

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

N223947194

FACILITY: Kirtland Products LLC - Arete Industries, Inc.		SRN / ID: N2239
LOCATION: 1 ALTAIR DR., BOYNE CITY		DISTRICT: Cadillac
CITY: BOYNE CITY		COUNTY: CHARLEVOIX
CONTACT: Thomas Monley , President		ACTIVITY DATE: 12/05/2018
STAFF: Kurt Childs	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: 2018 FCE		
RESOLVED COMPLAINTS: C-19-00429		

**Full Compliance Evaluation (FCE)**

Kirtland Products LLC is a manufacturing plant that produces wood pellet fuel for wood fired heaters. The pellets are produced from a mixture of green softwood and hardwood chips in a process that includes material transfer, grinding drying, pelletizing, cooling, storage and packaging. Some of the dried chips are used to produce fuel for the dryer. Cyclones and baghouses are used as particulate matter air emission control and raw material capture for the processes. The current PTI is 47-11E, issued July 15, 2016.

At the time of the inspection the weather was overcast with light snow and a temperature of 31 degrees F. The wind was variable from the southwest at 5 mph. The plant was operating and water vapor plumes were present from the FGGRINDER/DRYER stack as well as several of the other stacks. I observed the plant from several different locations and did not see any visible emissions so a Method 9 visible emissions reading was not taken. I drove downwind of the plant including by the recent complainants location. Though I could see the water vapor plume from several of these locations I did not detect any odors. Following my off-site observations FGGRINDER/DRYER process appeared to shut down as evidenced by the disappearance of the water vapor plume. I proceeded to the plant and met with Mr. Tom Monley. He informed me that Eric Nixon is no longer with the company and his accounting person, David LaMarche is assisting with the recordkeeping. Mr. Monley had just arrived at the plant and was busy. Since the dryer was not operating at the time, agreed to come back in the afternoon.

When I returned in the afternoon the plant was operating, again with a water vapor plume from the FGGRINDER/DRYER stack but no visible emissions. I met with Mr. Monley and we toured the plant looking at each process, control device and operating parameters. Kirtland products is still only operating one of the two pellet mills as the second mill has not been repaired. All of the other permitted equipment was operational. After the plant tour we reviewed records from 2018. Kirtland collects data about the process on a daily basis and these records are maintained in monthly files. I reviewed these records and my comments are included in the breakdown of individual Emission Unit requirements that follows.

**FGGRINDER/DRYER**

**Emissions:**

The current FGGRINDER/DRYER emission limits are:

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VE	15% opacity	6-minute average except one 6-minute average per hour of not more than 20% opacity	FGGRINDER/DRYER	SC V.1,  SC VI.2	R 336.1301(1)(c)
2. PM <sup>a</sup>	0.137 lb per 1,000 lb of exhaust gases <sup>b</sup>	Test Protocol*	FGGRINDER/DRYER	SC V.1	R 336.1331(1)(c)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
3. PM <sup>a</sup>	0.10 lb per 1,000 lb of exhaust gases <sup>b</sup>	Test Protocol*	EUGRINDER  portion of FGGRINDER/DRYER	GC 13	R 336.1331(1)(a)
4. PM10	10.0 pph	Test Protocol*	FGGRINDER/DRYER	SC V.1	40 CFR 52.21 (c) & (d)
5. PM2.5	10.0 pph	Test Protocol*	FGGRINDER/DRYER	SC V.1	40 CFR 52.21(d)
6. NO <sub>x</sub>	8.3 pph	Test Protocol*	EUDRYER  portion of FGGRINDER/DRYER	GC 13	40 CFR 52.21 (c) & (d)
7. CO	13.5 pph	Test Protocol*	EUDRYER  portion of FGGRINDER/DRYER	GC 13	40 CFR 52.21(d)
8. VOC (as carbon)	27.2 pph	Test Protocol*	EUDRYER  portion of FGGRINDER/DRYER	GC 13	R 336.1702(a)
9. Formaldehyde (CAS No. 50-00-0)	1.18 pph <sup>1</sup>	Test Protocol*	EUDRYER  portion of FGGRINDER/DRYER	GC 13	R 336.1225(1)
<sup>a</sup> This is filterable particulate matter.  <sup>b</sup> Calculated on a dry gas basis.  *Test Protocol shall specify averaging time.					

I.1. As indicated above, no visible emissions were present at the time of the inspection. Records of daily readings by Kirtland Products staff indicate opacity is usually 5%.

I.2-8. Compliance with emission limits was demonstrated through testing conducted in 2012 and 2015 and 2016. Emissions are calculated using emission factors from these test reports and submitted annually with the MAERS report.

**Material Limits:**

II.1. Wood is the only fuel used in the drier aside from propane at start-up.

II.2. Process only virgin hardwood and softwood materials through FGRINDER/DRYER. Hardwoods and softwoods are the only materials processed, no additives are used in the process.

II.3. Material and process limits for EUDRYER.

Moisture Content of Green Wood Material in % by weight	Maximum Allowed Dryer Inlet Temperature	Maximum Allowed Green Wood Input (pounds per hour)
48% (and less)	888°F	24,952

49% to 50%	923°F	24,452
51% to 52%	960°F	24,033
53% to 54%	997°F	23,626
55% to 56%	1035°F	23,257

Moisture content, maximum dryer temperature, and maximum allowed green wood input were compliant with these limits based on observed operating parameters and the facility records "Daily Legal Record Log Sheet" (DLRLS). At the time of the inspection the dryer was operating at between 450 and 500 degrees F. This is consistent with records from 2018 which indicate the temperature during operation ranges from 400 to 600 degrees. Green wood moisture ranged from 42% to 52% based on the records I observed. Green wood input to the dryer was around half of the allowed input based on the records I observed. Based on these operating temperatures, green wood moisture measurements, and green wood input the material and process limits in the table above have been met.

**Process:**

- III.1. The MAP Submitted and approved 1-17-12.
- III.2. Annual burner tuning. At the time of the inspection Mr. Monley was not sure where these records were but provided a copy of records for a tune-up conducted on 12-10-2018 following the inspection.
- III.3. Start-up shut-down Plan. Included with MAP and approved 1-17-12.

**Equipment:**

- IV.1. Maximum heat input limit 22.0 MMBtu. This is a design limit that has been met.
- IV.2. Cyclone installed and operating properly. The cyclone is installed and appeared to be operating properly at the time of the inspection (there was no opacity from the stack).

**Testing:**

- V.1. Conduct PM, PM10 and PM2.5 testing by January 15, 2017. Testing was completed on 11/10/2016.

**Monitoring/Recordkeeping:**

- VI.1. Emission calculations. Kirtland Products maintains monthly and 12-month rolling average emissions calculations based on data from the last stack test.
- VI.2. Daily VE readings. Daily records include VE readings as required. Readings indicate compliance with opacity limit.
- VI.3. Monitor and record green wood throughput. Throughput is tracked on a daily basis on the DLRLS and has been within permit limits.
- VI.4. Monitor and record green wood moisture content. Moisture content is also tracked on the DLRLS and is used to demonstrate compliance with the material use limits in III.3 as discussed above.
- VI.5. Maintain records of annual burner tune ups. As indicated above, a tune-up was conducted following the inspection and the records were provided (see attached).
- VI.6. Monitor the temperature at the inlet of EUDRYER. EUDRYER is equipped with a circular chart recorder for daily temperature records and the charts are maintained on file.

**Stack:**

- VII.1. Max dia. 40", Min Height 63'. There have been no changes or modifications to the Stack.

**EUHAMMERMILL**

**Emissions:**

- I.1. 5% opacity. This process is controlled by a baghouse, at the time of the inspection there were no visible emissions from the baghouse stack.

**I.2.-4. PM, PM10, PM2.5 emission limits.**

2. PM	0.002 lb per 1000 lb of exhaust gases, calculated on a dry gas basis
3. PM10	0.045 pph
4. PM2.5	0.045 pph

Compliance was verified during 2012 testing.

**Process:**

- III.1. The MAP was approved 1-17-2012.

**Equipment:**

VI.1. Baghouse installed and operating properly. The baghouse appeared to be installed and operating properly (there were no visible emissions during operation).

**Testing:**

Testing has been completed and demonstrated compliance with the emission limits in a test report dated 12/13/2012. No additional testing of this emission unit has been requested by the AQD.

**Monitoring/Recordkeeping:**

VI.1. Emissions are calculated using emission factors from the test reports and submitted annually with the MAERS report.

VI.2. Monitor and record baghouse differential pressure. Records indicate the baghouse differential pressure has been continuously monitored and differential pressure readings were taken but at the time of the inspection the differential pressure gauge was not functioning and was covered in wood dust. Mr. Monley had Kirtland staff investigate the gauge malfunction which was due to freezing. Kirtland plans to move the gauge inside the dryer building to prevent future freezing (see attached email).

**Stack:**

VII.1. Max dia. 12", Min Height 63'. There have been no changes or modifications to the stack since the last inspection.

**EUPELLET**

**Emissions:**

I.1. 10% opacity.

<b>2. PM</b>	0.040 lb per 1000 <b>lb of exhaust gases, calculated on a dry gas basis</b>
<b>3. PM10</b>	0.55 pph
<b>4. PM2.5</b>	0.55 pph

This process is controlled by a cyclone, at the time of the inspection there were no visible emissions from the cyclone stack. Compliance with the particulate matter emission limits was demonstrated during the 2012 testing.

**Process:**

III.1. The MAP was approved 1-17-2012.

**Equipment:**

IV.1. Cyclone installed and operating properly. At the time of the inspection the cyclone appeared to be operating properly, there were no visible emissions during operation.

**Testing:**

Testing has been completed and demonstrated compliance with the emission limits in a test report dated 12/13/2012. PM emissions are 0.029 lb/1000 lb. No additional testing has been requested by the AQD.

**Monitoring/Recordkeeping:**

VI.1. Emission calculations. The emission factor (attached) for EUPELLET is 0.5PPH from 2012 testing. Monthly and 12-month rolling average totals are maintained and submitted annually with MAERS.

VI.2. Daily VE readings. Daily records include VE readings as required. Readings indicate compliance with opacity limit.

**Stack:**

VIII.1. Max dia. 13", Min Height 47'. There have not been any modifications or changes to the stack.

**EUCOOLER**

**Emissions:**

I.1. 5% opacity.

<b>2. PM</b>	0.01 lb per 1000 <b>lb of exhaust gases, calculated on a dry gas basis</b>
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3. PM10	0.16 pph
4. PM2.5	0.16 pph

This process is controlled by a cyclone, at the time of the inspection there were no visible emissions from the cyclone stack.

**Process:**

III.1. The MAP was approved 1-17-2012.

**Equipment:**

IV.1. At the time of the inspection the cyclone appeared to be operating properly, there were no visible emissions.

**Testing:**

Testing has been completed and demonstrated compliance with the emission limits in a test report dated 12/13/2012. PM emissions are 0.006 lb/1000 lb. No additional testing has been requested by the AQD.

**Monitoring/Recordkeeping:**

VI.1. Emission calculations. The emission factor for EU COOLER is 0.14PPH from 2012 testing and monthly and 12-month rolling average totals are maintained and submitted annually with MAERS.

VI.2. Daily VE readings. Daily records include VE readings as required. Readings indicate compliance with opacity limit.

**Stack:**

VII.1. Max dia. 20", Min Height 47'. There have been no changes or modifications to the stack.

**EUPELLETSTORAGE**

**Equipment:**

IV.1. Baghouse installed and operating properly. EUPELLETSTORAGE shares a baghouse with the fuel grinder and the packaging system. Additional requirements are found in EUBAGHOUSE. At the time of the inspection there were no visible emissions from the baghouse stack and it appeared to be operating properly.

**EUBAGHOUSE**

**Emissions:**

I.1. 5% opacity.

2. PM	0.006 lb per 1000 lb of exhaust gases, calculated on a dry gas basis
3. PM10	0.09 pph
4. PM2.5	0.09 pph

At the time of the inspection there were no visible emissions from the baghouse stack.

**Process:**

III.1. The MAP was approved 1-17-2012.

**Equipment:**

IV.1. Baghouse installed and operating properly. The baghouse appeared to be operating properly, there were no visible emissions during operation and the differential pressure was 3.3" which is higher than what I have observed in the past (<1") but within the recommended range (0.5" - 4") in the MAP.

**Testing:**

V.1. Conduct PM, PM10 and PM2.5 testing by January 15, 2017. Testing was completed on 11/10/2016.

**Monitoring/Recordkeeping:**

VI.1. Emission calculations.

VI.2. Monitor and record baghouse differential pressure. Differential pressure is continuously monitored and recorded during each shift. At the time of the inspection the reading was 3.3" as described above.

**Stack:**

VII.1. Max dia. 18", Min Height 47'. There have not been any changes or modifications to the stack.

**FGWOODPELLET**

**Process:**

III.1. 5930 hours per 12-month rolling time period. The plant is only running 10 hrs per day 2-4 days per week, this is well below the 5930 hours allowed.

III.2. Fugitive Dust Plan. FDP approved 1-18-2012. All plant roads and yard areas are paved. At the time of the inspection the plant roads and yard were free from accumulations of wood and other sources of fugitive dust. Records are being maintained of cleaning activities on the "Shift to Shift Changeover Form". Conveyors and material handling equipment are enclosed. One pile of accumulated wood dust near the EUHAMMERMILL cyclone poses the potential for fugitive emissions and I suggested that Kirtland Products enclose this material. Kirtland Products has committed to removing the material several times per day to minimize the potential for fugitive dust.

**Monitoring/Recordkeeping:**

VI.1. Emission calculations. None required.

VI.2. Monitor and record the hours of operation, monthly and 12-month rolling. Hours of plant operation are maintained.

**Summary:**

As a result of the inspection it appears that Kirtland Products, LLC is currently in compliance with the requirements of PTI 47-11E and the Air Pollution Control Rules.

NAME  DATE 12-18-18 SUPERVISOR 