REPORT OF RCRA COMPLIANCE EVALUATION INSPECTION

At

EQUISTAR CHEMICALS LP
3400 Anamosa Road
Clinton, IA 52732
563-244-2280

EPA ID Number: IAD045372836

On

February 13-14, 2024

By

TOEROEK ASSOCIATES, INC.

For

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 7
Enforcement and Compliance Assurance Division

INTRODUCTION

At the request of the Enforcement and Compliance Assurance Division/Chemical Branch/RCRA Section (ECAD/CB/RCRA) of the U.S. Environmental Protection Agency (EPA) Region 7, Toeroek Associates, Inc. and its subcontractor CLAENE Group (Toeroek team) conducted a hazardous waste compliance evaluation inspection (CEI) at Equistar Chemicals LP (Equistar), at 3400 Anamosa Road, Clinton, Iowa. The CEI was conducted under the authority of Section 3007 of the Resource Conservation and Recovery Act (RCRA), as amended. The CEI covered requirements of the facility's RCRA hazardous waste management permit, as well as hazardous waste generator, used oil, and universal waste requirements. This report and its attachments present the findings of the CEI.

PARTICIPANTS

Equistar:
Emily Venters, Environmental Engineer
Michelle Kelley, Agency Manager (exit briefing only)

Toeroek Team:
William F. Starks, Environmental Consultant, (816) 286-6951

INSPECTION PROCEDURES

Prior to the CEI at Equistar on February 13, 2024, I conducted a drive-by visual inspection. I did not observe any areas of concern during the drive-by. Upon my arrival, I entered the visitor's entrance and explained the purpose of the CEI to the security guard. The security guard contacted Ms. Venters to advise her of my arrival. He then asked me to watch a 5-minute safety video from his computer screen. At the conclusion of the video, the guard issued me a visitor's badge. Ms. Venters met me in the lobby, and I explained the purpose of the CEI to her. She then escorted me to a conference room where I proceeded to conduct an entry briefing with her.

During the entry briefing, I presented my business card and EPA credential letter to Ms. Venters. I explained the scope of the CEI and the data gathering procedures that would be employed (for example, interviews, visual inspection, records review, and digital photography). I then informed Ms. Venters of the facility's right to make confidentiality claims for any or all of the information obtained. I stated that at the conclusion of the CEI, she would be presented with a Confidentiality Notice (Notice) with which she could make or not make a claim of confidentiality for the facility. I also provided Ms. Venters a copy of U.S. Federal Codes 1001 and 1002, concerning communication of false statements and documents to federal inspectors, and RCRA Section 3007, explaining EPA's inspection authority, both of which she read.

During the entry briefing, Ms. Venters explained that photographs are not allowed in areas with a flash hazard, which included several production areas that would be inspected. However, Ms. Venters stated that photographs would be allowed with a hot permit and use of a gas detection sensor to ensure the photographs could be taken safely. She obtained the permit and equipment to facilitate photography throughout the facility.

A copy of each of the following documents was left with the facility during the inspection:

- RCRA Facility Access Information Sheet
- Mr. Trevor Urban's Contact Information
- RCRA Section 3007
- U.S. Federal Codes 1001 and 1002
- Instructions for Responding to a Notice of Preliminary Findings
- Notice Regarding Proprietary/Confidential Business Information
- U.S. EPA Small Business Resources Information Sheet
- Chemical Facility Anti-Terrorism Standards
- Solvent-Contaminated Wipes Final Rule Summary Chart
- E-Manifest Fact Sheet: Generators
- Small Quantity Generator Reminder to Re-notify
- Managing your Hazardous Waste: A Guide for Small Businesses
- Part 279 Requirements: Used Oil Management Standards
- EPA Region 7 Emergency Response Program
- Recycling Electronics: A Guide for Businesses
- Lead-Based Paint Activities: Handling and Disposal
- IDNR Excluded Solvent-Contaminated Wipes Rule: Management Practices for Wipes, Rags, and Shop Towels
- Battery Recycling/Disposal

- Management of Fluorescent Lamps for Businesses
- Incompatible Chemicals
- Universal Wastes – Including Aerosol Cans
- TCLP – Toxicity Characteristic Leaching Procedure
- Iowa Environmental Guide for Businesses

I reviewed the Verification Report (Attachment 1) with Ms. Venters. Based on this review and observations during the CEI, I made no updates to the Verification Report.

I conducted the visual inspection of the facility and a majority of the records review on February 13, 2024, accompanied by Ms. Venters. I returned to the facility on February 14, 2024, to complete the records review and conduct an exit briefing. I reviewed available facility records, including manifests with land disposal restriction (LDR) notifications, nonhazardous waste bills of lading, waste tracking and inventory records, inspection records, training records, and other documentation related to waste generation and management. I prepared and completed a site-specific inspection checklist to document my observations.

At the conclusion of the CEI, I conducted an exit briefing with Ms. Venters and Ms. Kelley. During the exit briefing, I provided a Receipt for Documents and Samples, which Ms. Venters signed, acknowledging receipt (Attachment 2). I provided Ms. Venters the Notice, which she signed indicating no confidential business information had been provided (Attachment 3). I then provided Ms. Venters a Notice of Preliminary Findings (NOPF), which she signed to acknowledge receipt (Attachment 4).

A facility map obtained during the CEI is included in Attachment 5. An aerial photograph of the facility was downloaded after the CEI and is included in Attachment 6. The 26 photographs taken during the CEI are included in Attachment 7.

FINDINGS AND OBSERVATIONS

1. Facility Description and General Information

Equistar is located in a rural incorporated area at the west edge of Clinton, Iowa, on approximately 300 acres of fenced land. The facility operates 24 hours per day, seven days per week with employees working one of four 12-hour shifts. Equistar employs approximately 225 full-time personnel and 100 to 150 contractors.

The facility's current RCRA hazardous waste management and corrective action permit was issued on July 31, 2018 and is effective for 10 years. RCRA Permit Condition IV.A authorizes a single container storage area (CSA) for hazardous waste with a capacity of 15,000 gallons (approximately 270 55-gallon containers). The facility is not permitted to receive waste from other facilities for treatment, storage, or disposal.

Equistar's primary operations are production of polyethylene in various densities and various co-products that are sold or used at Equistar. The facility is comprised of a collection of plants

which refine feedstock and produce high-density (HD) and low-density (LD) polyethylene (HDPE and LDPE, respectively).

The ethylene plant separates ethylene feedstock from liquefied petroleum gases (LPG) received by pipeline. The LPG, primarily an ethane and propane stream, is vaporized and rapidly heated in pyrolysis cracking furnaces. Next, the gases are cooled, compressed, dried, and liquefied. At this point, the gases are separated into their components: methane, which is recovered and used in the plant heating system; propane, which is recycled to the pyrolysis furnaces; propylene, which is sold as a separate product; other materials, largely heavier fractions, which are stored and sold as co-products; and an ethane/ethylene mixture, which is purified.

After purification, the ethane/ethylene stream is split, with the ethane being recycled as feed, and the ethylene being sent to the LD or HD units. The HD and LD units use reactors, adding various co-monomers and catalysts, to produce polyethylene with various densities and properties. The polyethylene is pelletized for ease of handling, storage, and transport. Product Packaging and Shipping (PP&S), Quality Control (QC) Laboratory, and Maintenance units provide support for the Ethylene, LD, and HD production units.

Equistar has identified more than 300 industrial hazardous and nonhazardous wastes generated and managed at the facility. Copies of the facility's waste stream identification spreadsheets for each production and support unit are in Attachment 8. Because of the number of wastes and the variety of manufacturing operations at the facility, this report includes descriptions of only the highest volume hazardous wastes and wastes observed during the CEI. The following description of facility operations should not be considered a comprehensive description of all operations and waste streams.

Activities in the ethylene production plant generate ethylene from LPG feedstock. Approximately 115 hazardous and nonhazardous wastes are generated from the ethylene plant. During my inspection, I observed containers of the following hazardous wastes or observed the wastes on recent manifests: waste residual oil, benzene-contaminated liquids and solids, and used activated carbon. All were determined to be hazardous by product and process knowledge and by testing (except the used activated carbon, which is presumed to be hazardous without analysis). Waste residual oil is the heavy residue remaining after ethylene and co-products have been extracted. Benzene-contaminated liquids and solids are wastes generated during spill cleanup, equipment cleaning, and other maintenance-related activities. Used activated carbon is filter medium generated during replacement of carbon used to capture benzene emissions. In addition, activities in the ethylene plant generate used oil, which the facility manages according to Title 40 *Code of Federal Regulations* (40 CFR) 279.

Activities in the HD plant generate HDPE from polymerization of ethylene monomers. Approximately 50 hazardous and nonhazardous wastes are generated from the HD plant. During my inspection, I observed containers of the following hazardous wastes or observed the wastes on recent manifests: waste activated chromium catalyst, and waste chromic acetate catalyst. Waste activated chromium catalyst and waste chromic acetate catalyst was determined to be hazardous by product and process knowledge and by testing. Waste activated chromium catalyst consists of activated catalyst no longer suitable for use. Waste chromic acetate catalyst consists

of excess catalyst from the feeders or from cleaning of catalyst activators. In addition, activities in the HD plant generate used oil, which the facility manages according to 40 CFR 279, and oily debris and absorbents, which is considered nonhazardous based on product and process knowledge and testing.

Activities in the LD plant generate LDPE from polymerization of ethylene monomers. Approximately 40 hazardous and nonhazardous wastes are generated from the LD plant. During my inspection, I observed waste vinyl acetate/mineral spirits, which is the largest volume hazardous waste stream generated by the facility and is managed in a less-than-90-day hazardous waste accumulation tank. Waste vinyl acetate/mineral spirits consists of excess carrier solvent and feed material remaining after the LDPE production process. The waste stream was determined to be hazardous by product and process knowledge and by testing. In addition, activities in the LD plant generate used oil, which the facility manages according to 40 CFR 279, and oily debris and absorbents, which is considered nonhazardous based on product and process knowledge and testing.

The facility operates a quality control (QC) laboratory to test feedstock, raw materials, and product. Activities in the laboratory generate six hazardous and nonhazardous wastes. During my inspection, I observed containers of the following hazardous wastes or observed the wastes on recent manifests: waste QC solvent, waste sample containers (vials), and waste flammable solids. All were determined to be hazardous by product and process knowledge and by testing. Waste solvents and waste containers are generated during laboratory analysis. Waste flammable solids consist of gloves, wipes, and other debris contaminated with solvent. In addition, activities in the QC laboratory generate used oil, which the facility manages according to 40 CFR 279.

Facility maintenance and other support activities generate approximately 70 hazardous and nonhazardous wastes. During my inspection, I observed waste aerosol cans and waste paint-related material (WPRM), which were determined to be hazardous by product and process knowledge and by testing. Spent parts washer solvent is generated during servicing of seven parts washer units and is considered nonhazardous based on product and process knowledge and testing. In addition, maintenance-type activities generate used oil, which the facility manages according to 40 CFR 279, and oily debris and absorbents, which is considered nonhazardous based on product and process knowledge and testing. Plant operations also generate used lamps and used batteries, both of which are managed as universal waste according to 40 CFR 273.

The facility has an onsite water purification system and a wastewater treatment plant (WWTP). The WWTP discharges to the Mississippi river under a National Pollution Discharge Elimination System (NPDES) permit. According to Ms. Venters, the WWTP receives wastewater from all operational areas at the facility. Wastewater treatment includes solids flocculation and separation via a filter press. Sludge from the filter press is considered nonhazardous based on product and process knowledge and testing. I reviewed a Eurofins analytical report, dated December 12, 2023, for toxicity characteristic leaching procedure (TCLP) metals analysis of the sludge. I noted the filter press sludge did not exceed TCLP metals limits. Wastewater and wastewater treatment sludge are not discussed further in this report.

On October 12, 2021, the Toeroek Team conducted a CEI for EPA at Equistar. Following the CEI, the inspector made no preliminary findings.

2. RCRA Status

Equistar is identified as a large quantity generator (LQG) of hazardous waste (generating more than 1,000 kilograms [kg] of hazardous waste per calendar month or accumulating more than 1 kg of acute hazardous waste at any time), as well as a RCRA-permitted treatment, storage, and disposal facility (TSDF), on the Verification Report provided by EPA (Attachment 1). During the CEI, I reviewed manifests for outgoing hazardous waste shipments from October 2021 (the date of the previous CEI) to the present to confirm the facility's current hazardous waste generator status. The facility submitted the 2023 hazardous waste biennial report to the EPA on February 1, 2024 (Attachment 9). A copy of a spreadsheet summarizing each hazardous waste shipment in 2021, 2022, and 2023 is in Attachment 10.

Based on my review of the 2023 hazardous waste biennial report, the facility generates approximately 202,120 pounds (91,680 kg) of waste vinyl acetate/mineral spirits per month. Based on the generation rate of this waste alone, I concluded the hazardous waste generation rate for Equistar is well above LQG threshold. In addition, the facility is a used oil generator and a small quantity handler (SQH) of universal waste (accumulating less than 5,000 kg of universal waste at any time). I confirmed each of these activities during the CEI.

The facility's RCRA hazardous waste management permit identifies a single CSA, with a capacity of 15,000 gallons for storage of hazardous wastes generated at the facility for longer than 90 days (Attachment 7, Photographs 19 through 21). I inspected this area during the CEI. The container inventory at the time of the inspection is included as Attachment 11.

Equistar has identified 13 satellite accumulation area (SAA) locations throughout the facility. Some of these locations include multiple SAA containers serving distinct points of generation. A list of the SAA locations is in Attachment 12. I noted the list included Retired SAAs. Ms. Venters stated this was requested by the EPA Permit Writer. This list identifies 26 separate SAA containers. I inspected nine SAA containers with active waste accumulation during the CEI. I also inspected the less-than-90-day hazardous waste accumulation tank used for management of waste vinyl acetate/mineral spirits at the LD unit.

3. Waste Streams

This section of the CEI report describes waste streams generated by the facility, including the facility's waste determination and waste codes, generation process and rate, management at the facility, and ultimate disposition. The following discussion of waste streams is based on my interview with Ms. Venters, the visual inspection, and my review of available documentation.

During the entry briefing, I asked Ms. Venters to print the current container inventory for the permitted CSA from the facility's operating record (Attachment 11). Per the inventories and observations made during the CEI, the volume of hazardous waste stored in the CSA (6,655 gallons) is well below the 15,000-gallon limit specified in Module IV of the RCRA hazardous waste management permit.

Waste vinyl acetate/mineral spirits is excess carrier solvent remaining after the LDPE production process. This waste is identified as LD-3001 on the waste stream list (Attachment 8, Page 6). The facility considers waste vinyl acetate/mineral spirits to be hazardous waste (D001) based on product and process knowledge and testing. The waste is reanalyzed annually, according to the facility's waste characterization plan. Based on my review of manifests and the waste tracking spreadsheet (Attachment 10), I estimated that the facility generates approximately 202,120 pounds (91,680 kg) of waste vinyl acetate/mineral spirits per month. It is transported to the Systech Environmental Corporation (Systech) in Paulding, Ohio, or Fredonia, Kansas, for fuel blending; or Green America Recycling LLC (Green America) in Hannibal, Missouri, for energy recovery. The waste was last shipped on February 12, 2024, and a copy of the manifest for the last shipment is in Attachment 13.

During the inspection, I observed the 9,500-gallon hazardous waste accumulation tank used for waste vinyl acetate/mineral spirits (Attachment 7, Photograph 17). The tank is continuously monitored in the LD operations building, including the high-level alarm. At the time of the CEI, control room monitors showed that the amount of waste within the tank was 2,750 gallons. I asked Ms. Venters for documentation demonstrating that waste did not remain in the tank for longer than 90 days. LD operations personnel provided a running chart of hourly tank level readings from December 13, 2023, to the present (Attachment 14). The chart shows the waste is removed from the tank one to two times per week. Based on the frequency and volume of waste shipments from the 9,500-gallon hazardous waste accumulation tank, I concluded that waste did not remain in the tank for longer than 90 days.

I noted that the hazardous waste accumulation tank appeared to be structurally sound and was labeled with the words "hazardous waste." The hazard diamond on the side of the tank indicated the nature of the hazard. The tank was in secondary containment, along with the truck loadout area and ancillary equipment. All secondary containment appeared to be in good condition, and no evidence of leaks or spills was noted. I did not observe any deficiencies related to waste vinyl acetate/mineral spirits.

Waste residual oil consists of heavy residuals remaining after the production of ethylene and co-products. This waste is identified as EP-1001 on the waste stream list (Attachment 8, Page 1). The facility considers waste residual oil to be hazardous waste (D002, D018) based on product and process knowledge and testing. The waste is reanalyzed annually, according to the facility's waste characterization plan. Based on my review of manifests and the waste tracking spreadsheet (Attachment 10), I determined the facility generated 542,535 pounds (246,090 kg) of waste residual oil in 2023. It is transported to Clean Harbors Deer Park LLC in LaPorte, Texas; Clean Harbors El Dorado in El Dorado, Texas; or Veolia ES Technical Solutions in Port Arthur, Texas, for incineration. The waste was last shipped on February 13, 2024, and a copy of the manifest for the last shipment is in Attachment 15.

I did not observe any waste residual oil being accumulated during my inspection. According to Ms. Venters, the waste residual oil is bulk generated directly from the closed process vessels into a tanker truck approximately five times per year. The waste is shipped off site immediately after generation and is not accumulated at the facility.

Waste activated chromium catalyst consists of activated catalyst that is no longer suitable for use due to deviations in the activation steps. This waste is identified as HD-2023 on the waste stream list (Attachment 8, Page 4). The facility considers waste activated chromium catalyst to be hazardous waste (D007) based on product and process knowledge and testing. The waste is reanalyzed annually, according to the facility's waste characterization plan. According to Ms. Venters, the facility generated approximately 64,148 pounds (29,097 kg) of waste activated chromium catalyst in 2023. It is transported to Veolia ES Technical Solutions in Port Arthur, Texas, for incineration; or Veolia ES Technical Solutions in Menomonee Falls, Wisconsin, for bulking and transfer for export to Stablex in Ontario, Canada, for disposal. The waste was last shipped on December 11, 2023 (Attachment 16, Page 2).

During the CEI, I observed two 55-gallon SAA containers of waste activated chromium catalyst in SAA location 12l (HD Catalyst Activator Area) beneath two separate catalyst activator dust collector units (Attachment 7, Photographs 12 through 14). Both SAAs were at the point of generation, under control of the operator, structurally sound, and closed. The SAA containers were labeled with the words "hazardous waste" and an indication of the nature of the hazard (Department of Transportation [DOT] name of the waste to indicate that it contained chromium). I also observed 71 containers of waste activated chromium catalyst in the permitted hazardous waste CSA. They were each structurally sound, closed, dated, and labeled with the words "hazardous waste" and an indication of the nature of the waste. The earliest accumulation start date was November 9, 2023. Each container was marked with a drum number that tied it back to the container inventory. I did not identify any deficiencies related to waste activated chromium catalyst.

Waste chromic acetate catalyst consists of excess catalyst from feeders or from cleaning of catalyst activators at the HD unit. This waste is identified as HD-2000 on the waste stream list (Attachment 8, Page 4). The facility considers waste chromic acetate catalyst to be hazardous waste (D007) based on product and process knowledge and testing. The waste is reanalyzed annually, according to the facility's waste characterization plan. According to Ms. Venters, the facility generated 37,061 pounds (16,811 kg) of waste chromic acetate catalyst in 2023. It is transported to Veolia ES Technical Solutions in Port Arthur, Texas, for incineration; or Veolia ES Technical Solutions in Menomonee Falls, Wisconsin, for bulking and transfer for export to Stablex in Ontario, Canada, for disposal. The waste was last shipped on November 28, 2023.

During the CEI, I observed two 55-gallon SAA containers of waste chromic acetate catalyst in SAA location 12d (HD unit) beneath two separate knockout pots. Both SAAs were at the point of generation, under control of the operator, structurally sound, and closed. The SAA containers were labeled with the words "hazardous waste" and an indication of the nature of the hazard (DOT name of the waste to indicate that it contained chromium). I also observed 34 containers of waste chromic acetate catalyst in the permitted hazardous waste CSA. They were each structurally sound, closed, dated, and labeled with the words "hazardous waste" and an indication of the nature of the waste. The earliest accumulation start date was November 11, 2023. Each container was marked with a drum number that tied it back to the container inventory. I did not identify any deficiencies related to waste chromic acetate catalyst.

Used activated carbon is generated from maintenance of filters in the benzene emission control system. This waste is identified as EP-1054 on the waste stream list (Attachment 8, Page 2). The facility considers used activated carbon to be excluded from the definition of solid waste per 40 CFR 261.4(b)(4)(ii)(H). Based on my review of manifests and the waste tracking spreadsheet (Attachment 10), I estimated that the facility generated approximately 57,141 pounds (25,919 kg) of this waste in 2023. It is transported to the Evoqua Water Technologies facility in Houston, Texas, for regeneration. According to the 2023 manifest tracking spreadsheet (Attachment 17), used activated carbon was last shipped on September 18, 2023.

During the CEI, I observed two containers of used activated carbon in the permitted hazardous waste CSA. They were each structurally sound, closed, and dated. The earliest accumulation start date was October 16, 2023. Each container was marked with a drum number that tied it back to the container inventory. I did not identify any deficiencies related to used activated carbon.

Waste flammable solids consist of used gloves, wipes, and other laboratory debris contaminated with solvents. This waste is identified as QC-6004 on the waste stream list (Attachment 8, Page 8). The waste is collected in working containers. Because these containers are are emptied at the end of each shift, the facility does not consider this "accumulation" and does not consider the working containers to be SAAs . The facility considers waste flammable solids to be hazardous waste (D001 and other waste codes as appropriate) based on product and process knowledge and testing. The waste is reanalyzed every 5 years, according to the facility's waste characterization. Based on my review of the waste tracking spreadsheet (Attachment 10) and visual observations, I estimated that the facility generated between 70 pounds (32 kg) and 531 pounds (241 kg) of waste flammable solids per year. The waste is transported to Green America in Hannibal, Missouri, for energy recovery. The waste was last shipped on April 26, 2023.

During the CEI, I observed a working container for waste flammable solids in a QC Lab fume hood (Attachment 7, Photograph 8). The working container had one solvent wipe at the time of the CEI, and was labeled with the words "hazardous waste," an indication of the nature of the hazard, and the words "container emptied daily."

I also observed SAA location 12b, consisting of three adjacent one-drum secondary containment cabinets outside of the QC Lab (waste QC solvent, waste sample containers, and waste flammable solids). In the east containment cabinet, I observed one 55-gallon SAA container for waste flammable solids (Attachment 7, Photographs 9, 10 and 11). The SAA container for waste flammable solids was structurally sound, closed, and labeled with the words "hazardous waste" and an indication of the nature of the hazard. The lid atop the SAA container was secured with a padlock and the lock was engaged.

The use of working containers within the fume hoods and management of the SAA location 12b containers as three separate SAAs were described in the facility's responses to preliminary findings from a previous CEI conducted on February 11, 2020.

Waste QC solvent consists of waste solvents from analytical processes in the QC laboratory, including chloroform and tetrachloroethene. This waste is identified as QC-6001 on the waste stream list (Attachment 8, Page 8). The facility considers waste QC solvent to be hazardous

waste (D001, D018, D022, D039, and other listed waste codes as appropriate) based on product and process knowledge and testing. The waste is reanalyzed every 5 years, according to the facility's waste characterization plan. Based on my review of manifests and the waste tracking spreadsheet (Attachment 10), I estimated that the facility generates 593 pounds (269 kg) of waste QC solvent per year. It is transported to Veolia ES Technical Solutions in Sauget, Illinois, or Beaumont, Texas, for incineration. The waste was last shipped on May 12, 2023.

In the west containment cabinet, outside of the QC Lab, I observed one 55-gallon SAA container for waste QC solvent. The SAA container was structurally sound, closed, and labeled with the words "hazardous waste" and an indication of the nature of the hazard, and held less than one gallon of waste QC solvent. The funnel atop the SAA container was secured with a padlock and the lock was engaged.

The use of working containers within the fume hoods and management of the SAA location 12b containers as three separate SAAs were described in the facility's responses to preliminary findings from a previous CEI conducted on February 11, 2020.

Waste sample containers consist of used vials generated in the laboratory. This waste is identified as QC-6006 on the waste stream list (Attachment 8, Page 8). The facility considers waste sample containers to be hazardous waste (D001 and other listed waste codes as appropriate) based on product and process knowledge and testing. The waste is reanalyzed every 5 years, according to the facility's waste characterization plan. Based on my review of the waste tracking spreadsheet (Attachment 10) and visual observations, I estimated that the facility generated 456 pounds (248 kg) of waste sample containers per year. It is transported to Veolia ES Technical Solutions in Menomonee Falls, Wisconsin, for bulking and transfer. The waste was last shipped on September 18, 2023.

During the CEI, I observed a working container for waste sample containers in a QC Lab fume hood. The working container held closed vials and was labeled with the words "hazardous waste," an indication of the nature of the hazard, and the words "container emptied daily."

In the central containment cabinet, outside of the QC Lab, I observed one 55-gallon SAA container for waste sample containers. The SAA container for waste sample containers was structurally sound, closed, labeled with the words "hazardous waste" and an indication of the nature of the hazard, and held approximately 45 gallons of waste sample containers.

The use of working containers within the fume hoods and management of the SAA location 12b containers as three separate SAAs were described in the facility's responses to preliminary findings from a previous CEI conducted on February 11, 2020.

Waste aerosol cans are generated in multiple areas around the plant. This waste is identified as PL-7030 on the waste stream list (Attachment 8, Page 10). Aerosol cans are used throughout the facility during touch-up painting, assembly, and maintenance operations. The facility considers waste aerosol cans to be hazardous waste (D001, D003) based on product and process knowledge and testing. The waste is reanalyzed every 5 years, according to the facility's waste characterization plan. Based on my review of manifests and the 2023 manifest tracking

spreadsheet (Attachment 17), I estimated that the facility shipped 2,234 pounds (1,013 kg) of waste aerosol cans in 2023. They are transported Veolia ES Technical Solutions in Beaumont, Texas, for incineration, or to Veolia ES Technical Solutions in Menomonee Falls, Wisconsin, for energy recovery. The waste was last shipped on December 11, 2023.

During the CEI, I observed two 55-gallon SAA containers of waste aerosol cans. These were observed at SAA locations 12a (Maintenance Area) and 12d (HD unit oil shed). Each SAA container was near the point of generation, under control of the operator, closed, in good condition, and labeled with the words "hazardous waste" and an indication of the nature of the hazard. Representative photographs of waste aerosol cans SAA containers are in Attachment 7, Photographs 1, 2, and 16. I concluded that the container of waste aerosol cans in the oil shed was compatible with the container of oily waste with which it shared a pallet.

I observed three containers of waste aerosol cans in the permitted CSA. They were each in good condition, closed, dated, and labeled with the words "hazardous waste" and an indication of the nature of the hazard. The oldest container was dated November 3, 2023. They were also marked with a drum number that tied it back to the container inventory. I did not identify any deficiencies related to waste aerosol cans.

WPRM is generated in multiple areas around the plant during facility maintenance. This waste is identified as PL-7023 on the waste stream list (Attachment 8, Page 10). The facility considers WPRM to be hazardous waste (D001) based on product and process knowledge and testing. Other waste codes such as F003 or D035 may be applied as needed for particular painting events. The waste is reanalyzed every 5 years, according to the facility's waste characterization plan. Based on my review of manifests and the 2023 manifest tracking spreadsheet (Attachment 17), I estimated that the facility shipped 5,763 pounds (2,614 kg) of WPRM in 2023. The waste is transported to Green America in Hannibal, Missouri, for energy recovery, or to Veolia ES Technical Solutions in Menomonee Falls, Wisconsin, for bulking and transfer. The waste was last shipped on December 11, 2023. I did not observe WPRM in accumulation during the CEI. I did not identify any deficiencies related to WPRM.

Benzene-contaminated liquids and solids are generated in the Ethylene unit from spill cleanup, equipment cleaning, personal protective equipment, and other maintenance-type activities. This waste is identified as multiple numbers such as EP-1004, EP-1028, EP-1049, and EP-1059 on the waste stream list (Attachment 8, Pages 1, 2, and 3). The facility considers benzene-contaminated liquids and solids to be hazardous waste (D018) based on product and process knowledge and testing. Based on my review of manifests and the 2023 manifest tracking spreadsheet (Attachment 17), I estimated that the facility generated 15,507 pounds (7,034 kg) of benzene contaminated liquids, and 3,355 pounds (1,522 kg) of benzene-contaminated solids in 2023. It is transported to Clean Harbors in Kimball, Nebraska, or LaPorte, Texas, for incineration, or Green America in Hannibal, Missouri, for energy recovery. The waste was last shipped on September 18, 2023.

During the CEI, I observed a 55-gallon SAA container at SAA location 12h (Ethylene unit). The SAA container was near the point of generation, under control of the operator, closed, in good condition, labeled with the words "hazardous waste" and an indication of the nature of the

hazard, and held approximately 50 gallons of benzene-contaminated solids. I also observed three containers of benzene-contaminated liquids and solids in the permitted CSA. They were each in good condition, closed, dated, and labeled with the words "hazardous waste" and an indication of the nature of the hazard. The oldest container was dated October 28, 2023. They were also marked with a drum number that tied it back to the container inventory. I did not identify any deficiencies related to benzene-contaminated liquids and solids.

Used oil is generated during routine maintenance of equipment, including compressors, pumps, and hydraulic equipment and from flow through lubricating equipment. This waste is identified as EP-1509, HD-2500, LD-3501, MT-4500, and QC-6500 on the waste stream list (Attachment 8, Pages 2, 4, 6, 8, and 9). The facility manages used oil per the requirements of 40 CFR Part 279. In addition, the waste is analyzed every 5 years, according to the facility's waste characterization plan. Used oil is transferred to a 10,000-gallon used oil aboveground storage tank (AST) or accumulated in 55-gallon used oil storage containers. Based on my review of the 2023 Manifest Log (Attachment 17), I estimated that the facility shipped 707,613 pounds (320,968 kg) of used oil in 2023. Used oil is transported to Heritage Crystal Clean in Indianapolis, Indiana, for re-refining or to multiple Veolia facilities for fuel blending or recycling. Used oil was last shipped January 22, 2024 (Attachment 18).

During the CEI, I observed three 55-gallon used oil storage containers. These were observed at in the Maintenance Building, QC Lab, and HD unit oil shed. Each used oil storage container was structurally sound and labeled with the words "used oil." Representative photographs of used oil storage containers are in Attachment 7, Photographs 3, 4, and 15. I also observed three used oil storage containers in the permitted CSA. They were each in good condition and labeled with the words "used oil." The oldest container was dated November 8, 2023. They were also marked with a drum number that tied it back to the container inventory.

During the CEI, I observed a 10,000-gallon used oil AST south of the wastewater treatment plant (Attachment 7, Photograph 24). The used oil AST appeared to be in good condition with no visible leaks and held approximately 4,800 gallons of used oil. All piping for the used oil AST was aboveground. The used oil AST was located within a secondary containment structure that showed no evidence of leaks and appeared to be structurally sound. However, the used oil AST was not labeled with the words "used oil," (Attachment 7, Photographs 22 through 25) as required by 40 CFR 279.22(c)(1) **(NOPF No. 1)**.

I explained this preliminary finding to Ms. Venters during the CEI and provided compliance assistance regarding used oil AST labeling. Prior to leaving the area, Ms. Venters marked the used oil AST with the words "used oil" (Attachment 7, Photograph 26).

Oily debris and absorbents are generated during cleanup of leaks of compressor and hydraulic oil in the LD and HD plants and in other areas of the facility. This waste is identified as HD-2507, LD-3503, MT-4511, and PL-7511 on the waste stream list (Attachment 8, Pages 4, 6, 8, and 11). The facility considers oily debris and absorbents to be nonhazardous waste based on product and process knowledge and testing. The waste is reanalyzed every 5 years, according to the facility's waste characterization plan. Based on my review of the 2023 Manifest Log (Attachment 17), I estimated that the facility generated 12,630 pounds (5,729 kg) of oily debris

and absorbents in 2023. It is transported to Veolia ES Technical Solutions in Menomonee Falls, Wisconsin, for bulking and transfer. The waste was last shipped on December 11, 2023.

During the CEI, I observed a 55-gallon container of oily debris and absorbents in SAA location 12d (HD unit oil shed) (Attachment 7, Photograph 16). I concluded that the container of oily debris in the oil shed was compatible with the container of waste aerosol cans with which it shared a pallet. I also observed seven containers of oily debris and absorbents in the permitted CSA. The oldest container was dated November 12, 2023. I did not identify any deficiencies related to oily debris and absorbents.

Used batteries are generated by facility personnel changing spent nickel-cadmium, nickel metal hydride, alkaline, and lead-acid batteries in equipment. Equistar manages all used batteries as universal waste per 40 CFR Part 273, including nonhazardous alkaline batteries. Used batteries are accumulated in a 55-gallon container and a cage in the permitted CSA. Based on my review of universal waste manifests (Attachment 19), I estimated that the facility generates between 410 and 723 pounds (186 and 328 kg) of used batteries per year. Used batteries are transported to Veolia ES Technical Solutions in Port Washington, Wisconsin, for recycling. The waste was last shipped on December 18, 2023, (Attachment 19, Pages 7 and 8).

During the CEI, I observed three 5-gallon containers of used batteries in the cage in the permitted CSA (Attachment 7, Photograph 18). Each used batteries container was labeled with the words "universal waste battery." All containers were marked with a January 9, 2024 accumulation start date. I did not observe any deficiencies related to used batteries.

Used lamps are generated by facility maintenance personnel changing spent fluorescent and high-intensity discharge (HID) lamps throughout the facility. Equistar manages green-tipped, low-mercury fluorescent lamps as nonhazardous waste and disposes of them in the general trash. All other used lamps are managed as universal waste per 40 CFR Part 273. Universal waste lamps are accumulated in containers in the Maintenance Building. Based on my review of universal waste manifests (Attachment 19), I estimated that the facility generates between 25 and 40 pounds (11 and 18 kg) of used lamps per year. Used lamps are shipped for recycling to Veolia ES Technical Solutions in Port Washington, Wisconsin for recycling. The waste was last shipped on December 18, 2023, (Attachment 19, Pages 7 and 8).

During the CEI, I observed a four-foot universal waste lamp accumulation container in the Maintenance Warehouse. The universal waste accumulation container was closed, labeled with the words "used lamps," a December 18, 2023 accumulation start date, and held approximately 10 used lamps. I did not observe any deficiencies related to used lamps.

Spent parts washer solvent is generated during maintenance of the facility's five parts washer units. This waste is identified as MT-4516 on the waste stream list (Attachment 9, Page 8). The facility considers spent parts washer solvent to be nonhazardous waste based on product and process knowledge and testing. A copy of the SDS for Safety-Kleen Premium Solvent is in Attachment 20. The waste is reanalyzed every 5 years, according to the facility's waste characterization plan. Based on my review of waste shipping documentation, I estimated that the facility generates approximately 122 gallons of spent parts washer solvent per quarter. It is

containerized immediately upon generation and transported to Safety-Kleen Systems, Inc. in Davenport, Iowa, for recycling. The waste was last shipped on February 6, 2024.

During the CEI, I observed a parts washer located in the Maintenance Building (Attachment 7, Photograph 7). The parts washer contained Safety-Kleen Premium Solvent. I did not observe spent parts washer solvent in accumulation during the CEI.

Waste lapping vehicle is a solvent-based lubricant and cleaner used during machining. This waste is identified as MT-4526 on the waste stream list (Attachment 8, Page 8). The facility considers waste lapping vehicle to be nonhazardous waste based on product and process knowledge and testing. The waste is reanalyzed every five years, according to the facility's waste characterization plan. Based on my review of manifests, I estimated that the facility generates less than 55 gallons of waste lapping vehicle every year. Waste lapping vehicle is transported to Veolia ES Technical Solutions in Port Arthur, Texas. The ultimate disposition of the waste was not obtained during the CEI. The waste was last shipped on September 18, 2023.

During the CEI, I observed a 55-gallon container of waste lapping vehicle in a secondary containment cabinet located in the Maintenance Building (Attachment 7, Photographs 5 and 6). The container appeared to be in good condition with no visible leaks and held approximately 18 gallons of waste lapping vehicle.

General trash consists of office- and packaging-type refuse generated at the facility as well as spent green-tipped low-mercury fluorescent lamps. The facility considers general trash to be nonhazardous waste based on product and process knowledge. General trash is accumulated in several containers throughout the facility and is collected by Republic Services in Clinton, Iowa, and transported to the Clinton County Area Solid Waste Agency landfill for disposal. During the CEI, I observed general trash accumulation containers and noted no deficiencies.

4. Required Response Equipment and Hazard Management

RCRA Permit Condition III.H specifies that the facility must operate to minimize possibility of a fire, explosion, or spill, and must maintain emergency response equipment. During the CEI, I observed adequate aisle space for emergency response in the permitted CSA (Attachment 7, Photographs 19, 20, and 21). I observed “no smoking” signs, fire extinguishers, and spill response equipment in the permitted CSA and near the hazardous waste accumulation tank. According to Ms. Venters, all personnel that manage hazardous waste are required to carry two-way radios. I noted no concerns with types and availability of emergency response equipment and materials at the permitted CSA or the hazardous waste accumulation tank.

5. Permitted Hazardous Waste CSA

During the CEI, I noted no accumulation of incompatible wastes and had no concerns with hazardous waste handling and management practices observed in the CSA. I observed 13 containers of nonhazardous waste and 121 containers of hazardous waste in storage at the time of the CEI (Attachment 11). I determined the volume of hazardous waste in storage at the time of the CEI was 6,665 gallons, which was well below the permitted capacity of 15,000 gallons. The oldest container of hazardous waste was dated October 28, 2024. I asked

Ms. Venters if the hazardous waste CSA is inspected. She explained that inspections are conducted weekly with one more detailed inspection once a month. The inspections are documented on the checklist included as Attachment III-3 of the Permit. During the CEI, I reviewed all inspection checklists for the three years and noted no missed inspection weeks or indication of severe deficiencies discovered during inspection. Copies of the CSA inspection records for 2024 to date are included in Attachment 21.

6. Hazardous Waste Accumulation Tank

Equistar has a single hazardous waste accumulation tank. It has a nominal capacity of 9,500 gallons. Based on my review of manifests and waste tracking spreadsheets, I determined that approximately 200,000 pounds of waste is removed from the tank per month. Based on the volume of waste removed and the capacity of the tank, I concluded that the residence time of hazardous waste in the tank is well below the 90-day accumulation limit. I had no concerns with handling and management practices observed during the CEI.

I asked Ms. Venters if the hazardous waste accumulation tank is inspected. She said that the tank is inspected at the start of each 12-hour shift every day. Hazardous waste accumulation tank inspections are documented on an electronic tablet. During the CEI, I reviewed the electronic inspection records from October 2021 to date and noted no missed inspection days or indication of severe deficiencies discovered during inspection. A copy of the 2024 hazardous waste accumulation tank inspection log is included in Attachment 22.

7. Manifests and Biennial Report

Equistar generates approximately 100 uniform hazardous waste manifests per year. During the CEI, I reviewed manifests from October 2021, (the date of the last inspection) to February 13, 2024. This review included 13 manifests from 2021, 27 manifests from 2022, 66 manifest from 2023, and 12 manifests from 2024. I verified that the facility had 3 years of manifests available. I noted no deficiencies or concerns during the manifest review. Examples of uniform hazardous waste manifests are in Attachments 13 and 15, and a log of all manifests generated in 2023 is in Attachment 17.

On November 7, 2022, Ms. Venters emailed Ms. Laura Coughlan, USEPA, and requested information about exporting D007 characteristic hazardous waste to Canada for stabilization and disposal through a waste broker who has obtained EPA approval for export. Ms. Coughlan replied that if Veolia is planning to use the broker to export waste, the facility should request a copy of the broker's approval letter and ensure the waste description and shipping site are covered under the existing export approval letter. A copy of the email communication between Mses. Venters and Coughlan and the AOC letter is included in Attachment 23.

Equistar's Hazardous Waste Biennial Report for 2023 was submitted on February 1, 2024. This document is maintained at the facility, and I reviewed it during the CEI (Attachment 9). I noted no deficiencies during my review of the Biennial Report.

8. Personnel Training Requirements

RCRA Permit Condition III.F requires personnel training as specified in 40 CFR 264.16 and the facility's Training Plan (incorporated into the permit as Attachment III-4) to ensure that employees are thoroughly familiar with proper waste handling procedures relevant to their responsibilities. According to Ms. Venters, job titles, job descriptions, and training requirements incorporated into the RCRA permit have not changed since their submittal.

During the CEI, I reviewed training documentation for all hazardous waste management personnel (that is, personnel who sign manifests, conduct inspections, or implement the RCRA Contingency Plan) for the previous 3 years. I noted no deficiencies during the review of 2021, 2022, 2023, and 2024 training documentation. A spreadsheet documenting training for hazardous waste management personnel from 2022 and 2023 are in Attachments 24 and 25, respectively.

9. Contingency Plan

RCRA Permit Condition III.I requires the facility to maintain a Contingency Plan designed to minimize hazards to human health and the environment from fires, explosions, or any sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water. The Contingency Plan submitted with the facility's permit renewal application is incorporated into the final permit as Attachment III-6. I asked Ms. Venters if the Contingency Plan has been revised since the permit was issued. She explained that a Class I permit modification was requested in February 2023 to update the list of Emergency Coordinators. She also stated that no other revisions or amendments to the Contingency Plan have been needed since its submittal. I reviewed the Contingency Plan (Attachment 26) and all appendices against the content requirements of 40 CFR 264.52 and noted no deficiencies.

10. Operating Record

RCRA Permit Condition III.K requires the facility to maintain an Operating Record. The facility's Operating Record consists of paper records such as inspection records and manifests, as well as a database maintained by HSE personnel. During the CEI, Ms. Venters generated a list of wastes generated by the facility (Attachment 8), waste tracking spreadsheet for 2023 that show the manifest number and destination facility for each waste (Attachment 10), and a current inventory of wastes in storage (Attachment 11). Based on the records and reports reviewed during the CEI, I noted no concerns with content or capability of the facility's Operating Record when compared to the required elements of 40 CFR 264.73.

11. Air Emissions: 40 CFR Part 264 Subparts AA, BB, CC

EPA regulations in 40 CFR Part 264, Subparts AA, BB, and CC apply to permitted TSDFs. If a TSDF manages hazardous waste with an organic concentration greater than 10 parts per million by weight (ppmw), the standards found in Subpart AA apply to hazardous waste air emissions from certain process vents. A process vent used in distillation, fractionation, solvent extraction, thin-film evaporation, air stripping, or steam stripping is regulated by Subpart AA. Equistar is subject to the Subpart AA regulations because the process vent from the hazardous waste accumulation tank is routed to a flare. The tank system, including the process vent, is inspected

daily, and the flare system operates with continuous pilots supplied by natural gas. The flare is monitored continuously with readings every 15 minutes. I did not identify any deficiencies related to Subpart AA requirements.

If a TSDF has equipment that contains or contacts hazardous waste composed of 10 percent or greater organics by weight, the facility is subject to Subpart BB standards for inspection and monitoring of the equipment. Equistar is subject to the Subpart BB regulations because the hazardous waste accumulation tank and associated appurtenances contact hazardous waste with greater than 10 percent organics. Because of the nature and properties of the solvents managed, the hazardous waste accumulation tanks and appurtenances are considered to be in light liquid service. All pumps that feed the hazardous waste accumulation tank are inspected during the twice daily tank inspections. I did not identify any deficiencies related to Subpart BB requirements.

The standards found in Subpart CC apply to TSDFs that manage hazardous waste in containers and tanks with volatile organic compounds (VOC) concentration that exceeds 500 ppmw. The Subpart CC standards are applicable to a variety of wastes generated at the facility and managed in containers. I determined that the facility meets the Subpart CC requirements for containers by using Container Level 1 controls (storage containers between 26 gallons and 122 gallons that are DOT-approved) for storage of hazardous wastes. Because the tank uses a process vent with a control device, the tank is exempt from Subpart CC requirements per 40 CFR 264.1080(b)(7).

12. Summary of Preliminary Findings

In summary, as part of the CEI, I made the following preliminary finding:

1) Failure to label a used oil AST with the words “used oil,” as required by 40 CFR 279.22(a)(1)

Other than items specifically noted in the narrative, I observed no additional issues. However, further review by EPA may change or add to my findings.

William F Starks Digitally signed by William F Starks Date: 2024.04.02 12:41:36 -05'00' Date: _____

William F. Starks
Environmental Consultant
CLAENE Group, LLC.

Whisnant, Amber Digitally signed by Whisnant, Amber Date: 2024.04.15 11:00:46 -05'00' Date: _____

Amber Whisnant
Section Chief
ECAD/CB/RCRA, EPA Region 7

Attachments:

1. Notification Acknowledgement/Verification Report (2 Pages)
2. Receipt for Documents and Samples (1 Page)
3. Confidentiality Notice (1 Page)
4. Notice of Preliminary Findings (NOPF) (1 Page)
5. Facility Diagram (1 page)
6. Aerial Image of the Facility (1 Page)
7. Photographic Documentation (Photolog and 26 Images) (17 Pages)
8. Waste Stream Identification Spreadsheets (11 Pages)
9. 2023 Hazardous Waste Biennial Report (10 Pages)
10. Hazardous Waste Tracking Spreadsheet for 2021, 2022, and 2023 (1 Page)
11. Container Storage Area Inventory (3 Pages)
12. SAA Location List (2 Pages)
13. Uniform Hazardous Waste Manifest 024646919JJK, and Associated LDR Notification Form, Dated February 12, 2024 (2 Pages)
14. Hazardous Waste Tank Level Chart from December 13, 2023, to Present (1 Page)
15. Uniform Hazardous Waste Manifest 017840270FLE, and Associated LDR Notification Form, Dated February 13, 2024 (2 Pages)
16. Uniform Hazardous Waste Manifest, Dated December 11, 2023 (2 Pages)
17. 2023 Manifest Log (3 Pages)
18. Used Oil Bill of Lading, Dated January 22, 2024 (1 Page)
19. Universal Waste Manifests, Dated January 24, 2022, December 1, 2022, and December 18, 2023 (9 Pages)
20. SDS for Safety-Kleen Premium Solvent (7 Pages)
21. CSA Weekly Inspection Records, Dated January 3, 2024 Through February 8, 2024 (10 Pages)
22. Hazardous Waste Tank Inspection Log, Dated January 1, 2024 Through February 13, 2024 (1 Page)
23. Email Communication Between EPA and Equistar, Dated November 7, 2022, and Veolia AOC, Dated October 12, 2022 (8 Pages)
24. Training Documentation 2022 (6 Pages)
25. Training Documentation 2023 (6 Pages)
26. RCRA Contingency Plan, Dated November 10, 2023 (12 Pages)