

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

N699665648

FACILITY: POET Biorefining - Caro, LLC		SRN / ID: N6996
LOCATION: 1551 Empire Drive, CARO		DISTRICT: Bay City
CITY: CARO		COUNTY: TUSCOLA
CONTACT: Doug DeLand , General Manager		ACTIVITY DATE: 12/01/2022
STAFF: Gina McCann	COMPLIANCE STATUS:	SOURCE CLASS: MAJOR
SUBJECT: Scheduled inspection. MI-ROP-N6996-2018a		
RESOLVED COMPLAINTS:		

Poet Biorefining/EGLE-AQD staff present during the inspection:

Gina McCann (EGLE-AQD, Environmental Specialist)

Doug DeLand (Poet, Plant Manager)

Coryn Houser (Poet, EH&S Specialist)

Derek Worth (Poet, Maintenance Supervisor)

POET Biorefining – Caro, LLC (Poet) is an 89.25 million-gallon (nameplate) ethanol production facility located in Caro that began operation in 2002. The facility was originally permitted under air use permit to install 210-01. Since then, the facility has undergone several updates to equipment and processes and became a major source with the startup of the no-cook BPX process on October 21, 2005.

POET is an ethanol production facility. Corn is shipped onsite either railcar or truck where it is stored in silos. Process operations begin with corn run through the hammermills 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 site inspection and are detailed in the separate emission units below.

The stationary source had one enforcement settlement in the last ten years. On May 18, 2015, POET shut down the packed bed wet scrubber (CE004) on FGFERM&DIST for maintenance outlined in their MAP allowing them to clean the internal packing due to high differential pressure. They were unable to reroute emissions from FGFERM&DIST to the RTO (CE012) resulting in an excess of VOC and Acetaldehyde emissions. This was a violation of the permitted emission limits. The EPA took enforcement action against POET for these exceedances. POET installed a bypass to the RTO to control emissions during scrubber maintenance. The Scrubber Bypass Episode was included In PTI No. 175-15A FGFERM&DIST Special Condition IV.6. The consent decree is no longer in effect.

On May 11, 2022, a violation notice was issued to Poet for exceeding acetaldehyde emission limit of 1.50 lbs/hr and the VOC emission limit of 19.66 lbs/hr for FGFERM&DIST. While performing a clean-in-place operation on Scrubber 1, an oil residue inadvertently entered the scrubber causing the acetaldehyde exceedance. Action was taken to address the emission limit exceedance. Shortly after, Scrubber 2 had a mechanical malfunction resulting in reduced water flow and caused the VOC exceedance. Currently Scrubber 1 is back online, and Scrubber 2 is still down for

maintenance. The plant is waiting for the parts to address the mechanical issue with Scrubber 2, which should arrive in April. Compliance testing will occur in January 2023 to verify these limits are being met.

Source-Wide Conditions

The plant has facility wide HAP emission limits of less than 10 ton per year (tpy) of an individual HAP and less than 25 tpy of total HAPs both based on a 12-month rolling time period as determined at the end of the calendar month. Special condition (SC) VI.2. is the associated monitoring and record keeping requirement that requires the plant to keep, in a satisfactory manner, records of monthly and 12-month rolling time period individual HAP and total HAP emission rate calculations, as required by SC I.1 and SC I.2. Acetaldehyde, Formaldehyde, Methanol, and Acrolein are the HAPs associated with the ethanol production process. Acetaldehyde, Formaldehyde, Methanol, and Acrolein emissions for the 12-month rolling time period ending November 1, 2022 were 1.43 pounds per hour (pph), 0.26 pph, 1.15 pph, and 3.08pph, respectively. Aggregate HAPs for the same time period was 5.92 pph.

SC III.1. requires the plant to comply with all provisions of the federal NSPS as specified in 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, Subparts A and VVa. Also commonly referred to as LDAR, Leak Detection and Repair. Further discussion regarding compliance with these requirements can be found under section FGNSPSVVA.

SC III.2. restrictions operation of any equipment at the plant unless the malfunction abatement plan (MAP), revised as necessary according to the procedures of Rule 911, is implemented and maintained. The MAP shall include procedures for maintaining and operating equipment in a satisfactory manner, including during malfunction events, and a program for corrective action for such events. The most recent MAP on file is from September 2020. It covers all elements of an approvable plan.

SC III.3. restricts operation of any equipment unless an emergency response plan (aka emergency action plan), to be followed in the event of an emergency, has been submitted to the local fire department or county emergency response agency and is implemented and maintained. By October 1 each year, the permittee shall review this plan with the local fire department or emergency response agency and make any necessary updates. I reviewed the plan while on-site. Doug DeLand, the plant manager, said the Caro and Marlette fire departments come to the plant in August to review the plan.

EUFBCOOLER

The fluidized bed cooler accepts product from the dryers and sends product to the distiller's grain storage area.

The emission limit table limits PM, PM10, PM2.5, and VOC. Compliance with these limits is based on testing at the request of the AQD Supervisor. PM is controlled by a fabric filter collector (CE008). SC III.1. restricts operation of EUFBCOOLER unless the fabric filter collector (CE008) is

installed, maintained, and operated in a satisfactory manner. SC VI.2. is the associated monitoring and record keeping requirement that requires the facility to monitor and record the pressure drop and/or a visible emission check of the fabric filter collector (CE008) on a daily basis, during days of operation. The visible emission check does not have to be in accordance with Method 9. If a check reveals any visible emissions from the vent (excluding uncombined water vapor), the facility shall perform any maintenance required to eliminate visible emissions. The facility shall keep records of the results of the visible emission check and of any maintenance performed after visible emissions are observed. During the inspection the operator in the control said they perform two visible checks daily, once per shift. There was a three-ring binder with records available. The facility is also required to inspect the fabric filter collector (CE008) on an annual basis to confirm satisfactory operation. The last inspection occurred on July 11, 2022.

During the inspection the pressure drop of the filter was 1.6 "W.C. The MAP requires a 3-hour average between 0.3"W.C. and 6.0 "W.C. The hi alarm was set at 5.5 "W.C. and the Lo at 0.3 "W.C.

SC VI.4. requires the facility to keep production records on a monthly basis and other records necessary to demonstrate compliance with the VOC emission rate limit. The VOC emission rate shall be calculated based upon monthly records prorated to an hourly rate. SC I.4. restricts VOC emissions to 7.54 pph. I reviewed records from December 2021 through November 2022. December had the highest emissions at 3.56 pph and January 2022 had the lowest emissions of VOC at 0.03 pph.

EUDDGSSILO

This emission unit consists of the dried distiller's grains (DDG) and solubles silo. DDG is the grain that is left once ethanol has been processed from it. The primary emissions are PM, PM10, and PM2.5, which are controlled by a fabric filter collector. Fabric filter collector, F-849, is associated with the silo and vent no. SV008. This filter captures emissions when the product is discharged either to the silo or flat storage. Product is not discharged simultaneously to both. Fabric filter, F-620, is associated with the flat storage and vent no. SV008.

To ensure PM collection occurs effectively, the permit restricts operation of EUDDGSSILO unless the fabric filter collectors (F-849 & F-620) are installed, maintained, and operated in a satisfactory manner. SC VI.1. is the associated monitoring and recordkeeping requirement that requires the plant to monitor and record the pressure drop and/or a visible emissions check of fabric filter collector F-620 or F-849 on a daily basis, during days of operation. For the purpose of this condition, a visible emission check does not have to be in accordance with Method 9. If a check reveals any visible emissions from the vent (excluding uncombined water vapor), the permittee shall perform any maintenance required to eliminate visible emissions. The facility shall keep records of the results of the visible emission check and of any maintenance performed after visible emissions are observed. During the inspection the operator in the control said they perform two visible checks daily, once per shift. There was a three-ring binder with records available. The facility is also required to inspect the fabric filter collector (F-620 & F-849) on an annual basis to confirm satisfactory operation. Inspections occur quarterly and the last inspection occurred on July 11, 2022.

During the inspection the pressure drop of the filter was 0.4 "W.C. The MAP requires a 3-hour average between 0.3"W.C. and 6.0 "W.C. The hi alarm was set at 5.5 "W.C. and the Lo at 0.3 "W.C.

EUINHIBITANK

This emission unit consists of the storage tank for the corrosion inhibitor. shall not fill EUINHIBITANK unless it is equipped with submerged fill piping. The only requirement for this unit is a submerged fill, similar to bottom fill, means that liquid entering the vessel must enter below the liquid level in the vessel. It was not clear during the inspection how this tank is filled.

EUGENSET

This is an existing emergency stationary reciprocating internal combustion engine (RICE) located at an Area Source of Hazardous Air Pollutants (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.

The engine is a Caterpillar model #3508, serial number 1FZ01262, with a KW output of 1120 KW. SC III.1. requires the plant to change oil and filter every 500 hours of operation or annually, whichever comes first. SC III.2. requires the plant to inspect the air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary. SC III.3. requires the plant to inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary. The plant maintains these records in the engine room and appears to be meeting all the requirements. In addition, SC III.6. requires the plant to perform maintenance and readiness checks in accordance with the vendor and restricts those operations to less than 100 hours per year. The plant performs bi-weekly readiness testing and the total hours were less than 50 hours for 2022. The plant had not operated the engine other than for readiness checks in 2022. In addition, the RICE MACT requires the plant to maintain records of the maintenance conducted. The last maintenance was performed on November 29, 2022.

EUBOILER

This is a package natural gas boiler that commenced after June 9, 1989, and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h), therefore it is subject to the New Source Performance Standards (NSPS) Dc for Small-Industrial-Commercial-Institutional Steam Generating Units.

SC III.1. requires the plant to operate EUBOILER with sweet natural gas. The facility only operates the boiler with natural gas.

SC VI.1. requires the plant to keep records of the natural gas consumed by EUBOILER on a daily basis. I reviewed natural gas usage records from December 2021 through October 2022. The plant maintains natural gas consumed records on a daily basis.

SC VI.2. requires the plant to maintain copies of utility bills indicating the receipt of natural gas from a supplier of commercial grade natural gas. Consumer's Energy supplies the plant with natural gas. The plant provided the appropriate documentation.

FGCORN-DDGS

The dried distiller's grains with solubles (DDGS) handling area is controlled by a fabric filter collector (CE001) and is comprised of the following emission units: EUCORNPIT, EUCORNELEV1, EUCORNBIN1, EUCORNBIN2, EUCORNBIN3, EUCORNBIN4, EUCORNBIN5, EUCORNBIN6, EUCORNBIN7, EUDDGSPIT, EUDDGSELEV, EUDDGCONV, EURAILLOAD1, EUTRUCKLOAD1.

Compliance with the PM, PM10, and PM2.5 emission limits are met through proper operation of the fabric filter collector (CE001) and restricting grain throughput to less than 9,700 tons per day in EUCORNELEV1. SC VI.1. is the monitoring and recordkeeping requirement that requires the tons of grain processed in EUCORNELEV1 to be recorded daily to show compliance with the 9,700 tons per day material limit in SC III.1. I reviewed throughput records from January 1, 2022 through November 30, 2022. Grain throughput did not exceed 9,700 tons per day.

During the inspection the pressure drop of the filter was 1.3 "W.C. The MAP requires a 3-hour average between 0.3"W.C. and 6.0 "W.C. The hi alarm was set at 5.5 "W.C. and the Lo at 0.3 "W.C. I reviewed pressure differential readings from December 1, 2021 through November 30, 2022. There were several dates when the pressure drop was below the required 0.3 "W.C. in the MAP. An additional request was made for process data related to the time periods when the pressure drop was out of range. Upon review of this data, the process was not in operation during times when the pressure drop was out of the required range.

During the inspection the operator in the control said they perform two visible checks daily, once per shift. There was a three-ring binder with records available. Operation of FGCORN-DDGS is restricted unless the fabric filter collector (CE001) is installed, maintained, and operated in a satisfactory manner. The MAP for the facility requires annual checks on the filter bags for signs of excessive wear or damage. On July 11, 2022 the plant replaced 36 filters on the air intake.

The following emission units were observed during stack testing observations: (EUCORNPIT, EUCORNELEV1, EUCORNBIN1, EUCORNBIN2, EUCORNBIN3, EUCORNBIN4, EUCORNBIN5, EUCORNBIN6, EUCORNBIN7, EUDDGSPIT, EUDDGSELEV, EUDDGCONV, EURAILLOAD1, EUTRUCKLOAD1. The NSPS DD restricts any individual truck unloading station, railcar unloading station, or railcar loading station, from exhibiting opacity greater than 5 percent, any grain handling operation from exhibiting opacity greater than 0 percent, and any truck loading station from exhibiting opacity greater than 10 percent. We viewed this area during the inspection. I observed a truck unloading in the pit and did not observe fugitive opacity in excess of the NSPS limits.

FGSCALP

The scalper unit consists of EUCORNELEV2 and EUSCALPER. Particulate emissions are controlled by a fabric filter (CE002).

Compliance with the PM, PM10, and PM2.5 emission limits are met through proper operation of the fabric filter collector (CE002). SC III.1. restricts operation of equipment in FGSCALP unless the fabric filter collector (CE002) is installed, maintained, and operated in a satisfactory manner. SC VI.1. is the associated monitoring and recordkeeping requirement that requires the plant to monitor and record the pressure drop and/or a visible emissions check of the fabric filter collector (CE002) on a daily basis and will inspect the fabric filter collector (CE002) on an annual basis.

to confirm satisfactory operation. For the purpose of this requirement, a visible emission check does not have to be in accordance with Method 9. If a check reveals any visible emissions from the vent (excluding uncombined water vapor), the plant is required to perform any maintenance to eliminate visible emissions and keep records of the results of the visible emission check and of any maintenance performed after visible emissions are observed.

During the inspection the pressure drop of the filter was 0.7 "W.C. The MAP requires a 3-hour average between 0.3"W.C. and 6.0 "W.C. The hi alarm was set at 5.5 "W.C. and the Lo at 0.3 "W.C. I reviewed pressure differential readings from December 1, 2021 through November 30, 2022. There were two dates when the pressure drop was below the required 0.3 "W.C. in the MAP. The MAP considers normal operating conditions to be no visible emissions or a 3-hour average differential pressure between 0.3 and 6.0 inches of water column. Corrective action requires, when practicable, safely shut down operations related to this baghouse, and inspect/ repair. Until shutdown, verify no visible emissions at least once per shift.

On January 6th 2022, the surge bin pressure differential transmitter froze up. Weather conditions were not safe to work on device. The plant monitored for visual emissions and observed no emissions.

And on February 23rd 2022, the pressure differential transmitter alarmed and due to weather conditions being too dangerous to inspect (Ice, Slips) visual emissions were taken instead. No visible emissions were identified.

During the inspection the operator in the control said they perform two visible checks daily, once per shift. There was a three-ring binder with records available. Operation of FGSCALP is restricted unless the fabric filter collector (CE002) is installed, maintained, and operated in a satisfactory manner. The MAP for the facility requires annual checks on the filter bags for signs of excessive wear or damage. On July 11, 2022 the plant inspected the filters and no maintenance was required.

FGFLOUR

This flexible group is associated with the milling area and consists of the following emission units: EUFLOURELEV, EUFLOURCONV, EUHAMMERMILL1, EUHAMMERMILL2, EUHAMMERMILL3, EUHAMMERMILL4, EUHAMMERMILL5. The hammer mills mill corn kernels to a flour. Particulate emissions from these processes are controlled by the following baghouses: Hammermill-1 baghouse (F-110), Hammermill-2 baghouse (F-111), Hammermill-3 baghouse (F-112), Hammermill-4 baghouse (F-113), Hammermill-5 baghouse (F114).

Compliance with the PM, PM10, and PM2.5 emission limits are met through proper operation of the baghouses. SC III.1. restricts operation of equipment in FGFLOUR unless its associated baghouses (Hammermill 1-5) are installed, maintained, and operated in a satisfactory manner. SC VI.1. is the associated monitoring and recordkeeping requirement that requires the plant to monitor and record the pressure drop and/or a visible emissions check of each of the baghouses (Hammermill 1-5) on a daily basis and will inspect the baghouses on an annual basis to confirm satisfactory operation. For the purpose of this requirement, a visible emission check does not have to be in accordance with Method 9. If a check reveals any visible emissions from the vent

(excluding uncombined water vapor), the plant is required to perform any maintenance to eliminate visible emissions and keep records of the results of the visible emission check and of any maintenance performed after visible emissions are observed.

Audio and visual alarms are present for each of these controls. Alarm outside Hi setpoint, for the required period, trigger an interlock which stops feed.

During the inspection the pressure differential on the baghouses were as listed in the table below.

Equipment ID	Instantaneous Pressure Differential ("W.C.)	Compliance Differential Pressure from MAP ("W.C.)	Alarm Setpoint ("W.C.)
Hammermill 1 (F-110)	1.9	0.3-6.0	Lo= 0.3 Hi= 5.5
Hammermill 2 (F-111)	2.0	0.3-6.0	Lo= 0.3 Hi= 5.5
Hammermill 3 (F-112)	1.1	0.3-6.0	Lo= 0.3 Hi= 5.5
Hammermill 4 (F-113)	0.5	0.3-6.0	Lo= 0.3 Hi= 5.5
Hammermill 5 (F-114)	1.0	0.3-6.0	Lo= 0.3 Hi= 5.5

I reviewed pressure differential readings from December 1, 2021 through November 30, 2022. There were several dates when the pressure drop was below the required 0.3 "W.C. in the MAP for a 3-hour average. An additional request was made for process data related to the time periods when the pressure drop was out of range. The majority of the time, the process was not in operation during times when the pressure drop was out of the required range.

There is a conflict in MAP requirements and permit condition requirements that should be resolved during the ROP renewal. The permit condition requires a daily pressure drop to be recorded and the MAP requires a 3-hour average to be recorded. During the records review there were times when the pressure drop was below the 0.3"W.C. for the 3-hour average. However,

review of run data and pressure drop shows the process shutting down once the pressure dropped. Therefore, I considered the plant to be in compliance with the permit conditions and will discuss the discrepancy upon renewal in April 2023.

During the inspection the operator in the control said they perform two visible checks daily, once per shift. There was a three-ring binder with records available. Operation of FGFLOUR is restricted unless the associated baghouses (Hammermill1-5) are installed, maintained, and operated in a satisfactory manner. The MAP for the facility requires annual checks on the filter bags for signs of excessive wear or damage. On July 11, 2022 the plant inspected the filters for Hammermills #1-4 and no maintenance was required. The plant could not find a work order for Hammermill #5, they have added this maintenance requirement into their system.

FGFERM&DIST

This flexible group is associated with the fermentation and distillation processes and consists of the following emission units: EUFERMENTER1, EUFERMENTER2, EUFERMENTER3, EUFERMENTER4, EUFERMENTER5, EUFERMENTER6, EUFERMENTER7, EUFERMENTER8, EUBEERWELL, EUBEERSTRIP, EUBEERSTRIP2, EURECTIFIER, EUSIDESTRIP, EUSIEVE, EUSIEVE2, EUYEAST, EUEVAPORATOR, EURTO. VOCs and acetaldehyde emissions are controlled by one of two scrubbers (CE004 or CE014) and may vent to the regenerative thermal oxidizer (RTO) (CE012) in the event that both associated scrubbers (CE004 and CE014) are unavailable due to maintenance or other operational reasons.

VOC and Acetaldehyde emissions are restricted to 19.66 pph and 1.50 pph, respectively, when venting through either scrubber 1 or 2 (CE004 or CE014). SC VI.1. requires the facility to keep production records on a monthly basis and other records necessary to demonstrate compliance with the VOC emission rate limit listed in SC I.1. The VOC emission rate shall be calculated based upon monthly records, prorated to an hourly rate. I reviewed VOC emissions for the 12-month rolling time period ending November 2022. VOC emissions ranged from 11.18 tpy in December 2021 to 7.09 tpy in October 2022. Compliance with the Acetaldehyde emission rate will be confirmed during stack testing in January 2023.

VOC emissions are limited to 30.74 pph when venting to the RTO (CE012). The RTO venting scenario is a bypass option to control emissions in the event neither of the scrubbers is operational. The bypass is restricted to 100 hours or less based on a 12-month rolling time period. SC VI.5. is the associated monitoring and recordkeeping requirement that requires the plant to maintain records of the number of scrubber bypass episodes per calendar month and 12-month rolling time period as determined at the end of each calendar month. The permittee shall also record the duration, in hours, of each scrubber bypass episode and the reason the scrubber bypass episode occurred. No scrubber bypass episodes were documented for the 12-month rolling time period ending November 2022.

To ensure emissions are controlled effectively through the scrubber the plant is required to monitor exhaust temperature, pressure drop, and liquid flow rate of the scrubber in operation. I reviewed pressure differential readings from December 1, 2021 through November 30, 2022. According to the site-wide MAP, the scrubber is required to operate with a liquid flow, 3-hour average, of 30 gallons per minute (gpm) or higher, with a differential pressure, 3-hour average, of 15 "W.C. or less, and with an exhaust temperature of less than 65 degrees Fahrenheit. There

were several dates when the exhaust temperature, pressure drop, and liquid flow rate was outside the range in the MAP. I reviewed the data and either the entire plant was down or the fermenter scrubber blower was not in operation, i.e. not emitting. The exception was April 26-27, 2022. The plant had reduced water flows and reported a R912 notification. A violation notice was sent, and the response was to correct the malfunction to prevent reoccurrence and conduct engineering testing prior to bringing scrubber 2 back online.

Maintenance of pressure, temperature, and flow indicators is required per SC IV.2.-4. The manufacturer does not require calibration after the initial calibration of these devices. The plant has replacement parts in stock.

FGDDGSDRYERS

This flexible group is associated with the dried distiller's grains with solubles (DDGS) includes dryers and centrifugation and included the following emission units: EUDDGSDRYER1, EUDDGSDRYER2, EUTO&HRB, EURTO, EUCENTRIFUGE1, EUCENTRIFUGE2, EUCENTRIFUGE3, EUCENTRIFUGE4, EUCENTRIFUGE5, EUCENTRIFUGE6, and EUSTILLAGETANK. Emissions are controlled by multicolone dust collectors (CE006 & CE007), thermal oxidizer & heat recovery boiler (TO&HRB) (CE010), and a regenerative thermal oxidizer (RTO)(CE012). The TO&HRB and RTO are CAM subject control devices for VOC emissions.

PM, PM10, and PM2.5 emissions are limited to 4.00 pph from EUTO&HRB and to 6.0 pph from EURTO. These emissions are verified through testing. The plant is testing to verify compliance with this limit in January 2023. On-going compliance is determined through proper operation and maintenance of the multiclone dust collectors. SC VI.4. requires the plant to monitor the multiclone dust collector (CE006 & CE007) pressure drop on a continuous basis during operation of FGDDGSDRYERS and SC VI.5. requires the plant to record the multiclone dust collector (CE006 & CE007) pressure drop on a daily basis. The data point recorded shall be the average of all data collected during the operating day. The source-wide MAP requires the pressure differential on the cyclones to be below 10 "W.C. I reviewed records from December 1, 2021 through November 30, 2022. Pressure differential was below 10"W.C. for this period of time. Additionally, the plant is required to maintain this equipment to ensure proper operation. Maintenance performs a hydroblast on the DDG buildup in the fall and spring of the year.

SC III.1. and SC III.2. require the plant only use natural gas as fuel in EUDDGSDRYER1 and EUDDGSDRYER2 and EUTO&HRB and EURTO. SC VI.8. is the associated monitoring and recordkeeping requirement that requires the plant to keep records of the natural gas consumed by EUTO&HRB on a daily basis. The plant was able to provide these records.

SC III.4. restricts exhaust emissions from EUCENTRIFUGE1 to 6 and EUSTILLAGETANK to stack SV025 when wet cake is produced. Otherwise, the plant 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. This venting scenario has a VOC emission limit of 6.13 pph, which is listed in SC I.8. of MI-ROP-N6996-2018a. To verify compliance with this requirement, SC VI.7. is the monitoring and recordkeeping requirement the requires monthly wet cake production records and other records necessary to demonstrate compliance with the VOC emission rate limit listed in SC I.8 when EUCENTRIFUGE1 to 6 and EUSTILLAGETANK are not being vented to EUTO&HRB (CE010) or EURTO (CE012). The emission rate shall be calculated based

upon monthly records, prorated to an hourly rate based on actual hours operated manufacturing wet cake when EUCENTRIFUGE1 to 6 and EUSTILLAGETANK are not being vented to EUTOHRB (CE010) or EURTO (CE012). I reviewed prorated VOC emission rates from December 2021 through November 2022. Emissions ranged from 3.53 pph in December 2021 to 0.03 pph in January and February 2022.

VOC emissions are destroyed by EUTO&HRB and/or EURTO. SC IV.2. restricts feeding materials to either dryer in FGDDGSDRYERS unless either the thermal oxidizer EUTO&HRB (CE010) or the regenerative thermal oxidizer EURTO (CE012) is installed, maintained, and operated in a satisfactory manner. The plant can operate both dryers if both oxidizers are operating or if only the EUTO&HRB (CE010) is operating but can only operate one dryer if only the EURTO is in operation. The site-wide MAP requires the chamber temperature of EUTO&HRB to operate with a 3-hour average of 800F or higher and the EURTO to operate with a 3-hour average at 1643F or higher. During the inspection I viewed these devices in operation. Their operating parameters are listed in the table below.

Pollution Control Equipment	Instantaneous Reading (degrees Fahrenheit)	Alarm Setpoint Hi	Alarm Setpoint Lo
EUTO&HRB	1533	1990	1473
EURTO	1533	1990	1473

I reviewed temp chamber temperatures for both devices for the time period December 2021 through November 2022. There were several times when the oxidizers operated outside of this range when dryers were being fed. This will be included in a violation notice.

EU/FG ID						
Device	TO-701 Thermal Oxidizer	K-675 RTO				
Tag #	CE010	CE012				
Unit	TO combustio n chamber temperatu re (F)	RTO combustio n chamber temperatu re (F)				
PI Tagname	50-4-CAL2	75-4-CAL2	'CAR.ST610	'CAR.ST630	'CAR.C-611	'CAR.C-641
Information Request	3-hr. average temperatu re data for timeframe	3-hr. average temperatu re data for timeframe	Burner A Offline (Mins off during timeframe)	Burner B Offline (Mins off during timeframe)	Dryer A Feed Off (Mins off during timeframe)	Dryer B Feed Off (Mins off during timeframe)
4/28/22 6:00 PM	1461.3	1662.7	0	0	0	0
8/25/22 12:00 AM	1439.5	1718.5	0	0	0	0
8/25/22 1:00 AM	1370.8	1714.5	0	0	0	0
10/12/22 10:00 AM	1289.5	1436.9	0	0	12	12
10/12/22 11:00 AM	1291.2	1516.5	0	0	8	8

To ensure compliance with this VOC limit, SC VI.1. requires the plant to calibrate, maintain, and operate in a satisfactory manner a device to monitor and record on a continuous basis the minimum temperature to which exhaust gases from the dryers are exposed in the thermal oxidizer EUTO&HRB (CE010) and SC VI.2. requires the plant to calibrate, maintain, and operate in a satisfactory manner a device to monitor and record on a continuous basis the minimum temperature to which exhaust gases from the dryers are exposed in the regenerative thermal oxidizer EURTO (CE012). The plant was asked for calibration records on the temperature transmitters for both the EURTO and the EUTO&HRB. They replace the transmitters every 6 months in lieu of calibration. I reviewed work order receipts for replacement of temperature transmitters from spring 2021 through spring 2022.

SC VI.6. requires the plant to keep monthly production records, monthly records of the ethanol content of distillation bottoms, and other records necessary to demonstrate compliance with the VOC emission rate limit listed in SC I.7 from FGDDGSDRYERS. The emission rate shall be calculated based upon monthly records, prorated to an hourly rate.

FGETHLOAD

This flexible group is associated with the ethanol truck and rail load out and contains the following emission units: EUTRUCKLOAD3, EUTRUCKLOAD4, EURAILLOAD2. Emissions are controlled by the thermal oxidizer, EUTO&HRB (CE010) for truck load out.

SC II.1. restricts throughput of denaturant to 5,000,000 gallons per 12-month rolling time period and total ethanol to 95,000,000 gallons per 12-month rolling time period. SC VI.1. is the associated monitoring and recordkeeping requirement that requires the plant to maintain records to demonstrate compliance with the material limits in SC II.1. I reviewed throughput data for the 12-month rolling time period ending November 2022 and denaturant throughput was 1,768,111 gallons and total ethanol was 75,238,794 gallons for the same time period.

In addition, SC II.1. restricts throughput of total ethanol and denaturant to 5,000,000 gallons under all of the following conditions: While the displaced vapor contents from loading trucks through EUTRUCKLOAD3 and EUTRUCKLOAD4 are not being controlled by the thermal oxidizer (CE010) and while transferring through EURAILLOAD2 to receiving railcars that last transported denaturant. This annual throughput is based on a rolling 12-month time period as determined at the end of each calendar month. SC VI.1. is the associated monitoring and recordkeeping requirement that requires the plant to maintain records to demonstrate compliance with the material limits in SC II.1. The 12-month rolling throughput for EUTRUCKLOAD3 and EUTRUCKLOAD4, ending November 2022, was 78,4805 gallons, while not controlled by the thermal oxidizer (CE010). The 12-month rolling throughput while transferring through EURAILLOAD2 to receiving railcars that last transported denaturant, ending November 2022, was 3,024,805 gallons.

SC IV.1. restricts the plant from transferring material through EURAILLOAD2 unless the receiving railcar has been certified as dedicated to transporting ethanol, including denatured ethanol. I reviewed the certification for the three railcars loaded in October 2022.

FGNSPSTANKS

This flexible group is associated with the denaturant storage tanks and contains the following emission units: EUNATGASTANK1 (T-802), EUNATGASTANK2 (T-805). These tanks are required to have floating roofs as their pollution control equipment.

SC VI.1. requires the plant to maintain records of inspections and operating information and report defects found during inspection. During the inspection we discussed the records associated with this requirement. Both tanks were last inspected in June 2022. No defects were identified and therefore no repairs occurred.

SC VI.2. requires the plant to shall keep a record of the tank's dimensions and an analysis showing the tank's capacity in accordance with the federal NSPS as specified in 40 CFR Part 60, Subparts A and Kb. During the inspection the plant provided the following dimensions for each tank: T-802 192, 504 gallons and 32 ft by 32 ft. The capacity of tank T-805 is 65,000 gallons and is 23 ft by 21 ft tall.

FGNSPSVVa

This flexible group is related to VOC leak detection and includes 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. The following emission units are associated with this flexible group: EUFERMENTER1, EUFERMENTER2, EUFERMENTER3, EUFERMENTER4, EUFERMENTER5, EUFERMENTER6, EUFERMENTER7, EUFERMENTER8, EUBEERWELL, EUBEERSTRIP, EUBEERSTRIP2,

EURECTIFIER, EUSIDESTRIP, EUSIEVE, EUSIEVE2, EUTRUCKLOAD3, EUTRUCKLOAD4, EURAILLOAD2, EUNATGASTANK1, EUNATGASTANK2, EU190TANK, EU200TANK1, EU200TANK2.

2,783 components are currently identified as required to have leak detection. First semi-annual report covered January 1, 2022 through June 30, 2022 reported zero exceedances or no measured readings greater than 500 ppm above background.

As required by MI-ROP-N6996-2018, a Semi-Annual VVa Report was submitted to the AQD. The reporting time periods were 07/01/2021 through 12/31/2021. Speaking with company staff it appears all applicable items are included for this report. During this time period there appeared to be two incidents. The first incident occurred in July when P409 was found to read above threshold limits. A reinspection showed the pump seal was within limits. No further action was taken. The second incident occurred on 12/13 when a seal for P406 was found to be leaking. The leak was fixed on 12/16 during a process shutdown.

As required by MI-ROP-N6996-2018, a Semi-Annual VVa Report was submitted to the AQD. The reporting time periods were 01/01/2021 through 06/30/2021. During this time period there appeared to be three leaks. The first leak was in February where P409 was read above threshold limits. After following up it was concluded that the pump seal was within limits. The second leak was in April and a seal on P406 was found to be leaking. The pump required a production stoppage to repair, was placed on DOR and fixed during the April shutdown. The third leak was in June and was the P406 seal leaking again. The leak was addressed during the downtime on June 8. Additionally, the tank farm P811 was found to be leaking and repaired immediately. The facility reported 124 hours for this time period where the beer feed was shut off.

Fiscal Year 2023 Initiative

The initiative for this year was to confirm stack heights at three facilities. Using the Nikon Forestry Pro I measured the following stacks:

Stack Vent ID	Measured Height (feet)	Permitted Height (feet)
SV024 (RTO)	100.1	100
SV006 (TO)	133.7	125
SV023 (Boiler)	75	85.3
SV035 (FGFLOUR)	64.1	48
SV007 (EUFBCOOLER)	41.0	35

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DATE 2-7-2023

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