

**DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Scheduled Inspection**

N738338853

<b>FACILITY:</b> Green Plains Holdings II LLC	<b>SRN / ID:</b> N7383
<b>LOCATION:</b> 11440 CEMETERY RD, RIGA	<b>DISTRICT:</b> Jackson
<b>CITY:</b> RIGA	<b>COUNTY:</b> LENAWEE
<b>CONTACT:</b> Nicole Zielinski , EHSS Manager	<b>ACTIVITY DATE:</b> 02/23/2017
<b>STAFF:</b> Zachary Durham	<b>COMPLIANCE STATUS:</b> Compliance
<b>SUBJECT:</b> This was a scheduled, announced inspection of MI-ROP-N7383-2014 that coincided with a voluntary stack test.	
<b>RESOLVED COMPLAINTS:</b>	

**Contact**

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**Purpose**

This was a scheduled, announced inspection of the facilities owned and operated by Green Plains Holdings II LLC located at 11440 Cemetery Road, Riga, MI 49228. I arrived at about 7:15am on Thursday, February 23, 2017 to perform the inspection and observe voluntary stack testing being performed by American Engineering Testing. Green Plains holds active Renewable Operating Permit (ROP) number MI-ROP-N7383-2014. Also on site from the Air Quality Division (AQD) was Tom Gasloli of the Technical Programs Unit to observe the stack testing on the vent gas and CO2 scrubbers. I met with Nicole Zielinski to conduct the facility inspection.

**Background**

This facility processes corn to produce fuel ethanol as its primary product. Co-products include corn oil, distiller's grains, and carbon dioxide (CO2), which is sent to the adjacent Airgas facility for compression and resale. The operations of the plant have not changed significantly since the last inspection in 2015. The voluntary stack testing was reviewed by Tom Gasloli and was scheduled with the thought that data from the test could be used in the upcoming ROP renewal, which can be applied for as early as August 4, 2017. A copy of the stack test results will be added to the file as soon as they are received by AQD.

This facility is subject to the following federal regulations for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP):

- NSPS Dc: Small Industrial-Commercial-Institutional Steam Generation Units (i.e. boilers)
- NSPS Kb: Volatile Organic Liquid Storage Vessels post July 23, 1984 (i.e. storage tanks)
- NSPS VV: Leak Detection and Repair (i.e. pumps, valves, connections, etc.)
- NSPS IIII: Compression Ignition Internal Combustion Engines (i.e. fire pump)
- NESHAP ZZZZ: Stationary Reciprocating Internal Combustion Engines (i.e. emergency generator)

This facility was last inspected on 9/15/2015 by Diane Kavanaugh Vetort.

The latest MAERS report submitted from reporting year 2015 was reviewed and found to be in compliance with emission limits. A copy of the most recent MAERS emission summary is attached.

**Compliance Evaluation****EUWDGS**

Attached are a sample record from January 2017 that Green Plains is using to track shipments of wet distiller's grains and solubles (WDGS). During the inspection I observed the storage pad. Nicole informed me that they load out trucks from portions of the pile that are oldest while maintaining a turnover time of three days or less of total production. While walking around the area I noticed odors were consistent with grain and absent of

objectionable or overwhelming smells.

#### EUGENSET1

During the facility walk through I observed this diesel-fired emergency generator. I noted the non-resettable hour meter reading 272.6 hours, which is still below the limit of 500 hours per 12-month rolling time period. The monthly hours are logged in the "Monthly Input Totals" spreadsheet attached to this report. This unit is also covered in FGEXIST-EMER-RICE.

#### EUFIREPUMP

Observation of the non-resettable hour meter on the 360 horsepower diesel-fired emergency firewater pump indicated a lifetime use of 2147.6 hours to date. Included in the "Monthly Input Totals" record is a log of each months use. The last 12-month rolling time period shows 178 hours of operation, which is below the 500 hour limit. April and October 2016 recorded the highest number of hours at 86.1 and 55.8 hours, respectively. These both average less than the daily limit of 4 hours per day. Attached is a preventative maintenance log indicating that the most recent filter and oil change occurred on 12/7/16.

#### EUCOOLINGTWR

Attached are the 2016 records of weekly, monthly and annual preventative maintenance (PM) activities that have been performed during 2016 in accordance with their Malfunction Abatement Plan (MAP) in the document titled "All Closed Work Orders by Equipment". Cooling tower PMs are listed under the heading "CT-7101" in the work order logs.

#### EUTRUCKTRAFFIC

The plant is maintaining a fugitive dust plan (FDP) as evidenced by daily checks and reporting. A log for January 2017 is attached to this report and indicates that road sweeping occurred twice during the month. No visible emissions (VEs) were noted from corn receiving, DDG loadout, or road traffic during the time period.

#### FGFACILITY

This is the flexible group (FG) that includes all process equipment source-wide. The emission limits set for the entire plant are included in this section. The following are a list of emission limits versus the last 12-month rolling emissions limits per pollutant:

- NOx limit = 89 tpy. Vs. 12-month rolling NOx emissions = 67.31 tons
- VOC limit = 76 tpy. Vs. 12-month rolling VOC emissions = 27.17 tons
- CO limit = 87 tpy. Vs. 12-month rolling CO emissions = 16.78 tons
- PM limit = 57 tpy. Vs. 12-month rolling PM emissions = 20.84 tons
- PM10 limit = 46 tpy. Vs. 12-month rolling PM10 emissions = 18.64 tons
- HAPs = 8.9 tpy of an individual HAP. Vs. 12-month rolling individual HAP emissions\* = 3.91 tons of Acetaldehyde
- HAPs = 24 tpy of aggregate HAPs. Vs. 12-month rolling aggregate HAP emissions = 8.74 tons

\*Note: Acetaldehyde was the largest individual HAP emission and aggregate HAPs were below individual HAP emission limits.

The spreadsheet containing this data is attached to the report with the title "12-Month Rolling Emissions & Throughputs." This FG also includes the requirement of the facility to maintain the MAP, odor management plan (OMP), FDP, emergency response plan with the local fire department, and have all plant roadways paved. The monitoring and recordkeeping requirements under Special Condition (SC) VI of this FG for plant emissions, as discussed above are contained in the attached spreadsheet.

#### FGCORNHAND

This is the FG that covers corn receiving, storing and handling operations with five baghouses identified as control for these processes. I observed these bag houses while on site and did not notice any VEs during the inspection. Also, the attached spreadsheet titled "Monthly Input Totals" has a record of monthly hours of operation of each of the five baghouses associated with this equipment: Surge Bin Baghouse, Grain Receiving

Baghouse #1, Grain Receiving Baghouse #2, Corn Bin #1 Baghouse, and Corn Bin #2 Baghouse. In January 2017, the hours of operation for the baghouses were 744, 176, 176, 176, and 176 hours, respectively. PM activities for the bag houses are also included in the work orders attachment. Additionally, the "Weekly Air Emission Equipment Report" contains differential pressure readings during January 2017.

#### FGCORNMILL

This is the FG that identifies the two hammer mill emission units, each controlled by its own baghouse. During the inspection I observed these units and did not observe any VEs. The pressure drop readings observed from the hammer mills was 4.2 and 3.6 inches of water at the time of inspection, which is within the parameter range of 0.5 – 5 inches of water identified in the MAP. Also, see attached "Weekly Air Emission Equipment Report" for differential pressure readings during January 2017.

#### FGLIQUIDHAND

This FG covers the liquid handling processes including liquefaction tank, ethanol purification process, evaporators, centrifuges, and centrate tanks. Process emissions are routed to the Vent Gas Scrubber. During the inspection the Vent Gas Scrubber was being tested for compliance with the emission limits for VOC and Acetaldehyde as set in SC I of this section. The testing was not permit required, but rather voluntary based on the upcoming time period for ROP renewal later this year. The Vent Gas Scrubber was operating at about 12 gpm water flow and a pressure drop of 18.5 inches of water during the inspection. This section states that a liquid flow rate of less than 15 gpm triggers an immediate inspection and corrective action. This test was to determine if a lower flow rate could be used to achieve compliance. Based on initial observations, it seems that the lower flow rate was not adequate in meeting their permit limits. Any non-compliance for this testing should be submitted in a deviation report and non-compliant testing rescheduled. In the attached "Weekly Air Emission Equipment Reporting" sheet are Vent Gas Scrubber flow and pressure readings for January 2017. It appears that normal operations have the scrubber operating at about 20 gpm and the differential pressure (DP) had readings from 15.7 – 40.5 inches of water. The MAP states that the DP parameter range for this equipment is between 50 – 150 inches of water, and that below 50 inches of water the water flow loop instrumentation will be repaired. According to the PM log, weekly maintenance is performed on this unit. In addition, the PM log identifies semi-annual flow meter maintenance.

#### FGFERM

This FG covers the yeast tank, fermenters, and beer well, which have emissions routed to the Fermentation Scrubber (CO2 Scrubber). Emission limits set in this section are also for VOC and Acetaldehyde and based on a previous test protocol. During the inspection, the CO2 Scrubber unit was operating with a flow rate of about 80 gpm and pressure drop of 73.5 inches of water. This appeared to be within the permit requirement of 50 – 100 gpm and a MAP DP parameter of 5 – 150 inches of water. This appears to be normal operation for the CO2 scrubber, and is substantiated in the attached "Weekly Air Emission Equipment Reporting" log. The PM log also indicates weekly and monthly PMs as well as semi-annual flow meter maintenance.

#### FGDDGSDRY

This FG covers the DDGS dryer, which has process emissions routed to a multiclone and Regenerative Thermal Oxidizer (RTO). The emission limits identified in this section were determined based on a previous test protocol. The MAP identifies the operating range of the RTO to be from 1600 – 1800°F in order to maintain VOC destruction efficiency of 95%. During the inspection I observed an operating temperature of 1665°F. Attached in the PM log for the RTO are records of work for monthly data retrieval, monthly PM, monthly burnout, semi-annual work and quarterly LEL sensor calibration. Attached is a sampling of the RTO data logger record from January 2017. Periods where the temperature value drops below the set point indicate periods where the dryer was not operating, and are noted accordingly. RTO fuel use is included in the "Monthly Input Totals" spreadsheet. The permit and MAP also identify the operating range for the multiclone at 0.5 – 5 inches of water, which is monitored continuously. Attached in the "Weekly Air Emission Equipment Reporting" log are pressure drop readings for the cyclones, which range from 1.35 – 3.0 inches of water for January 2017.

#### FGDDGSHAND

This is the FG for DDGS handling process and associated baghouse controls. While on site I did not observe any VEs from the baghouses. The attached "Weekly Air Emission Equipment Reporting" log contains the operating information as required by the MAP. Their operation appears satisfactory.

## FGETHLOAD

This is the FG for ethanol truck and rail load-out and the Ethanol Loadout Flare as control equipment. The material limits in this section are identified as 63 million gallons per year of total ethanol and denaturant and 3 million gallons of denaturant throughput over a 12-month rolling time period. The last 12-month rolling production of ethanol was 51,298,600 gallons at the time of inspection. Denaturant use was 1,110,240 gallons during the last 12-month rolling time period. The facility is also limited to loading 100 rail cars that are not owned by the permittee and that are not dedicated to carrying ethanol per 12-month rolling time period; they have loaded 46 rail cars in the past 12-months that they do not own. This data is contained in the attached "Monthly Input Totals" spreadsheet. The flare is included in the MAP and appears to be maintained according to the plan with daily VE readings and regular PMs.

## FGBOILERS

This FG consists of two (2) 92,050,000 BTU/hr natural gas-fired boilers equipped with low NOx burners subject to NSPS Subpart Dc. Fuel use is tracked monthly in the "Monthly Input Totals" and by the 12-month rolling total in the "12-Month Rolling Emissions & Throughputs" spreadsheets (see attachments). Additionally the CO and NOx emission rates are contained in the 12-month rolling spreadsheet, which have stayed below their emission limits of 3.41 and 5.0 pounds per hour during the last 12 months.

## FGNSPSTANKS

This FG covers all storage tanks subject to NSPS Kb. They facility provided me with copies of the most recent tank inspections, dated 6/8/16, which indicates that the internal floating roofs were in good condition. These inspections are performed by Bloc Environmental.

## FGNSPSVV

This is the FG for facility systems where leak detection and repair (LDAR) programs are implemented. This includes pumps, valves and pressure relief devices in light and heavy liquid service, gas/vapor service, sampling connections, and open ended valves/lines in closed vent systems and control devices. The company submits regular LDAR reports, the most recent dated 1/17/2017 in which no leaks were observed from 1,290 monitoring sites. - ?

## FGEXIST-EMER-RICE

This is the FG for existing stationary emergency reciprocating internal combustion engines (RICE) located at an area source of hazardous air pollutants (HAP), which are subject to the Nation Emission Standard for HAP (NESHAP) Stationary RICE in Title 40 of the Code of Federal Regulations (CFR) Part 63, Subpart ZZZZ. Attached is the most recent full engine service record from Cummins on 1/19/2017, which identifies both the oil and filter were changed.

## FGCOLDCLEANERS

The facility operates one cold cleaner in their maintenance area. The unit was closed during the inspection. I was informed that they use mineral spirits to clean parts and it is drained about once per year. I provided them with the cold cleaner operating procedures stickers.

## Summary

Upon arrival at the facility I checked in at the administration building and met with Nicole. We discussed the scheduled stack testing and plant voltage issues, which were delaying their start. In lieu of heading to the stack test area, we began first with the pre-inspection meeting. I walked through the permit and addressed each area I expected to cover and what I would require for compliance purposes. We then reviewed some of the record keeping documents and MAP before heading into the facility walk through.

The plant tour covered most of the process areas identified in the permit to observe for odors, VEs, and general plant operations. No objectionable odors were detected while onsite, nor were any VEs observed. We began near the wet distillers grain storage pad, continued through grain receiving, and walked up the scaffolding to the hammer mills. I observed several magnehelix gauges along the way, and Nicole used some of this time to record

her daily visual readings. Next, we walked past GENSET1 to record the hour meter and the control room to observe real time plant operational data. Then we continued to the dryer, fluid bed cooler, RTO, boilers, maintenance shop, and the fire pump. Our last stop was at the scrubber where the testing was occurring.

There we met with the testers from American Engineering Testing and Tom Gasloli. We discussed the completion of the first run on the vent scrubber, which had appeared to pass, and observe the second run that was currently taking place. I observed the Total Hydrocarbon (THC) monitors placed at the scrubber inlet and outlet monitors. They were running steady for a time with an inlet reading near 10,000 ppm THC and outlet of 150 ppm THC. Tom informed me the outlet in run 1 was closer to 50 ppm. Shortly after that, the inlet spiked to higher than 60,000 ppm with an outlet concentration near 700 ppm. As observed during the inspection, I had observed the Vent Gas Scrubber operating at 12 gpm, which is lower than the permit condition of a minimum of 15 gpm. I spoke with Tom the following day, where he indicated that they had increased the flow rate during the third run with seemingly better results. Once the report is received, both Tom and I will review the results.

Nicole and I headed back to the administrative office to hold the closing meeting and go over my observations while on the walk through. I informed her of the facility data I would require, which she has since sent me in a timely manner. I then left the facility at about 11:40am.

### Compliance Determination and Recommendations

I have found that the facility is in compliance with MI-ROP-N7383-2014.

I recommend that the facility include in their deviation report the short time period where the Vent Gas Scrubber was below the 15 gpm minimum and the corrective actions taken.

NAME Fack Durham DATE 3/9/17 SUPERVISOR [Signature]