

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
**ACTIVITY REPORT: On-site Inspection**

N699658632

<b>FACILITY:</b> POET Biorefining - Caro, LLC		<b>SRN / ID:</b> N6996
<b>LOCATION:</b> 1551 Empire Drive, CARO		<b>DISTRICT:</b> Bay City
<b>CITY:</b> CARO		<b>COUNTY:</b> TUSCOLA
<b>CONTACT:</b> Charles Hauxwell , EHS Specialist II		<b>ACTIVITY DATE:</b> 06/24/2021
<b>STAFF:</b> Adam Shaffer	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> Scheduled announced inspection.		
<b>RESOLVED COMPLAINTS:</b>		

An onsite inspection and records review was conducted by Air Quality Division (AQD) staff Adam Shaffer (AS) of Poet Biorefining – Caro, LLC (POET). Applicable records were requested on April 21, 2021, to verify compliance with Renewable Operating Permit (ROP) No. MI-ROP-N6996-2018. An in-person inspection to verify onsite compliance was later completed on June 24, 2021. The facility was also noted to be in operation with Permit to Install (PTI) No. 39-19. Additional details regarding this PTI will be discussed further below.

### **Facility Description**

POET is an ethanol production facility. The facility is a major source of greenhouse gases (GHG), volatile organic compounds (VOCs), carbon monoxide (CO), and nitric oxides (NO<sub>x</sub>). Additionally, the facility is a synthetic minor for hazardous air pollutants (HAPs) and is in operation with ROP No. MI-ROP-N6996-2018.

### **Offsite Compliance Review**

- POET is required to submit semi-annual and annual compliance reports per Part A General Conditions 19-23 of MI-ROP-N6996-2018. Semi-annual and annual compliance reports were reviewed since the previous inspection on January 16, 2019. In the most recent semi-annual and annual compliance reports received by the AQD on March 15, 2021, POET had reported one deviation during this time period. The deviation was regarding FGFERM&DIST. The MAP requires dosing the scrubber with 20 gallons per day of SBS to control acetaldehyde. Only 19.1 gallons were used on the day of the deviation. Once the issue was identified the lines were opened, flushed, and opened back online. No further action is necessary at this time.
- Based on the timing of the inspection, the 2020 Michigan Air Emissions Reporting System (MAERS) Report was submitted on March 12, 2021 and was reviewed. The 2020 MAERS Report was failed several times due to errors noted for various emission units. After further review, the final resubmitted version of the 2020 MAERS Report appears acceptable.

### **Compliance Evaluation**

A request was sent to Mr. Charles Hauxwell, EHS Specialist II, of POET on April 21, 2021, for various records required by ROP No. MI-ROP-N6996-2018. The various records that were received and reviewed will be discussed further in this report. An onsite inspection of the facility was later completed on June 24, 2021. AQD staff AS arrived onsite at 8:27am. Weather conditions at the time were sunny skies, temperatures in the low 70's degrees Fahrenheit and winds from the south at 10-15mph. While offsite, a distinct odor noticed later while onsite was noted to the northeast of the site. No recent odor complaints have been recently received regarding this site. Emissions observed appeared to be steam. AS

checked in with the front office and met with Mr. Chuck Hauxwell, Senior EH&S Specialist, and Ms. Emily Boynton, General Manager, who provided a tour of the facility and answered site specific questions. Additionally, AS and Mr. Hauxwell sat down at the end of the inspection and went over specific questions pertaining to the records received from the records request earlier.

As mentioned above POET is an ethanol production facility. Corn is shipped onsite either railcar or truck where it is stored in silos. At the start of the process operations the corn is run through the hammermills onsite where it is crushed into a fine powder or flour before going through the various fermentation and distillation processes onsite to create ethanol. The various stages of operation were observed during the course of the site inspection and will be discussed further below.

### **PTI No. 39-19**

This PTI was for the installation of fermentation tank #8 (EUFERMENTER8) as well as several other changes to other emission units. At the time of the inspection, EUFERMENTER8 has not been installed and the remaining changes have been implemented. Applicable forms to complete a minor modification and roll PTI No. 39-19 into MI-ROP-N6996-2018 had not been received at the time of the inspection. Moving forward, POET shall submit applicable forms pertaining to a minor modification to roll the PTI into the ROP.

### **ROP No. MI-ROP-N6996-2018**

#### **Source-Wide Conditions**

##### Records

The facility is subject to source-wide individual / aggregate HAP emission limits of less than 10 tons per year (tpy) and less than 25 tpy respectively. Records were requested and reviewed for select time periods. For the month of March 2021, 0.55 ton of aggregate HAPs were emitted. As of March 2021, 5.50 tpy of aggregate HAPs were emitted per a 12-month rolling time period which is within the permitted limit for both individual and aggregate HAPs. Previous 12-month rolling time periods reviewed were also within the permitted limits for both individual and aggregate HAPs. POET appears to be keeping track of each individual HAP with the most emitted HAP being acrolein.

Per Special Condition (SC) VI.2, POET is required to keep track of monthly and 12-month rolling time period individual and total HAP emission rate calculations. Based on the records reviewed, POET appears to be doing this.

#### **EUFBCOOLER**

This emission unit is for a fluidized bed cooler.

##### Onsite Observations

Per SC III.1, the permittee shall not operate EUFBCOOLER unless the fabric filter collector (CE008) is installed, maintained, and operated in a satisfactory manner. The unit was observed during the inspection. The pressure drop noted for the unit when reviewing the DCS control system was 1.8 inch of water column, which is within the satisfactory operating

range per the Malfunction Abatement Plan (MAP). Based on the observations made, this unit appeared to be operating satisfactorily.

One stack is listed in association with this emission unit. Though the exact dimensions were not measured they appeared to be consistent with what is listed in MI-ROP-N6996-2018.

### Records

This emission unit is subject to an hourly particulate matter (PM) emission limit of 0.0060 lbs per 1000 lbs of gas and hourly PM10/2.5 emission limits of 0.65 lb/hr. Based on the observations made at the time of the inspection and records reviewed, the unit appeared to be operating in a satisfactory manner and no testing to verify emission rates will be required at this time.

This emission unit is subject to an hourly VOC emission limit of 6.6 lb/hr. It was noted that the PTI No. 39-19 has a VOC emission limit of 7.54 lb/hr. Records were requested and reviewed for select time periods. For March 2021, the monthly hourly VOC rate was 2.24 lb/hr which is well within the permitted limit. Previous monthly hourly rates reviewed also appeared to be within the permitted limit.

Per SC VI.1, POET is required to keep track of monthly production hours and any other applicable items in order to demonstrate they are in compliance with the VOC emission rate limit. After further review, the records provided appear acceptable.

Per SC VI.2, POET is required to maintain pressure drop and/or visible emission checks of the fabric filter collector (CE008) on a daily basis, during days of operation and to complete an annual inspection of the unit to confirm satisfactory operation. Daily records were requested for select time periods and reviewed. Based on the MAP, the acceptable pressure drop range is 0.3 - 6.0 inch of water column. Pressure drop readings reviewed appeared acceptable and indicated satisfactory operation. POET staff stated that no visible emissions were observed during the select time periods reviewed that would have required Method 9 readings be taken and maintenance to address the potential issue. The unit was most recently inspected on 03/24/21 with no apparent issues identified. After further discussion it appears the unit was inspected in 2019 and 2020 as well. It appears that annual inspections of the unit are being completed as required.

### **EUDDGSSILO**

This emission unit is for the dried distiller's grains and solubles silo.

### Onsite Observations

Per SC III.1, the permittee shall not operate EUDDGSSILO unless the fabric filter collectors (F-849 & F-620) are installed, maintained, and operated in a satisfactory manner. The unit was observed during the inspection. The F-620 unit was offline, and the F-849 fabric filter collector read 0.3 inch of water column, which is within the satisfactory operating range per the MAP. Based on the observations made, this unit appeared to be operating satisfactorily.

One stack is listed in association with this emission unit. Though the exact dimensions were not measured they appeared to be consistent with what is listed in MI-ROP-N6996-2018.

### Records

This emission unit is subject to an hourly PM emission limit of 0.0080 lbs per 1000 lbs of gas, an hourly PM10 emission limit of 0.15 lb/hr and an hourly PM2.5 emission limit of 0.07 lb/hr. Based on the observations made at the time of the inspection and records reviewed, the units appeared to be operating in a satisfactory manner and no testing to verify emission rates will be required at this time.

Per SC VI.1, POET is required to maintain pressure drop and/or visible emission checks of the fabric filter collector F-620 or F849 on a daily basis, during days of operation and to complete an annual inspection of the units to confirm satisfactory operation. Daily records were requested for select time periods and reviewed. Based on the MAP, the acceptable pressure drop range is 0.3 – 6.0 inch of water column. Several instances were noted where the pressure drop reading was outside of the pressure drop range mentioned above. This was discussed with POET staff at the time of the inspection. After further review, overall, the responses received appeared acceptable and appeared to indicate satisfactory operation. Records were provided of the 2019 and 2020 annual inspections for each fabric filter collector. POET staff stated that no visible emissions were observed during the select time periods reviewed that would have required Method 9 readings be taken and maintenance to address the potential issue.

### **EUINHIBITANK**

This emission unit is for the storage tank for corrosion inhibitor.

#### Onsite Observations

This unit was observed during the course of the site inspection. Per SC III.1, EUINHIBITANK shall not be filled unless it is equipped with a submerged fill piping meaning when filling the unit, it must be below the liquid level in the vessel. The tank was observed filled above the entry line to the unit. After speaking further with POET staff this condition appears to be being met.

### **EUGENSET**

This emission unit is for an existing emergency stationary reciprocating internal combustion engine (RICE) located at an Area Source of HAP emissions, as identified within Title 40 of the Code of Federal Regulations (CFR), Part 63, National Emission Standard for HAP (NESHAP) for Stationary RICE, Subpart ZZZZ (40 CFR 63.6580-6675).

#### Onsite Observations

This unit was observed during the course of the site inspection. A control panel for the unit was observed that listed various items associated with the unit. At the time of the inspection, the hours of operation display were unable to be located. A follow up photo was provided from the control panel observed onsite and indicated 252 hours of operation for the unit. This appears acceptable.

Per SC III.1-3, various maintenance shall be completed annually or after every 500 / 1,000 hours of operation, whichever comes first. Speaking with POET staff, annual maintenance operations consisting of oil and filter changes, inspection of air cleaner, and inspection of all hoses and belts are completed. Maintenance was most recently done on 06/22/21 for the unit and was verified to have been completed for 2019 & 2020 as well. After further review this appears acceptable.

One stack is listed in association with this unit. Though the exact dimensions were not measured, they appeared to be consistent with what is listed in MI-ROP-N6996-2018.

### Records

Per SC VI.1, POET shall maintain records for maintenance conducted on the RICE in order to demonstrate that the unit is operated and maintained in a satisfactory manner per POET's maintenance plan. Records were requested and reviewed for select time periods. Based on the records reviewed, it appears the RICE has not been used for emergency purposes since at least 2020. Records provided show that the RICE appears to only be operated each month per the preventative maintenance plan and less than an hour each month. POET staff stated that there is no after-treatment control device for the RICE. Minor errors were noted in the records provided and were discussed with the company to fix moving forward. After review, the records reviewed appear to be acceptable.

### **EUBOILER**

This emission unit is for the 85 MMBTU/hr boiler that was installed onsite in 2005.

### Onsite Observations

This unit was observed during the inspection and appeared to be being operated in a satisfactory manner. One stack is listed in association with this unit. Though the exact dimensions were not measured, they appeared to be consistent with what is identified in MI-ROP-N6996-2018.

### Records

Per SC III.1, EUBOILER shall only use sweet natural gas as fuel. It was verified by POET staff that only sweet natural gas is used.

Per SC VI.1-2, POET shall keep daily natural gas records and shall maintain copies of utility bills indicating receipt of natural gas from a supplier of commercial grade natural gas. Records were requested and provided for select time periods. Based on the records provided, POET appears to be keeping track of daily natural gas usages and receipts of natural gas purchased.

EUBOILER is subject to the 40 CFR Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Based on past inspections, it appears that applicable records have been previously submitted.

### **FGCORN-DDGS**

This flexible group is for the corn and DDGS handling area and contains the following emission units: EUCORNPIT, EUCORNELEV1, EUCORNBIN1, EUCORNBIN2, EUCORNBIN3, EUCORNBIN4, EUCORNBIN5, EUCORNBIN6, EUCORNBIN7, EUDDGSPIT, EUDDGSELEV, EUDDGCONV, EURAILLOAD1, and EUTRUCKLOAD1.

### Onsite Observations

Processes for this flexible group were observed over the course of the inspection.

Per SC III.2, the permittee shall not operate FGCORN-DDGS unless the fabric filter collector (CE001) is installed, maintained, and operated in a satisfactory manner. The unit was observed during the inspection. The fabric filter collector read 2.4 inch of water column, which is within the satisfactory operating range per the MAP. Based on the observations made, this unit appeared to be operating satisfactorily.

One stack is listed in association with this emission unit. Though the exact dimensions were not measured, they appeared to be consistent with what was identified in the MI-ROP-N6996-2018.

### Records

This flexible group is subject to three hourly PM emission limits. Based on the observations made at the time of the inspection and records reviewed, the unit appeared to be operating in a satisfactory manner and no testing to verify emission rates will be required at this time.

Per SC VI.1, POET shall keep daily records of tons of grain processed by EUCORNELEV1 and are limited to 9,700 tons of grain per day as required by SC III.1. Records were requested and provided with additional records reviewed while onsite. Based on the records reviewed, POET appears to be keeping track of the daily records of tons of grain used. The highest noted daily record was slightly over 9,500 tons of grain but well within the limit of 9,700 tons of grain.

Per SC VI.2, POET shall monitor and record the daily pressure drop and/or visible emissions check of the fabric filter collector (CE001) on a daily basis and inspect CE001 on an annual basis to verify satisfactory operation. Daily pressure drop readings were requested and reviewed for select time periods. Based on the MAP, the acceptable pressure drop range is 0.3 – 6.0 inch of water column. Several times it was noted that the pressure drop was out of the acceptable range mentioned above and this was discussed with POET staff who stated that the units may not have been receiving at the time and were not running which would cause the pressure drop to be out of range. This appears acceptable at this time. Instead of annual inspections, weekly inspections are completed for CE001. With the exception of inlet ducts being repaired, POET staff stated that no additional issues have been identified recently from the weekly inspections. POET staff stated that no visible emissions were observed during the select time periods reviewed that would have required Method 9 readings be taken and maintenance to address the potential issue.

### **FGSCALP**

This flexible group is for the scalper unit with a fabric filter collector (CE002). Emission units for this flexible group are EUCORNELEV2 and EUSCALPER.

### Onsite Observations

FGSCALP was observed during the course of the inspection. Per SC III.1, FGSCALP shall not be operated unless the fabric filter collector CE002 is installed, maintained, and operated in a satisfactory manner. At the time of the inspection, the fabric filter collector read 3.0 inch of water column, which is within the satisfactory operating range per the MAP. Based on the observations made, this unit appeared to be operating satisfactorily.

One stack is listed in association with this flexible group and was observed during the course of the inspection. Though the dimensions were not measured at the time of the inspection they appeared consistent with what is identified in MI-ROP-N6996-2018. It was noted that the stack does discharge downward and after speaking with AQD permit staff would appear to be acceptable.

### Records

This flexible group is subject to three hourly PM emission limits. Based on the observations made at the time of the inspection and records reviewed, the unit appeared to be operating in a satisfactory manner and no testing to verify emission rates will be required at this time.

Per SC VI.1, POET shall monitor, and record pressure drop and / or visible emission checks for the fabric filter collector (CE002) on a daily basis and complete annual inspections to verify satisfactory operation of CE002. Daily pressure drop readings were requested and reviewed for select time periods. Based on the MAP, the acceptable pressure drop range is 0.3 – 6.0 inch of water column. Pressure drop readings reviewed appeared acceptable and indicated satisfactory operation. Instead of annual inspections, POET appears to be completing weekly inspections for this unit and records were noted during the inspection. After discussing these with staff there appeared to have been no issues with the unit since at least 2020. POET staff stated that no visible emissions were observed during the select time periods reviewed that would have required Method 9 readings be taken and maintenance to address the potential issue.

### **FGFLOUR**

This flexible group is for the milling area with baghouses (Hammermill 1-5). Emission units for this flexible group are EUFLOURELEV, EUFLOURCONV, EUHAMMERMILL1, EUHAMMERMILL2, EUHAMMERMILL3, EUHAMMERMILL4, and EUHAMMERMILL5.

### Onsite Observations

FGFLOUR was observed during the course of the inspection. Per SC III.1, FGFLOUR shall not be operated unless the baghouses (Hammermill 1-5) are installed, maintained, and operated in a satisfactory manner. At the time of the inspection, the following pressure drop readings were noted for each baghouse:

Hammermill #1 – Offline  
Hammermill #2 – 2.4 inch of water column  
Hammermill #3 – 2.0 inch of water column  
Hammermill #4 – 3.0 inch of water column  
Hammermill #5 – 0.9 inch of water column

All pressure drop readings for hammermills in operation were noted within the satisfactory pressure drop reading range per the MAP. Based on the observations made, this appeared to be acceptable.

One stack is listed in association with this flexible group and was observed during the course of the inspection. Though the dimensions were not measured at the time of the inspection they appeared consistent with what is identified in MI-ROP-N6996-2018.

### Records

This flexible group is subject to an hourly PM emission limit of 0.0040 lbs per 1000 lbs of gas. Additionally, the EUHAMMERMILL1-5 are subject to an hourly PM10 emission limit of 1.10 lb/hr and an hourly PM2.5 emission limit of 0.93 lb/hr. Based on the observations made at the time of the inspection and records reviewed, the units appeared to be operating in a satisfactory manner and no testing to verify emission rates will be required at this time.

Per SC VI.1, POET shall monitor, and record pressure drop and / or visible emission checks for each baghouse (F-110, F-111, F-112, F-113, and F-114) on a daily basis and complete annual inspections to verify satisfactory operation for each baghouse. Daily pressure drop readings were requested and reviewed for select time periods. Based on the MAP, the acceptable pressure drop ranges are 0.3 – 6.0 inch of water column. Several instances were noted where the pressure drop readings were outside the acceptable range. After speaking with POET staff regarding this, it appears that at certain times of the year not all five hammermills are operating at once. This would appear to affect the pressure drop readings. The response appears satisfactory at this time. Annual inspection records for 2019 and 2020 were provided or discussed at the time of the inspection. Annual inspections are being completed for each unit and there appears to have been no issues based on recent inspections. POET staff stated that no visible emissions were observed during the select time periods reviewed that would have required Method 9 readings be taken and maintenance to address the potential issue.

## **FGDERM&DIST**

This flexible group is for the fermentation and distillation process. Due to VOCs, FGDERM&DIST is subject to 40 CFR Part 64 (CAM). Additionally, this flexible group is subject to the requirements of the federal New Source Performance Standards (NSPS) Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which construction, reconstruction, or modification commenced after November 7, 2006, as specified in 40 CFR Part 60, Subpart VVa.

This flexible group is for the following emission units: EUFERMENTER1-7, EUBEERWELL, EUBEERSTRIP, EUBEERSTRIP2, EURECTIFIER, EUSIDESTRIP, EUSIEVE, EUSIEVE2, EUYEAST, EUEVAPORATOR, EUSTILLAGETANK, and EURTO.

### Onsite Observations

Per SC III.1, a minimum overall VOC control efficiency of 97.0 percent across the scrubbers (CE004 & CE014) shall be maintained. The scrubbers were most recently tested in 2017 and at the time appeared to be in compliance.

Per SC IV.1, the permittee shall not operate any equipment in FGFERM&DIST unless the chiller in operation (CE004 or CE014) is installed, maintained, and operated in a satisfactory manner, except as allowed in SC III.3. Satisfactory operation of the chiller includes maintaining the exhaust temperature of the scrubber in the range of the MAP. Per the MAP, the satisfactory range for the scrubber exhaust temperature is a 3-hr average of less than 65 degrees Fahrenheit. The chillers were noted to be on at the time of the inspection, and the 3-hr average for Scrubber #1 was 61.6 degrees Fahrenheit. The Scrubber #2 was not in operation at the time of the inspection. This appears to be acceptable.

Per SC IV.2, the permittee shall not operate any equipment in FGFERM&DIST unless one of the scrubbers (CE004 or CE014) is installed, maintained, and operated in a satisfactory

manner, except as allowed by SC III.3. Satisfactory operation of the scrubber includes maintaining the scrubber liquid flow rate, and pressure drop in the range of the MAP. Per the MAP, the minimum 3-hour average gallon per minute flow rate is 30-GPM and the pressure drop range is less than a 3-hour average of 15 inch of water column. At the time of the inspection, the flow rate noted for the one scrubber in operation was 46.1 GPM and a pressure drop reading of 7.1 over a 3-hour average. This appears to be acceptable.

Based on observations made at the time of the inspection, it appears that monitors are installed for both scrubbers that will measure the liquid flow rate, pressure drop and exhaust temperature per SC IV.3-5.

Per SC V.1, on or before six months of the ROP expiration date, the permittee shall verify the VOC and acetaldehyde emission rates by testing. The expiration date of MI-ROP-N6996-2018 is October 30, 2023. Testing has not been completed yet at the time of the inspection.

Three stacks are listed in association with FGFERM&DIST and were observed during the course of the inspection. Though the dimensions were not measured they appeared to be consistent with what is identified in MI-ROP-N6996-2018.

### Records

This flexible group is subject to an hourly VOC emission limit of 19.66 lb/hr when emissions are venting through the scrubber. Records were requested for select time periods and reviewed. For the month of March 2021, the hourly VOC emission rate was 10.99 lb/hr which is within the permitted limit. Previous monthly VOC emission rates reviewed also appeared to be within the permitted limit.

This flexible group is subject to a second hourly VOC emission limit of 30.74 lb/hr when emissions are venting through the RTO. While speaking with POET staff at the time of the inspection it was determined that POET does not vent emissions to the RTO. POET staff stated that emissions had only been bypassed one time at startup of the unit to the RTO in order to verify that it could be completed.

This flexible group is subject to an hourly acetaldehyde emission limit of 1.50 lb/hr. Records were requested for select time periods and reviewed. For the month of March 2021, the acetaldehyde hourly emission rate was 0.72 lb/hr which is within the permitted limit. Previous hourly emission rates reviewed also appeared to be within the permitted limit.

Per SC VI.3, the permittee shall record the scrubber liquid flow rate, exhaust temperature and pressure drops of the operational scrubber (CE004 or CE014) on a daily basis. The daily records shall consist of the average of all data collected during the operating day. Records were requested and provided for select time periods. Based on the records provided, POET appears to be keeping track of daily scrubber liquid flow rates, exhaust temperatures and pressure drop readings. The records provided were compared to the MAP parameters identified and after further review appeared acceptable.

Per SC VI.4, POET shall keep track of production records used to verify that the hourly VOC emission limit is being met per SC I.1. Records were requested and provided and after further review, appeared acceptable.

Per SC VI.5, POET shall keep track of monthly / 12-month rolling time periods of the number of scrubber bypass periods as well as the duration in hours and reasoning behind each bypass period. As stated previously, POET has only operated the unit under bypass when it was first started.

After further review, this flexible group appears to be in compliance with CAM and the NSPS Subpart VVa.

## **FGDDGSDRYERS**

This flexible group is for the Dried Distiller's Grains with Solubles (DDGS) dryers and centrifugation. Due to VOCs, FGDDGSDRYERS is subject to CAM.

The emission units included in this flexible group are EUDDGSDRYER1, EUDDGSDRYER2, EUTO&HRB, EURTO, and EUCENTRIFUGE1-6.

### Onsite Observations

This flexible group was observed during the course of the inspection.

Per SC III.1, only sweet natural gas may be used as fuel for EUDDGSDRYER1 and EUDDGSDRYER2. This was verified by POET staff to be being completed.

Per SC III.2, only sweet natural gas may be used as supplemental fuel for thermal oxidizer (TO) EUTO&HRB (CE010) and in the regenerative thermal oxidizer (RTO) EURTO (CE012). This was verified by POET staff to be being completed.

Per SC III.4, POET shall only exhaust emissions from EUCENTRIFUGE1 to 6 to stack SV025 when wet cake is produced. Otherwise, the permittee shall not operate EUCENTRIFUGE1 to 6 unless EUTO&HRB (CE010) or EURTO(CE012) are installed, maintained, and operated in a satisfactory manner according to the MAP. Based on the observations made and records reviewed, this appears to be being completed.

Per SC IV.1, POET shall not operate either dryer in FGDDGSDRYERS unless the associated multiclone (CE006 or CE007) is installed, maintained, and operated in a satisfactory manner. Per the MAP, satisfactory operation for each multiclone is a pressure drop range across the cyclone of less than 10 inch of water column. Each multiclone has two pressure drop readings. At the time of the inspection the pressure drop readings across CE006 were 2.9" and 1.3" and the pressure drop readings across CE007 were 2.9" and 1.6". After further review, the two multiclones appeared to be operating satisfactorily at the time of the inspection.

Per SC IV.2, POET shall not feed materials to either dryer in FGDDGSDRYERS unless either EUTO&HRB (CE010) or EURTO (CE012) are installed, maintained, and operated in a satisfactory manner. Satisfactory operation of both units includes maintaining a minimum destruction efficiency of 95 percent by weight and a minimum temperature consistent with satisfactory operation per the MAP. Additional requirements are noted when operating the dryers and control devices. Both units were most recently tested in 2018 and appeared to be operating satisfactorily. At the time of the inspection the TO was operating at 1,518°F and the RTO was operating at 1,664°F / 1,661°F per a 30 minute and 3-hour average respectively. The temperatures appear to indicate satisfactory operation of both units.

Three stacks are listed as associated with this flexible group. One of the changes included in PTI No. 39-19 was to modify stack vent #25 to discharge vertically. The three stacks were observed during the inspection and after further review appear acceptable.

### Records

This flexible group, specifically for EUTO&HRB, is subject to an hourly PM, PM10 and PM2.5 emission limit of 4.00 lb/hr. Testing was most recently completed in 2018 for this flexible group. At the time of testing, results were within the permitted limits.

This flexible group, specifically for EURTO, is subject to an hourly PM, PM10, and PM2.5 emission limit of 6.00 lb/hr. Testing was most recently completed in 2018 for this flexible group. At the time of testing, results were within the permitted limits.

This flexible group is subject to an hourly VOC emission limit of 9.00 lb/hr, which is for the combined emissions of the TO&HRB stack and RTO stack. This would be when the units are online. Records were requested and reviewed back for select time periods. For the month of March 2021, the hourly prorated VOC emission rate was 2.22 lb/hr which is within the permitted limit. Previous monthly VOC emission rates reviewed also appeared to be within the permitted limit. Testing had also been completed for this unit in 2018 and at the time of testing, results were within the permitted limit.

This flexible group, specifically for EUCENTRIFUGE1 to 6, is subject to a second hourly VOC emission limit of 6.13 lb/hr, which is for stack 025 when producing wet cake and TO&HRB and RTO are not operating. Records were requested and provided for select time periods. For the month of March 2021, the hourly prorated VOC emission rate was 0.24 lb / hr which is within the permitted limit. Previous monthly VOC emission rates reviewed also appeared to be within the permitted limit. Testing had also been completed for this unit in 2018 and at the time of testing, results were within the permitted limit.

This flexible group is subject to an hourly NO<sub>x</sub> emission limit of 0.10 lb/MMBtu. Testing of the thermal oxidizer (TO) EUTO&HRB and the regenerative thermal oxidizer (RTO) EURTO was most recently completed on 04/10/18 – 04/12/18. Test results indicated that the TO and RTO NO<sub>x</sub> emissions were 0.055 and 0.079 lb/MMBtu respectively which is within the permitted limit.

Per SC VI.3, records shall be kept of the minimum temperature to which exhaust gases from the dryers are exposed in the TO and RTO. Records were requested and provided for select time periods. The records and various interlocks in place for when the TO can be run were discussed and appear acceptable. Based on the records reviewed, POET appears to be keeping track of temperature records for the RTO and TO and they appear to indicate satisfactory operation.

Per SC VI.5, records shall be kept for the multiclone dust collection (CE006 & CE007) in the form of pressure drop readings on a daily basis. The data recorded shall be the average collected during the operating day. Records were requested and reviewed for select time periods. Based on the MAP, the acceptable pressure drop ranges are less than 10 inch of water column. Pressure drop readings reviewed appeared acceptable and indicated satisfactory operation.

Per SC VI.6, records consisting of monthly production records, monthly records of the ethanol content of distillation bottoms, and other records in order to demonstrate

compliance with the hourly VOC emission rate per SC I.7 are required. Monthly records provided are to be prorated to an hourly rate. Records were requested and provided for select time periods. After further review, the records appear to be acceptable.

Per SC VI.7, POET shall keep track of wet cake production records and other applicable records used to verify compliance with the VOC emission rate per SC I.8. Records were requested and provided for select time periods. Based on the records provided, POET appears to be keeping track of applicable records.

Per SC VI.8, POET shall keep track of daily natural gas usages by EUTO&HRB. Records were requested and provided for select time periods. After further review, the records appear acceptable at this time. Additionally, per SC IX.1, POET shall keep track of copies of utility bills indicating the receipt of natural gas from a supplier of commercial grade natural gas. Based on the records requested and provided, POET appears to be keeping track of applicable records.

## **FGETHLOAD**

This flexible group is for the ethanol truck and rail load out. FGETHLOAD is subject to the requirements of the federal NSPS Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which construction, reconstruction, or modification commenced after November 7, 2006, as specified in 40 CFR Part 60, Subpart VVa.

This flexible group is for the following emission units: EUTRUCKLOAD3, EUTRUCKLOAD4, and EURAILLOAD2.

### Onsite Observations

This flexible group was observed at the time of the inspection.

Per SC III.1, the permittee shall not load trucks through EUTRUCKLOAD3 (SV014) while the vapor recovery system fan is not operating. After speaking with POET staff, this appears to be being completed.

Per SC IV.1, the permittee shall not transfer material through EURAILLOAD2 unless the receiving railcar has been certified as dedicated to transporting ethanol, including denatured ethanol, except as allowed by SC II.1(c)(ii). After speaking with POET staff this appears to be being completed.

Per SC IV.2, except as allowed by SC II.1(c)(i), the permittee shall not load trucks through EUTRUCKLOAD3, and EUTRUCKLOAD4 unless CE010 is installed maintained and operated in a satisfactory manner. At the time of the inspection, CE010 was operating, and POET was loading trucks. The CE010 was operating at 1,518°F, which is within the acceptable temperature range noted in the MAP of a 3-hour temperature average greater than 1,468°F.

### Records

This flexible group is subject to several material limits that are discussed below.

The first material limit that FGETHLOAD is subject to is a 5,000,000 gallons per 12-month rolling time period of natural gasoline, hereinafter "denaturant". Records were requested

and provided for select time periods. As of March 2021, 165,949 gallons of throughput was reported. As of March 2021, 1,775,124.09 gallons of throughput was reported which is well within the permitted limit. Previous 12-month rolling time periods reviewed also appeared to be within the permitted limit.

The second material limit that FGETHLOAD is subject to is 95,000,000 gallons per a 12-month rolling time period of total ethanol and denaturant combined. This material limit is per PTI No. 39-19 (the material limit noted in MI-ROP-N6996-2018 is 89,250,000). As of March 2021, 7,061,674 gallons were reported. As of March 2021, 75,602,790 gallons were reported per a 12-month rolling time period which is within the permitted limit. Previous 12-month rolling time periods reviewed also appeared to be within the permitted limit.

The third material limit that FGETHLOAD is subject to is 5,000,000 gallons per a 12-month rolling time period of total ethanol and denatured ethanol combined. As of March 2021, 280,000 gallons of throughput was reported. As of March 2021, 2,768,328.99 gallons of throughput was reported which is well within the permitted limit. Previous 12-month rolling time periods reviewed also appeared to be within the permitted limit.

Per SC VI.1a-e, POET shall keep track on a monthly / 12-month rolling time period records of throughput of denaturant ethanol / denatured ethanol for FGETHLOAD, throughput of total ethanol and denatured ethanol for EUTRUCKLOAD3 and EUTRUCKLOAD4 combined whole displaced vapor contents of trucks being loaded are exhausted trough SV014 or SV015, throughput of total ethanol and denatured ethanol for EURAILLOAD2 to receiving railcars that last transported denaturant, combined throughputs of total ethanol for EURAILLOAD2-4, and the number of railcars receiving material through EURAILLOAD2 each month that have been certified as dedicated to transporting ethanol, including denatured ethanol. Records were requested and reviewed for select time periods. Based on the records reviewed, POET appears to be keeping track of applicable items.

## **FGNSPSTANKS**

This flexible group is for the denaturant storage. FGNSPSTANKS is subject to the requirements of Standards of Performance for Volatile Organic Liquid Storage Vessels (including petroleum liquid storage vessels) for which construction, reconstruction, or modification commenced after July 23, 1984, as specified in 40 CFR Part 60, Subpart Kb and Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which construction, reconstruction, or modification commenced after November 6, 2006, as specified in 40 CFR Part 60, Subpart VVa.

The emission units for this flexible group are EUNATGASTANK1 (T-802) and EUNATGASTANK2 (T-805).

### Onsite Observations

This flexible group was observed during the course of the inspection.

Per SC IV.1, the permittee shall equip and maintain each storage tank in FGNSPSTANKS with an internal floating roof that meets or exceeds the minimum requirements of 40 CFR 60.112b(a)(1). After speaking with POET staff this appears to have been completed.

### Records

Per SC VI.1a-b, POET shall keep track of records of inspections and operating information as well as report defects found during inspections. Records were requested and provided for select time periods. Inspection records were provided. After further review, the inspection records appear acceptable.

Per SC VI.2, the permittee shall keep records of dimensions and the capacity for each tank included in FGNSPSTANKS. Records provided verifying the dimensions and capacity for each tank were provided and appear acceptable.

### **FGETHANOLTANKS**

This flexible group is for ethanol storage emission units. FGETHANOLTANKS is subject to the requirements of Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, as specified in 40 CFR Part 60, Subpart VVa. The emission units for this flexible group are EU190TANK (T-801), EU200TANK1 (T-803), and EU200TANK2 (T-804).

#### Onsite Observations

This flexible group was observed during the course of the inspection.

Per SC IV.1, the permittee shall not operate EU190TANK, EU200TANK1 or EU200TANK2 unless the associated internal floating roof is installed, maintained, and operated in a satisfactory manner. POET staff stated all units had floating roofs. Satisfactory operation includes maintaining the internal floating roofs for EU190TANK, EU200TANK1, and EU200TANK2 per the MAP. Additional specifics for each tank are discussed below.

EU190TANK -The net gallons in the tank at the time of the inspection was 118,370 gallons which is within the required range per the MAP.

EU200TANK1 – The net gallons in the tank at the time of the inspection was 200,956, which is within the required range per the MAP.

EU200TANK2 – The net gallons in the tank at the time of the inspection was 135,702, which is within the required range per the MAP.

The three tanks appeared to be operating in a satisfactory manner at the time of the inspection.

#### Records

Per SC VI.1, POET shall keep track of records or inspections for the floating roofs in T-801, T-803, and T-804. Records were requested and provided for select time periods. The most recent annual inspections of the three units were on 09/24/2020. After further review, the inspection records appear acceptable. POET staff stated that since April 2020, no defects or malfunctions have occurred in the tanks that would have required corrective actions to be taken.

### **FGNSPSVva**

This flexible group is for all pumps, valves and pressure relief devices in light liquid and heavy liquid service; all valves and pressure relief devices in gas/vapor service; each open-

ended valve or line and all associated closed vent systems and control devices. FGNSPSVVA is subject to the requirements of Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, of 40 CFR Part 60, Subpart VVa.

Emission units included in this flexible group are EUFERMENTER1-7, EUBEERWELL, EUBEERSTRIP, EUBEERSTRIP2, EURECTIFIER, EUSIDESTRIP, EUSIEVE, EUSIEVE2, EUTRUCKLOAD3-4, EURAILLOAD2, EUNATGASTANK1-2, EU190TANK, and EU200TANK1-2.

### Onsite Observations

Per SC IV.1, the permittee shall equip each open-ended valve or line with a cap, blind flange, plug or a second valve, except as provided in 40 CFR 60.482-1a(c); 40 CFR 60.482-6a(d) or (e), which shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line. In addition, the permittee shall ensure that:

- a. Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.
- b. When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with 40 CFR 60.482-6a(a) at all other times.

Speaking with POET staff this appears to be being done.

It was verified during the inspection that vents from trucks are vented to the TO onsite as per SC IV.2.

During the inspection, based on the conversation with POET staff, it appears that when leaks are detected that the appropriate actions are taken.

### **Additional Observations / Items Discussed**

- During discussions with POET staff, it was noted that the facility runs 365 days a year but does not accept corn for process operations on the weekends.
- During the inspection, POET staff stated that except for the silos, if any baghouse reaches a pressure drop of 6" then the respective unit would shut down receiving product.

### **Conclusion**

Based on the facility walkthrough, observations made, and records received, POET appears to be in compliance with the MI-ROP-N6996-2018 and applicable air quality rules.

NAME Adam Shaffer

DATE 09/08/2021

SUPERVISOR Chris Hare