REPORT OF RCRA COMPLIANCE EVALUATION INSPECTION

At

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

EPA ID Number: IAD045372836

On

October 12, 2021

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

Toeroek Team:

John D. Dixon, Inspector, 703-473-8717

INSPECTION PROCEDURES

Due to the spread of coronavirus disease 2019 (COVID-19) at the time of the CEI, I contacted Equistar via telephone one week prior to the scheduled inspection. The purpose of the initial contact was to identify the appropriate facility representatives, ensure the representatives would be available during the CEI, and to discuss protocols, procedures, and any other requirements adopted by the facility to mitigate the spread of COVID-19. I spoke with Ms. Venters during this initial contact.

Prior to the CEI at Equistar on October 12, 2021, 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 directed me to an adjacent conference room, where I was asked to watch a safety video. At the conclusion of the video, the guard directed me to the One Clinton Center (OCC) building. Ms. Venters met me at the OCC entrance and escorted me to a conference room. I introduced myself, explained the purpose of the CEI to her, and conducted an entry briefing.

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 would include several production areas that would be inspected. However, Ms. Venters offered to take photographs at my direction using a facility-controlled camera approved for use within the facility. I reviewed photographs as they were taken to ensure they captured all applicable information, and copied the photographs from the camera's memory card to my computer at the end of the CEI.

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 business card
- RCRA Section 3007
- U.S. Federal Codes 1001 and 1002
- Notice Regarding Proprietary/Confidential Business Information

I discussed other compliance assistance documents typically left with facilities during CEIs. These documents were left with Ms. Venters during the previous CEI on February 2, 2020. Ms. Venters explained that she had the documents and did not need additional copies. Therefore, I left no compliance assistance documents with Ms. Venters.

I reviewed the Hazardous Waste Site Info Verification Report (Verification Report) with Ms. Venters (Attachment 1). Based on this review and observations during the CEI, I added hazardous waste codes U002, U044, U045, U056, U154, and U239 to the Hazardous Wastes Handled section of the report. I also added used oil generator and small quantity handler (SQH) of universal waste to the Types of Regulated Activity section of the report.

I conducted the visual inspection of the facility on October 12, 2021, accompanied by Ms. Venters. 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. Facility information gathered during the CEI is documented on the Data Gathering Worksheets and Checklists (Attachment 2).

At the conclusion of the CEI, I conducted an exit briefing with Ms. Venters. During the exit briefing, I provided a Receipt for Documents and Samples, which Ms. Venters signed, acknowledging receipt (Attachment 3). I provided Ms. Venters the Notice, which she signed indicating no confidential business information had been provided (Attachment 4). I made no preliminary findings during the CEI, so a Notice of Preliminary Findings (NOPF) was not left with the facility at the conclusion of the CEI. However, I explained to Ms. Venters that findings may be added after EPA review of the inspection report.

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 43 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 200 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 ten 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 also 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. Further description of the production processes is provided in Section B-1 (General Information – Nature of the Business) of the RCRA permit application (Attachment 8).

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 9. 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, waste chromic acetate catalyst, and waste maleic anhydride. Waste activated chromium catalyst and waste chromic acetate catalyst was determined to be hazardous by product and process knowledge and by testing, and waste maleic anhydride was determined to be hazardous by product and process knowledge. 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. Waste maleic anhydride is generated during the production of plexar, which are resins used to bind unlike polymers. 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 which 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 (Attachment 7, Photographs 42 and 43). Sludge from the filter press is considered nonhazardous based on product and process knowledge and testing. Wastewater and wastewater treatment sludge are not discussed further in this report.

On February 11, 2020, the Toeroek Team conducted a CEI for EPA at Equistar. Following the CEI, the inspector made the following preliminary findings:

- Failure to label five satellite accumulation area (SAA) containers with the words "hazardous waste"
- Failure to label three SAA containers with the nature of the hazard
- Storage of hazardous waste for longer than 90 days without a RCRA permit for the storage area
- Failure to perform weekly inspections of less-than-90-day hazardous waste container accumulation areas (HWCAA)
- Failure to train all Health, Safety, and Environmental (HSE) staff annually.

These preliminary findings were not repeated during this inspection.

2. RCRA Status

Equistar is identified as a large quantity generator (LQG) of hazardous waste (generating more than 1,000 kilogram [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 February 2020 (the date of the previous CEI) to the present to confirm the facility's current hazardous waste generator status. Copies of spreadsheets summarizing each hazardous waste shipment in 2021 are in Attachment 10.

Based on my review of shipping documentation, the facility manifests approximately 240,000 pounds (108,862 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 thresholds. 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 16 through 20). I inspected this area during the CEI. The container inventory at the time of the inspection is included as Attachment 11.

Equistar has identified 11 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. This list identifies 22 separate SAAs. One SAA for waste maleic anhydride at the HD unit was not inspected as repairs were being performed and respirator use would have been required to enter the production area. In addition, no waste accumulation was observed at four SAAs. Therefore, I inspected 17 SAAs 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 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 9, Page 8). 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 and the waste stream list (Attachment 9). Based on my review of manifests and the 2021 waste tracking spreadsheets (Attachment 10), I estimated that the facility generates approximately 240,000 pounds (108,862 kg) of waste vinyl acetate/mineral spirits per month. It is transported to the 3M Company in Cottage Grove, Minnesota, for fuel blending. The waste was last shipped on October 4, 2021, 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, Photographs 14 and 15). 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 waste level within the tank was 1.33 feet. Ms. Venters explained that the waste had been loaded to a tanker truck that day as shipment was scheduled for the following day. 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 August 30, 2021, 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 (Attachment 10), 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 itself 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 9, 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 and the waste stream list (Attachment 9). Based on my review of manifests and the 2021 waste tracking spreadsheets (Attachment 10), I determined the facility generated 187,840 pounds (85,230 kg) of waste residual oil in 2021 to date. It is transported to Clean Harbors Deer Park LLC in LaPorte, Texas, for incineration. The waste was last shipped on September 25, 2021, 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 9, Page 5). 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 and the waste stream list (Attachment 9). Based on my review of manifests and the 2021 waste tracking spreadsheets (Attachment 10), I determined the facility generates approximately 1,200 to 1,400 gallons of waste activated chromium catalyst per month. It is transported to Veolia ES Technical Solutions in Sauget, Illinois, for landfilling. According to the 2021 waste tracking spreadsheet, the waste was last shipped on May 24, 2021.

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. 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 85 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 May 25, 2021. 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 9, Page 5). The facility considers waste chromic acetate catalyst to be hazardous waste (D001 and D007) based on product and process knowledge and testing. The waste is reanalyzed annually, according to the facility's waste characterization plan and the waste stream list (Attachment 9). Based on my review of manifests and the 2021 waste tracking spreadsheets (Attachment 10), I determined the facility generates approximately 700 to 800 gallons of waste chromic acetate catalyst per month. It is transported to Veolia ES Technical Solutions in Sauget, Illinois, for landfilling. According to the 2021 waste tracking spreadsheet, the waste was last shipped on May 24, 2021.

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 (Attachment 7, Photographs 6 through 8). 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 55 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 May 29, 2021. 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 9, Page 2). The facility considers used activated carbon to be hazardous waste (D018) based on product and process knowledge. Based on my review of manifests and the 2021 waste tracking spreadsheets (Attachment 10), I estimated that the facility generates approximately 10,000 pounds (4,536 kg) of this waste per year. It is transported to the Evoqua Water Technologies facility in Darlington, Pennsylvania, for incineration. According to the 2021 waste tracking spreadsheet, the waste was last shipped on January 18, 2021. I observed 10 containers of used activated carbon 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 April 18, 2021. 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 maleic anhydride is generated from the plexar process, which produces resin used to bind unlike plastic layers. This waste is identified as HD-2003 on the waste stream list (Attachment 9, Page 5). The facility considers waste maleic anhydride to be hazardous waste (D002) based on product and process knowledge. Based on the 2019 Hazardous Waste Biennial Report (Attachment 16, Page 5), the facility typically generates approximately 40,000 pounds (18,144 kg) of this waste per year. It is transported to Veolia ES Technical Solutions in Port Arthur, Texas, for incineration. The waste was last shipped on June 24, 2021, and a copy of the manifest for the last shipment is in Attachment 17, Page 2.

I observed two containers of waste maleic anhydride 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 containers were both dated June 3, 2021. I did not identify any deficiencies related to waste maleic anhydride.

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 9, Page 13). 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 and the waste stream list (Attachment 9). Based on my review of manifests and the 2021 waste tracking spreadsheets (Attachment 10), I estimated that the facility generates 55 gallons of waste QC solvent per year. It is transported to Veolia in Port Arthur, Texas, for fuel blending. The waste was last shipped on June 24, 2021, and a copy of the manifest for the last shipment is in Attachment 17, Page 2.

During the previous CEI on February 11, 2020, the inspector observed satellite accumulation of QC Lab wastes (including waste QC solvent) in fume hoods within the QC Lab. The inspector also observed the area outside of the QC Lab identified by Equistar as SAA location 12b (three separate SAAs). SAA location 12b consisted of two adjacent two-drum secondary containment cabinets. During the February 11, 2020, CEI, the inspector concluded that since the containment cabinets were outside the building, away from the point of generation, and not locked or otherwise under control of the operator, they did not meet the definition of a SAA. Therefore, SAA location 12b was inspected as a less-than-90-day HWCAA.

I asked Ms. Venters how the facility addressed the SAA and HWCAA preliminary findings from the February 11, 2020, CEI related to waste management at the QC Lab. She explained that Equistar sent an initial response to EPA as well as a subsequent response to a request for additional information (Attachment 18). The responses described changing the waste management procedures to management of the small fume hood containers as “day cans,” to be emptied daily into the SAA location 12b containers. The responses also described continued management of the 12b containers as three separate SAA containers within the adjacent two-drum secondary containment cabinets, but with locks in place to ensure they are under control of the QC Lab operator. Equistar received a response from EPA dated July 20, 2020, stating that based on the information submitted, the issues identified in the February 11, 2020, NOPF had been adequately addressed (Attachment 19).

During the CEI, I observed a day can for waste QC solvent in a QC Lab fume hood (Attachment 7, Photograph 37, right container). The day can was closed, labeled with the words “hazardous waste” and an indication of the nature of the hazard, and labeled with the words “container emptied daily.”

I also observed SAA location 12b, consisting of two adjacent two-drum secondary containment cabinets outside of the QC Lab (Attachment 7, Photograph 30). In the north containment cabinet (on the left in Attachment 7, Photograph 30), I observed one 55-gallon SAA container for waste QC solvent and one 55-gallon used oil storage container (Attachment 7, Photograph 31). The SAA container was structurally sound, closed, and labeled with the words “hazardous waste” and an indication of the nature of the hazard (Attachment 7, Photograph 32). The funnel atop the SAA container was secured with a padlock and the lock was engaged. The use of day cans within the fume hoods and management of the SAA location 12b containers as three separate SAAs were described in the facility’s responses to the preliminary findings from the prior CEI.

Waste sample containers consist of used vials generated in the laboratory. This waste is identified as QC-6006 on the waste stream list (Attachment 9, Page 13). The facility considers waste sample containers 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 and the waste stream list (Attachment 9). Based on my review of the 2021 waste tracking spreadsheets (Attachment 10) and visual observations, I estimated that the facility generates 75 gallons of waste sample containers per year. The waste is transported to Veolia in Port Arthur, Texas, for incineration. The waste was last shipped on June 24, 2021, and a copy of the manifest for the last shipment is in Attachment 17, Page 2.

During the CEI, I observed a day can for waste sample containers in a QC Lab fume hood (Attachment 7, Photograph 38). The day can held closed vials, was labeled with the words "hazardous waste" and an indication of the nature of the hazard, and labeled with the words "container emptied daily."

I also observed SAA location 12b, consisting of two adjacent two-drum secondary containment cabinets outside of the QC Lab (Attachment 7, Photograph 30). In the south containment cabinet (on the right in Attachment 7, Photograph 30), I observed one 55-gallon SAA container for waste sample containers and one 55-gallon SAA container for waste flammable solids (Attachment 7, Photograph 34). The SAA container for waste sample containers was structurally sound, closed, and labeled with the words "hazardous waste" and an indication of the nature of the hazard (Attachment 7, Photograph 35). The lid atop the SAA container was secured with a padlock and the lock was engaged. The use of day cans within the fume hoods and management of the SAA location 12b containers as three separate SAAs were described in the facility's responses to the preliminary findings from the prior CEI.

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 9, Page 13). The facility considers waste flammable solids 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 and the waste stream list (Attachment 9). Based on my review of the 2021 waste tracking spreadsheets (Attachment 10) and visual observations, I estimated that the facility generates 75 gallons of waste flammable solids per year. It is transported to Veolia in Port Arthur, Texas, for incineration or fuel blending. The waste was last shipped on June 24, 2021, and a copy of the manifest for the last shipment is in Attachment 17, Page 2.

During the CEI, I observed a day can for waste flammable solids in a QC Lab fume hood (Attachment 7, Photograph 37, left container). The day can was empty at the time of the CEI, labeled with the words "hazardous waste" and an indication of the nature of the hazard, and labeled with the words "container emptied daily."

I also observed SAA location 12b, consisting of two adjacent two-drum secondary containment cabinets outside of the QC Lab (Attachment 7, Photograph 30). In the south containment cabinet (on the right in Attachment 7, Photograph 30), I observed one 55-gallon SAA container for waste sample containers and one 55-gallon SAA container for waste flammable solids (Attachment 7, Photograph 34). 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 (Attachment 7, Photograph 36). The lid atop the SAA container was secured with a padlock and the lock was engaged. The use of day cans within the fume hoods and management of the SAA location 12b containers as three separate SAAs were described in the facility's responses to the preliminary findings from the prior CEI.

Waste aerosol cans are generated in multiple areas around the plant. This waste is identified as PL-7030 on the waste stream list (Attachment 9, Page 14). 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 and the waste stream list (Attachment 9). Based on my review of manifests and the permitted hazardous waste CSA inventory (Attachment 11), I estimated that the facility generates 55 gallons of waste aerosol cans per month. They are transported Veolia ES Technical Solutions in Sauget, Illinois, for incineration. According to the 2021 waste tracking spreadsheet, the waste was last shipped on January 18, 2021

During the CEI, I observed six 55-gallon SAA containers of used aerosol cans. These were observed at SAA locations 12a (Maintenance Area), 12d (HD unit oil shed), 12f (LD unit) inside Hot Melt Building), 12h (Ethylene unit, inside D1 Building), 12i (PP&S Warehouse), and 12k (Contractor Shop). 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 used aerosol cans SAA containers are in Attachment 7, Photographs 1, 2, and 5.

I observed five containers of used 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 August 2, 2021. They were also marked with a drum number that tied it back to the container inventory. I did not identify any deficiencies related to used 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 9, Page 14). 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 and the waste stream list (Attachment 9). Based on my review of manifests and the permitted hazardous waste CSA inventory (Attachment 11), I estimated that the facility generates approximately 55 to 110 gallons of WPRM per year. It is transported to Veolia ES Technical Solutions in Menomonee Falls, Wisconsin, for fuel blending or incineration. The waste was last shipped on June 24, 2021, and a copy of the manifest for the last shipment is in Attachment 17, Page 2.

During the CEI, I observed two 55-gallon SAA containers of WPRM. These were observed at SAA locations 12g (Elliot Building) and 12i (PP&S Warehouse, near railcar repair shop). 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 the WPRM SAA containers are in Attachment 7, Photographs 3, 4, 28, and 29.

I observed three containers of WPRM 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 July 29, 2021. They were also marked with a drum number that tied it back to the container inventory. 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 9, Pages 1 and 2). The facility considers benzene-contaminated liquids and solids to be hazardous waste (D018) based on product and process knowledge. Some of the waste streams are also tested annually (Attachment 9). The waste is generated intermittently, and I did not determine a generation rate. It is transported to Veolia ES Technical Solutions in Port Arthur, Texas, for fuel blending or incineration. The waste was last shipped on June 24, 2021, and a copy of the manifest for the last shipment is in Attachment 17, Page 2.

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, and labeled with the words "hazardous waste" and an indication of the nature of the hazard. I also observed 29 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 August 28, 2021. 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. This waste is identified as EP-1504, HD-2500, MT-4500, and QC-6500 on the waste stream list (Attachment 9, Pages 3, 5, 10, and 13). 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 and the waste stream list (Attachment 9). Based on my review of the permitted hazardous waste CSA inventory (Attachment 11), I estimated that the facility generates approximately 1,000 pounds of used oil per quarter. It is transported to multiple Veolia facilities for fuel blending or recycling.

During the CEI, I observed three 55-gallon used oil storage containers. These were observed at SAA locations 12d (HD unit oil shed), 12h (Ethylene unit), and 12b (QC Lab). 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 11 through 13, 31, and 33. I also observed 11 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 January 14, 2021. They were also marked with a drum number that tied it back to the container inventory. I did not identify any deficiencies related to used oil.

LD used oil is generated during routine maintenance of compressors in the LD unit. This waste is identified as LD-3501 on the waste stream list (Attachment 9, Page 8). The facility manages

LD used oil per the requirements of 40 CFR Part 279. In addition, the waste is analyzed annually, according to the facility's waste characterization plan and the waste stream list (Attachment 9). LD used oil is bulk generated directly to a tanker truck approximately once per month. Based on my review of the 2021 waste tracking spreadsheets (Attachment 10), I estimated that the facility generates 40,000 pounds of LD used oil per month. The waste is shipped to Crystal Clean in Indianapolis, Indiana, for recycling. According to the 2021 waste tracking spreadsheets, LD used oil was last shipped September 29, 2021. I did not observe LD used oil during the CEI.

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 9, Pages 6, 8, 10, and 15). 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 and the waste stream list (Attachment 9). Based on my review of the 2021 waste tracking spreadsheets and the permitted hazardous waste CSA inventory (Attachments 10 and 11, respectively), I estimated that the facility generates approximately 600 gallons of oily debris and absorbents per quarter. It is transported to Veolia ES Technical Solutions in Menomonee Falls, Wisconsin, for incineration or landfilling. The waste was last shipped on June 24, 2021, and a copy of the manifest for the last shipment is in Attachment 17, Page 1.

During the CEI, I observed a 55-gallon container of oily debris and absorbents in SAA location 12d (HD unit oil shed) (Attachment 7, Photographs 9 and 10). I also observed 36 containers of oily debris and absorbents in the permitted CSA. The oldest container was dated January 14, 2021. 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 recycling documentation, the facility generates approximately 800 pounds 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 14, 2020, and a copy of the manifest for the last shipment is in Attachment 20.

During the CEI, I observed a 55-gallon container of used batteries in the permitted CSA. I also observed two 5-gallon containers of used batteries in the cage in the permitted CSA, as well as several used lead-acid batteries (Attachment 7, Photographs 21 through 25). Each used batteries container was labeled with the words "universal waste batteries" and the individual lead-acid batteries were labeled with the words "used battery." All containers and individual batteries were marked with accumulation start dates, and the earliest accumulation start date observed was December 14, 2020. 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 warehouse building. Based on my review of recycling documentation, I estimated the generation rate of universal waste lamps as approximately 85 pounds per year. Used lamps are shipped for recycling to Veolia ES Technical Solutions in Port Washington, Wisconsin. The waste was last shipped on December 14, 2020, and a copy of the manifest for the last shipment is in Attachment 20.

During the CEI, I observed two fiberboard containers of used lamps in the Maintenance warehouse (Attachment 7, Photographs 39 through 41). The universal waste accumulation containers were closed, in good condition, and labeled as “used lamps.” Both were marked with an accumulation start date of January 20, 2021. I did not observe any deficiencies related to used lamps.

Spent parts washer solvent is generated during maintenance of the facility’s seven parts washer units. This waste is identified as MT-4516 on the waste stream list (Attachment 9, Page 10). The facility considers spent parts washer solvent 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 and the waste stream list (Attachment 9). Based on my review of waste shipping documentation, I estimated that the facility generates approximately 130 gallons of spent parts washer solvent per year. It is containerized immediately upon generation and transported to Safety-Kleen Systems, Inc. in Davenport, Iowa, for recycling. The waste was last shipped on December 22, 2000, and a copy of the receipt for the last shipment is in Attachment 21. I did not observe spent parts washer solvent in accumulation during the CEI.

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 16 and 17). 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

50 containers of nonhazardous waste and 190 containers of hazardous waste in storage at the time of the CEI (Attachment 11). Therefore, I determined the maximum volume of hazardous waste in storage at the time of the CEI was 10,450 gallons (as compared with the permitted capacity of 15,000 gallons). The oldest container of hazardous waste was dated April 18, 2021. 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 previous year and noted no missed inspection weeks or indication of severe deficiencies discovered during inspection.

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 240,000 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 and noted no missed inspection days or indication of severe deficiencies discovered during inspection.

7. Manifests and Biennial Report

Equistar generates approximately 100 manifests per year. During the CEI, I reviewed manifests generated from 2021 and 2020, since the date of the last inspection. I reviewed all of the non-bulk manifests generated in 2020 and 2021 (approximately 40 manifests) and approximately 30 bulk manifests for shipment of waste vinyl acetate/mineral spirits and waste residual oil. I verified that the facility had 3 years of manifests available. I noted no deficiencies or concerns during the manifest review. Attachments 13, 15, and 17 include copies of recent manifests.

Equistar's Hazardous Waste Biennial Report for 2019 was submitted on February 18, 2020. This document is maintained at the facility, and I reviewed it during the CEI (Attachment 16). 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 this review. A spreadsheet documenting training for hazardous waste management personnel from 2019 to 2021 is in Attachment 22.

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 2021 to update the list of Emergency Coordinators (Attachment 23). She also stated that no other revisions or amendments to the Contingency Plan have been needed since its submittal. I reviewed the Contingency Plan 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 9), waste tracking spreadsheets for 2021 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 no preliminary findings. However, further review by EPA may change or add to my findings.

John D. Dixon Digitally signed by John D. Dixon DN: cn=John D. Dixon gn=John D. Dixon c=US United States l=US United States Reason: Location: Date: 2021-11-23 14:51-06:00 Date: ____________________

John D. Dixon
Inspector, CLAENE Group

AMBER WHISNANT Digitally signed by AMBER WHISNANT Date: 2021.11.29 18:04:21 -06'00' Date: ____________________

Amber Whisnant
Section Chief, ECAD/CB/RCRA

Attachments:

1. Hazardous Waste Site Info Verification Report (2 Pages)
2. Data Gathering Worksheets and Checklists (47 Pages)
3. Receipt for Documents and Samples (1 Page)
4. Confidentiality Notice (1 Page)
5. Facility Map (1 page)
6. Aerial Image of the Facility (1 Page)
7. Photographic Documentation (Photolog and 43 Images) (27 Pages)
8. Permit Application Section B-1 – Nature of the Business (3 Pages)
9. Waste Stream Identification Spreadsheets (16 Pages)
10. Hazardous Waste Tracking Spreadsheets for 2021 (3 Pages)
11. Container Storage Area Inventory (5 Pages)
12. SAA Location List (2 Pages)
13. Manifest for October 4, 2021, Shipment of Waste Vinyl Acetate/Mineral Spirits (1 Page)
14. Hazardous Waste Tank Level Chart from August 30, 2021, to Present (1 Page)
15. Manifest for September 25, 2021, Shipment of Waste Residual Oil (1 Page)
16. 2019 Hazardous Waste Biennial Report (17 Pages)
17. Manifests for June 24, 2021, Hazardous Waste Shipments (3 Pages)
18. February 11, 2020, NOPF Responses (19 Pages)
19. EPA Letter RE: NOPF Responses (1 Page)
20. Universal Waste Manifest dated December 14, 2020 (2 Pages)
21. Receipt for Parts Washer Service (4 Pages)
22. Training Documentation 2019 to 2021 (3 Pages)
23. Class I Permit Modification Request and Updated Emergency Coordinator List (2 Pages)