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

N123744446

FACILITY: GEORGIA PACIFIC CHEMICALS LLC		**SRN / ID:** N1237
LOCATION: 4113 W Four Mile Rd, GRAYLING		**DISTRICT:** Cadillac
CITY: GRAYLING		**COUNTY:** CRAWFORD
CONTACT: Robert Morely , Plant Manager		**ACTIVITY DATE:** 04/11/2018
STAFF: Caryn Owens	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Scheduled Inspection and Records Review.		
RESOLVED COMPLAINTS:		

On Tuesday and Wednesday, April 10 and 11, 2018 Caryn Owens DEQ-AQD observed stack testing and conducted a scheduled field inspection and records review of Georgia Pacific (GP) (N1237) located at 4113 Four Mile Road in Grayling, Crawford County, Michigan. More specifically the site is located on the south side of Four Mile Road, approximately 2/3 mile east of the north-bound off-ramp of Interstate-75. The purpose of this inspection was to determine the facility's compliance with permit to installs (PTIs) 363-89C, 488-95, 5-86A, and 5-86. GP has opted out of major source applicability by limiting operational and/or production limits potential to emit (PTE) to be below the New source performance Standards (NSPS) limits and therefore below major source thresholds for hazardous air pollutants (HAPs). GP is subject to NSPS Standards of Performance for volatile organic compound (VOC) emissions from the synthetic organic chemical manufacturing industry (SOCMI) air oxidation unit processes (40 CFR Part 60 Subpart III); NSPS Standards of Performance for VOC liquid storage vessels for which construction, reconstruction, or modification commenced after July 23, 1984 (40 CFR Part 60 Subpart Kb), and NSPS Standards of Performance for equipment leaks of VOC in the synthetic organic chemicals manufacturing industry for which construction, reconstruction, or modification commenced after January 5, 1981, and on or before November 7, 2006 (40 CFR Part 60 Subpart VV). Additionally, the site is an area source for National Emission Standards for Hazardous Air Pollutants (NESHAP) for Chemical Manufacturing of Area Sources (40 CFR, Part 63, Subpart VVVVVV). The State of Michigan does not have delegated authority of this area source NESHAP, and thus was not reviewed by the DEQ at this time.

Evaluation Summary

Based on the activities covered during this field inspection and records review, the facility appears to be in compliance with PTIs 363-89C, 488-95, 5-86A, and 5-86. Review of the records for the facility indicates the facility was in compliance with emission limits in accordance with the current PTIs. AQD is in talks with the facility trying to obtain fugitive emissions and verify whether PTI 5-86 can be voided. Specific permit conditions that were reviewed are discussed below.

On-site Inspection:

On Wednesday, April 10, 2018, the weather conditions were mostly sunny with winds out of the west approximately 10 miles per hour, and approximately 40 degrees Fahrenheit. The facility consisted of: one main building that contained 2 kettles to make resin, storage tanks of resin and product, piping, a formaldehyde plant, a catalytic oxidizer, and railroad and truck bays. Vapor recovery is connected to all the delivery vessels used to load the tanks or receive product, and also to the resin storage tanks. The vapor recovery system is vented to through the catalytic oxidizer before exiting the stack to ambient air. An acid quench tank is used for emergencies at the facility.

There is also a methanol above ground storage tank outside on the southern portion of the site, which uses a condenser to control the methanol vapors, which appeared to be operating properly during the inspection. During stack testing on April 10th, the inlet temperature of the chilled water was at 4.46 degrees Celsius and the outlet temperature was at 4.43 degrees Celsius.

The manufacturing of the resins are produced in kettles, in batches. The formaldehyde plant is used to make formaldehyde to be used in the resins. Generally, the resins produced in the kettles are Urea-formaldehyde in Kettle 1, and phenol-formaldehyde in kettle 2.

During stack testing on April 10th, methanol mixed with 10.5 percent oxygen that was entering the vaporizer at 102 degrees Celsius (215.6 °F), then to the superheater that was 150 degrees Celsius (302 °F), which then enters into the converter where the methanol reacts with a catalyst and changes to formaldehyde. After the

reaction, the exit temp was 271.2 degrees Celsius (520.2 °F), which flows into an aftercooler. From the aftercooler, the methanol flows into three absorbers, then flows to formaldehyde storage with the product at 51% formaldehyde. The remaining gas stream is then recycled back to the vaporizer. During the inspection the converter vessel was at 7.7 psi, and ranged from 314 °C to 369 °C. The burner inlet to the catalytic oxidizer was at 610.76 °F, and the outlet temperature was at 937.08 °F. The change in temperature was 326.40 °F. The catalytic oxidizer is changed out every 2 to 3 years, and serviced semi-annually.

The facility is claiming the following exemptions at the facility:

- Cooling tower meets exemption Rule 336.1280(2)(d)
- Dowtherm heater with a firing capacity of 0.9 mmBtu/hr meets exemption Rule 336.1282(2)(b)(i).
- Standby generator in case of power failure 336.1285(2)(g)

PTI 363-89C Compliance Evaluation:

FGFORMALDEHYDE and FGRESIN: This Flexible Group contains the following emission units; EUMETHSTORAGE, EUFORMALDEHYDEPLANT, EUUREAFROMALDEHYDE and EUPHENOLFORMALDEHYDE. EUMETHSTORAGE contains the methanol storage tank that is controlled by a vapor balance system and chilled water condense, and is associated with FGFORMALDEHYDE. EUFORMALDEHYDEPLANT includes all process equipment and storage tanks used to generate formaldehyde and urea formaldehyde, and is associated with FGFORMALDEHYDE. EUUREAFROMALDEHYDE includes all process equipment used to manufacture "UF" resins. The resins are mixed in batch kettle K-1. EUPHENOLFORMALDEHYDE includes all process equipment used to manufacture "PF" resins. The resins are mixed in batch kettle K-2.

- **Emission Limits:**
  The reported emissions are listed in the right hand column in the table below, which were based on the leak detection monitoring and 2018 stack testing. AQD is in discussion with the company to determine fugitive emissions from FGFORMALDEHYDE and FGRESINS. A follow-up activity report will be completed at a later date.

Pollutant	Limit	Time Period	2018 Test Results at High load Conditions
Formaldehyde	0.04 pph	Hourly	0.002 pph
VOCs from FGFORMALDEHYDE and FGRESINS	1.8 pph	Hourly	0.02 tons per month
VOCs from EUMETHSTORAGE	0.039 pph	Hourly	0.04 tons per month

- **Material Limits:**
  No Material limits were applicable for FGFORMALDEHYDE and FGRESINS.

- **Process Operational Restrictions:**
  The facility accurately calibrates each monitor and recording device to manufacturer recommendations. The facility updated and submitted a Leak Detection, Malfunction Abatement and Preventative Maintenance Plan on December 21, 2017. AQD approved the Plan on March 1, 2018. According to Mr. Morely, the plant will not operate until the inlet temperature of the catalyst bed is at least 550 degrees Fahrenheit.

- **Design/Equipment Parameters:**
  During the field inspection, it appeared all the equipment at the facility was working properly. All tanks containing VOCs are connected to a vapor recovery system. All the vapor recovery systems vent to the catalytic oxidizer to control the emissions. A nitrogen blanketing system is installed for emergencies at the facility. The pumps valves, connectors, pressure relief devices and sampling connection lines are monitored monthly with leak detection devices and are reported to AQD on a semi-annual basis. The Methanol storage tank is connected to a condenser on the southern portion of the site to control breathing loss emissions from the tank. Additionally, the facility is required to the total organic compounds (TOC) destruction efficiency , which is permitted for 99 percent reduction. Based on the April

10 and 11, 2018 stack testing, the TOC was at 99.97 percent at the high load Conditions, and within the permitted limits.

- **Testing/Sampling:**
There are no specific stack testing requirements associated with the facility, however, the facility does complete stack test when necessary to show compliance of the catalytic oxidizer. The most recent stack test was completed April 10 and 11, 2018. Results were received May 21, 2018.

- **Monitoring/Recordkeeping:**
The facility monitors and records the temperature immediately before and after the catalyst bed of the oxidizer on a continuous basis. Additionally, the facility monitors all pumps, compressors, pressure relief devices, sampling connections, and all valves on a monthly basis. Additionally, the facility monitors the production of formaldehyde and urea formaldehyde on a continuous basis, and recorded on a daily basis. The facility maintains the emissions reporting, records of all calibration activities, and a list of each VOC liquid storage tank. The facility maintains a log of all significant activities at the facility, and keeps the records in a satisfactory manner.

- **Reporting:**
Based on the records reviewed, the before and after catalyst temperatures were continuously recorded as well as the 3-hour average temperatures. The facility reported all monitoring and recordkeeping requirements to the DEQ. The semi-annual 40 CFR Part 60 Subparts A, III, VV, & Kb; Excess Emissions summary for Formaldehyde Plant, Excess Emissions summary of Methanol storage tank, and NSPS Reporting appears to be in compliance and submitted on a timely basis.

  Since the previous inspection completed at the facility in June 2014, the facility reported four Rule 912 notifications to AQD. The occurrences were reported to the DEQ within the appropriate time limits, and corrective actions were taken. The facility indicated the last date the catalytic oxidizer was shut down and serviced was January 9, 2018 when they installed new packing for the catalyst.

- **Stack/Vent Restrictions:**
During the field inspection, the stack heights for SVMETHVENT, SVCATINC, SVDOWTHERNVENT and SVRELIEFVENT appeared to be within the permitted stack height limits.

- **Other Requirements:**
Although the PTI does not address "Other Requirements" associated with FGFORMALDEHYDE and FGRESINS, this Flexible Group is subject to:
  * NSPS Standards of Performance for volatile organic compound (VOC) emissions from the synthetic organic chemical manufacturing industry (SOCMI) air oxidation unit processes (40 CFR Part 60 Subpart III);
  * NSPS Standards of Performance for VOC liquid storage vessels for which construction, reconstruction, or modification commenced after July 23, 1984 (40 CFR Part 60 Subpart Kb),
  * NSPS Standards of Performance for equipment leaks of VOC in the synthetic organic chemicals manufacturing industry for which construction, reconstruction, or modification commenced after January 5, 1981, and on or before November 7, 2006 (40 CFR Part 60 Subpart VV).
  * Area source for National Emission Standards for Hazardous Air Pollutants (NESHAP) for Chemical Manufacturing of Area Sources (40 CFR, Part 63, Subpart VVVVVV).

FGFACILITY: Conditions that include all source-wide activities at the facility including equipment covered by other permits, grand-fathered equipment and exempt equipment.

- **Emission Limits:**
The Emission Limits for FGFACILITY are individual hazardous air pollutant (HAP) emissions shall be below 10 tons per year and total HAPs shall be below 25 tons per year based on a 12-month rolling time period. Based on the records reviewed from April 1, 2017 through March 31, 2018, the individual and total HAPs were reported below the emission limits.

- **Materials/Fuels:**
No Material limits were applicable for FGFACILITY.

- **Process/Operational Parameters:**

No Process/Operational Parameters were applicable for FGFACILITY.

- **Design/Equipment Parameters:**
  No Design/Equipment Parameters were applicable for FGFACILITY.

- **Testing/Sampling Equipment:**
  No Testing/Sampling Equipment were applicable for FGFACILITY.

- **Monitoring/Recordkeeping:**
  The facility completes the required calculations for the HAP limits for Methanol, Formaldhyde, and Phenol, as well as Total HAPs. The amount of hours the facility operates is recorded on a daily basis. The monthly and 12-month rolling time period emissions records are attached.

- **Reporting, Stack/Vent Restrictions, Other Requirements:**
  There are no "Reporting, Stack/ Vent Restrictions, or Other Requirements" applicable with FGFACILITY.

PTI 488-95 Compliance Evaluation:

PTI 488-95 was issued to add two 23,000 gallon storage tanks to increase the plants staorage capacity of aqueous resins. Majority of the Conditions are covered by PTI 363-89C. Emissions for the storage tanks are controlled by connecting the tanks to the vapor recovery system at the facility, which is routed to the catalytic oxidizer prior to exiting the stack.

- **Emission Limits:**
  There shall be no Visible Emissions from the aqueous resin storage tanks. The aqueous resin storage tanks are located inside the plant and connected to the vapor recovery system that is routed to the catalytic oxidizer. No visible emissions were observed from the storage tanks during the onsite inspections.

- **Material Limits:**
  No Material limits were applicable for the storage tanks.

- **Process Operational Restrictions:**
  No Process/Operational Parameters were applicable for the storage tanks.

- **Design/Equipment Parameters:**
  During the field inspection, it appeared all the equipment at the facility was working properly. All tanks containing VOCs are connected to a vapor recovery system. All the vapor recovery systems vent to the catalytic oxidizer to control the emissions

- **Testing/Sampling:**
  No stack testing requirements are associated with the storage tanks.

- **Monitoring/Recordkeeping:**
  As previously stated, the facility maintains a list of each VOC liquid storage tank with the dimensions, capacity, and installation date. The record of storage tanks at the facility is attached.

- **Reporting:**
  The facility reported all monitoring and recordkeeping requirements to the DEQ. The semi-annual 40 CFR Part 60 Subparts A, III, VV, & Kb; Excess Emissions summary for Formaldehyde Plant, Excess Emissions summary of Methanol storage tank, and NSPS Reporting appears to be in compliance and submitted on a timely basis.

- **Stack/Vent Restrictions:**
  During the field inspection, the stack height for SVCATINC appeared to be within the permitted stack height limits.

- **Other Requirements:**
  Although the PTI does not address "Other Requirements" associated with the storage tanks, they are subject to the NSPS Standards of Performance for VOC liquid storage vessels for which construction, reconstruction, or modification commenced after July 23, 1984 (40 CFR Part 60 Subpart Kb).

PTI 5-86A Compliance Evaluation:
PTI 5-86A was issued to for a 42.2 MMBtu/hr boiler system that has the potential to use natural gas or #2 oil, and used for space heating and process steam requirements. This boiler replaced the permitted boiler in PTI 5-86, and the boiler was installed in 1986. Emissions from the boiler exit out the catalytic converter stack, after the catalyst.

- **Emission Limits:**
  Visible Emissions shall not exceed 20 percent opacity during a six-minute average. No visible emissions were observed from the stack during the onsite inspection.

- **Material Limits:**
  The sulfur dioxide emissions are not to exceed 0.51 pounds per million BTUs heat input. The facility uses natural gas from a natural gas supplier, which is low in sulfur. The facility has not been, and currently does not use #2 fuel oil.

- **Process Operational Restrictions:**
  No Process/Operational Parameters were applicable with PTI 5-86A.

- **Design/Equipment Parameters:**
  There were no Design/Equipment Parameters applicable with PTI 5-86A.

- **Testing/Sampling:**
  As of the date of this inspection report, AQD has not requested the facility to test the sulfur dioxide emission rates. No stack testing requirements are associated with the storage tanks.

- **Monitoring/Recordkeeping:**
  There were no Monitoring/Recordkeeping requirements applicable with PTI 5-86A.

- **Reporting:**
  The facility has been using natural gas in the boiler. As of the date of this inspection report, AQD has not received notification indicating the facility would like to use a different fuel then what the boiler was permitted for.

- **Stack/Vent Restrictions:**
  During the field inspection, the stack height for SVCATINC appeared to be within the permitted stack height limits.

- **Other Requirements:**
  The facility installed the boiler addressed in PTI 5-86A, and the original boiler permitted in PTI 5-86 was never installed at the facility.

PTI 5-86 Compliance Evaluation:
PTI 5-86 was issued for manufacturing thermosetting resins, specifically urea-formaldehyde resins, phenol-formaldehyde resins, and polyamide resins. This permitted Conditions are similar to PTI 363-89C, so please refer to PTI 363-89C evaluation. Please refer to 5-86A for the boiler evaluation, since the boiler system in 5-86 was never installed at the facility. AQD is in talks with the facility trying to verify whether PTI 5-86 can be voided.

NAME Caryn Owens DATE 5/21/18 SUPERVISOR JN