

RCRA Inspection Report

1) Inspector and Author of Report

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2) Facility Information

U.S. Department of Energy (DOE)
Paducah Gaseous Diffusion Plant
5501 Hobbs Road
Kevil, Kentucky 42053

EPA ID# KY8890008982

3) Responsible Official

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Program Manager
Four Rivers Nuclear Partnership, LLC (FRNP)
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4) Inspection Participants

Brian Bell, FRNP
Byron Brown, FRNP
Chasity Sunderland, FRNP
Dennis Green, FRNP
Katrina Hall, FRNP
Carol Tippin, FRNP

Justin Riley, FRNP
Scott Gerstner, KYDEP
Amber Stewart, KYDEP
MaKalynn Green, KYDEP
Robert Nakamoto, US EPA

5) Dates of Inspection

February 28 – March 2, 2023

6) Applicable Regulations¹

Resource Conservation and Recovery Act (RCRA) Sections 3002 (42 U.S. Code – Annotated U.S.C.A. 6925 and 6927), and 40 Code of Federal Regulation (C.F.R.) Parts 260 - 270, 273, 278, & 279; Kentucky Revised Statutes Title XVIII, Chapter 224, Subchapter 46-Hazardous Waste *et seq.* (2006), and Title 401 of the Kentucky Administrative Regulations (K.A.R.) Chapters 30 through 38, 43 and 44 (2006).

¹ As the State's authorized hazardous waste program operates in lieu of the federal RCRA program, the citations of those authorized provisions will be to the authorized State program. However, for ease of reference, the federal citations will follow in brackets.

Kentucky Hazardous Waste Permit # KY8-890-008-982, became effective on August 26, 2015, with an expiration date of August 25, 2025.

Pursuant to 401 KAR 39:005, Section 1 [40 C.F.R. § 260.10], a large quantity generator of hazardous waste (LQG) is a generator who generates greater than or equal to 1,000 kilograms (2,200 pounds) of non-acute hazardous waste in a calendar month.

Pursuant to 401 KAR 39:080, Section 3(1) [40 C.F.R. § 273.9], a small quantity handler of universal waste (SQHUW) is a universal waste handler who does not accumulate 5,000 kilograms or more of universal waste (batteries, pesticides, mercury-containing equipment, lamps, or aerosol cans, calculated collectively) at any time.

Pursuant to 401 KAR 39:080 Section 1 [40 C.F.R. § 262.15(a)], a generator may accumulate as much as 55 gallons of non-acute hazardous waste in containers at or near the point of generation where wastes initially accumulate, which is under the control of the operator of the process generating the waste, without a permit or without having interim status, as required by KRS 224.46-520(1) [Section 3005 of RCRA, 42 U.S.C. § 6925], and without complying with 401 KAR 39:080 Section 1 [40 C.F.R. § 262.16(b) or § 262.17(a)], except as required in 401 KAR 39:080 Section 1 [40 C.F.R. § 262.15(a)(7) and (8)], provided that the generator complies with the satellite accumulation area (SAA) conditions listed in 401 KAR 39:080 Section 1 [40 C.F.R. § 262.15(a)] (hereinafter referred to as the “SAA Permit Exemption”).

Pursuant to 401 KAR 39:080 Section 1 [40 C.F.R. § 262.17], a generator of 1,000 kilograms or greater of hazardous waste in a calendar month is a large quantity generator (LQG) and may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, as required by KRS 224.46-520(1) [Section 3005 of RCRA, 42 U.S.C. § 6925], provided that the generator complies with the conditions listed in 401 KAR 39:080 Section 1 [40 C.F.R. § 262.17] (hereinafter referred to as the “LQG Permit Exemption”).

Pursuant to 401 K.A.R. 39:060, Section 3(1) [40 C.F.R. § 261.4(a)(8)], secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process are not solid wastes provided that the conditions listed in 401 K.A.R. 39:060, Section 3(1) [261.4(a)(8)] (hereinafter referred to as the “Closed-Loop Recycling Exemption”) are met.

Pursuant to 401 K.A.R. 39:060, Section 3(1) [40 C.F.R. § 261.4(b)(18)], solvent-contaminated wipes, except for wipes that are hazardous waste due to the presence of trichloroethylene, that are sent for disposal are not hazardous wastes from the point of generation, provided that the conditions listed in 401 K.A.R. 39:060, Section 3(1) [40 C.F.R. § 261.4(b)(18)] are met (hereinafter referred to as the “Solvent-Contaminated Disposable Wipe Exclusion”).

Pursuant to 401 K.A.R. 39:060, Section 3(1) [40 C.F.R. § 261.4(a)(26)], solvent-contaminated wipes that are sent for cleaning and reuse are not solid wastes from the point of generation, provided that the conditions listed in 401 K.A.R. 39:060, Section 3(1) [40 C.F.R. § 261.4(a)(26)] are met (hereinafter referred to as the “Solvent-Contaminated Reusable Wipe Exclusion”).

7) **Purpose of Inspection**

The purpose of this inspection was to conduct an unannounced compliance evaluation inspection to determine the U.S. DOE Paducah Gaseous Diffusion Plant's (PGDP) compliance with the conditions of its RCRA Hazardous Waste Facility Operating Permit (Permit Number KY8-890-008-982), the applicable requirements of RCRA and the corresponding KDEP regulations. This was an EPA lead inspection supported by KDEP staff.

8) **Facility Description**

In October 1950, the United States Atomic Energy Commission selected a former World War II munitions plant near Paducah, Kentucky, known as Kentucky Ordnance Works, as the site for the second of three planned uranium enrichment plants in the United States. The other two enrichment plants were located near Portsmouth, Ohio and Oak Ridge, Tennessee. Before World War II, the area now occupied by the PGDP site was used for agricultural purposes. Numerous small farms produced various grain crops, provided pasture for livestock, and included large fruit orchards. During World War II, a 16,126-acre tract was assembled for construction of the Kentucky Ordnance Works, a trinitrotoluene (TNT) production facility, which subsequently was operated by the Atlas Powder Company until the end of the war. Ultimately, the land was turned over to the General Services Administration.

The US Department of Energy (USDOE) owns the Paducah Gaseous Diffusion Plant which was constructed in the 1950s. The Paducah Gaseous Diffusion Plant (PGDP) was constructed in 1952 to produce enriched uranium, initially for the nation's nuclear weapons program and later for nuclear fuel for commercial power plants. The Paducah Site was an active uranium enrichment facility until 2013. The Energy Policy Act of 1992 provided for the lease of the enrichment facilities to a commercial entity that operated the enrichment facilities from 1998 to 2013. In 2014, the leased facilities were returned to DOE control, and then a DOE contractor began managing the uranium enrichment facilities for DOE. These facilities are now undergoing deactivation in preparation for decommissioning. The facility is a secured federal facility with controlled access and numerous security measures in place to adequately secure the facility.

The Paducah Site is in a rural area of McCracken County, Kentucky, 10 miles west of Paducah, Kentucky, and 3.5 miles south of the Ohio River. The plant occupies a 3,556-acre DOE-owned Site, approximately 1,986 acres of which are licensed to the Commonwealth of Kentucky as part of the West Kentucky Wildlife Management Area (WKWMA).

USDOE conducts ongoing remediation activities and has a Part B Permit. The first RCRA Part A and Part B permit applications for storage and treatment of hazardous waste at the Paducah Site were submitted in the late 1980s. US EPA has authorized the Commonwealth of Kentucky to administer the RCRA-based program for treatment, storage, and disposal units. The current Hazardous Waste Management Facility Permit was initially issued by the Kentucky Division of Waste Management (KDWM) to DOE, became effective on August 26, 2015, was modified on February 21, 2020, and it expires on August 25, 2025. The facility has 3 permitted RCRA Part B storage buildings, C-733, C-746Q and C-752A.

Operations are contracted to Four Rivers Nuclear Partnership, LLC (FRNP). The facility has 3 permitted RCRA Part B storage buildings: C-733, C-746Q, and C-752A. The facility is also registered as a Large Quantity Generator and has numerous 90-day accumulation areas and satellite accumulation areas (SAAs). The facility has a shooting range that utilizes plastic bullets instead of lead. The facility added a scrubber system as a treatment system for the on-site neutralization and scrubbing of excess fluorine and chlorine trifluoride gases. This modification was added to their registration on April 1, 2019.

The current registration expires August 31, 2023. The U.S. DOE Paducah Gaseous Diffusion Plant is registered as a TSD, LQG and LQ Universal Waste Handler and Treatment on site: neutralization of scrubbing excess fluorine and chlorine trifluoride gases.

The facility has a Kentucky Hazardous Waste Management Permit # KY8-890-008-982, with an effective date of August 26, 2015, with an expiration date of August 25, 2025. The hazardous waste management storage and treatment facilities the Permittee is permitted to operate at the facility are:

C-733 Hazardous Waste Storage and Treatment Facility – Maximum container storage capacity is 38,500 gallons.

C-746-Q Hazardous Waste Storage and Treatment Facility – Maximum container storage capacity is 306,570 gallons.

C-752-A Hazardous Waste Storage and Treatment Facility – Maximum storage capacity is 496,000 gallons.

The permit authorizes the permittee may treat hazardous waste by neutralization, precipitation, oxidation, reduction, stabilization or a combination thereof at the C-752-A Hazardous Waste Storage and Treatment Facility, and the C-746-Q Hazardous Waste Storage and Treatment Facility. The Permittee may treat hazardous waste by absorption, decanting, compaction, and macro-encapsulation at the C-752-A Hazardous Waste Storage and Treatment Facility, the C-733 Hazardous Waste Storage and Treatment Facility and the C-746-Q Hazardous Waste Storage and Treatment Facility. Treatment of fluorescent and miscellaneous lamps is authorized in C-746-Q. The following hazardous waste codes are permitted to be managed in the permitted areas:

WASTE DESCRIPTION

Gold Dissolver Precipitate
Misc. flammable materials – liquids
Misc. flammable materials – solids
Misc. solutions exhibiting toxicity characteristics
Misc. solids exhibiting toxicity characteristics
Discarded batteries
Liquids contaminated with spent solvents
Solids contaminated with spent solvents
Waste Oils
Misc. materials, debris and media
Containing spent solvents and metals – solids

HAZARDOUS WASTE CODE

D006, D008, D010
D001, D00X, F00X, U00X
D001, D00X, F00X, U00X
D00X
D00X
D00X
D001, F001, F002, F003, F004, F005, U00X
F001, F002, F003, F004, F005, U00X
D006, D008, F001, F002, F003, F004, F005
D004, D005, D006, D007, D008, D009
D010, D011, F001, F002, F003, F004, F005, U00X

Misc. laboratory wastes – liquids	D00X, F00X, U00X, P00X
Misc. laboratory wastes – solids	D00X, F00X, U00X, P00X
Activated Carbon	D040, F00X, U00X
Equipment rinsates / decontamination wastes	D00X, F00X, U00X
Light bulbs	D006, D007, D008, D009
Sludges / scale	D00X, F00X, U00X
Compressed Gasses	D003, D001
Fuses / Circuit Boards	D006, D008, D009, D011
Leachate	F039
Pentachlorophenol	F027
D00X:	All waste codes are identified in 401 KAR 31:030
F00X:	All waste codes are identified in 401 KAR 31:040, Section 2
K00X:	All waste codes are identified in 401 KAR 31:040, Section 3
P00X:	All waste codes are identified in 401 KAR 31:040, Section 4
U00X:	All waste codes are identified in 401 KAR 31:040, Section 4

In 2021, there were 73 shipments of hazardous waste for a total of 345,630 lbs. The facility ships to Clean Harbors, WCS, DSSI and Energy Solutions. The 2022 Hazardous Waste Annual Report had been submitted. Waste codes managed at the facility, as reported in the 2021 Biennial report, included for that year: D001, D002, D003, D004, D005, D006, D007, D008, D010, D011, D018, D021, D022, D027, D032, D035, D039, F001, F002, F039, and U228.

The primary NAICS number for the facility is 92411 for “Administration of air and water resource and solid waste management programs.”

9) **Previous Inspection History**

The Kentucky Department of Environmental Protection (KDEP) has conducted eleven RCRA CEIs at the subject facility between 2013 and 2022 and found no violations during those inspections. The facility was last inspected by US EPA in April 2018. On August 3, 2022, KDEP conducted the most recent RCRA CEI at the subject facility and found no violations of RCRA’s requirements.

10) **Opening Conference**

On Tuesday, February 28, 2023, EPA inspector Robert Nakamoto, accompanied by KYDEP inspectors Amber Stewart and MaKalynn Green (Paducah Regional Office) and Scott Gerstner (Louisville Regional Office), arrived at the U.S. U.S. Department of Energy (DOE), Paducah Gaseous Diffusion Plant, at the security building, at approximately 9:00 a.m. The inspection team in-processed through security access. The Security Team Leader over this DOE site stopped by the building, introduced himself, and gave a brief security briefing and checked to ensure in-processing was rapidly proceeding. Katrina Hall, the Environmental Field Compliance Manager, met the inspection team at the security building. After in-processing through security the inspection team was issued visitor badges and followed Katrina Hall to a designated building to meet with the site’s environmental staff for the opening conference.

The following personnel were present at the opening conference:

<u>Name</u>	<u>Affiliation</u>
Byron Brown	FRNP
Dennis Greene	FRNP
Bryan Smith	FRNP
Katrina Hall	FRNP
J. Scott McIntyre	DOE
Bruce Ford	DOE
Ryan Callihan (by phone)	DOE
Brian Bell	FRNP
George Buttersworth (by phone)	ETAS
Cindy Zronar (by phone)	DOE
Jonathan Hubbard	ETAS
Scott Gerstner	KDEP
Amber Stewart	KDEP
MaKalynn Green	KDEP
Robert Nakamoto	US EPA

The inspectors introduced themselves, showed their credentials, and explained the purpose of the visit. It was agreed that FRNP or DOE staff would take photographs so that all pictures could go through a security check before being released. It was agreed that the photographs, once released by security, would be transferred to the inspection team. The facility's staff provided a detailed overview of the facility's history, with an emphasis on recent and current operations. Current waste management operations were briefed by the facility's staff. A map was used to provide an overview of the facility layout. The facility staff reviewed health and safety protocols and the required personal protective equipment. Security requirements for the site were also reviewed.

The site is a large secured federal facility and documents are subject to a security review before release. The EPA inspector provided a copy of the U.S. EPA Small Business Resources Information Sheet and US EPA Confidential Business Information (CBI) Notice via email. The facility did not assert a business confidentiality claim.

11) **Inspection Observations**

Below is a description of the observations made during the walk-through portion of the inspection. Due to safety concerns, some of the containers had a radioactive component and/or were fissile materials (materials when placed together in threshold quantities may potentially sustain a reaction), so distance had to be maintained from the containers. Some areas were cordoned off due to radiation concerns and the inspection team, in general, stayed outside of the cordoned areas. The inspection notes on these areas were restricted due to distance requirements.

Building C-752-A (Photographs 1-10)

The first area inspected was Building C-752-A. Building C-752-A is one of three container storage and treatment areas included in the hazardous waste permit. All waste streams (listed in the facility description above) may be stored in this facility except for flammable wastes with a flash point <

100° F. Ignitable wastes may be stored at C-752-A with a flashpoint between 100° and 140° F. The maximum container storage capacity is 496,000 gallons.

We were met by Carol Tippin, the Supervisor for this area. C-752-A building is permitted to store and treat hazardous wastes. The building is located in the northwest section of PGDP. Neutralization, oxidation, reduction, precipitation, and/or stabilization treatment processes can be performed in this permitted building. These treatment processes can occur in a reaction unit or other appropriate containers. Treatment technologies such as absorption, compaction, and/or macroencapsulation are also permitted by the permit. C-752-A can be used for the treatment of wastewaters, including sump collections, recovered spilled water, decontamination water, landfill leachate, and groundwater purge and development water.

The C-752-A facility is a warehouse-type building that provides 41,000 ft² of storage for waste containers. A concrete slab with a 16-inch curb provides secondary containment. The secondary containment for the C-752-A storage facility is provided by the area inside the curb. This facility provides 408,800 gallons of containment capacity for solids and liquid storage. The slab and curb are coated with a chemically resistant sealant. In some areas, temporary diked areas are around sub-storage areas located within Building C-752-A. The permit, in section 5.3.7 of the application, specifies that containers may be stacked two containers high with a pallet or elevated platform. The permit notes that the height of the stacked containers shall not exceed 12 feet.

The inspectors observed that containers were properly marked and labeled. Unless otherwise noted all containers were labeled, closed and dated. Supplemental secondary containment was around many of the storage areas within Building C-752-A. Wastes were observed to be stored in 55-gallon drums, tote tanks of approximately 200 gallons capacity, portable tanks of approximately 1,000 to 3,000 gallons in capacity, and square storage containers (ST-90s). Portable 1,200-gallon tanks, on trailers, were also in the building.

A square building was located within Building C-752-A. This containment building can be used to process waste in a controlled environment.

Building C-752-A was observed to have safety equipment and spill response equipment to include safety showers. Near the internal processing building four 10,500-gallon hazardous waste tanks were observed. These four plastic tanks were resting on metal pallets that had a label stating the capacity of the pallet was 10,000 pounds. The area was surrounded by an internal secondary containment berm. The tanks were labeled with hazardous waste codes F001, F002, and U228. The tanks were not in use at the time of the inspection and had not been utilized for several years. From observations from facility personnel, the tanks are believed to have been last in use around 2019.

Building C-757 (Photographs 11-17)

Building C-757 contained a less than 90-day hazardous waste storage area (HWSA) 90DAA-757-01 (the facility number for this area). The building appeared to be well maintained and no spills or releases were observed. This building had a SAA consisting of six red metal containers of approximately 5-gallons capacity. The containers were all closed and properly labeled with hazardous waste labels and hazards indication information. The containers segregated wastes for

mercury, different types of batteries, lamps, and starters and fuses. The building also had one 55-gallon drum for lamps and one 55-gallon drum for aerosol cans. A 30-gallon container of nickel-cadmium batteries and a 30-gallon container of PCB wastes. An ST-90 Container Box, containing hazardous waste (circuit boards, fuses, starters, etc.) was also in the building. Two pallets with batteries on them were also observed. All containers appeared to be properly labeled and marked, closed, and were in good condition.

Building C-733 (Photographs 18-19)

Building C-733 is a permitted area included in the hazardous waste permit. All waste streams listed in the permit may be stored in this facility to include ignitable wastes. The maximum container storage capacity is 38,500 gallons. Flammable wastes, reference the permitted areas, are stored in C-733 only. There was one 55-gallon container of aerosol cans present at the time of the inspection.

The C-733 Hazardous Waste Storage and Treatment Facility is a partially sided, roofed, and diked storage area permitted to store spent solvents, paint waste, mineral spirits, containers of waste chemicals, and other miscellaneous waste materials in containers. At the time of the inspection the building was found to properly equipped with fire extinguishers, and eye wash, a spill skit, and had a sprinkler system. One 55-gallon drum of hazardous waste was present. The area was mostly empty.

Building 746-Q (Photographs 20-21)

Building C-746-Q is the third area covered in the hazardous waste permit. All waste streams (listed in the condition immediately above) may be stored in this facility except for D001. No ignitable wastes are permitted to be stored at C-746-Q. The maximum container storage capacity for this permitted area is 306,570 gallons. Potentially fissile material wastes are stored in this building. The facility has special storage units to ensure that the containers are adequately spaced. At the time of the inspection, eight 5-gallon containers of hazardous waste were in the area. The containers were in good condition, closed, and properly labeled. No maintenance issues with the building were observed. Three non-hazardous 5-gallon containers of waste were observed. The facility has the potentially fissile material areas roped off to mark the areas that should not be entered without following proper safety protocols. All containers appeared to be properly labeled and marked, closed, and were in good condition.

C-404 Landfill (Photographs 22-29)

The C-404 Landfill is a closed construction and demolition and radiological waste landfill which is currently undergoing groundwater monitoring. The landfill was observed closed off with chains and signs stating "Caution Inactive Contaminated Area. RWP Required in Area." The area appeared well kept and the grass was mowed to a short level. The inspectors observed that the wells were closed and had labeled plaques on the concrete slabs. The well caps were locked. The wells had yellow metal post around them to protect the wells.

Building C-400 (Photographs 30-32)

Building C-400 is a closed building. The current plan is to demolish the building. During its operational period, Building C-400 was used as a chemical decontamination facility with laundry. Additional operations occurred in this building which resulted in the release of TCE plume.

C-752-C CERCLA Staging Area (Photographs 33-38)

The inspectors visited the C-752-C CERCLA Staging Area and observed and overhang building with various storage containers. We were met by Justin Riley, the facility manager for this area. All containers observed were labeled and closed. Ten 3,000-gallon portable tanks were present that appeared to be empty at the time of the inspection. Two 1,550-gallon tanks containing well water waste. This waste was labeled with the F001, F002, and U228 waste codes on the hazardous waste label and the accumulation start date for one container was 1/19/2023 and the other was 1/7/2023. Two 55-gallon drums, full of paper, PPE, soil, and plastic, dated 2/23/2023, were also present. Justin Riley briefed that this area can be utilized to decontaminate equipment and to collect the wash fluids. The area appeared to be well maintained and no spills, leaks, or maintenance issues were observed.

C-612 Pump and Treat Area

This facility treats contaminated groundwater. Water is treated via a series of sand filters and air strippers and ion exchange vessels. Waters are treated down to non-detect levels. Vapors are treated by carbon units. A SAA with two 55-gallon drums of waste present appeared to be well maintained and no spills, leaks, or maintenance issues were observed.

760 CERCLA Staging Area (Photographs 30-32)

The inspection team went to the 760 CERCLA Staging Area. Wastewater that is staged in this area can be sent to the C-612 treatment area. Solids can be sent to the landfill. The area appeared to be well maintained and no spills, leaks, or maintenance issues were observed.

Building C-335, Area C-335-3 (Photograph 41)

The 90-day accumulation area was inspected. This area had four 5-gallon containers of hazardous waste in the fissile area. The 5-gallon containers are put into specially designed metal holding areas that keep the fissile containers adequately separated. The area appeared to be well maintained and no spills, leaks, or maintenance issues were observed.

Building C-335, Area C-335-4 (Photographs 42 & 43)

This 90-day accumulation area had two 55-gallon drums, one hazardous and one non-hazardous. The hazardous waste drum was being utilized for non-fissile vacuum waste. This drum was empty at the time of the inspection. The non-hazardous drum was utilized for storing activated aluminum waste. The area appeared to be well maintained and no spills, leaks, or maintenance issues were observed. All containers appeared to be properly labeled and marked, closed, and were in good condition.

Building C-335, Area C-335-2

This 90-day area was empty at the time of the inspection.

Building C-335, Area C-335-Central (Photograph 45)

This was a SAA with seven 5-gallon containers. The containers were for aerosol cans, Ni-Cad batteries, Lead Acid batteries, Lithium batteries, fuses, bulbs, and starters. Waste from this staging area would be periodically sent to Building 757. The area appeared to be well maintained and no spills, leaks, or maintenance issues were observed. All containers appeared to be properly

labeled and marked, closed, and were in good condition.

Building C-337, Area C-337-Central (Photograph 45)

This was a SAA with six 5-gallon containers. These containers contained aerosol cans, lead acid batteries, Ni-Cad batteries, Lithium batteries, incandescent bulbs, and starters and fuses. The area appeared to be well maintained and no spills, leaks, or maintenance issues were observed. All containers appeared to be properly labeled and marked, closed, and were in good condition.

Building 337, 90-day Area 90DAA-337-02 (Photograph 46)

This area had a 30-gallon hazardous waste drum containing D005 and D010 wastes. The container was dated 12/12/2022 and contained toxic spent oil. The area appeared to be well maintained and no spills, leaks, or maintenance issues were observed. All containers appeared to be properly labeled and marked, closed, and were in good condition.

Building 337, SAAs, S-337-02, 06, 09, 08 (Photographs 47-52)

This area had four SAAs. These areas were for accumulating waste oil, electronic circuits and fuses, Oily absorbent rags, and acid from batteries in 55-gallon containers. A photograph was taken of each area and of the four areas together. The 55-gallon drums were on pallets that had secondary containment intrinsic to the pallet. The area appeared to be well maintained and no spills, leaks, or maintenance issues were observed. All containers appeared to be properly labeled and marked, closed, and were in good condition.

Building 333, SAAs S-333-12, 22, 15, 18, 13, 17, 24, 25 (Photographs 53-56)

The SAAs in Building 333 were inspected. Areas 22, 18, 24, and 25 were empty at the time of the inspection. Area S-333-13 had one 55-gallon drum of lube oil with waste codes D005 and D010. Area S-333-15 had one 55-gallon drum of oily pads with waste codes D005 and D010. Area S-333-13 had one 55-gallon container of waste lube oil with waste codes D005 and D010. Area S-333-17 had one 55-gallon drum of unpunctured aerosol cans with waste codes D001 and D003. The area appeared to be well maintained and no spills, leaks, or maintenance issues were observed. No issues regarding labeling or marking were observed. All containers were closed and appeared to be in good condition.

Building 333, 90-day Area 90DAA-333-01 (Photographs 57-61)

This 90-day area had four ST-90 box containers of hazardous waste. One box, dated 2/28/2023, had waste with waste codes D006, D007, and D008. One box, dated 2/3/2023, had waste with waste codes D006, D007, and D008. One box, dated 2/9/2023, had waste with D006, D007, D008, and D009 waste codes. The final box, dated 2/14/2023, had waste with D006, D007, D008, and D009 waste codes and also contained asbestos fibers. All containers were marked on two sides. The area appeared to be well maintained and no spills, leaks, or maintenance issues were observed. All containers appeared to be properly labeled and marked, closed, and were in good condition.

Building 409 (Laboratory Building), SAAs S-409-01, 02, and 04 (Photographs 62-65)

Area S-409-02 contained one 55-gallon container for accumulating ignitable wastes. Area S-409-04 had one 55-gallon container for storing corrosive wastes. Area S-409-04 held two hazardous waste 21-gallon containers of potentially fissile material in special metal pallets. This area was

cordoned off and had radioactive caution signs. One container held aqueous oxide solutions from laboratory operations and one container held aqueous solution from laboratory operations. The area appeared to be well maintained and no spills, leaks, or maintenance issues were observed. All containers appeared to be properly labeled and marked, closed, and were in good condition.

Building 724 (Photographs 66-68)

The 90-day accumulation area 90DAA-724-01 was empty at the time of the inspection. This building had a battery testing area. SAA S-724-04 had one 55-gallon container for accumulating oil and fuel filters. SAA S-724-03 had one 55-gallon container for accumulating used oil that cannot be recycled. The area appeared to be well maintained and no spills, leaks, or maintenance issues were observed. All containers appeared to be properly labeled and marked, closed, and were in good condition.

Building 720 (Photographs 69-73)

SAA S-720-12, 14, and 10 were empty at the time of the inspection. One 90-day area, 90DAA-720-02 was in operation in Building 720. The 90-day area had a ST-90 box and one 55-gallon container. The 55-gallon container held hazardous waste with waste codes D006, D007, D009, and D010 containing circuit boards, etc. The ST-90 container contained “RCRA wastes” containing welding rods and various electronics and had waste codes D006, D008, D009, and D010. The area appeared to be well maintained and no spills, leaks, or maintenance issues were observed. All containers appeared to be properly labeled and marked, closed, and were in good condition.

C-746-U Landfill Access (Photographs 74-78)

In the 2018 U.S. EPA Inspection report a point of concern was raised about whether the route to the C-746-U landfill from the main site possibly constituted a route that made the C-746-U Landfill an off-site facility. The inspection team was briefed on different possible routes to the landfill. We then drove along one route that was entirely on the facility’s on-site roads. We stopped at the crossroad leading to the landfill. The inspection team was shown another route where a single gate could be unlocked to provide another route to the landfill. Based on the review of the facility map and site observations, the two on-site routes to the landfill do not raise any concerns related to the landfill being an “off-site” landfill. There are two routes where the landfill can be accessed without traveling along a public road.

12) Records Review

Contingency Plan and Quick Reference Guide (QRG):

The actions that facility personnel should take in response to an emergency are described in the facility’s Site Emergency Management Plan, updated in December 2019, and approved in February 2020, which was reviewed. The last update put in new analytical methods, a quick reference guide, and updated regulatory references.

The plan described the actions facility personnel must take in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility. The plan described arrangements agreed to with the local police department, fire department, other emergency response teams, emergency response

contractors, equipment suppliers, local hospitals or the Local Emergency Planning Committee. The facility has mutual aid agreements with numerous local agencies. The mutual aid letters were observed. These agencies have been provided a copy of the emergency plan.

The plan includes an emergency coordinator list. The Plant Shift Supervisor (PSS) is the emergency coordinator. The plan includes an evacuation plan and an emergency equipment list.

The facility also has a contingency plan for its 90-day areas, dated January 23, 2023. The quick reference guide was reviewed and was found to be adequate. As a federal facility managing radioactive wastes, the facility's emergency procedures and plans meet, or substantially exceed, the RCRA requirements.

Waste Analysis Plan and Procedures:

Waste analysis procedures were reviewed. The Waste Analysis Plan (WAP) had been updated in December 2019 and approved in February 2020. The facility appeared to be permitted for all waste codes. All paperwork reviewed, as well as all information observed from the walk-through portion of the inspection, indicated that the facility is thoroughly classifying its waste streams. The waste determinations and classifications appeared to be correct.

Training Records:

The inspectors reviewed the computer-based training system. This computer-based training is developed and updated by FRNP. The employees have also completed a 20-hour RCRA refresher through the United Steelworkers Union. The training is based on the employee's job description. All new employees are trained based on their job description. The computer-based training system automatically notifies employees when they are due for an annual review. The training covers identification of wastes, TSDF requirements, handling and storage of wastes, shipping and emergencies. The facility also has specialized training on such areas as lead, asbestos, beryllium, etc. The Human Resource section keeps job descriptions. All employees interviewed during the course of the inspection were knowledgeable about their duties concerning waste management.

Hazardous Waste Permit:

The facility had a copy of its current permit and the related permit application. The facility environmental personnel were familiar with both the permit and the permit application.

Hazardous Waste Manifests and Land Disposal Restriction Notifications:

The hazardous waste manifests, and Land Disposal Restriction (LDR) notifications, for 2022, and 2023, were inspected. No missing manifests or incomplete manifests were identified. LDRs were included with each manifest. The manifest records were very well organized and promptly retrieved. Manifests are kept on file indefinitely.

Annual Reports:

The inspectors reviewed the 2021 Annual Report. There were 73 shipments for a total of 345,630 lbs. The facility ships its hazardous waste to Clean Harbors, WCS, DSSI and Energy Solutions. The 2022 Annual Report has been submitted.

Weekly Inspection Records:

The weekly inspection records for the container areas were reviewed. The inspections are typically performed by Chasity Sunderland. No missing or incomplete inspections were identified. The inspection log includes a checklist to record observations about leaking containers and for deterioration of containers caused by corrosion or other factors. The records included the date and time of the inspection and the name, signature and initials of the employee conducting the inspection. Employees are routinely recording inspection observations and subsequent follow-up actions on the inspection log.

Tank versus Container Review:

In regard to the four 10,500 mobile tank units in Building C-752-A a review was conducted on whether the units were tanks or containers for regulatory purposes. The June 3, 1987, federal register, page 20919, states, “*Several members of the regulated community has asked whether a mobile unit could ever qualify as a tank, because § 260.10 defines tanks as "stationary devices." EPA confirms that a mobile tank would qualify as a tank under § 260.10, and would be subject to the Subpart J tank standards of Part 264, as long as it was intended to be stationary during operation and it otherwise met the definition of a tank.*” On EPA’s website, page 2 of the tank module states, “*Tanks are simply receptacles for holding hazardous waste. The distinguishing feature of tanks is that they are stationary while in use.*” While the units in question are mobile when empty, they are not intended to be used as transportation units and are stationary when in use. Each unit, when full, would weigh over 42 tons. The units, based on information received from the facility, are over 20 years old and may be approaching their service life limit. For regulatory requirements per 401 KAR 39:090, Section 2(1) [40 C.F.R. § 265.191 and 192], and for safety considerations, an assessment by a Professional Engineer is required. The tanks are subject to Subpart J requirements. This was identified as an area of concern.

13) Closing Conference

The inspectors conducted the exit meeting at approximately 1:30 p.m. on Thursday, March 2, 2023.

The following personnel were present at the closing conference:

<u>Name</u>	<u>Affiliation</u>
Byron Brown	FRNP
Dennis Greene	FRNP
Bryan Smith	FRNP
Katrina Hall	FRNP
Carrie Maxie	FRNP
Jonathan Hubbard	ETAS
Bryan Smith	FRNP
Bruce Ford	DOE
Jason Casper (by phone)	FRNP
Lonnie Bertram (by phone)	FRNP
George Butterworth	ETAS
Cindy Zronar	DOE

Scott Gerstner
Amber Stewart
Robert Nakamoto

KDEP
KDEP
US EPA

During this meeting, the inspectors stated their preliminary conclusions of the inspection. The only area of concern was the four 10,500 storage units on the question of if they should be managed under the tank or container standards. The units were not in use at the time of the inspection and it was believed they were last utilized in the 2018-19 time frame. The facility agreed to provide photographs the following week.

14) Sampling Overview (If Applicable)

Not applicable as no samples were taken.

15) List of Appendices

Appendix 1 – Photo Log

Photos taken on: February 28 and March 1, 2023

Photos taken by: Katrina Hall (Facility personnel took photographs due to facility security requirements)

Appendix 2 – July 3, 1957, Easement for Ogden Road from U.S. Department of Energy

Appendix 3 – Page 20919 of June 3, 1987, Federal Register

Appendix 4 – US EPA Tank Training Module September 2005

16) Signed

Nakamoto, Robert  Digitally signed by Nakamoto, Robert
Date: 2023.06.01 15:15:32 -04'00'

Robert S. Nakamoto
Environmental Engineer

17) Concurrence

ARACELI CHAVEZ  Digitally signed by ARACELI CHAVEZ
Date: 2023.06.01 15:53:30 -04'00'

Araceli B. Chavez
Chief
RCRA Enforcement Section

Appendix 1
February 28, March 1, & March 6, 2023, Photographs of
U.S. Department of Energy (DOE),
Paducah Gaseous Diffusion Plant
5501 Hobbs Road
Kevil, Kentucky 42053

Building C-752-A



Photograph 1: Building C-752-A, Photograph of the Interior of the building.



Photograph 2: Photograph of interior looking left.



Photograph 3: Example of secondary containment in many areas.



Photograph 4: Example of container in building.



Photograph 5: Photograph of ST-90 hazardous waste box.



Photograph 6: Photograph of portable hazardous waste container on left.



Photograph 7: Photograph of container work building (not in use).



Photograph 8: Photograph of storage tank.



Photograph 9: Four 10,500 hazardous waste storage tank.



Photograph 10: Metal pallets on which the tanks rest.

Building 757



Photograph 11: SAA S-757-01



Photograph 12: Miscellaneous bulb collection and aerosol can collection.



Photograph 13: Generator Staging Area G-757-03 (PCBs)



Photograph 14: Generator Staging Area G-757-01



Photograph 15: ST-90 Hazardous Waste Storage Container.



Photograph 16: Battery staging area.



Photograph 17: Battery staging area.

Building C-733



Photograph 18: Interior of mainly empty building.



Photograph 19: Interior of mainly empty building.

Building 746-Q



Photograph 20: Hazardous waste fissile material containers separated by metal pallet spacing.



Photograph 21: Hazardous waste containers.

C-404 Landfill



Photograph 22: Exterior of landfill showing cut vegetation.



Photograph 23: Picture of a monitoring well with a locked cap.



Photograph 24: Picture of a monitoring well with a locked cap.



Photograph 25: Picture of a monitoring well with a locked cap.



Photograph 26: Picture of a monitoring well with a locked cap.



Photograph 27: Exterior of the landfill showing cut vegetation.



Photograph 28: Picture of the top of Landfill Unit C-404



Photograph 29: Second photograph of the top of Landfill Unit C-404

Building C-400



Photograph 30: Picture of empty interior of Building 400.



Photograph 31: Picture of empty interior of Building 400.



Photograph 32: Picture of empty interior of Building 400.

C-752-C CERCLA Staging Area



Photograph 33: Interior of C-752-C CERCLA Staging Area.



Photograph 34: Interior of C-752-C CERCLA Staging Area.



Photograph 35: Tank in interior of C-752-C with Hazardous Waste Wastewater.



Photograph 36: Second portable tank in interior of C-752-C with hazardous waste.



Photograph 37: Two 55-gallon drums in C-752-C containing PPE, soil, plastic, and paper.



Photograph 38: Bay inside of the C-752-C CERCLA Staging Area.

C-760 CERCLA Staging Area



Photograph 39: Containers in the C-760 CERCLA Staging Area.



Photograph 40: Containers in the C-760 CERCLA Staging Area.

Building C-335, Area C-335-3



Photograph 41: Hazardous Waste Fissile 5-gallon containers. SAA S-335-03.

Building C-335, Area C-335-4



Photograph 42: Two 55-gallon drums in SAA S-335-04.



Photograph 43: Photo of drum labeling in SAA S-335-04.

Building C-335, Area C-335-Central



Photograph 44: 5-gallon hazardous waste containers in SAA S-335-Central.

Building C-337, Area C-337-Central



Photograph 45: 5-gallon hazardous waste containers in SAA S-337-Central.

Building 337, 90-day Area 90DAA-337-02



Photograph 46: 30-gallon hazardous waste drum in 90-day Area 90DAA-337-02.

Building 337, SAAs, S-337-02, 06, 09, 08



Photograph 47: 55-gallon Hazardous Waste Drum in SAA S-337-02



Photograph 48: Picture of labels on the 55-gallon Hazardous Waste Drum in SAA S-337-02.



Photograph 49: 55-gallon Hazardous Waste Drum in SAA S-337-06.



Photograph 50: 55-gallon Hazardous Waste Drum in SAA S-337-09.



Photograph 51: 55-gallon Hazardous Waste Drum in SAA S-337-08.



Photograph 52: Picture of the four SAAs S-337-02, 06, 08, and 09.

Building 333, SAAs S-333-12, 22, 15, 18, 13, 17, 24, 25



Photograph 53: 55-gallon drum in SAA S-333-12.



Photograph 54: Picture of the labeling on the drum in S-333-12.



Photograph 55: Picture of empty area for S-333-22.



Photograph 56: 55-gallon hazardous waste drum in SAA S-333-15.

Building 333, 90-day Area 90DAA-333-01



Photograph 57: Picture of the sign for 90-Day Area 90DAA-333-01 With Contact Information.



Photograph 58: First ST-90 Storage Container in 90DAA-333-01.



Photograph 59: Second ST-90 Storage Container in 90DAA-333-01.



Photograph 60: Third ST-90 Storage Container in 90DAA-333-01.



Photograph 61: Fourth ST-90 Storage Container in 90DAA-333-01.

Building 409 (Laboratory Building), SAAs S-409-01, 02, and 04



Photograph 62: Satellite Accumulation Areas in Building 409.



Photograph 63: 55-Gallon Satellite Container Containing Conductivity Solutions.



Photograph 64: 55-gallon Satellite Container with Corrosive, Non-Fissile, Aqueous Waste.



Photograph 65: Satellite Containers with fissile material.

Building 724



Photograph 66: Battery Testing Area.



Photograph 67: 55-Gallon Hazardous Waste Container in SAA S-724-04.



Photograph 68: Oil Draining Area in SAA S-724-03.

Building 720



Photograph 69: Empty SAA area S-720-14.



Photograph 70: Empty 55-gallon container in SAA S-720-12.



Photograph 71: ST-90 and 55-Gallon Hazardous Waste Containers in 90DAA-720-02.



Photograph 72: Labeling on the ST-90 Container in 90DAA-720-02.



Photograph 73: Labeling on the 55-Gallon Container in 90DAA-720-02.

Access to C-746-U Landfill & Landfill Access



Photograph 74: Picture looking back towards the main facility from Ogden Road.



Photograph 75: Picture looking towards CERCLA landfill crossing Ogden Road.



Photograph 76: Another picture of the intersection.



Photograph 77: Picture of the landfill area to the right.



Photograph 78: Second picture of the landfill area.