is required for employees and their supervisors who work with hazardous (RCRA) waste. Employees who operate mobile industrial equipment are trained in accordance with OSHA requirements.

3.5 INSPECTIONS AND RECORDS

Inspections of areas with a potential for BMP release are conducted under various programs. For example, hazardous waste storage area inspections are conducted in accordance with regulatory and permit requirements. Emergency response equipment used in response to RCRA emergencies is required to be inspected regularly. Each DOE facility is inspected by LATA Kentucky personnel monthly. Results of the inspection are recorded on a walkthrough checklist. Mobile industrial equipment trucks are inspected on a regular basis to help prevent releases of fuels and lubricating fluids. Inspection checklists are maintained at the facility/location for at least three years.

3.6 PREVENTIVE MAINTENANCE

DOE, SST, and LATA Kentucky have a small amount of equipment associated with site remediation, waste handling, and maintenance that requires a preventive maintenance program. Requirements also exist for a preventive maintenance program in contract requirements between the LATA Kentucky and subcontractors. Each subcontractor is contractually responsible for implementing a preventive maintenance program, if applicable, to reduce the potential for release of pollutants.

3.7 GOOD HOUSEKEEPING

Good housekeeping practices are essential for the maintenance of a clean and orderly working environment. The potential for reducing accidents and spills is greatly reduced by a clean and orderly work area for employees that ultimately reduce safety hazards and potential release of BMP pollutants. Good housekeeping practices include prompt response and cleanup of spills, leaks, and drips, and proper storage of drums, containers, and bags. Good housekeeping implementation for DOE facilities is included in LATA Kentucky procedures. Additionally, the walkthrough checklist used in the monthly inspection of DOE facilities contains criteria for good housekeeping. Compliance surveillances are conducted on a nonroutine basis and, as a part of that surveillance, housekeeping is reviewed. GET instructs all personnel to be aware of housekeeping and actively participate in good housekeeping measures.

3.8 MATERIALS COMPATIBILITY

Procedures implementing requirements for long-term and temporary storage of hazardous waste require that waste be compatible with the container and the surrounding containers. To prevent mixing of incompatible materials, procedures also implement labeling requirements of containers that contain hazardous materials or hazardous waste. Procedures also address proper packaging of hazardous materials for transport. RCRA regulations establish specific prohibitions for mixing of incompatible waste. These prohibitions are implemented in the DOE RCRA Permit. The compatibility of waste is to be determined using EPA-600/2-80-076, "A Method for Determining the Compatibility of Hazardous Wastes." If a spill of hazardous waste occurs, the Contingency Plan for Hazardous Waste at PGDP requires the USEC PSS to ensure that no other waste is introduced into the spill area until cleanup procedures are completed.

3.9 SECURITY

The production and most of the support facilities at PGDP are within the Controlled Access Area (CAA). The CAA is bounded by an 8-ft high, chain link security fence with three strands of barbed wire along the top of the fence. The public is excluded from the CAA except for special occurrences such as tours, media events, etc. This exclusion limits the possibility of accidental or malicious incidents due to public interactions with environmentally significant materials in the CAA. Entry into the CAA is allowed only to authorized personnel through entry portals located at various locations around the security fence and inside buildings. Employees, contractors, subcontractors, and visitors are required to display identification badges and go through various security screening measures when entering the CAA through the portals.

DOE is responsible for facilities with a potential to release BMP pollutants both inside and outside the CAA at PGDP. For example, the NWPGS is located at the C-612 complex just outside the CAA, on the northwest corner of the fenced area.

Security is maintained at PGDP by a staff of trained USEC personnel. Security police officers perform regular inspections of the DOE Reservation, both inside and outside the CAA. Security police officers are equipped with two-way radios and have direct communications with PGDP emergency response personnel at all times.

In summary, the presence of security restrictions at PGDP reduces the possibility of release of BMP pollutants and the regular inspections performed by security police officers enhances the ability to detect and respond to incidents that may occur.

3.10 MATERIALS INVENTORY

DOE BMP pollutant materials at PGDP are stored either as a usable product, such as fuel oil, or waste. Hazardous waste is stored in permitted areas in accordance with regulatory requirements and the RCRA permit. Hazardous and Mixed waste is stored in the following areas:

- C-733
- C-746-Q
- C-752-A
- C-746-H3 90-Day Accumulation Area
- Other temporary 90-Day Accumulation Areas
- Satellite Accumulation Areas

In accordance with the RCRA permit, when waste is received at a permitted storage area, the waste type, date to storage, and amount is entered into a logsheet and a computer file. When waste is removed from the permitted storage areas, this is also noted in a logsheet and computer file; therefore, the waste inventory at permitted hazardous waste storage areas is maintained and available.

DOE also submits an annual Superfund Amendment and Reauthorization Act 312 report, as required by EPA regulations. This report outlines the hazardous materials, as defined in applicable regulations, which are present under DOE purview at PGDP above certain thresholds.

Fuel storage tanks are inventoried on a regular basis.

3.11 SPCC PLANS

USEC, DOE, and contractors/subcontractors are responsible for spill prevention, control, and countermeasures at PGDP; however, USEC provides the personnel who serve as responders to emergencies on the DOE Reservation. DOE and its contractors generally supply USEC with spill control information pertaining to DOE and subcontractor facilities, and USEC develops and implements a SPCC Plan (required under 40 *CFR* § 112) and a Facility Response Plan based on that information, as well as spill control for USEC facilities. USEC personnel respond to DOE emergencies as outlined in the Master Service Agreement between USEC and DOE and applicable LATA Kentucky work authorizations. Due to this emergency response agreement, DOE adopts the USEC SPCC and the provisions contained therein.

SPCC plans are required to be reviewed and evaluated at least every five years or when otherwise necessary due to permit revisions, changes in construction, operation, etc., at the facility. When DOE conditions change, such as the addition of new fuel storage tanks, DOE may inform USEC of the changes for inclusion in a revised USEC SPCC, or DOE may develop a separate SPCC to address the new facility.

This BMP Plan incorporates by reference all the spill control countermeasures and contingencies in the LATA Kentucky SPCC, PAD-REG-1005, and USEC SPCC Plan, KY/B-249.

3.12 HAZARDOUS WASTE MANAGEMENT

DOE and it contractors operate hazardous waste management facilities at PGDP under Permit No. EPA ID No. KY8-890-008-982. DOE/LATA Kentucky has developed a RCRA Contingency Plan for responding to hazardous waste spills, releases, leaks, and emergencies in the permitted storage areas.

USEC provides the emergency response personnel and equipment to implement the Contingency Plan and supplies hazmat and spill response.

All hazardous waste in permitted storage is stored under roof secondary containment to prevent run-on or run-off if a spill were to occur.

3.13 DOCUMENTATION

This BMP shall be maintained at the LATA Kentucky offices. A copy will be forwarded to USEC, BWCS, and DOE at PGDP. This BMP Plan will be available to representatives of the KDOW upon request. Copies will also be submitted within 30 days of revisions or modifications to the KDOW and the Kentucky Energy and Environment Cabinet (KEEC) in accordance with the KPDES permit.

3.14 BMP PLAN MODIFICATION

This BMP Plan shall be amended or modified whenever there is a change in the facility or change in the operation of the facility that materially increases the potential for the ancillary activities to result in the release of BMP pollutants. Modification of the plan will be evaluated and determined by the BMP Committee.

3.15 MODIFICATION FOR INEFFECTIVENESS

The goal of this BMP Plan is to prevent the release of pollutants. If this plan proves to be ineffective in its goal, the plan shall be revised to include new or revised BMPs. Effectiveness shall be determined by periodic audits and/or surveillances to determine if BMP pollutants are being released. These audits/surveillances shall determine documentation of administrative compliance with requirements established in the plan. This BMP Plan will be revised if found to be inadequate pursuant to a state or federal site inspection or plan review. The revision will incorporate changes necessary to resolve the inadequacies identified in the inspection or review.

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4. SPECIFIC CONDITIONS

4.1 SWMUS

DOE and its contractors are actively involved in cleanups of a number of SWMUs at PGDP. These cleanups are being accomplished in accordance with the Hazardous Waste Facility Permit and PGDP Federal Facility Agreement (FFA), DOE/OR/07-1707. The FFA requires that DOE submit to the KEEC information regarding investigation and remediation of the SWMUs. This information is contained in (1) Remedial Investigation/Feasibility Study Work Plans for investigations of SWMUs and (2) Removal Action Work Plans and Remedial Action Work Plans for cleanup/remediation of the SWMUs. These work plans are submitted to KEEC for approval prior to the investigations, removals, or remediations.

These work plans contain the scope of the project and provisions (i.e., project-specific BMPs, in which DOE outlines measures to be taken during the investigation, removal, or remediation to prevent further migration of the SWMU pollutants and subsequent environmental degradation). The submittal of these work plans shall fulfill DOE's obligation to "address as separate sections under the BMP Plan the scope of the activity and the steps taken to prevent further migration of the pollutants to the local watersheds and subsequent degradation," as required under Sect. B of BMP Plan requirement of KPDES Permit 00004049.

Section 4 of the PGDP FFA, "RCRA, CERCLA, and KPDES Coordination," commits the regulatory agencies involved in the SWMU investigation/cleanup to ensure that information such as the work plans pertaining to the SWMU investigation and remediation is shared among the regulatory agencies.

4.2 PERIODICALLY DISCHARGED WASTEWATERS NOT SPECIFICALLY COVERED BY EFFLUENT CONDITIONS

DOE and its contractors perform certain activities, such as testing fire water systems, calibration of meters, and hydrostatic testing of containers, that produce wastewater. In addition, DOE and its contractors generate wastewater when pipes break or spills of collected wastewaters are picked up for analysis and discharge. Any suspect contaminated wastewater produced as a result of remediation or investigation activities is sampled for appropriate contaminants, treated, and analyzed again if necessary to ensure pollutant concentrations are within the KPDES Permit limitations. If necessary suspended solids are settled in the C-613 lagoon before the wastewater is introduced into the DOE KPDES Outfall 001.

Other sources of waste water that may be discharged into the C-613 Lagoon following characterization (and treatment, if necessary) include, but are not limited to, the following:

- Monitoring well purge water from routine sampling
- Groundwater sampling equipment decontamination water
- Drilling rig decontamination water
- Well development water from well rehabilitation activities
- Water decanted from stored waste
- Rainwater that collects in secondary containments
- Treated wastewater in which suspended solids remain to be treated

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APPENDIX A

MAP OF LEASED AREAS AT PGDP

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APPENDIX A

MAP OF LEASED AREAS AT PGDP (CD)

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APPENDIX B

MAP OF OUTFALL DRAINAGE AREAS

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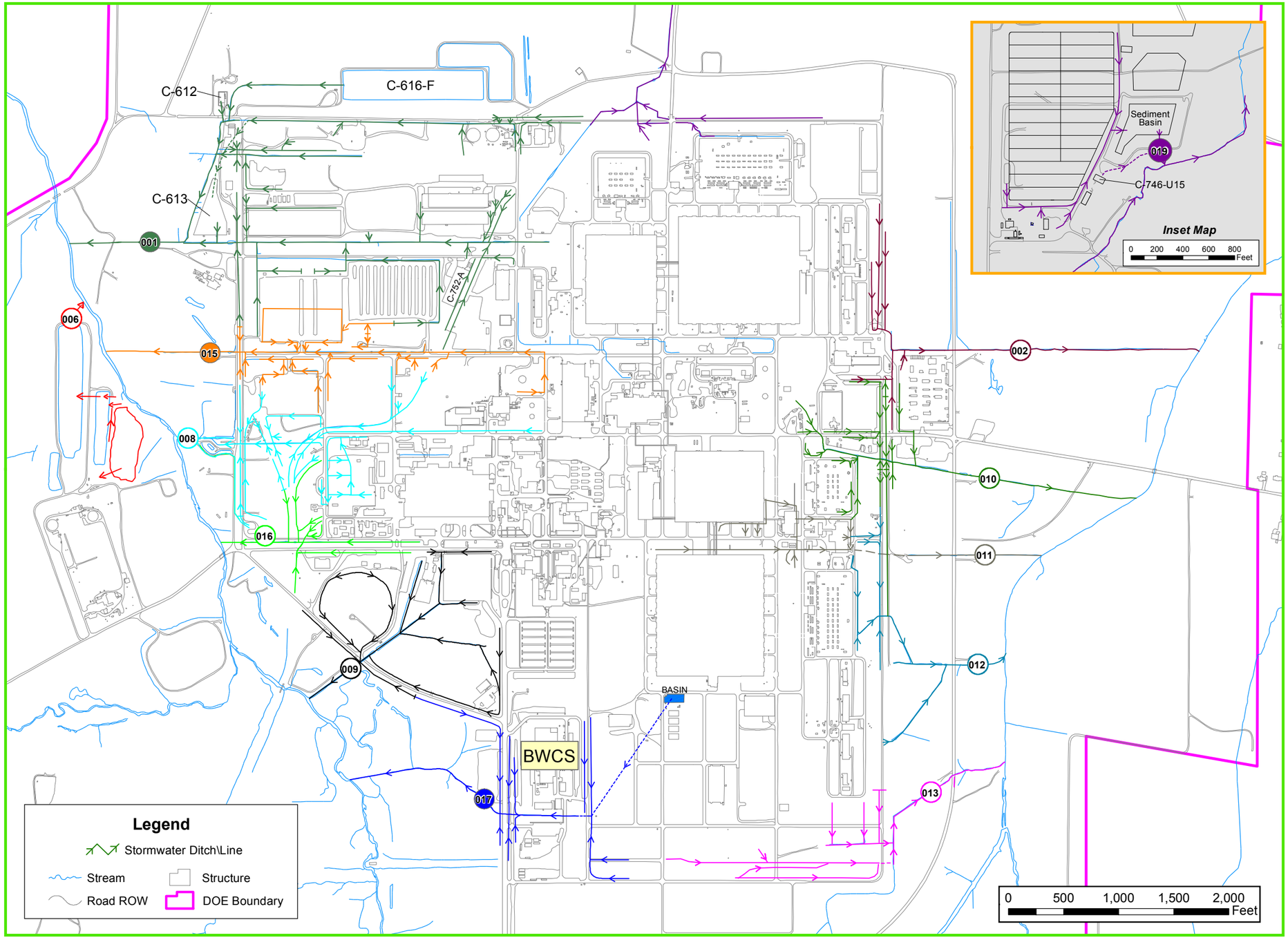
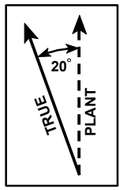


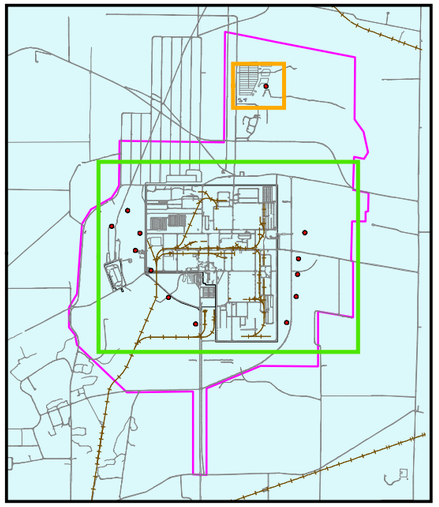
Kentucky Pollutant Discharge Elimination System (KPDES)

Dept. of Energy
- 001, 015, 019, 020* - LATA
- 017 - BWCS

United States Enrichment Corp.
- 002, 006, 008, 009, 010 011, 012, 013, 016



* Note: KPDES 019 & 020 are in the same location.



U.S. DEPARTMENT OF ENERGY
DOE PORTSMOUTH/PADUCAH PROJECT OFFICE
PADUCAH GASEOUS DIFFUSION PLANT

LATA Environmental Services of Kentucky, LLC

PGDP Stormwater Flow

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APPENDIX C

EXAMPLES OF STORM WATER CONTROLS USED AT PGDP

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C. EXAMPLES OF STORM WATER CONTROLS USED AT PGDP

This Appendix provides examples of best management controls that are incorporated on a case-by case basis into work control documents/instructions through the LATA Kentucky Work Planning and Control Program (WPCP) for projects with a potential to disturb contaminated soils. This information is utilized as guidance in establishing such controls for individual projects during initial work planning. Controls that deviate from these guidelines may be established, as appropriate, for a project at the discretion of LATA Kentucky regulatory compliance group.

C.1 EROSION AND SEDIMENT CONTROL MEASURES

Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to the project drawings and specifications. The following specific measures are identified for each project during initial work control planning sessions. The project scope is defined and the necessary storm water controls are evaluated and prescribed by LATA Kentucky regulatory compliance. Once work on each project begins, the effectiveness of the prescribed controls are evaluated and modified as necessary to control the release of BMP pollutants.

C.2 STRUCTURAL PRACTICES

C.2.1 Silt Fences

Silt fences are installed to intercept and detain sediment from the disturbed areas during demolition and construction operations in order to prevent sediment from leaving the site or entering storm drains. Silt fences are installed at the toe of all exterior slopes, before clearing and grubbing. Silt fences are placed around soil stockpiles until sufficient vegetation can be established to prevent erosion. The drainage area served by a silt fence shall not exceed 1/4 acre per 100 ft of silt fence. The maximum length of slope behind the silt fence shall not exceed 100 ft for slopes of 50% (2:1) or less.

C.2.2 Straw Bale Barriers

Straw bale barriers (staked) are installed in temporary or permanent grass lined swales or ditch lines where the maximum contributing drainage area is no greater than 2 acres. The bales are installed at intervals such that the top of one barrier is at the approximate same elevation as the bottom of the adjacent upstream barrier. Straw bale barriers trap suspended sediment in ditches while decreasing ditch velocities. The staked bales are replaced and sediments removed when the bales are no longer functional.

C.2.3 Riprap Check Dams

Riprap check dams are installed in grass lined swales or ditches where the maximum contributing drainage area is no greater than 10 acres. Riprap check dams are spaced so that the top of one check dam will be at the same approximate elevation as the bottom of the adjacent up stream check dam. Trapped sediments are removed from behind riprap check dams when the sediment level reaches one-half the height of the structure. Riprap check dams are removed when the project area is stabilized and the drainage channel has an established armor of grass.

C.2.4 Sediment Basins

Sediment Basins are used for projects that will expose more than 10 acres of soils. Sediment basins are used in addition to the control mechanisms listed above. The sediment basins may be used for holdup capacity for chemical treatment as necessary (e.g., flocculation or pH adjustment).

C.2.5 Riprap Ditches

All ditches with design velocity exceeding 3 ft per second are lined with riprap in order to control velocities and thus erosion.

C.2.6 Grass Lined Ditches

All ditches with design velocity of 3 ft per second or less will be grassed as soon as feasible.

C.2.7 Stabilized Roadways

Site and Access roadways are stabilized with aggregate and filter fabric or paved with asphaltic concrete to prevent erosion from roadbeds.

C.2.8 Discharge Control

When discharges are controllable such as when fire water is used to practice fire fighting or when contained water is released, the flow is controlled and the discharge location is controlled to prevent erosion or the spread of contamination to surface waters.

C.3 VEGETATIVE PRACTICES

To the extent feasible, appropriate cover is applied within 14 days on areas that are scheduled to remain as bare soil for more than 21 calendar days.

C.3.1 Topsoil Stockpiling

Any required topsoil stockpiling is protected by temporary seeding and mulching when the stockpile will not be redisturbed for 21 days or more.

C.3.2 Temporary Seeding

Topsoil stockpiles and any areas to be rough-graded during the initial phase of construction will be seeded with temporary vegetation. The appropriate seed mixture is specified in the construction documents.

C.3.3 Permanent Seeding

As soon as possible following finished grading, permanent seeding is applied. All surfaces disturbed by construction and not replaced with aggregate, pavement, or other structures are sown with an appropriate grass to ensure a good growth of grass in a timely manner.

C.4 MANAGEMENT STRATEGIES

Construction traffic is limited to access roads, demolition areas, areas to be graded, and areas designated by the Facilities Manager. Off-site vehicle tracking of sediments and the generation of dust is minimized. Clearing and earthwork is held to the minimum necessary for grading and equipment operation.

Construction is sequenced so that grading operations can begin and end as soon as possible after demolition operations.

Silt fences and other erosion and sediment control devices are installed as a first step in demolition and grading and maintained throughout the construction period. New vegetative areas are seeded and mulched immediately following completion of grading. Temporary measures may be removed at the beginning of the work day, but must be replaced at the end of the work day.

Areas which are not to be disturbed are clearly marked by flags, signs, etc.

All control measures are checked and repaired as necessary in accordance with the maintenance and inspection requirements described in Section C.8.

Accumulated silt deposits are removed as necessary to maintain the function and condition of all erosion control structures. Areas eroded during construction are promptly repaired as necessary.

Areas that are scheduled to remain unfinished for 21 days or more are vegetated.

When practicable, topsoil stockpiles are covered with plastic, if temporary seeding is not required.

All pumping of accumulated water as may be required from graded areas is in accordance with the applicable, "Paducah Site Procedure for Discharge of Accumulated Water for Paducah Gaseous Diffusion Plant Site."

C.5 STORM WATER DISCHARGE QUALITY

Storm water releases to permitted outfalls from the project site must meet the effluent limitations and monitoring requirements of the KPDES Permit.

Muddy water to be pumped from excavation and work areas is treated by filtration or sedimentation prior to its discharge into surface waters.

There shall be no distinctly visible floating scum, oil, or other matter contained in the storm water discharge.

The storm water discharge must not cause a distinctly visible color contrast in the receiving stream.

The storm water discharge must not contain materials in concentrations sufficient to be hazardous or detrimental to humans, livestock, wildlife, plant life, or fish and aquatic life in the receiving stream.

If the "Discharge Quality," as discussed above, is not obtained, the storm water controls are modified to meet the standard.

C.6 PERMANENT STABILIZATION

All areas disturbed by demolition and construction are stabilized with permanent seeding following finished grading. Seeding is done in accordance with the requirements of the project construction specifications.

C.7 STORM WATER MANAGEMENT

Sediment basins, diversion ditches, silt fencing, and straw bales are installed as shown on the construction drawings and noted in storm water control plans utilized during construction operations to control erosion and the transport of sediment.

Rainfall run-on is directed away from sites where bare soils exist. Diversion ditches direct on-site rainfall runoff into the sediment basins and drainage ditches. Ditch slopes exceeding 3% will be lined with riprap to control sediment scour. Ditch slopes equal to 3% and less are seeded with grass.

To control migration of silt from fill areas, silt fencing is installed at the toe of exterior slopes. Areas disturbed by construction and not surfaced with aggregate, pavement, or other structures are sown with grass as soon as possible to establish vegetation for erosion control.

C.8 MAINTENANCE AND INSPECTION

In general, all erosion and sediment control measures are checked and repaired, as necessary, weekly during dry periods and within 24 hours after any rainfall of 0.5 inches or more during a 24-hour period. During prolonged rainfall, all control devices are checked daily and repaired as necessary. The project manager maintains records of checks and repairs. Projects with a total disturbance area less than 5 acres would be exempt from checks other than during normal plant working hours. The following items will be checked in particular.

- The straw bale barriers are checked monthly for undermining or deterioration of the bales.
- All seeded areas are inspected regularly for bare spots, washouts, and to see that a good stand of healthy growth is maintained. Areas shall be fertilized and reseeded as needed.
- Built up sediments are removed from the silt fence when it reaches one-half the height of the fence.
- Silt fences are inspected for depth of sediment, and tears to ensure that the fabric is securely attached to the posts, and to ensure that the posts are firmly in the ground.
- The sediment basins are inspected regularly and after every major storm event. Necessary repairs are made to ensure the working order of the basin for example any installed baffles are checked for placement and checked to make sure they are working properly. The embankment is checked regularly to make sure it is structurally sound and that wildlife has not impacted the embankment.
- If during an inspection it is noted that sediment control structure may have failed resulting in a potential migration of contaminants, contact regulatory compliance and complete checklist.

ATTACHMENT C.1

BMP SEDIMENT CONTROL CHECKLIST

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BMP SEDIMENT CONTROL CHECKLIST

- **Location of control:**
- **Type of control:** ☐ silt fence ☐ straw bale
- **Are there added controls; if so, what?**
- **Size/name of project:**
- **Facility owner:**
- **Outfall receiving discharge:**
- **Date of potential release:**
- **Type/size of event resulting in control failure:**
- **Person notifying Regulatory Compliance:**

Regulatory Compliance

- **Inspection date:**
- **Potential contaminants released:**
- **SWMU/site reference:**
- **Potential contaminants released off-site:**
- **Reportable incident?**

  — **If yes, when reported:**
  — **If yes, to whom reported:**

- **Name of Regulatory Compliance Representative:**

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