



DUF6-PLN-079

REV. 2

ISSUING ORGANIZATION:

ES&H

EFFECTIVE DATE: 10/07/20

REQUIRED REVIEW DATE:

10/07/23

PAGE 1 OF 26



PADUCAH STORM WATER POLLUTION PREVENTION AND BEST MANAGEMENT PRACTICES PLAN

Prepared by: ES&H

Approved by: See DUF6 Form 4320

Scott Nicholson, ESH & QA Manager

APPROVAL PAGE

Listed below are personnel responsible for the preparation, review, and approval of this plan. Signatures for each have been provided on DUF₆ Form 4320, *Document Review & Approval Form*.

LEAD PREPARER

Sheila Goines, Procedure Writer

TECHNICAL REVIEWERS

Stephen Skeens, Environmental Program Manager

APPROVERS:

James W. Barker, Paducah Plant Manager

Joe Johnson, Paducah ES&H Manager

Wally DeLand, Logistics and WM&T Manager

Vance Allbritten, Paducah Conversion Operations
Manager

Dwain Richards, Paducah Maintenance Manager

Steve Shults, ES&H/ Emergency Management Specialist

Scott Nicholson, ESH & QA Manager

REVISION LOG			
Revision	Effective Date	Description of Change	Pages Affected
0	04/17/17	Global Changes from BWCS to MCS. Formatted to current plan template. Incorporated requirements of EPA Multisector Storm water General Permit	All
1	11/22/17	Deleted Disclaimer at request of RMDC. Minor revision to clarify details. Revised DUF6 Form 9171	All
2	10/07/20	Minor revision to personnel and responsibilities Revised DUF6 Form 9171 Formatted to current plan template	All

TABLE OF CONTENTS

ACRONYMS	5
EXECUTIVE SUMMARY	6
1 PURPOSE (USE THE STYLE "HEADING 1"	7
2 SCOPE	8
3 FACILITY DESCRIPTION AND CONTACT INFORMATION	8
3.1 FACILITY INFORMATION.....	8
3.2 CONTACT INFORMATION/RESPONSIBLE PARTIES	9
3.3 SITE MAP	9
4 IDENTIFICATION OF POTENTIAL POLLUTANTS.....	11
4.1 INDUSTRIAL ACTIVITY AND ASSOCIATED POLLUTANTS	11
4.2 SPILLS AND LEAKS	12
4.3 NON-STORM WATER DISCHARGES DOCUMENTATION	17
5 STORM WATER CONTROLS.....	17
5.1 SOURCE CONTROLS	17
5.2 OPERATIONAL CONTROLS	17
5.3 ENGINEERED CONTROLS.....	18
6 BMP PLAN SPECIFIC REQUIREMENTS	18
6.1 BMP COMMITTEE.....	18
6.2 REPORTING OF BMP INCIDENTS.....	19
6.3 EMPLOYEE TRAINING	20
6.4 INSPECTIONS AND RECORDS.....	21
6.5 PREVENTATIVE MAINTENANCE / GOOD HOUSEKEEPING	22
6.6 MATERIALS COMPATIBILITY	22
6.7 SECURITY.....	22
6.8 MATERIALS INVENTORY	22
6.9 HAZARDOUS WASTE	23
7 SWPPP CERTIFICATION	23
8 PLAN MODIFICATION	23
9 PERIODICALLY DISCHARGED WASTEWATERS NOT SPECIFICALLY COVERED BY EFFLUENT CONDITIONS	23
10 ATTACHMENTS	24
Attachment A, DUF6 CONVERSION FACILITY SITE AND ASSOCIATED CYLINDER YARDS	25
ATTACHMENT B, REFERENCES	26

ACRONYMS

BMP	Best Management Practices
CBT	Computer Based Training
CR	Condition Reporting
CSY	Cylinder Storage Yard
DOE	U.S. Department of Energy
DUF6	Depleted Uranium Hexafluoride
EPA	Environmental Protection Agency
ES&H	Environment, Safety & Health
ETS	Effluent Treatment System
DKEP	Kentucky Department of Environmental Protection
KDOW	Kentucky Division of Water
KPDES	Kentucky Pollutant Discharge Elimination System
KOH	Potassium hydroxide
MCS	Mid-America Conversion Services, LLC
MSGP	Multi-Sector General Permit
NAICS	North American Industry Classification System
NPDES	National Pollutant Discharge Elimination System
NRC	National Response Center
PCBs	Polychlorinated biphenyls
PGDP	Paducah Gaseous Diffusion Plant
PPAs	Property Protection Areas
SDS	Safety Data Sheet
SWPPP	Storm Water Pollution Prevention Plan
WM&T	Waste Management and Transportation
WGS	World Geodetic System

EXECUTIVE SUMMARY

This Storm Water Pollution Prevention Plan (SWPPP) and Best Management Practices (BMP) Plan is required with the U.S. Department of Energy's (DOE's) Kentucky Pollutant Discharge Elimination System (KPDES) Permit KY0004049 wherein Mid-America Conversion Services, LLC's (MCS) is a named co-permittee for Outfall 017 only. It describes the facility and its operations, in context of potential sources of storm water pollution and recommends appropriate BMPs to reduce the discharge of pollutants in storm water runoff. Storm water runoff is water from rain or snowmelt that does not immediately infiltrate into the ground and flows over or through natural or man-made storage or conveyance systems.

The DUF₆ Conversion Facility (the Site) and associated C-745 Cylinder Storage Yards (CSY) is approximately 24 acres out of 40 acres that MCS manages for DOE (i.e., 16 acres are undisturbed). For the most part the site is flat and pronounced catch basins with storm sewers dominate the topographic pattern and direct water to the detention pond on the western edge of the Site via these drains and underground conduits.

The primary pollutants that have the potential to be present in storm water runoff at the Site and its associated CSY are oil, grease, chlorine, polychlorinated biphenyls (PCBs), suspended solids, and zinc. PCBs and/or zinc are present in the paint of a known lot of cylinders.

Material handling activities include delivery of potassium hydroxide (KOH) solution to the KOH building and mobile fueling of heavy equipment. Hydrogen fluoride transfer from storage tanks to railcars and tanker trucks also occurs.

Storm water control BMPs at the Site and associated CSY consist of source controls, operational controls, and engineered controls. Source controls consist of minimizing exposure to rain, snow, snowmelt and runoff, good housekeeping, among others. Operational controls consist of those continuing activities to prevent, mitigate, or treat storm water contamination. An example of an engineering control is the passive inline storm water treatment system (zinc vault) adjacent to the S-yard that removes metals, including zinc, from surface runoff.

The BMP Coordinator is the Paducah Environment, Safety, and Health (ES&H) Manager, who implements this BMP Plan. Copies of the BMP shall be available for review by the Kentucky Division of Water (KDOW). Revisions will be made whenever there is a change in the facility or change in the operation of the facility which increases the potential for pollutants to be discharged to the waters of the Commonwealth.

1 PURPOSE (USE THE STYLE "HEADING 1")

This plan covers operations at DUF₆ Conversion Facility and associated DUF₆ CSY. It has been developed to comply with the DOE's KPDES permit wherein MCS is a named co-permittee for Outfall 017 only.

This BMP describes the facility and its operations, identifies potential sources of storm water pollution, and recommends appropriate BMPs to reduce the discharge of pollutants in storm water runoff, and to ensure that effluent limitations listed for Outfall 017 in the KPDES Permit are met. Part V of KPDES Permit KY0004049, Section A (5) states the minimum subject matter of a BMP is as follows:

- BMP Committee
- Reporting of BMP Incidents
- Risk Identification and Assessment –covered in Sections 2 through 6.
- Employee Training
- Inspections and Records
- Preventative Maintenance/Good Housekeeping
- Materials Compatibility
- Security
- Materials Inventory
- Hazardous Waste

A separate BMP Plan has been developed for the remaining outfalls covered by the KPDES permit.

With the exception of Risk Identification and Assessment, Section 6 of this BMP is aligned to the above content. The United States Environmental Protection Agency's (EPA) 2008 National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activity, was consulted to ensure other important elements are addressed. It also follows similar guidance in US EPA's "Developing Your Storm water Pollution Prevention Plan: A Guide for Industrial Operators."

2 SCOPE

Storm water runoff is water from rain or snowmelt that does not immediately infiltrate into the ground and flows over or through natural or man-made storage or conveyance systems. Environmental Protection Agency (EPA) has identified six general types of activities at industrial facilities that have the potential to be major sources of pollutants in storm water: loading and unloading operations, outdoor storage, outdoor process activities, dust or particulate generating processes, illicit connections and non-storm water discharges, and waste management practices.

Implementation of this BMP plan will provide MCS with the tools to reduce pollutants contained in both storm and non-storm water discharges (runoff) through:

- Identifying the sources of storm water and non-storm water discharges and their potential contaminants.
- Identifying and prescribing appropriate source area control BMPs to prevent storm water contamination from occurring.
- Identifying and prescribing engineered storm water (i.e., in-line zinc treatment system) and non-storm water (i.e., ETS) controls to reduce pollutants prior to discharge.

Identifying procedures for conducting required inspection/monitoring activities, as well as regular maintenance of control measures.

3 FACILITY DESCRIPTION AND CONTACT INFORMATION

3.1 FACILITY INFORMATION

The Depleted Uranium Hexafluoride (DUF₆) facility is located within the US. Department of Energy's (DOE) Paducah Gaseous Diffusion Plant. It is located at 5509 Hobbs Road, Kevil KY 42053, in McCracken County.

The latitude is 37.106338 degrees, and the longitude is -88.815864 degrees for the center of the facility, according to the World Geodetic System (WGS) of 1984.

The plant engages in Other Basic Inorganic Chemical Manufacturing North American Industry Classification System (NAICS) code 32518. The primary SIC sector code is 32 (manufacturing), subsector 5 (chemical manufacturing).

The facility does not directly discharge to a municipal storm water facility. Outfall 001 discharges at mile point 7.1 of Bayou Creek. Per KPDES Permit KY0004049, reporting requirements exist for Outfall 017 and the pollutants identified are:

Flow	Total alpha
Temperature	Total beta
Total Suspended solids	Uranium
Oil and grease	Technitium-99
PCBs	Hardness (as CaCO ₃)
Total recoverable Zinc	Benzo(a)anthracene
Chronic toxicity	Heptachlor

3.2 CONTACT INFORMATION/RESPONSIBLE PARTIES

Facility Operator (s):

Name: Mid-America Conversion Services, LLC
 Address: 1020 Monarch Street, Suite 300,
 City, State, Zip Code: Lexington, Kentucky 40513
 Contact: Stephen Skeens, Environmental Program Manager
 Telephone Number: (740)289-5602
 Email address: Stephen.Skeens@duf6.pppo.gov

Facility Owner (s):

Name: US Department of Energy
 Address: 1017 Majestic Drive, Suite 200
 City, State, Zip Code: Lexington, Kentucky 40513
 Telephone Number: (859) 219-4000

SWPPP Contact:

Name: Joe Johnson, ES&H Manager
 Telephone number: (270) 538-2231
 Email address: Joe.Johnson@duf6.pppo.gov

3.3 SITE MAP

The DOE's Paducah Gaseous Diffusion Plant (PGDP) is located in a generally rural area of McCracken County, Kentucky and includes 3556 acres. Its center is approximately 10 miles west of Paducah, Kentucky and 3 miles south of the Ohio River. The industrial portion of the PGDP, approximately 748 acres, is situated within a fenced security area.

MCS is the contractor in charge of approximately 40 acres at the south side of the PGDP. The land area covers the DUF₆ Conversion Facility (the Site), and associated C-745 Cylinder Yards.

The Site and CSYs are located inside the PGDP site security entrance checkpoint but outside the inner security fence of the PGDP. Attachment A depicts the Site and associated C-745 Cylinder Yards that MCS manages for DOE. The attachment excludes approximately 16 acres of the total 40 acres managed, which are relatively undisturbed and located south of Montana Avenue. The site as thus defined (approximately 24 acres) contains the DUF₆ Conversion Facility and support structures. It is bounded on the north first by a fence and then the C-810 Parking lot; on the east first by a fence, then Patrol Road 5 and then the C-745 Cylinder Yards; on the south by Montana Avenue; and on the west first by a fence running along the detention pond, and then by Hobbs Road, the main entrance roadway. An east-west ditch between the parking area and the DUF₆ Administration Building and Warehouse discharges surface water to the west via KPDES Outfall 017.

Approximately 16 acres of the Site, the southern portion, is relatively undisturbed. The southern portion of the Site is bordered to the east by Cylinder Yard C-745-T, to the west by the entrance highway, to the north by Montana Avenue, and to the south by a high-voltage power line easement.

For the most part the site is flat and the topographic divide runs roughly north and south along the paved road between the Conversion Building (west) and the KOH Building, Hydrogen pad and cooling towers (east). However, much more pronounced catch basins with storm sewers, dominate the topographic pattern and direct almost all water to the detention pond on the west edge of the Site via these drains and underground conduits.

The site is mostly paved, with areas between buildings, roads and storage pads covered with gravel. The Site and adjacent cylinder yards approximate the catchment area for Outfall 017. In other words, direct precipitation in these areas account for all of the runoff to Outfall 017; there is little to no run-on to the Site or areas from outside the footprint. Run-on to the site is controlled by perimeter ditches which divert water around the site.

There are four primary pathways for discharge of storm water from the Site and CSY to Outfall 017:

- Storm water from the CSY flows east to west, overland directly into Ditch 17 for discharge at Outfall 017.
- Storm water from within the cylinder yard is also collected through a drain system and collected in G Basin, which is then pumped periodically and discharged to Ditch 2 via underground piping.
- Storm water from the Site is directed to the detention pond on the western edge of the Site via a series of drains and underground conduits. The detention pond then spills into Ditch 17.
- Storm water south of the Site is transported in two swales, approximately 400 and 460 feet south of Ditch 17, which discharge to the east side of the main entrance roadway. This area, except under extreme conditions is, at best, a minor contributor to the storm water discharge at Outfall 017.

As such, nearly all storm water runoff that is discharged at or near Outfall 017 first enters and then traverses Ditch 17, goes through the conduit under the main entrance roadway, and is then discharged at Outfall 017.

Non-storm water discharge consists of non-contact cooling water that is treated through Effluent Treatment System (ETS). The ETS treatment for contained chemicals (previously approved for use by KDEP – Division of Water) consists of removal of residual bromine and chlorine and pH neutralization to between pH 6 and 9 before batch release to the detention pond.

4 IDENTIFICATION OF POTENTIAL POLLUTANTS

4.1 INDUSTRIAL ACTIVITY AND ASSOCIATED POLLUTANTS

Conversion Facility

The primary known pollutants of concern, i.e., those pollutants that have the potential to be present in storm water runoff, are oil and grease, chlorine, and suspended solids.

- Oil and grease are potentially introduced by personnel vehicles traveling into the DUF₆ plant and parked in the lot.
- Chlorinated water may be discharged during purging operations of the plant water system. Application of salt for ice melting can produce chloride in the runoff.
- Suspended solids that could be present in the discharge at Outfall 017 from erosion from unpaved portions of the Site.

Industrial processes take place in enclosed buildings or covered areas, and should not contribute pollutants to storm water. Activities include delivery of KOH solution to the KOH building, hydrogen fluoride transfer from storage tanks to railcars and tanker trucks at the HF storage area, and mobile fueling of heavy equipment. The Conversion Facility operates cooling towers which use propylene glycol as a heat transfer fluid; and stores hazardous waste under roof cover and/or closed containers at satellite accumulation areas.

Cylinder Storage Yards

The primary known pollutants of concern, i.e., those pollutants that have the potential to be present in storm water runoff, are oil and grease, Polychlorinated biphenyls (PCBs), Zinc, and suspended solids.

- PCBs and Zinc are present in the paint on some of the cylinders stored in the CSYs. During rainstorms, there is the potential, albeit vanishingly small, for leaching of PCBs from the cylinder's painted surface for discharge into Ditch -17 and the G-basin. Additionally, paint particles that have delaminated from the cylinders and fallen to the ground could be transported and follow the same pathways.
- Suspended solids that could be present in the discharge at Outfall 017 would be the result of erosion of the ground surface in the CSY's drainage pathways.

4.2 SPILLS AND LEAKS

Leaks and spills occurring in the three years prior to implementation of quarterly SWPPP inspections are summarized in Table 1. These types of releases are measured in single to tens of gallons, and can potentially reoccur, but owing to small volume have not affected Outfall 017. Spills and leaks occurring since development of the SWPPP are documented on quarterly inspection reports (DUF6 Form 9171) and the Environmental Incident Report/Spill Report Form (Form 9176). These documents are kept digitally, and are on file for review by authorized individuals.

Conversion Plant

Past leaks of process chemicals such as KOH have exited the KOH building onto outside unpaved surfaces. Spill Blocker diking has been added to the KOH building to minimize this occurrence in the future. Propylene glycol has been released from leaks in the cooling towers.

Cylinder Storage Yards

Small spills of hydraulic and radiator fluids are possible from heavy equipment used to move cylinders within the CSYs

Paducah Historical Spill Record

Date	Location	Description	Size / or volume estimate	Action
April 3, 2014	Closed Cooling Water (CCW) system	<p>Operators were performing an evolution to add propylene glycol to the compression tank.</p> <p>The glycol addition evolution had been performed previously by temporarily isolating the tank from the system and pumping the glycol in. Previous evolutions had only added 1 or 2 55-gallon drums of glycol to the compression tank before the tank was valved back into the system. Due to the extremely low level in the compression tank, four 55-gallon drums of glycol were to be added. The pressure excursion event occurred during transfer of the fourth 55-gallon tank.</p> <p>A 50% solution of propylene glycol (MSDS attached) was released to the gravel area adjacent to the Hydrogen Generator pad from the event.</p>	25 gallons of a 50% solution of propylene glycol	<p>Notification to Kentucky Division of Water who requested that the Emergency Response Team Number (800-928-2380) be notified to document the event. Emergency Response Team and received Incident No. 20142003 for the event.</p> <p>Standard conditions are listed under Section 401 KAR 5:065 of the Kentucky regulations, which reference 40 CFR 122.42 of the Federal regulations. The non-routine discharge would exceed the 500 ug/l notification level if one assumed a worst case scenario that all 25 gallons reached the detention pond (it did not).</p>
February 26, 2015		While staging cylinders in the C-745 G-yard, Cylinder Hauler NCH-35 ID# 900131 developed a hydraulic leak. The NCH-35 was parked near the paint building.	1 gallon	A pan and pads (oil dry and pig pads) were placed under the NCH-35 to contain the spill. Per the Production Support Supervisor, the leak was contained to the concrete

Date	Location	Description	Size / or volume estimate	Action
		<p>The NCH-35 has recently been serviced in the maintenance shop.</p>		<p>area in front of the paint building with no storm drains in the area.</p>
<p>March 31, 2015</p>	<p>Chilling Condenser Cooling water system (CWS)</p>	<p>Several minutes after maintenance had finished adjusting the level float in tower basin, the basin overflowed sending a large amount of water to Effluent Treatment System (ETS). During this time ETS Tank TK-960 was just starting to discharge and TK-970 was in service to fill. This large amount of water caused TK-970 to fill faster than normal. With TK-960 still discharging, TK-970 continued to fill to the point at which it overflowed. Approximately 20 gal of water spilled onto the floor in the KOH building.</p> <p>ETS liquid leaked from the building onto the gravel on the east side of the C-1320 KOH Regeneration Building.</p> <p>The ETS tanks processes cooling tower blowdown, boiler blowdown, H2Gen Module condensate, and DIW streams. Sodium bisulfite is added to the treatment tanks to remove free chlorine. Hydrated lime is added to adjust pH. After the pH is 6<pH<9 the treated effluent is discharged to Catch Basin 6 which drains to the detention basin and eventually to Outfall 017.</p> <p>There was also dry hydrated lime on the floor from a leak from the SP-703 Lime Feeder auger that occurred immediately prior to the ETS tank overflow.</p>	<p>Approx. 5 gallons</p>	<p>The service water feed to the CWS tower was throttled back, slowing the amount of water feeding to the tower basin.</p> <p>Once ETS TK-960 completed discharging, it was made available to begin filling, thus, allowing TK-970 to stop overflowing and start processing its contents.</p> <p>Operations then began cleaning up water using shop vacuums. The material that leaked from the building could not be contained.</p> <p>Notified KDEP.</p>

Date	Location	Description	Size / or volume estimate	Action
November 25, 2015		While picking up and delivering oxide cylinders to C-745 D a hydraulic hose busted on NCH 900131 when the operator was releasing the cylinder from the tines.	< 5 gallons	Contained the liquid.
November 30, 2015	KOH Building	The Pre-Coat tank (C-0-KRS-TK-708) overflowed due to a remotely operated valve (C-0-KRS-VA-7054) being stuck open. This allowed the reaction tank (C-0-KRS-TK-705) to backflow into the Pre-Coat tank. Approximately 20 gallons spilled on the floor, and some escaped the building.	< 5 gallons	Did not reach any storm sewer drains. Secured the KOH Pump (C-0-KRS-PP-705) and closed the TK-708 supply valve (C-0-KRS-VA-7082). This stopped the leak.
April 18, 2016	Nitrogen compressor building	A field operator inspecting C-1310C noticed oil in the building floor (approximately 10 gallons).	Approx. 5 gallons	Absorbent pads were used to soak up displaced oil from compressor "B". No exit to the environment.
March 22, 2016	Nitrogen compressor building	Control Room received a Nitrogen Plant Trouble alarm. Respond per Alarm Response BWCS-C-OPS-0627. Visual inspection of NIT "B" compressor found oil in floor of the building.	< 10 gallons	Absorbent pads were used to soak up displaced oil. No oil exited the footprint of C-1310C.
June 16, 2016	East of the KOH building.	While inspecting the 45' foot Diesel Articulating Boom Lift (Rental Unit) the mechanic discovered a diesel leak on the fuel tank.	< 1 gallon	Containment pan with absorbent pads were placed under Boom Lift.

Date	Location	Description	Size / or volume estimate	Action
June 16, 2016	Hydrogen pad	During delivery of temporary storage tanks to the facility, hydraulic fluid was leaked onto the asphalt by the delivery vehicle. The delivery vehicle was located North of the Hydrogen Pad. .	Approx. 1 gallon	ES&H placed absorbent material on the hydraulic fluid.
June 27, 2016	Hydrogen pad	A sub-contractor vehicle spilled a small container of motor oil onto the asphalt north of the Hydrogen Pad. The vehicle driver did not immediately realize the spill and it was tracked as the vehicle traveled south between C-1300 and the Hydrogen Pad.	Approx. ½ gallon	ES&H and WM&T contacted. Oil absorbent material placed on the spill areas.
December 12, 2016	KOH Building	A KOH leak was identified inside C-1320 facility on KOH Supply Header at elbow just upstream of C-0-KRS-VA-72015. Further evaluation of the area identified a very small amount of KOH leaked out of the C-1320 facility and onto the gravel immediately adjacent to the leak inside.		KOH Pump breaker was turned off and caution tag was applied to prevent pressurizing the header. KOH spill was soaked up with pig pads inside and contaminated gravel was removed outside.

4.3 NON-STORM WATER DISCHARGES DOCUMENTATION

There are no non-storm water discharges other than allowable discharges in Section 1.1.3 of the EPA Multisector General Permit (MSGP).

5 STORM WATER CONTROLS

The storm water controls, BMPs, identified for implementation at the DUF₆ Conversion Facility Site and associated CSYs that MCS manages for DOE, can be classified into source controls, operational controls, and engineered controls. Several of the controls described in the following sub-sections are mandatory and so noted; while others will be implemented as appropriate to assure that storm water discharges to Outfall 017 meet the requirements of KPDES Permit KY0004049.

5.1 SOURCE CONTROLS

Source controls consist of minimizing exposure to rain, snow, snowmelt and runoff, good housekeeping, and maintenance of the Site and management of the cylinder yards in accordance with the Cylinder Management Plan.

MCS minimizes exposure to storm water pollution by eliminating opportunities for storm water to come into contact with industrial activities and polluting materials. This includes:

- Dumpsters are covered, where possible.
- Drums are covered when not in use and have secondary containment
- Salt is stored indoors or covered when stored outdoors.
- Scrap or waste material is decontaminated radiologically and chemically, containerized as appropriate, and stored indoors and outdoors.

Good housekeeping includes routine inspections by the Operations Department and the Waste Management and Transportation Department for leaks, and of the condition of drums, tanks and containers.

5.2 OPERATIONAL CONTROLS

Operational controls consist of those continuing activities to prevent, mitigate, or treat storm water contamination. The following mandatory BMPs will be implemented:

- Unpaved areas of the Site, to the extent practical, shall be maintained with an appropriate vegetative cover, or covered with rock, or other suitable materials, to prevent soil erosion.
- The vegetation in Ditch 17, to the extent practical, shall be maintained in its natural state.
- The vegetation associated with the other ditches identified on the Site, to the extent practical, shall be maintained in their natural states.

- Site storm water drains and conduits shall be inspected periodically and cleaned as required to assure adequate flow into the detention pond.
- The detention pond, standpipe, weir, and discharge pipe shall be inspected periodically and cleaned/dredged/repared as required to maintain the pond's capacity and outflow characteristics.
- The use of herbicides, pesticides, and fertilizers shall be on an as needed basis and carefully controlled to avoid over-application and entry into the Site's detention pond and Ditch 17.
- Monthly inspection of the passive inline storm water treatment system adjacent to the S-yard to insure the system is free of excess debris and the MetalZorb™ media is in place. Replacement of the MetalZorb™ media as required for maintaining the removal efficiency of the system.

5.3 ENGINEERED CONTROLS

The following engineered controls have been implemented to reduce the impact of storm water and non-storm water pollutants at the KPDES Permit KY0004049 Outfall 017:

- ETS – cooling tower chemicals are approved for use, dosage is controlled, residual bromine and chlorine removed and pH neutralized prior to release.
- Installation of limestone rock in a portion of Ditch 17 which serves to raise the effluent's hardness, and consequently lower its toxicity. Additionally, it will act as a rock dam to trap sediments and particulates.
- Installation of a passive inline storm water treatment system adjacent to the S-yard for removal of zinc.

6 BMP PLAN SPECIFIC REQUIREMENTS

6.1 BMP COMMITTEE

The BMP Coordinator for this facility is the Paducah Site ES&H Manager. Duties include:

- Creating a BMP Committee (Implementation Team), to include the Logistics & WM&T Manager, the ES&H/Emergency Management Specialists, the Conversion Operations Manager and the Maintenance Manager.
- Implementing this BMP plan.
- Overseeing the BMPs identified in this plan.
- Implementing and overseeing any needed employee training.
- Identifying other potential pollutant sources and assuring they are added to this BMP.
- Identifying any deficiencies in this BMP and assuring they are corrected.
- Preparing and submitting any required reports.
- Ensuring any changes in facility operations are reflected in this BMP, as necessary.

The storm water pollution prevention team for MCS is known as the BMP Implementation Team. They assist the ES&H Manager in developing and revising the facility's SWPPP, implementing and maintaining control measures/BMPs, and taking corrective actions where required.

Staff Names	Individual Responsibilities
Logistics & WM&T Manager	Identification of discharges
ES&H/Emergency Management Specialist	Notifications, coordination with other DOE site tenants
Conversion Operations Manager	Effluent Treatment System (ETS)
Maintenance Manager	Housekeeping, equipment

6.2 REPORTING OF BMP INCIDENTS

The BMP Coordinator shall be immediately notified of any spill or leak. Spills or leaks that cannot be immediately contained and require emergency response shall be managed in accordance with the Paducah Emergency Management Plan (DUF6-PLN-044). The BMP Coordinator, Environmental Manager and ESH&QA Director shall determine whether a leak, spill, or other release containing a hazardous substance or oil is an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302, occurs during a 24-hour period. If the spill is reportable, one of the persons shall notify the appropriate agencies and offices which include:

- Four Rivers Nuclear Partnership, Inc. Plant Shift Superintendent (270) 441-6333
- Kentucky Division of Water (DOW) Hotline (502) 564-2380
- Kentucky DOW Paducah Regional Office (270) 898-8468
- National Response Center (NRC) (800) 424-8802
- Spill kits are kept on site. Their locations are shown below:

Paducah Spill Kit Locations

C-1300 Hot Shop next to eyewash/safety shower
C-1300 Cylinder Stabilization System next to eyewash / safety shower
C-1300 Condenser Room – inside north door
C-1300 Condenser Room – inside south door
C-1300 Scrubber Room north end next to eyewash/safety shower
C-1300 Scrubber Room south end East wall
C-1320 KOH building next to eyewash/ safety shower
C-1305 HFS North end CONNEX
C-1300 Mechanical room inside South doors

Spills or leaks that cannot be immediately contained and require emergency response shall be managed in accordance with the Paducah Emergency Management Plan (DUF6-PLN-044).

6.3 EMPLOYEE TRAINING

DUF₆ administers Computer Based Training (CBT) annually for employees directly involved with the implementation of this BMP, and those employees whose responsibilities may interface with this BMP, namely:

- ES&H Manager and all persons in the ES&H organization
- Logistics and WM&T Manager
- ES&H/Emergency Management Specialist
- Conversion Operations Manager and all Operations / Production Support Organization personnel
- Maintenance Manager

- Engineering Manager
- All persons in the Maintenance organization
- All persons in the Operations organization
- All persons in CSY operations (Portsmouth)

The Technical Training organization maintains records of those persons completing the training. It issues reminder notices before the anniversary date for renewal. DUF₆ training subject matter includes:

- The contents of the facility SWPPP
- Basic Storm water Runoff Principles
- Basic Storm water Management Principles (minimizing exposure)
- Proper Materials Management and Materials Storage
- Documentation Requirements (inspection, reporting)
- Spill Containment and Cleanup Procedures

6.4 INSPECTIONS AND RECORDS

This section describes procedures for performing inspections required by the 2008 MSGP, including:

- Quarterly facility inspections
- Visual assessment of storm water discharges

In addition to the above, inspections are performed by procedure for specific operating areas (i.e., Hydrofluoric acid storage, CSYs). Though not focused exclusively on storm water, these area inspections will identify spills, leaks, and other upset conditions. Corrective actions and preventive actions will be addressed under the current Condition Reporting (CR) System (DUF6-U-QAP-0005, *Issues Management*).

Identification, filing, use, storage, retrieval and retention of records will be in accordance with the existing procedures and document control system (DUF6-U-DMP-0001, *Controlled Document Procedure*; DUF6-U-DMP-0002, *Records Management Procedure*; DUF6-U-DMP-0003, *Correspondence Control*; DUF6-U-DMP-0004, *Forms Control*).

Quarterly inspection

Inspections will be conducted once each calendar quarter by either:

- A member of the BMP Team, or
- An ES&H Department specialist trained per Section 6.3 and reviewed by a member of the BMP Team.

The inspection will be conducted per DUF6 Form 9171, *Inspection Checklist Paducah Groundwater Protection Plan and Storm Water Pollution Prevention Plan*.

Visual assessment

The MSGP requires Inspections to be conducted once each calendar quarter when a storm water discharge is occurring, i.e. during or immediately after a precipitation event. Samples are collected in a manner that the samples are representative of the storm water discharge.

Since Outfall 017 is sampled monthly, the sampling crew will provide notes if the water is unusually colored, high in solids or has an odor.

6.5 PREVENTATIVE MAINTENANCE / GOOD HOUSEKEEPING

Preventative maintenance will be performed on equipment in accordance with DUF6-U-GFP-0106, *Preventative Maintenance*. MCS maintains its operations in a clean and environmentally responsible manner and continually stresses the importance of good housekeeping. It is the responsibility of every employee to maintain their area to keep a safe workplace.

Good housekeeping includes routine inspections by the Operations and Waste Management and Transportation (WM&T) organizations for leaks, and of the condition of drums, tanks and containers.

6.6 MATERIALS COMPATIBILITY

Safety Data Sheets (SDS) shall be maintained for each hazardous material that is stored or handled at this facility. All storage tanks, containers, and associated equipment are designed to be compatible with the respective material stored or handled. Proper labels and signs shall be used, as required.

6.7 SECURITY

The DUF₆ Conversion facility and cylinder storage yards are located within a PPA with access controls. The PPA security measures are documented in DUF6--PLN-033, *Site Security Plan*. Access to the PPA is permitted in accordance with DUF6-PLN-139, *Paducah DUF6 Facilities Access Control Plan*.

6.8 MATERIALS INVENTORY

The primary material storage areas of concern to water runoff influence are the bulk hydrofluoric acid storage tanks, warehouse area, and potassium hydroxide regeneration building. In addition, approximately 300 gallons of diesel fuel are stored in the backup generator. These areas are covered or fully enclosed which help minimize the potential for impact to the outfall. Hydrogen Fluoride monitoring, maintenance, and inspection of bulk chemical storage areas (in dry or liquid – bulk) greatly minimize the possibility for discharging pollutants to the outfall.

6.9 HAZARDOUS WASTE

Small quantities of hazardous waste may be stored on-site at DUF₆. The storage and staging areas are under roof cover and/or closed containers. Proper maintenance of material storage areas makes the potential for pollutant discharge low. Observed conditions that might provide a source contaminant runoff in storm water or spills should be noted and reported to the section supervisor and BMP coordinator immediately.

7 SWPPP CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: James W. Barker

Title: Plant Manager

Signature:



Date: 10/02/2020

8 PLAN MODIFICATION

Copies of the BMP shall be available for review by the KDOW. Development and implementation of this BMP is an ongoing process where revisions will be made to reflect current conditions. The BMP will be amended whenever there is a change in the facility or change in the operation of the facility which increases the potential for pollutants to be discharged to the waters of the Commonwealth. Amendments are also required if the BMP proves to be ineffective in minimizing or eliminating pollutant sources or in achieving the objective of controlling storm water associated with industrial activity. The practices established in this BMP and the monitoring data collected as required by the KPDES Permit will assist MCS in determining the effectiveness of the BMP.

9 PERIODICALLY DISCHARGED WASTEWATERS NOT SPECIFICALLY COVERED BY EFFLUENT CONDITIONS

Allowable discharges that have occurred are:

1. Discharge of water during maintenance and testing operations that are needed for normal and safe operation of the facility.
- Chlorinated water may be discharged during purging operations of the plant water system.
 - Firewater supply purges, and

- Sprinkler system testing.

Allowable discharges that could occur would be:

1. Miscellaneous activities that discharge otherwise "clean" plant water

- Pavement wash waters where no detergents or hazardous cleaning products are used (e.g., bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols), and the wash waters do not come into contact with oil and grease deposits, sources of pollutants associated with industrial activities, or any other toxic or hazardous materials
- External building wash down / power wash water that does not use detergents or hazardous cleaning products (e.g., those containing bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols)

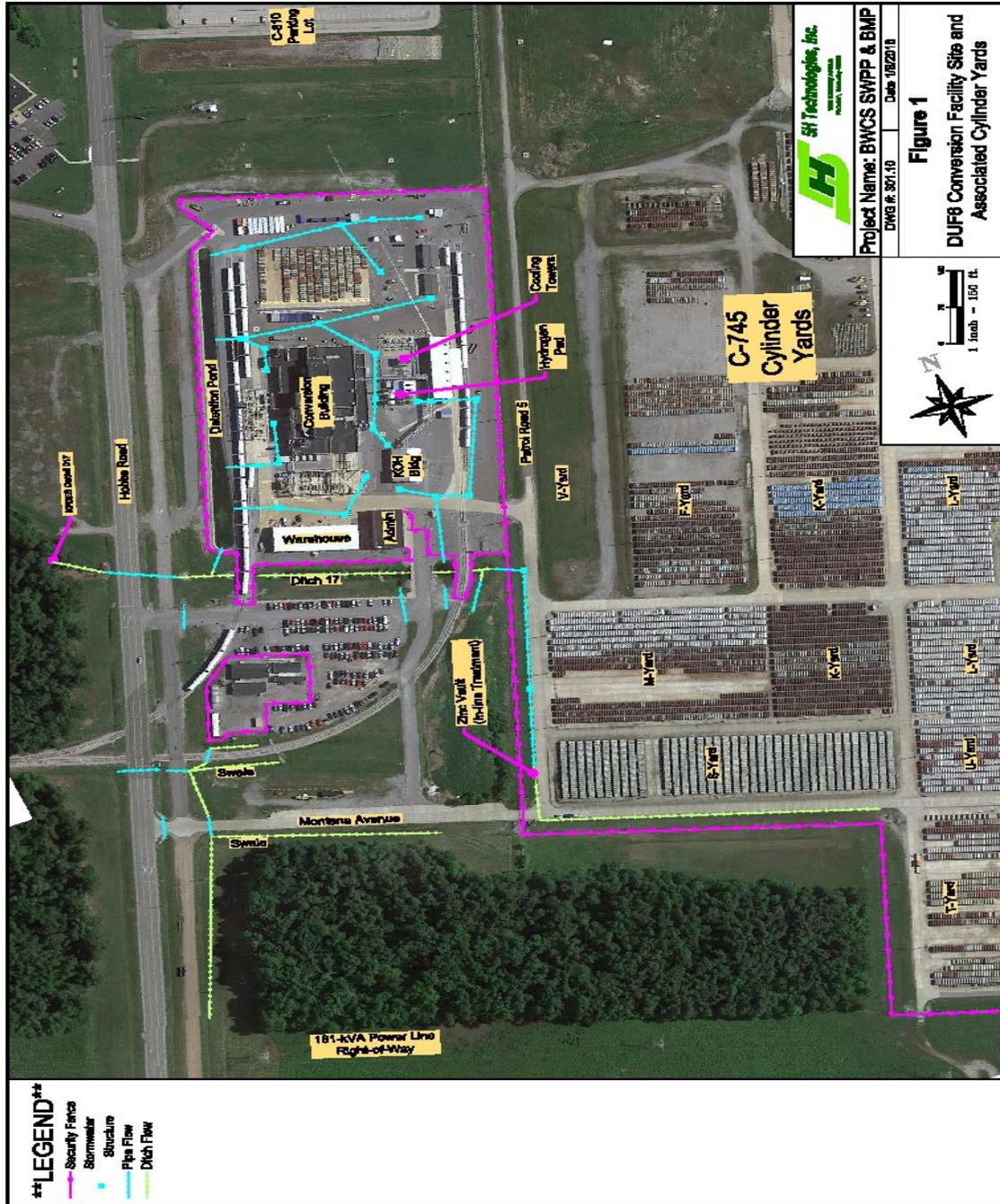
These have the potential to introduce pollutants to storm water. Chlorine is the primary pollutant of concern, but water runoff can pick up other pollutants on the ground surface. Good housekeeping will minimize this effect. Routing the discharged water through the detention basin will greatly reduce the potential for negative impacts at Outfall 017.

10 ATTACHMENTS

- Attachment A, *DUF₆ Conversion Facility Site And Associated Cylinder Yards*
- Attachment B, *References*

ATTACHMENT A, DUF6 CONVERSION FACILITY SITE AND ASSOCIATED CYLINDER YARDS

Page 1 of 1



ATTACHMENT B, REFERENCES

PAGE 1 OF 1

40 CFR Part 110, *Discharge of Oil*

40 CFR Part 117, *Determination of Reportable Quantities for Hazardous Substances*

40 CFR Part 302, *Designation, Reportable Quantities, and Notification*

DUF6 Form 9171, *Inspection Checklist Paducah Groundwater Protection Plan and Storm Water Pollution Prevention Plan.*

DUF6-PLN-033, *Site Security Plan*

DUF6-PLN-139, *Paducah DUF6 Facility Access Control Plan*

DUF6-U-DMP-0001, *Controlled Document Procedure*

DUF6-U-DMP-0002, *Records Management Procedure*

DUF6-U-DMP-0003, *Correspondence Control*

DUF6-U-DMP-0004, *Forms Control*

DUF6-U-GFP-0106, *Preventative Maintenance*

DUF6-U-QAP-0005, *Issues Management*

END OF DOCUMENT