

RCRA Compliance Evaluation Inspection Report

1) Inspector and Author of Report

Raj Aiyar
Environmental Engineer
U.S. Environmental Protection Agency, Region 4
RCRA Enforcement Section
Chemical Safety and Land Enforcement Branch
Enforcement and Compliance Assurance Division
61 Forsyth Street S.W.
Atlanta, Georgia 30303-8960
(404) 562-8993
aiyar.raj@epa.gov

2) Facility Information

EnergySolutions
PO Box 2530
Oak Ridge, Tennessee 37830
County: Roane

NAICS Code: 562219 Nonhazardous Waste Treatment and Disposal
EPA ID No.: TND982157570

Physical Address: 1560 Bear Creek Road
Oak Ridge, Tennessee, 37830

Telephone: (865) 220-1236

3) Responsible Officials

Mr. Randall Richardson, General Manager, Bear Creek Operations, EnergySolutions
Ms. Erin Sims-Taylor, Environmental Compliance Manager, EnergySolutions

4) Inspection Participants

Ms. Erin Sims-Taylor, Environmental Compliance Manager
EnergySolutions
Phone: (865) 220-1236
Email: esims-taylor@energysolutions.com

Mr. Noel Peters, Process Operations Lead
EnergySolutions
Phone: (865) 220-1383

Email: njpeters@energysolutions.com

Mr. David King, Facilities Maintenance Shift Lead
EnergySolutions
Phone: (865) 220-1379
Email: dking@energysolutions.com

Ms. April Schaaf, Training Manager
EnergySolutions
Phone: (865) 220-1384
Email: aschaaf@energysolutions.com

Mr. Nick Arden, Logistics Manager
EnergySolutions
Phone: (865) 220-1246
Email: narden@energysolutions.com

Mr. Tyler Wilkerson, Safety and Health Specialist
EnergySolutions
Phone: (865) 220- 5823
Email: twilkerson@energysolutions.com

Mr. Greg Crisp, Electrician
EnergySolutions
Phone: (865) 220-1425
Email: gcrisp@energysolutions.com

Mr. Raj Aiyar, Environmental Engineer
U.S. E.P.A. - Region 4
Phone: (404) 562-8993
Email: Aiyar.Raj@epa.gov

Mr. John C. Webb, Environmental Consultant
Tennessee Department of Environment and Conservation
Phone: (423) 492-3007
Email: John.C.Webb@tn.gov

Mr. Craig Smith, Environmental Consultant
Tennessee Department of Environment and Conservation
Phone: (865) 722-0025
Email: Craig.Smith@tn.gov

5) Date and Time of Inspection

June 9, 2022, 8:30 a.m.

6) Applicable Regulations

Resource Conservation and Recovery Act (RCRA) Sections 3002, 3004, 3005, 3007 and 3008, (42 U.S.C. §§ 6922, 6924, 6925, 6927 and 6928)

40 Code of Federal Regulations (C.F.R.) Parts 260-266, 270, 273, 279

Tennessee Hazardous Waste Management Act TCA 68-212, Part 1 and 3, with the Used Oil Collection Act of 1993 TCA68-211, Part 10 and with the regulations adopted pursuant to those Acts.

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

7) Purpose of Inspection

On June 9, 2022, inspectors from the U.S. Environmental Protection Agency, Region 4, and the Tennessee Department of Environment and Conservation (TDEC), Division of Solid Waste Management (DSWM) conducted an unannounced compliance evaluation inspection (CEI) at EnergySolutions (hereinafter, "EnergySolutions" or the "facility") to determine its compliance status with the RCRA and the State of Tennessee regulations.

8) Facility Description

EnergySolutions receives and processes low-level radioactive waste. The facility's primary function is the safe processing and packaging of radioactive material for permanent disposal. The facility's radioactive materials processing capabilities include bulk waste assay, decontamination, recycle, compaction, incineration, metal melting and variety of specialty waste stream management options. Low-level radioactive waste is handled either in the Central Volume Reduction Facility (CVRF) or in the Metal Melt facility. These operations often generate mixed hazardous waste, which is handled and disposed of as site-generated hazardous mixed waste under Tennessee hazardous waste permit TNHW-171.

The EnergySolutions site occupies approximately 30 developed acres (plus additional undeveloped acreage). The facility currently has approximately 200 employees. Most employees work four days per week, ten hours per day.

In its most recent notification of annual hazardous waste generation to TDEC received on February 17, 2021, EnergySolutions identified itself as a large quantity generator of hazardous waste (D006, D007, D008, D009, D011) and as small quantity handler of universal waste and used oil generator. EnergySolutions uses Hittman Transport Services (EPA ID# TNR000034686) as transporter and EnergySolutions Clive Facility (EPA ID# UTD982598898) for waste disposal purposes.

HAZARDOUS WASTE STREAMS GENERATED:

EnergySolutions estimates the following hazardous monthly waste streams, in part.

<i>Waste Number/Name</i>	<i>Source</i>	<i>Waste Codes</i>	<i>Monthly max Lb.</i>
12 Waste sample extraction	Laboratory liquid waste from sample/analytical operations	D006, D008	2205
24 Lab pack BCO	Disposal of unused discarded chemicals or products	D006, D007, D008, D009	463
25 Waste lead for macro	Decontamination operations, obsolete equipment	D008	22046
46 Waste lead acid batteries	Spent radioactively contaminated batteries	D002, D008	110
49 Waste ventilation filters	Filters/filter media contaminated through use/operations	D006, D008	326
52 Waste DAW, CVRF decon room	Solid dry active waste (DAW) – wood, paper, plastic cloth, rubber, cardboard, etc. contaminated with lead	D008	121
54 Ventilation Filters, Incinerator	Filters/filter media contaminated through use/operations	D004, D006, D007, D008, D010	326
55 Baghouse Bags, Unit A, Incinerator	“	D006, D007, D008	400
56 Baghouse Bags, Unit B, Incinerator	“	“	400
57 Boiler Ash, Unit A, Incinerator	Generated from incineration of low-level radioactive waste from the boiler area of the incinerator Unit A	“	400
58 Boiler Ash, Unit B, Incinerator	Generated from incineration of low-level radioactive waste from the boiler area of the incinerator Unit B	“	600
59 Waste Fly Ash, Unit A, Incinerator	Generated from incineration of low-level radioactive waste, fly ash is from the baghouse area of the incinerator Unit A	D006, D007, D008, D010	400
60 Waste Fly Ash, Unit B, Incinerator	Generated from incineration of low-level radioactive waste, fly ash is from the baghouse area of the incinerator Unit B	D004, D006, D007, D008, D010	992
61 Hearth Ash, Unit A, Incinerator	Generated from incineration of low-level radioactive waste, hearth ash is from the primary chamber area of the incinerator Unit A	D006, D007, D008, D009	992
62 Hearth Ash, Unit B, Incinerator	Generated from incineration of low-level radioactive waste, hearth ash is from the primary	D004, D006, D007, D008, D009	992

	chamber area of the incinerator Unit B		
63 Waste mop water, incinerator	Mixture of water, detergent, oil, and dirt from routine floor cleaning	D006, D007, D008	900
66 Waste Unit A Slag, Incinerator	A combination of carbon residue and melted ash, forming ceramic buildup on incinerator refractory surfaces in the primary and secondary chambers of incinerator Unit A, and periodically removed	D006, D007, D008	600
67 Waste Unit B Slag, Incinerator	“ Unit B “	“	600
74 Waste baghouse dust BH1, metal melt	Dust/ash generated by operation of baghouse filters (bags) in the metal melt facility	D006, D008	300
75 “ BH2	“	“	300
76 “ BH3	“	D006, D007, D008	300
77..... “ BH4	“	“	300
82 Waste Cyclone Dust C1, Metal Melt	Dust or ash generated by operation of cyclone vacuum	D006, D007, D008	300
83 Waste Cyclone Dust C2, Metal Melt	Dust or ash generated by operation of cyclone vacuum	D006, D007, D008	300
84 Waste debris, metal melt	Area debris/trash/waste generated by operation of cutting, sizing and sorting operations	“	300
87 Floor sweepings, metal melt	Metal melt area housekeeping/maintenance/operations	“	300
93 Waste Furnace Slag, Metal Melt	Generated from furnace operations, materials may include metal	“	300
102 Lead swarf, metal melt	Lead melting/processing operations waste	D008	300
124 Waste Sample Residue, MM Lab	Sample prep and analytical waste		300
131 Waste Baghouse Dust, HEPA Vacuum, Metal Melt	HEPA vacuum dust from area housekeeping.	D006, D007, D008	900

9) **Previous Inspection History**

An announced inspection was conducted at EnergySolutions by TDEC on November 19, 2020, during the pandemic. The Central Volume Reduction Facility (CVRF)), Metal Melt Facility, P4 Permitted and Universal Waste areas were inspected, and onsite records review were conducted. No deficiencies were observed during the inspection. The last EPA inspection at the EnergySolutions facility was conducted in 2013. No deficiencies were observed during the last EPA inspection.

10) **Findings**

Inspectors arrived at the facility at approximately 8:30 a.m. and presented their credentials at the security gate and signed the visitor's log. The security guard at the gate requested us to watch a safety video as we were waiting for Ms. Erin Sims-Taylor to meet us at the security gate. After we finished watching the safety video, we showed our credentials and introduced ourselves to Erin and announced the inspection.

Ms. Erin Sims-Taylor led the way to her office where we discussed the scope of the inspection. Ms. Erin Sims-Taylor later gave us an overview of the current operation onsite and discussed the safety protocol for the inspection. Ms. Erin Sims-Taylor then accompanied the inspectors on the site visit.

Central Volume Reduction Facility (CVRF):

The CVRF complex houses multiple waste-reduction operations: sorting, compaction, incineration and other related operations and waste storage. Hazardous waste storage and accumulation areas are found both within the CVRF and exterior to the structure. In addition, most of the technical staff offices, and archives related to internal waste tracking and treatment records, outgoing shipments, training records and facilities, vehicle maintenance, etc., are within or annexed to the CVRF.

The site inspection began within the CVRF, which includes the compactor room, H-row central accumulation areas, incinerator areas, and universal waste accumulation station. In the CVRF incinerator complex, emergency-equipment was verified as required, including fire-extinguishers, emergency-lights, emergency sprinkler system, spill kits, and absorbents where liquid wastes are stored. Workers in the central accumulation areas (CAAs) must carry a communication device. The universal waste accumulation station at the radiation-control entrance to the CVRF complex was inspected; both pairs of accumulation containers were empty. There were no hazardous waste deficiencies observed in this area.

Compactor Room:

The compactor presses non-combustible, non-meltable, radionuclide-contaminated solid waste with 5000 tons of pressure applied to a surface-area somewhat larger than the top of a 55-gallon drum. At such pressures, liquid can be squeezed out of apparently dry materials; these liquids are collected in a sump and sampled for hazardous constituents. The liquids found with hazardous constituents must be handled and treated as low-level mixed waste. At the time of the inspection, no hazardous waste was stored in the compactor or the compactor area.

Warehouse and Inside H-Rows:

This large structure adjacent to the administrative areas of the CVRF is used for storage of containers and supplies, including the vehicle-maintenance garage, and a mixed-waste central accumulation area, for accumulation and storage before off-site transport. The mixed waste storage area is designated as "H-35 mixed-waste storage area," frequently called the "Inside H-rows," as distinct from the "Outside H-rows" described later in this report.

At the time of the inspection, all containers in the "H-35" mixed-waste central accumulation area, were observed to be closed, labeled "Hazardous Waste," marked with hazard indication,

with adequate aisle-space, stacked on pallets (Photo-1). The oldest accumulation start-date on the container was observed to be March 21, 2022. Spill control and emergency response equipment are stationed nearby as mentioned previously. There were no hazardous waste deficiencies observed in this area.

CVRF Incinerator Area:

The incinerator area has two methane-fired incinerators to incinerate radionuclide-contaminated solid waste for volume-reduction designated “A” and “B.” Furnace A burns batches of radionuclide-contaminated oil and other combustible liquids, operating as needed. Furnace B burns almost continuously at 900 to 1000 degrees Celsius, consuming radionuclide-contaminated combustibles such as paper, plastic, PPE, lumber, etc., called “dry active waste,” or DAW. This facility does not receive mixed waste for incineration, but the incineration process generates mixed waste which is collected in the satellite and central accumulation areas, as described below.

Each furnace discharges into separate parallel air-pollution-control systems with unit-operations in the following order: boiler/cooler, coarse disposable filters, baghouse dust collectors, scrubbers, and high-efficiency particulate air (HEPA) filters; waste streams include hearth ash, boiler ash, fly ash, and spent filters. Unit A Incinerator comprises of Waste Baghouse Bags and Waste Boiler Ash. Unit B Incinerator comprises of Waste Baghouse Bag and Waste Boiler Ash. Mixed radioactive and hazardous waste ash and dust is accumulated in hazardous satellite accumulation containers (SAAs) comprising of two 55-gallon drums each, attached at collection-points: hearth ash (WS#61 and 62), boiler ash (WS#57 and 58), spark arrestor (B-incinerator only, using two 30-gallon SAA containers), and fly-ash from the baghouses (WS#59 and 60) (Photo-2).

Usually once per shift (i.e., daily, or near-daily), these containers are detached from the process and stationed in a nearby 90-day central accumulation area (CAA), before they are sorted into one of the mixed-waste “H-row” central accumulation areas (CAAs), or directly to a transport container.

At the time of the inspection, the boiler ash, spark arrestor ash, and fly ash mixed hazardous-waste containers attached at the collection points along the incinerator lines were observed to be closed, labeled “Hazardous Waste,” and marked with hazard indication. The hearth ash containers were somewhat obscured within their protective enclosures. They were viewed through observation windows for safety reasons; these containers were observed to be closed, labeled as “Hazardous Waste” and with hazard indication although the labels were not legible through the windows due to the distance and obscuration of the windows. Nevertheless, these containers appeared to meet the marking and labelling requirements.

Near Unit A where the Hearth Ash and Boiler Ash, SAA containers are stored, the inspectors observed a spill of an unknown material on the floor (Photo-3). Ms. Erin Sims-Taylor later confirmed that it was magnesium Oxide (Magox). It is a nonhazardous material that is added to the incinerator ash for stabilization purpose. **The material periodically spills when adding to the incinerator ash due to the poor design of the unit. The Magox material is periodically swept and put back in process. The inspectors recommended the facility to have proper**

housekeeping in the incinerator building and consider options for implementing engineering and/or management controls to avoid spills on the floor.

At the time of the inspection, two containers were observed in the 90-day central accumulation area, closed, labeled “hazardous waste,” and marked with hazard indication. The oldest accumulation start date on the container was observed to be May 16, 2022.

Another 55-gallon satellite hazardous-waste-accumulation container is attached to the nearby liquid-evaporation system. According to Ms. Erin Sims-Taylor, this container contains potentially hazardous material from the evaporator, to be determined by sampling. At the time of the inspection this container was observed to be closed, labeled “hazardous waste,” and marked with hazard indication.

Another 55-gallon satellite hazardous mixed-waste container is stationed in the incinerator room for mop-water (WS#63). This container accumulates spent water from frequent floor-mopping to accumulate dust. At the time of the inspection, this container was observed to be closed, labeled “hazardous waste,” and marked with hazard indication.

CVRF Exterior Storage Areas and Containers:

Used-Oil Tank:

The 4000-gallon double-walled above-ground tank for rad-contaminated used-oil-storage was inspected outside the CVRF (Photo-4). Used oil from this tank is piped directly into incinerator line A as supplemental fuel. At the time of the inspection, this tank was labeled “used oil”, and had no evidence of leakage or spillage.

Outside H-rows:

Outside the northeastern corner of the CVRF complex, an outside mixed waste central accumulation area contains drums and sealed boxes of mixed hazardous waste called the “outside H-rows.”

At the time of the inspection, the outside H-Rows comprised of six rows with adequate aisle space. Each row contained approximately 40 containers double stacked on pallets. All the containers were observed to be closed, labeled with hazard indication and marked with an accumulation start date (Photo-5). All visible accumulation start-dates indicated storage for less than 90 days; however, it was not possible to determine the oldest container without undue exposure to radioactive materials within the containers. Facility records indicate that on the day of the inspection, the oldest container in storage was dated April 17, 2022. Emergency response equipment and communication equipment is available in a nearby operating area under a shed roof annexed to the CVRF complex.

Hi-radiation mixed waste container:

An intermodal container used for accumulation and storage of high-radiation mixed-waste is kept on the southern side of the CVRF; it was observed closed and in good condition. Ms. Erin Sims-Taylor stated that this container was empty at the time of the inspection. It was not further approached in the interest of minimizing exposure to radiation.

Maintenance Garage:

Vehicular maintenance is conducted in a garage which is annexed to the CVRF complex. The inspectors observed a SAA container containing spent aerosol cans and a used oil container. At the time of the inspection, the aerosol waste container was observed to be closed, labeled as “hazardous waste,” and marked with a hazard indication. The used oil container was observed to be closed and marked “used oil.” Spent lead-acid vehicle-batteries that have been removed from on-site vehicles are stored inside the garage for reclamation purpose. The garage is equipped with spill-control, and fire extinguishers. There was no hazardous waste deficiency observed in this area.

Metal Melt Facility:

The Metal Melt facility is a separate complex where scrap steel and iron from radionuclide-contaminated facilities (such as power-plants, research reactors, etc.) are melted in an induction-fired crucible and formed into large steel ingots. This facility includes the metal melt area, a baghouse area, and a small analytical lab for toxicity characteristic leaching procedure (TCLP) and flashpoint testing. In the Metal Melt facility, emergency-equipment was verified as required, including fire-extinguishers, emergency-lighting, emergency sprinkler system, spill kits, and absorbents where liquid wastes are stored.

Metal Melt TCLP Lab:

A small lab within the Metal Melt Facility tests various waste-streams for flashpoint and toxicity according to the Toxicity Characteristic Leaching Procedure (TCLP) standard.

The 90-day central accumulation area for the lab is a 275-gallon Intermediate Bulk Container (IBC) tote stationed outside the lab (WS#12). At the time of the inspection, this container was empty. It was closed and marked with the words “hazardous waste” but without any hazard indication marking (Photo-6). The inspectors recommended the Lab personnel to put a hazard indication prior to receiving any hazardous waste.

Inside the lab, a thirty-gallon satellite hazardous waste accumulation container (WS#124) was observed as closed and labeled “hazardous waste.” **There was not a hazard-indication label at the time of the inspection.** The container was immediately marked “RCRA Metals,” although the efficacy of that marking to meet the regulation appeared to be marginal. In an email dated July 18, 2022, Ms. Erin Sims-Taylor confirmed that all the test filters were determined to be nonhazardous since all the samples filtered prior to the inspection had passed TCLP. Based on the email response from the facility and follow up with TDEC, a determination was made to not cite the facility for failure to have hazard indication on the SAA container.

Metal Melt mold shop:

Scrap steel and iron from radionuclide-contaminated facilities (such as power-plants, research reactors, etc.) are melted in an induction-fired crucible and poured into molds to form steel ingots in the mold shop. A satellite accumulation vacuum-cleaner is stationed near the roll-up doors to collect rad-contaminated hazardous waste dust (WS#87).

At the time of the inspection, the hazardous waste vacuum container stationed near the roll-up door was closed, labeled “hazardous waste,” and marked to indicate the nature of the hazard.

Metal Melt Baghouse Facility

The universal waste accumulation station at the entrance of the Metal Melt baghouse (two sets of two containers, contaminated and uncontaminated, as described earlier) was inspected; at the time of the inspection, both pairs of universal waste containers were empty.

The baghouse structure contains four pair of baghouses (designated 1a and 1b through 4a and 4b) each with a 55-gallon satellite accumulation container (A and B) attached at the base (WS#70-77). Four cyclone dust collectors are also inside the baghouse structure, each with a single 55-gallon satellite hazardous waste accumulation container attached at the base (WS#82 and 83). When removed from the equipment, these containers are stationed in a nearby 90-day central accumulation area. A heavy-duty vacuum cleaner identical to the one observed in the mold shop is kept in this area to clean-up any releases of dust, serving as a satellite hazardous waste accumulation container (WS#131). At the time of the inspection, all hazardous waste SAA containers attached at the bases of the baghouses and cyclone separators, and the vacuum-cleaner, were observed to be closed, labeled “hazardous waste,” and marked to indicate the nature of the hazard.

The inspectors observed an unknown spill near one of the baghouse structures (Photo-7). Ms. Erin Sims-Taylor confirmed the spill as a Magox spill which appeared to be similar to the spill observed earlier in the CVRF Incinerator area. **Although it was a nonhazardous spill, the inspectors brought the housekeeping matter as an area of concern and recommended Energy Solution personnel to take appropriate steps for ensuring that the facility is designed, operated, and maintained to minimize the sudden or nonsudden release of materials including hazardous waste which could threaten human health and the environment. The Energy Solution personnel assured that the spill matter would be followed up with the appropriate process manager, the spill area would be cleaned up and the spilled material returned to the process.**

At the time of the inspection, three containers were observed in the 90-day central accumulation area, closed, labeled “hazardous waste,” marked to indicate the nature of the hazard (Photo-8). The oldest accumulation start date was observed to be May 19, 2022, (WS#2127).

P4 Permitted Areas:

The P4 area includes a permitted outdoor storage pad, and the nearby mixed-waste processing facility for processing and temporary storage of mixed waste. Treatment and storage processes for mixed wastes are regulated under Permit TNHW-171. Wastes accepted in this area must meet waste acceptance criteria (WAC) for Permit TNHW-171, and must be handled, stored, treated, and disposed of according to the standards of the permit. Mixed waste is processed to reduce volume or mass. Waste handling operations in the P4 building are collectively called “miscellaneous operations”: these processes include segregating mixed waste from non-hazardous wastes, sorting mixed waste according to type and treatment processes, compacting, cutting, and macro-encapsulating. The P4 building comprises of several small storage areas as well as the miscellaneous operations.

Noel Peters, P4 process operations lead, joined the inspection party at the conclusion of the Metal Melt facility inspection, at which time Ms. Erin Sims-Taylor left the inspection team.

P4 RCRA Treatment Building:

The P4 Treatment Building is a permitted facility (TNHW-171) that houses treatment of hazardous waste contaminated with radioactive elements and includes and permitted waste storage areas. Near the entrance to the processing and waste-storage areas, the inspection party inspected the universal waste accumulation station containers identical to those described earlier in this report and found both pairs of stationary containers empty.

Within the P4 building, the following permitted mixed-waste storage areas (MWSs) were inspected.

MWS 2A:

At the time of the inspection, MWS 2A contained three 55-gallon drums, one 5-gallon bucket, and one 45-cubic foot macro container. All containers were closed, in good condition, labeled “hazardous waste,” marked to indicate the nature of the hazard, and marked with an accumulation start-date, of which the oldest was November 18, 2021.

MWS 1:

At the time of the inspection, MWS 1 was empty.

Treatment Area 2 (TA2):

TA2 includes permitted miscellaneous treatment units: drum crusher, mixer, and alligator shear. No hazardous waste was in storage at the time of the inspection.

MWS 3A:

At the time of the inspection, one 90 cubic foot container of mixed radioactive hazardous waste was in storage. This container was closed, labeled “hazardous waste,” marked to indicate the nature of the hazard. The accumulation start date was observed to be October 22, 2020. A discussion was held at the time of the inspection and during the close-out meeting regarding the container exceeding the permitted storage requirement over a year. Further review of the incoming manifest for the container confirmed that the “October 22, 2020”, start-date was an old label, because the waste in this container arrived in February 2021. Treatment records indicate that the waste was processed and macro-encapsulated on April 7, 2021, and so is not time-limited due to land disposal restrictions (LDRs). This container was transported off site on June 28, 2022. See the Post-Inspection Document Review section, below, for a list of relevant documents.

MWS 3D:

At the time of the inspection, MWS 3D was empty.

MWS 3B:

At the time of the inspection, two large steel boxes of mixed radioactive hazardous waste were in storage. These containers were observed to be intact and nonleaking, labeled “hazardous waste,”

marked to indicate the nature of the hazards. The accumulation start-dates on both the boxes were August 10, 2021, and August 5, 2021, respectively.

MWS 2B:

No hazardous waste was in storage at the time of the inspection because facility operators are no longer using it for hazardous waste.

P4 building emergency-equipment was verified as specified in the permit, including fire-extinguishers, emergency-lights, spill kits, communication devices, and emergency shower/eye-wash stations.

Container Storage and Treatment Pad (or “P4 Pad”):

A permitted outdoor storage area is located toward the western portion of the lot; it measures 60 feet by 30 feet on an asphalt surface, separated by rope-barriers with signage to indicate radioactive hazardous waste. Its boundary is clearly indicated by caution-rope with hanging signs, and stripes painted on the asphalt, as required in Permit TNHW-171. This facility is permit-limited to storing containers of dry mixed waste, and dry rad-only waste.

On the day of the inspection, the permitted outdoor P4 Pad was observed as having caution-ropes and signage in place. The asphalt under the storage area was observed as free from cracks or damage. One 1080 cubic foot intermodal container of dry material was stored in this area; it was closed, in good condition, marked as required with the words “hazardous waste,” hazard indications, an accumulation start-date of February 14, 2022, and with radioactive waste warning labels (Photo-9).

Primary universal waste storage area:

Universal wastes collected from the universal waste accumulation stations around the facility are stored inside a storage-room annexed to the Metal Melt facility. At the time of the inspection, the room was unlocked but the universal waste area was pad-locked behind a caged area. Universal waste containers behind the caged area were visibly closed and intact. However, it was not possible to check the labels and storage dates without getting access to the caged area. The caged universal waste storage area was inspected on June 13, 2022.

Containers included six 5-gallon buckets of universal waste batteries, one box of 8-foot waste lamps, three boxes of 4-foot waste lamps, three boxes of compact waste lamps, along with 13 containers of and uncontained larger articles of e-waste (Photo-10). All universal waste containers were observed to be closed, labeled “universal waste,” and marked with an accumulation start-date. The oldest date was observed to be March 30, 2022.

Coordination with local emergency response:

Mr. Tyler Wilkerson, safety, and health specialist met the inspection party and described how the facility conducts safety training and coordination with local emergency response.

- Personnel receive safety training annually
- Facility-wide evacuation drills are conducted annually
- An additional evacuation drill is conducted for one other structure during the year
- Local fire department tours the facility annually

- Materials received are checked for compatibility and fire safety

Sprinkler System Testing:

Mr. Greg Crisp, electrician, described the process by which aspects of the fire-safety sprinkler system are tested weekly, monthly, quarterly, and annually according to National Fire Protection Association (NFPA) standards.

11) Record Review

Once we completed the walkthrough of the facility, we returned to the office area to conduct a review of the required documentation. The records reviewed for a two-year period (2021-Present) included the following:

The inspectors reviewed the following documents:

- Hazardous Waste manifests
- Hazardous waste annual reports
- Daily, Weekly, Monthly Hazardous Waste Inspection Logs-P4, Outdoor Pad and Processing facility
- Permitted Area Daily Operations Logs
- Weekly Inspection Logs for 90-day Hazardous Waste Central Accumulation Logs
- Contingency Plan
- Personnel Training Records

Based on the review of the records, the records were observed to be complete.

12) Out-Briefing

A close-out meeting was held on June 17, 2022, online, attended by Mr. Randall Richardson, Ms. Erin Sims-Taylor, and Mr. Brian Parsons of EnergySolutions; Mr. Raj Aiyar of US EPA, Region 4; and Ms. Beverly Philpot, Mr. John C. Webb, Mr. Revendra Awasthi, and Mr. Craig Smith of TDEC DSWM. The observations made during the inspection were discussed and the close-out meeting was concluded.

13) Signed

RAJAGOPAL AIYAR

Digitally signed by RAJAGOPAL

AIYAR

Date: 2022.08.01 09:55:40 -04'00'

Raj Aiyar
Environmental Engineer

Date

14) Concurrence

ARACELI CHAVEZ Digitally signed by ARACELI CHAVEZ
Date: 2022.08.01 11:59:12 -04'00'

Araceli B. Chavez

Date

Chief

RCRA Enforcement Section

Attachment A

ENERGY SOLUTIONS

OAK RIDGE, TENNESSEE

EPA ID # TND982157570

JUNE 9, 2022

Photos taken by EPA and TDEC
Camera Type: WB250F
EPA Tag No.: S75912



Photo-1 Inside H-Rows



Photo-4 4000-gallon Used Oil Tank

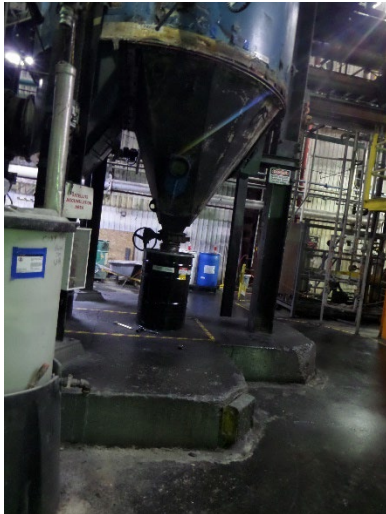


Photo-2 CVRF Incinerator Area SAA Container



Photo-5 Outside H-rows Mixed Hazardous Waste Storage

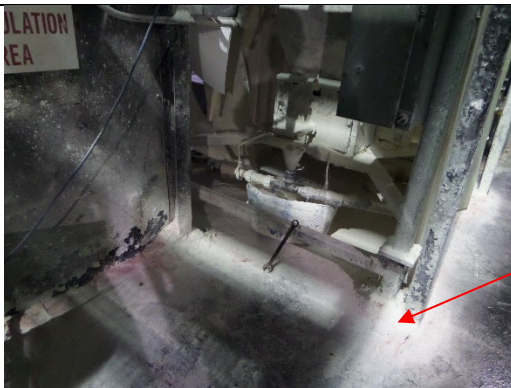


Photo-3 CVRF Incinerator Area, Nonhazardous Magox Spill



Photo-6 90-day CAA IBC Tote near Metal Melt TCLP Lab



Photo-7 Metal Melt Baghouse Facility, Magox spill



Photo-10 Universal Waste Storage Area



Photo-8 Metal Melt Baghouse 90-day CAA



Photo-9 P4 Pad (Mixed Waste Storage)