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THE SWIFT STALEY TEAM

POLLUTION PREVENTION PLAN FOR THE INFRASTRUCTURE SUPPORT SERVICES CONTRACT AT THE PADUCAH GASEOUS DIFFUSION PLANT

Approved by: _____ 7-30-19
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Date

Effective Date: _____

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REVISION SUMMARY

Rev. No.	Description of Change	Pages	Date
0	Initial issue. Incorporates contract DE-EM0003733.	All	
1	Reconciled U.S. Department of Energy (DOE) comments.	vi, 2, 3	12/01/15
2	Annual Update References to revoked Executive Order 13423, *"Strengthening Federal Environmental, Energy, and Transportation Management,"* and Executive Order 13514, *"Federal Leadership in Environmental, Energy, and Economic Performance"* have been replaced by reference to Executive Order 13693, *Planning for Federal Sustainability in the Next Decade.*	All	08/30/16
3	Annual Update	All	07/20/17
4	Annual Update. Incorporated ISO 14001:2015 Environmental management system – Requirements and guidance for use. Renumbered and reformatted, previous no. SSI.ESH-6002. Restructured to reduce duplicated information and to improve document readability.	All	07/26/18
5	Reconciled DOE comments.	All	8/21/18
6	Reconciled DOE comments.	All	9/05/18
7	Annual review. Updated document numbers and references to revoked Executive Orders, added references to Executive Order 13834 *Efficient Federal Operations*. Text changes made to better align plan with ISSC-ESH-PL-006, *Environmental Management System Description* and ISSC-PM-TD-004 *Key Processes and Measurement Plan*. Redundant actions were removed.	All	07/30/19

ACRONYM LIST

BMP	Best Management Practices
CFR	Code of Federal Regulations
CWA	Clean Water Act
DEAR	U.S Department of Energy Acquisition Regulation
DOE	U.S. Department of Energy
ECS	Environmental Compliance Specialist
EMS	Environmental Management System
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
EPP	Environmental Preferable Products
FY	Fiscal Year
IMS	Integrated Management System
ISO	(Not an acronym) Short term for International Organization for Standardization
ISS	Infrastructure Support Services
ISSC	Infrastructure Support Services Contractor
KAR	Kentucky Administrative Regulations
KPDES	Kentucky Pollutant Discharge Elimination System
KPI	Key Performance Indicators
LED	Light Emitting Diode
LLW	Low-level (radioactive) waste
MLLW	Mixed Low- Level Waste
O	Order
PDRC	Paducah Deactivation and Remediation Contractor
PGDP	Paducah Gaseous Diffusion Plant
PP	Pollution Prevention
PPA	Pollution Prevention Act
QMS	Quality Management System
RCRA	Resource Conservation and Recovery Act
RPP-ERPP	Radiation Protection Plan-Environmental Radiation Protection Plan
RWMB	Radioactive Waste Management Basis
SPCC	Spill Prevention, Control, and Countermeasures
SSP	Site Sustainability Plan
SST	Swift & Staley Team
WMP	Waste Management Plan

1.0 POLLUTION PREVENTION PROGRAM

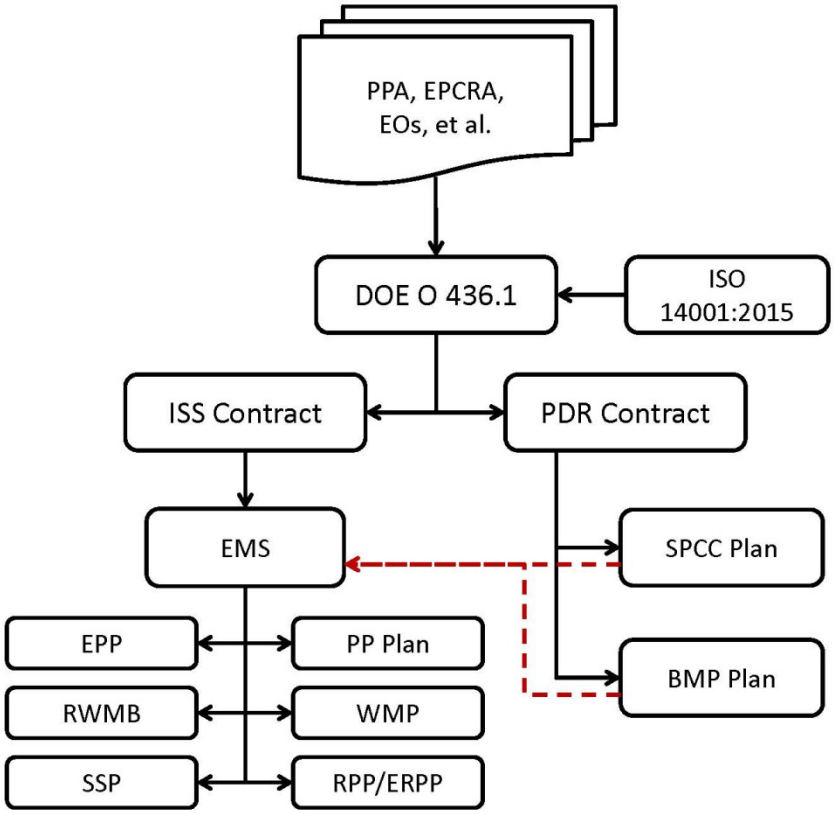
1.1 Program Description

The Infrastructure Support Services Contractor (ISSC) Pollution Prevention (PP) Plan describes the conformance to pollution prevention requirements of applicable federal laws; Executive Orders (EOs); and U.S. Department of Energy (DOE) Order (O) 436.1, *Departmental Sustainability*. The ISSC PP Plan has been prepared to describe waste and pollution prevention activities that meet requirements found in EO 13834, *Efficient Federal Operations*.

The PP Plan is part of the overall Environmental Management System (EMS) implemented to conform to ISO (common short name for International Organization for Standardization) 14001:2015, *Environmental management system – Requirements with guidance for use* (EMS), as invoked by DOE O 436.1. The EMS is described in multiple documents that address the various requirements. This PP Plan is one of those documents.

Other ISSC documents that support the EMS and the implementation of the PP Program include ISSC-ESH-PL-006, *Environmental Management System Description;* ISSC-ESH-PL-002, *Waste Management Plan (WMP)*; ISSC-ESH-PL-008, *Radiation Protection Plan – Environmental Radiation Protection Plan* (RPP-ERPP); ISSC-RAD-PL-005, *Radioactive Waste Management Basis* (RWMB); and the *Paducah Gaseous Diffusion Plant Fiscal Year 2019 Site Sustainability Plan* (SSP). The SSP contains data reporting on Fiscal Year (FY) 2018 sustainability performances and plans for FY 2019 and beyond. Paducah Site sustainability goals are integrated into the EMS. Finally, some elements of the PP Program are addressed in documents managed by the Paducah Deactivation and Remediation Contractor (PDRC). Figure 1 provides a representation of the different elements of the EMS.

Figure 1. Pollution Prevention Program elements



1.2 Program Elements

1.2.1 POLLUTION PREVENTION ACT (PPA) OF 1990

In 1990, Congress approved the PPA. The following policy statement is included in the act:

> "The Congress hereby declares it to be the national policy of the United States that pollution should be prevented or reduced at the source, whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner, whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner, whenever feasible; and disposal or other releases into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner."

Under the PPA, operators of facilities are required to file an annual chemical release form under Section 313 of the Superfund Amendments and Reauthorization Act that includes the following information:

- Quantity of chemical,
- Change from previous year,
- Amount recycled,
- Percentage change from previous year,
- Process of recycling,
- Source reduction practices, and
- Techniques used to identify source reduction opportunities.

1.2.2 EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 (EPCRA)

EPCRA was passed by Congress in response to concerns regarding the environment and safety hazards posed by the storage and handling of toxic chemicals and to reduce the likelihood of accidents associated with these chemicals. These requirements covered emergency planning and “Community Right-to-Know” reporting of hazardous and toxic chemicals. The Community Right-to-Know provisions help increase knowledge of and access to information on chemicals at facilities, their uses, and releases to the environment. EPCRA requires reporting on storage and release of chemicals to the environment, and aids in the prevention of pollution associated with these releases. The ISSC, through cooperation with the PDRC, meets the reporting requirements of Sections 301 to 313 of EPCRA.

1.2.3 U.S. DEPARTMENT OF ENERGY ORDER 436.1, *DEPARTMENTAL SUSTAINABILITY*

DOE O 436.1 requires compliance with sustainability conditions contained in EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* and EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* (both orders have been revoked and replaced by EO 13834, *Efficient Federal Operations*); the National Energy Conservation Policy Act, the Energy Policy Act of 2007, and adherence to the inventory and reporting requirements of Section 301 through 313 (including implementing regulations) of the EPCRA, the PPA of 1990, and related statutory and administrative requirement. SST integrates pollution prevention strategies into Infrastructure Support Services (ISS) activities through work planning and control, and the project work process.

1.2.4 ENVIRONMENTAL MANAGEMENT SYSTEM

The ISS Contract EMS is based on the requirements and guidelines described in ISO 14001:2015. In 2018, the ISS Contract underwent an independent audit to show conformance with ISO 14001:2015 and completed additional actions to fully implement the EMS.

The SST EMS is part of the Integrated Safety Management System Plan defined in ISSC-ESH-PL-010, *Integrated Safety Management System Description,* as a coordinated and integrated approach to performing work safely and in a manner that protects the environment. ISSC-PM-TD-004, *Key Processes and Measurement Plan*, describes activities conducted to implement the EMS and objectives for achieving continual improvement of the EMS. The EMS objectives supplement the DOE-required sustainability goals and PP Plan objective and strategies described in this plan.

1.2.5 ENVIRONMENTALLY-PREFERABLE PRODUCTS PURCHASING

The purpose of this program is to assign responsibilities and provide instruction for implementing an effective Environmentally Preferable Product (EPP) procurement program. This includes but is not limited to use of sustainable environmental practices, acquisition of bio-based, energy-efficient, water-efficient and recycled-content products. EPP expands markets for green products and services, reduces the amount of solid waste generated, and reduces consumption of energy and natural resources. The EPP program applies to all acquisitions from simplified acquisitions accomplished via a government-issued credit card and purchase orders to major contract awards. This program is implemented by procedure ISSC-BM-PR-003, *Procurement of Items and Services*.

1.2.6 SPILL PREVENTION, CONTROL, AND COUNTERMEASURES PLAN

The Federal Water Pollution Control Act of 1972, as amended by the Clean Water Act (CWA) of 1977, expressly prohibits the discharge of oils or hazardous substances that may affect the natural resources of the United States. The U.S. Environmental Protection Agency (EPA) is responsible for enforcement and has promulgated several regulations to achieve compliance. DOE requires the PDRC to maintain the spill prevention, control, and countermeasures program for the DOE Paducah site. Their program is described in PAD-REG-1005, *Spill Prevention, Control, and Countermeasure* (SPCC) *Plan for the U.S. Department of Energy Paducah Site*. The ISSC provides supporting information on applicable sources of oil and hazardous substance to the PDRC for inclusion in the SPCC Plan and adheres to the requirements of the site SPCC Plan.

1.2.7 BEST MANAGEMENT PRACTICES

The Clean Water Act objectives are to restore and maintain the chemical, physical, and biological integrity of the nation's waters. All entities who use, manufacture, store, handle, or discharge any pollutants listed in Sections 307(a) (1) or 311 of the CWA are subject to the requirements of 40 Code of Federal Regulations (CFR) Part 125 for all activities that could result in significant amounts of those pollutants reaching waters of the United States. The preparation and implementation of a Best Management Practices (BMP) document is required by the Paducah Gaseous Diffusion Plant (PGDP) Kentucky Pollutant Discharge Elimination System (KPDES) Permit. A BMP outlines how

good operating practices and sound engineering judgments are used to minimize the release of pollutants to the waters of the state. The PDRC implements the KPDES permit on behalf of DOE and therefore is responsible for generating the BMP document. BMP requirements for the DOE Paducah Site are fulfilled by PDRC document PAD-REG-1006, *Best Management Practices Plan PGDP*. The ISSC provides supporting information to the PDRC for inclusion in the BMP Plan and adheres to the requirements of the site BMP Plan.

1.3 Program Organization

The EMS is integrated with all ISS Contract activities, and as such is implemented by all personnel. ISS Contract employees are trained on the EMS, Integrated Management System (IMS) Policy, and objectives. The Environmental Compliance Specialist (ECS) serves as the lead for EMS and PP Plan implementation and in house subject matter expert. The ECS is responsible for the implementation of the program by:

- Developing and maintaining EMS documentation (e.g., plans and implementing procedures).
- Reporting EMS information as required by laws, EOs, and DOE Directives.
- Assisting in the definition of EMS objectives, strategies, goals, and key performance indicators (KPIs).
- Collecting data for and reporting on goals and KPIs.
- Identifying waste minimization opportunities.
- Assisting waste generators in identifying and implementing waste minimization/pollution prevention measures.
- Reviewing Safety Data Sheets for incoming materials to assess potential waste issues.
- Supporting procurement of EPP.

2.0 POLLUTION PREVENTION POLICY

As described in Section 1.0, the PP Plan supports the overall implementation of the EMS. For the ISSC, the Quality Management System (QMS) as described by ISO 9001:2015, *Quality management system – Requirements*, and EMS as described by ISO 14001:2015, are combined into an IMS. The IMS policy, provided below, includes the pollution prevention aspect as an integral part of the EMS portion of the IMS.

The IMS Policy states: The Swift & Staley Team (SST) is committed to employing ISO 9001:2015 and ISO 14001:2015 in the execution of the ISS Contract to meet or exceed DOE expectations and requirements, and as a long-term commitment to pollution prevention, reducing environmental impact, compliance with applicable legal obligations and continual improvement. The ISSC IMS supports the DOE quality program

requirements defined by DOE O 414.1D; Integrated Safety Management System as defined by U.S Department of Energy Acquisition Regulation (DEAR) Clause 970.5223-1; environmental program as defined by DOE O 436.1; and other referenced requirements and consensus standards. The ISSC IMS implements the SST ISO 9001:2015 and ISO 14001:2015 IMS and policy.

3.0 POLLUTION PREVENTION OBJECTIVE

The objective of the ISSC PP Program is to minimize the impact of ISS Contract activities on the environment through effective environmental and operational practices. The overall objective is achieved by pursuing cost-effective waste prevention that reduces overall waste generated while reducing disposal fees and minimizing environmental impact. Specific pollution prevention goals are developed to support site sustainability goals set by EO 13834 and its implementing procedures, and can be found in ISSC-PM-TD-004.

4.0 STRATEGIES

4.1 Strategy No. 1 – Risk-based approach

PP begins at the start of work with procurement practices and continues through the entire life-cycle to waste disposal. The ISSC uses a risk-based approach to implementing the PP Plan, reducing the generation of wastes, and minimizing discharges to air, water, and soil, and conserving natural resources. Risk-based strategies for implementation include:

- Incorporating PP into the engineering design and procurement processes.
- Incorporating PP and other environmental considerations into ISS activities through the work control process.
- Conducting risk analysis for significant project changes to ensure an appropriate balance between cost to DOE and protection of the environment.
- Implementing specific source reduction, reuse, and recycling projects targeted at waste, emissions, and discharge reduction.
- Implementing specific resource conservation projects (e.g., reduction in building energy use or petroleum consumption, water savings, etc.)
- Conducting annual reviews of the PP practices to maintain consistency with changing regulations and requirements.

4.2 Strategy No. 2 – Waste Minimization

The ISSC generates wastes from activities such as routine maintenance and janitorial activities, spill cleanups, construction, and other onsite infrastructure activities. Strategies for minimizing waste to the lowest possible amounts include:

- Purchasing BioPreferred/biobased products, and materials containing recycled content when feasible (i.e., EPP).
- Maximizing procurement of materials that can be reused or recycled.
- Recycling eligible scrap metal[1], batteries, vehicle fluids, fluorescent and incandescent lamps, electronic scrap, plastic, paper, cardboard, concrete, printer and toner cartridges, while diverting waste from treatment and disposal facilities, including landfills and incineration for energy recovery.
- Material substitution (e.g., less hazardous or harmful product) that eliminates waste or increases the percentage of recyclable waste.
- Process changes and effective practices that eliminate waste generation during work activities (e.g., buying in bulk quantities to reduce packaging waste, refilling of reusable containers).
- Separating and recycling paper, aluminum cans, and cardboard from administrative areas.
- Frequent review of the activities throughout the waste generation life-cycle to provide feedback to ensure waste is packaged, stored, transported, and disposed properly in accordance with applicable requirements.
- Sharing information and lessons learned regarding waste generation. Encourage suggestions from employees for future reduction opportunities.
- Establishing work practices to reduce low-level waste and mixed low-level waste generation.

Table 1 provides examples of management practices for routine waste generation. This list is not all inclusive and changes as opportunities are discovered.

[1] "Eligible scrap metal" is metal that meets all conditions of letters issued by Bill Richardson titled Release of Materials for Reuse and Recycle dated February 14, 2000, and Release of Surplus and Scrap Materials dated July 13, 2000. In accordance with Section C.2.2.10 of Contract DE-EM0003733, the ISS Contractor is prohibited from recycling scrap metal from DOE radiological areas or free releasing volumetrically-contaminated metal into commerce.

Table 1. Examples of Routine Waste Minimization Practices

Waste Type	Examples	Practices
Soft Combustibles	Plastic, paper, cardboard, oil absorbents, rubber, etc.	• Good housekeeping • Proper segregation • Down-posting radiologically-controlled areas where possible • Recycling (opportunities exist for most non-radiological combustibles such as incineration for energy recovery). Items deemed Low Level Waste (LLW) are transferred to the Paducah Deactivation and Remediation Contractor (PDRC) for disposal.
Scrap Metal	Ferrous (i.e., iron) and non-ferrous metals (e.g., copper, steel, and aluminum)	Scrap metal that meets all conditions of the scrap metal suspension, and that is approved for release as “non-radiological” is sent to a recycler. Metal that does not meet the above mentioned criteria is managed as LLW and transferred to the PDRC for disposal.
Rubble	Sand, gravel, concrete, and soil	Rubble that can be surveyed and released as “non-radiological” is either staged for reuse or sent to an approved vendor for recycling. Rubble generated in radiologically-controlled areas, or that cannot be released as “non-radiological” is transferred to the PDRC for disposal as LLW. Routine infrastructure activities typically do not generate LLW rubble.
Rubber Tires		Damaged or worn rubber tires that can be surveyed and released as “non-radiological” are delivered to an approved off-site tire vendor for recycling. Approved tire vendors have recycling plans in place and are required by Kentucky Administrative Regulations (KAR) to store, manage, and recycle tires appropriately. In the event radiological contaminated tires are discovered, they are transferred to the PDRC as LLW.
Toner Cartridges/Printer Cartridges		Spent toner and printer cartridges are collected by janitorial staff, and transferred to an approved, certified recycler.

Waste Type	Examples	Practices
Fleet Maintenance Products		Many solid and liquid wastes generated during the maintenance of infrastructure vehicles are eligible for recycling. Material such as used oil, used coolant, excess fuels, and oily absorbent media are collected and transferred to an approved vendor for recycling.

4.3 Strategy No. 3 – Hazardous Chemical Reduction

The ISS Contract scope does not involve significant quantities of hazardous or toxic chemicals. However, even small quantities are evaluated and controlled. Strategies aimed at reducing usage of hazardous or toxic chemicals include:

- Complying with and report in accordance with the requirements of Sections 301 through 313 of the EPCRA each year.
- Performing quarterly inspections of chemical storage areas with a goal to reduce on-site quantities.
- Implementing a hazardous and toxic material substitution program when possible.
- Placing a high priority on the reduction or elimination of the chemicals targeted under EPCRA regulations.
- Complying with local emergency response programs and EPCRA regulations.

The ECS coordinates waste assessment activities for Resource Conservation and Recovery Act (RCRA)-regulated wastes. The initial steps are to identify additional priority waste streams, major generators of those wastes, and analyze the generating processes. The analysis of the generating processes is performed in conjunction with the line organization responsible for the process. Emphasis is placed on the elimination of the hazardous constituent and/or recycle/recovery of the waste at the generating point.

Table 2 provides examples of management practices for routine waste generation. This list is not all inclusive and changes as opportunities are discovered.

Table 2. Examples of Hazardous Waste Minimization Practices

Waste Type	Examples	Practices
Hazardous and Mixed Waste	Spent batteries, spent lamps, and waste lead-bearing solids	Items such as these can be recycled, reclaimed, recovered, or reused if no radiological contamination is present. The presence of radiological contamination requires management of these items as Mixed LLW (MLLW), in that radiologically-contaminated material cannot be reintroduced into industry as a useable product. MLLW are transferred to the PDRC.
Lamps	Fluorescent, incandescent, mercury-vapor, sodium halide, high intensity discharge, Light Emitting Diode (LED), etc.	Lamps can contain Resource Conservation and Recovery Act (RCRA) metals in concentrations above regulatory thresholds and are considered hazardous waste if disposed. They are managed as Universal Waste and sent to an approved vendor for recycling.
Batteries	Spent silver, lithium, nickel, nickel-cadmium, mercury, and lead batteries	Certain batteries contain RCRA metals in concentration above regulatory thresholds or display characteristics (e.g., corrosivity) and are considered hazardous waste if disposed. These batteries are managed as Universal Waste and shipped to an approved vendor for recycling.
Electronic Scrap Recycling	Circuit boards, printers, monitors and other electronic scrap	Shipped off-site to an approved, certified vendor for precious metals recovery and recycling.

4.4 Strategy No. 4 – Promote a Pollution Prevention Ethic

To promote a pollution prevention ethic through education, training, and awareness programs (internal communication), the ISSC will:

- Educate employees in developing effective pollution prevention techniques.
- Encourage employee involvement by soliciting pollution prevention suggestions.
- Provide employee training on the EMS and PP.
- Communicate the EMS policy to all interested parties, internal and external.

5.0 CONTINUOUS PROGRAM IMPROVEMENT

The ISSC will practice pollution prevention both for business reasons and to demonstrate its commitment to long-term environmental protection. Preventing pollution makes business sense because it reduces the cost of purchasing raw materials, lowers energy costs, and reduces waste disposal costs. Commitment to environmental protection goes beyond ensuring operations meet the present day regulatory requirements. The goal is to prevent pollution at the source using innovative pollution prevention methods, education, training, and awareness, thereby minimizing the impact to human health and environment.

6.0 POLLUTION PREVENTION PROCESS

The initial step in the process is identification of PP opportunities. This step will identify waste stream inputs to provide a basis for determining the proper course of action. It may include re-engineering, material substitution, preventative maintenance, or task analysis to minimize materials used. The ECS, the waste generator, or both can perform the identification process.

The second step in the process involves the assessment of the waste generating process and the waste stream. The objective of this effort is to identify the operations that result in the creation of the waste stream, the raw materials contributing to the waste stream, and the possible operational or material changes which could reduce the waste, render it less toxic, and/or remove the waste from regulation as hazardous or radioactive. Plant support staff groups, such as Safety, Radiation Protection, etc., may become involved in this part of the process.

The third step in the process is making a determination regarding the feasibility of the proposal. Performance objectives/specifications may be developed during this step.

The fourth step of the process involves the assessment of the feasibility of full-scale implementation of the proposal, including any changes developed during previous stages. Resource, funding, and technical limitations are considered in this step. Typically, this step is where other plant staff groups such as Safety, Radiation Protection, etc., become formally involved.

The last step of the process is a decision-making step. This step involves facility management as decisions concerning resource allocation and other plant needs must be considered. If the project is simple, low-cost, and can be implemented with existing resources, the waste generator may make the decision to implement the changes without management involvement.

7.0 REFERENCES

- Clean Water Act of 1972, 33 U.S.C. §1251 et seq.
- Emergency Planning and Community Right-to-Know Act of 1986, 42 U.S.C. §11001 et seq.
- Pollution Prevention Act of 1990, 42 U.S.C. §13101 et seq.
- Executive Order 13834, *Efficient Federal Operations*
- U.S. Department of Energy Order 436.1, *Departmental Sustainability*
- ISO 14001:2015, *Environmental management system – Requirements with guidance for use*
- PAD-REG-1005, *Spill Prevention, Control, and Countermeasure (SPCC) Plan for the U.S. Department of Energy Paducah Site*
- PAD-REG-1006, *Best Management Practices Plan PGDP*
- *Paducah Gaseous Diffusion Plant FY2019 Site Sustainability Plan*
- ISSC-ESH-PL-002, *Waste Management Plan*
- ISSC-ESH-PL-006, *Environmental Management System*
- ISSC-ESH-PL-008, *Radiation Protection Plan –Environmental Radiation Protection Plan*
- ISSC-PM-PL-001, *Integrated Management System Plan*
- ISSC-RAD-PL-005, *Radioactive Waste Management Basis*
- ISSC-BM-PR-003, *Procurement of Items and Services*