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

N594053243

FACILITY: POTLATCHDELTIC LAND & LUMBER LLC.		**SRN / ID:** N5940
LOCATION: 650 A AVENUE, GWINN		**DISTRICT:** Upper Peninsula
CITY: GWINN		**COUNTY:** MARQUETTE
CONTACT: Amy Kuivanen , Environmental Coordinator (2018)		**ACTIVITY DATE:** 03/25/2020
STAFF: Michael Conklin	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Targeted inspection for FY 20.		
RESOLVED COMPLAINTS:		

Facility: PotlatchDeltic Land & Lumber, LLC (SRN: N5940)
Location: 650 A. Avenue, Gwinn, Marquette County, MI 49841
Contact(s): Amy Kuivanen, Environmental Coordinator, 906-346-8205

Regulatory Authority

Under the Authority of Section 5526 of Part 55 of NREPA, the Department of Environment, Great Lakes, and Energy may upon the presentation of their card, and stating the authority and purpose of the investigation, enter and inspect any property at reasonable times for the purpose of investigating either an actual or suspected source of air pollution or ascertaining compliance or noncompliance with NREPA, Rules promulgated thereunder, and the federal Clean Air Act.

Facility Description

The Gwinn Lumber facility is one of PotlatchDeltic's six sawmills with a lumber production capacity of 220 million board feet per year (MMBf/yr). The facility is located at 650 Avenue A, Gwinn, MI, a flat rural area in Marquette County that is in attainment for all criteria pollutants. Gwinn Lumber was originally constructed in 1998 following the issuance of Permit to Install (PTI) No. 299-96. This stationary, automated mill processes softwood species of Jack Pine, Red Pine, Spruce, Balsam, White Pine, and Tamarack into dimensional lumber. Wood chips, sawdust, and waste that is generated onsite are sold to off-site sources or burned in the wood-fired boilers.

Process Description

The mill process starts with green logs being debarked and sorted based on size. Logs entering the sawmill are considered "green" meaning they have a naturally higher moisture content than the final dry lumber product. The green logs are then laser scanned and rough cut into lumber by an automated saw. Rough cut lumber is stacked and enters one of four kilns for drying. After the lumber has reached the desired moisture content, the lumber is fed through a planer system that trims and edges the lumber into the final stud length. The lumber then passes through a machine that grades the lumber based on quality indicators. After the lumber is graded, it is sorted, bundled, and shipped to customers.

Emissions

Wood product manufacturing involves the generation of sawdust, planer shavings, and/or sander dust which contribute to levels of atmospheric PM and PM10. Cyclones or baghouses act as capture/collection systems for air pollution control and product recovery by separating wood residue from the airstream of pneumatic handling systems. Volatile organic compounds (VOCs) are emitted during the kiln drying of wood.

PotlatchDeltic contains natural gas-fired equipment, including a boiler and burner for dry kiln #4. Pollutants emitted from the combustion of natural gas-fired equipment includes nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOCs), particulate matter (PM), carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and trace amounts of sulfur dioxide. Higher temperatures of burning and longer residence time results in higher NOx emissions. CO and VOC emissions are directly related to combustion efficiency. Higher combustion temperatures, longer residence times, and well mixing of fuel and combustion air results in greater combustion efficiency and lower emissions of CO and VOCs. Emissions of sulfur oxides are low since processed natural gas contains a very low sulfur content. PM emissions are also low since natural gas is a gaseous fuel. Nitrous oxide and methane emissions are related to the combustion temperature and amount of excess oxygen.

The source also contains wood-fired boilers. Waste wood residue is collected and used as fuel in the boilers to produce process heat. The waste wood residue could include bark, sawdust, shavings, chips,

or wood trim. The primary pollutants emitted from wood-fired boilers include PM, CO, NOx, and VOCs. The incomplete combustion of the organic material causes the release of these pollutants. Mechanical collectors, such as multicyclones, and flyash reinjection can reduce PM emissions. Furnace design and operating conditions (air/fuel ratio) contribute to combustion efficiency that in turn affects the quantity of pollutants emitted.

Emissions Reporting

PotlatchDeltic is required to report its annual emissions to Michigan Air Emissions Reporting System (MAERS). The following table lists the source total emissions for the reporting year 2019.

Pollutant	Emissions (TPY)
CO	49.4
Lead	0.0
NOx	58.1
PM10, FLTRBLE	31.6
PM10, PRIMARY	<1
PM2.5, FLTRBLE	29.8
PM2.5, PRIMARY	<1
SO2	5.2
VOC	138.3

Regulatory Analysis

PotlatchDeltic is subject to MI-ROP-N5940-2019a. The source is considered major for VOCs because the potential-to-emit (PTE) is over 100 tpy. The facility is also considered a synthetic minor source for hazardous air pollutants (HAPs) because the source took source-wide limits to restrict the PTE to less than the major source thresholds of 10 tpy for individual HAPs and 25 tpy for aggregate HAPs. The source is considered minor for all other criteria pollutants.

EU-WOODBOILER1, EU-WOODBOILER2, and EU-GASBOILER at the stationary source are subject to the Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units promulgated in 40 CFR Part 60, Subparts A and Dc. EU-GENERATOR at the stationary source is subject to the Standards of Performance for Compression Ignition Internal Combustion Engines promulgated in 40 CFR Part 60, Subparts A and IIII. EU-WOODBOILER1, EU-WOODBOILER2, and EU-GASBOILER at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources promulgated in 40 CFR Part 63, Subparts A and JJJJJJ. EU-FIREPUMP1, EU-FIREPUMP2, and EU-GENERATOR at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines Area Sources promulgated in 40 CFR Part 63, Subparts A and ZZZZ.

Compliance History

The facility was last inspected in January 2018 and found to be in compliance with all applicable air quality rules and federal regulations at that time. No violation notices have been issued since.

Inspection

A targeted inspection was scheduled for March 18, 2020, to determine compliance with MI-ROP-N5940-2019a. On March 17th, Tom Mosher (Environmental Manager) called asking to reschedule the inspection for a later date due to precautionary measures being taken at the facility for COVID-19. Since there have been no recent complaints or reported upsets at the facility, the on-site inspection is not considered essential and will be scheduled following the COVID-19 period. In the interim, a partial compliance evaluation (PCE) was conducted by reviewing requested records required in MI-ROP-N5940-2019a. The records request was sent to Ms. Kuivanen (Environmental Coordinator) on March 25th, and records were received via email on March 26th. A full compliance evaluation (FCE) with an on-site inspection will be scheduled at a later date.

SOURCE-WIDE

PotlatchDeltic is considered a synthetic minor source for HAPs since the facility took limits to restrict the potential-to-emit to less than 9 tpy for individual HAPs and 24 tpy for aggregate HAPs. With having these

source-wide emission limits, the facility is required to track the quantity of each HAP containing material used, the HAP emission factor of each HAP containing material, along with individual and aggregate HAP emission calculations for each calendar month and on a 12 month rolling time period basis.

The facility supplied records that track monthly and 12-month rolling HAP emissions from the wood-fired boilers and kiln drying (SC VI.2). These emission units are the greatest sources of HAP and VOC emissions at the facility. The mill processes balsam, jack pine, red pine, and spruce wood species. With the combustion and drying of these wood species comes the release of HAPs in the form of VOCs. Some of the HAPs emitted, but not limited to, are acetaldehyde, acrolein, formaldehyde, methanol, and propionaldehyde.

Emission factors for kiln drying are in lb/MBF and are from the PCWP MACT, NCASI NPRI reports, and kiln performance tests conducted at PotlatchDeltic mills. The wood-fired boiler HAP emission factors are in lb/MMBtu and are from NCASI Technical Bulletin 858, Tables 20A and 20B. The potential-to-emit of all HAPs from each wood-fired boiler is 1.09 tpy and 2.18 tpy for both boilers combined. This is based on a maximum heat input capacity of 28.7 MMBtu/hr for each boiler operating 8760 hours per year. The potential-to-emit of all HAPs from kiln drying at the facility is 15.85 tpy, with the highest individual HAP being methanol at an emission rate of 13.62 tpy. This is based on a restricted red pine drying limit of 210,000,000 BF and total wood drying limit of 220,000,000 BF.

For 2019, the records provided show all individual HAP emission rates to be less than 9 tpy based on a 12-month rolling basis. The methanol emission rate for a 12-month rolling time period basis stays consistent around 7.2 tpy each month (SC I.1). Total aggregate HAP emissions for a 12-month rolling time period basis stay consistent around 15 tpy each month (SC I.2).

The source is required to maintain a facility-wide Malfunction Abatement Plan (MAP) that includes a preventative maintenance program for the air pollution control devices at the mill. The plan includes preventative maintenance schedules and procedures, inventory of critical spare parts, monitored operating variables, corrective action procedures, recordkeeping, and reporting (SC IX.1).

A fugitive dust plan is maintained at the facility for material storage piles, material handling equipment, plant roadways, and the plant yard. Many of these areas apply to EU-PNEUMATICLINE where waste material is collected in a pile or container to be shipped off-site (SC IX.2).

EU-GASBOILER
The facility contains a natural gas-fired boiler for additional heating capacity to the wood-fired boilers. The boiler has a rated heat input capacity of 48.8 MMBtu/hr and only burns natural gas (SC III.1). The facility keeps records of the amount of natural gas combusted during each calendar month. For 2019, the boiler burned 184.87 MMCF.

EU-PNEUMATICLINE
This emission unit is a material handling system that collects waste green chips from saws and conveys them through one of three blow lines. Each line is dedicated to either the chip pile, rail car, or truck bin. The truck bin line is equipped with a cyclone that allows the separation of wood chips from the air stream so that they can fall naturally into the truck bed. This prevents fugitive emissions that would likely occur from the higher-pressure blow line releasing into an open top container.

PotlatchDeltic has a fugitive dust plan for EU-PNEUMATICLINE (SC III.1). The plan includes requirements of keeping chips on an impervious surface, sweeping and maintaining the chip pile, visible emission checks, and corrective actions in the event of a malfunction.

SC III.2 requires truck bin loading to be restricted to less than 5,075 hours per year. With this limit, the facility is required to record the daily hours of operation. Records provided indicate an hour meter is used to track hours of truck bin loading. From the records, truck bin loading operations were down from January through June 13, 2019, and the meter was reset. From June 13, 2019 through December 31, 2019, truck bin loading was conducted over 450 hours (SC VI.1). This shows compliance with SC III.2.

Non-certified visible emission checks on EU-PNEUMATICLINE are to occur daily (SC VI.2). Records of the non-certified visible emissions observations, the reason for any visible emissions observed, and any corrective actions shall be kept on file and made available upon request. PotlatchDeltic maintains records of visible emissions and leaks in the pipes of the pneumatic line during days of operation. For 2019,

records indicate there were no visible emissions from the truck bin cyclone, but there were leaks in the blown line elbow to the wig-wag. These leaks have been noted as deviations in the semi-annual and annual compliance reports. The facility has explained in the past that this occurs due to the conveyed material being abrasive and wears down the piping as it is conveyed at high velocity. It is known that particulate matter moving at high velocities can cause ductwork abrasion especially at areas with sharp shifts in direction such as elbows. The description of the incidents notes the blow line is shut down immediately upon detection and is repaired before returning to service (SC VI.2).

EU-GENERATOR
This emission unit is a 389 HP diesel-fueled emergency engine with a manufacture year of 2013. A certificate of conformity with the Clean Air Act of 1990, for engine family DFPXL08.7TR3, is maintained on file. The facility also holds the manufacture certification of compliance with the applicable emission limitations contained in the federal Standards of Performance for New Stationary Sources (NSPS) 40 CFR Part 60, Subpart IIII. Generac, the manufacture of the engine, certifies the engine to meet 0.5 Grams/KW-hr for CO, 3.5 Grams/KW-hr for NOx + NMHC, and 0.13 Grams/KW-hr for PM (SC VI.1). These emission rates show compliance with the emission limitations outlined in SC I.1-3.

PotlatchDeltic also records the hours of operation during non-emergencies on a monthly and 12 month rolling time period basis. For 2018, records show a total of 12.5 hours and for 2019, a total of 17 hours (SC VI.2).

Fuel supply records indicate the fuel is #2 ultra-low sulfur diesel (SC VI.3). Ultra-low sulfur diesel is required to have sulfur content less than 15 ppm (SC II.1). According to the 2019 MAERS report, the emergency engine burned 113 gallons of fuel oil.

FG-WOODBOILERS
EU-WOODBOILER1 and EU-WOODBOILER2 are both Hurst boilers, model number HYB-4000-150-WF, with a maximum heat input capacity of 28.7 MMBtu/hr and a steam flow rate of 20,700 lb/hr. Each boiler is equipped with multicyclones to control PM emissions (SC III.1 and IV.1). The boilers are fired primarily by waste wood residue that is generated on-site as a byproduct from lumber production. Collected wood waste is augured into the boilers via screw conveyor to provide continuous and uniform fuel feed.

The boilers contain material limits of not burning painted or treated wood, and no more than 2 gallons per hour of spilled waste fuels including oil, hydraulic fluid, antifreeze, and spent boiler chemicals. These waste fuels are only allowed to be burned from the collection of on-site spill cleanups and floor sweeps. PotlatchDeltic is required to keep records of the type and amount of waste fuels burned in the boilers. Records provided show a total of 22 gallons of waste hydraulic oil and 3 gallons of waste antifreeze were burned in the boilers for 2019. Both boilers share a fuel room so burn rates are split among boilers. During the days that these waste fuels were burned, the burn rates were all less than 1.0 gal/hr (SC II.3 and VI.1). The burn rate of the waste fuels is calculated by dividing the amount of waste fuel (gal) by the time it takes to clear the fuel room based on the current depth of the fuel in the room at that time of waste fuel added. The overall fuel use rate is based on 2010 fuel usage data, where total fuel use for the year was 40,233 tons and both boilers operated 356 days. This equates to a fuel use rate of 113 tons/day.

Records of the amount of wood fuel burned each month are to be maintained. The facility tracks fuel usage daily for each boiler and sums a given month usage up at the end. A YTD value is maintained throughout the year. For 2019, EUBOILER1 burned 20,993 tons of wood fuel and EUBOILER2 burned 19,588 tons of fuel for a cumulative total of 40,581 tons (SC VI.2).

Each boiler contains emission limits for benzo(a)pyrene, CO, and PM. Testing is required every five years to verify emission limits in pounds per MMBtu (lb/MMBtu) and pounds per hour (lb/hr) for CO and PM, and in micrograms per cubic meter ($\mu g/m^3$) and lb/hr for benzo(a)pyrene. The boilers were last tested in February 2019 and were in compliance with the emission limits established in SC I.1, 2, 4, 5, 7, and 8 (SC V.1). Using equations from Appendix 7 in the ROP and emission factors from the most recent stack test, the facility is required to calculate and record CO, PM, and benzo(a)pyrene emissions in tons per year. Emission factors, from the most recent stack test, that are used in the 12-month rolling calculations are outlined in the table below.

Pollutant	Boiler 1	Boiler 2	Units
CO	0.26	0.11	lbs/MMBtu

PM	0.15	0.14	lbs/MMBtu
Benzo(a)pyrene	6.00E-06	6.00E-6	lbs/hr

Multiplying the fuel heating value (10.13 MMBtu/ton, from fuel analysis of 2019 stack test) with the given pollutant emission factor and the monthly fuel usage for a given boiler, the source calculates and records the monthly emissions. A 12-month time period is summed to show a ton per year value. The records provided show the source is in compliance with the emission limits contained in SC I.3, 6, and 9.

The wood-fired boilers are required to have installed primary and secondary multicyclones (SC IV.1). A multicyclone is a type of mechanical collector that uses centrifugal force to control PM emissions by collecting fly ash particles from the flue gas before being emitted to the atmosphere. A differential pressure gauge is required to be installed across each multicyclone to monitor the performance of the control device. The facility is required to record the differential pressure across the multicyclones once per shift. Records were supplied showing the multicyclone differential pressure being recorded twice per day during operation. The facility operates two shifts per day: day and night shift. The static pressure is recorded before the primary multicyclone and after the secondary multicyclone for each boiler. The difference between the primary and secondary provides the differential pressure. If the differential pressure is less than -3 or greater than 3 in. WC, personnel are supposed to immediately notify supervisor and the maintenance department. From records provided, the differential pressure appears to be staying within the optimal range of greater than -3 and less than 3 in. WC (SC VI.4).

FG-DRYKILNS

Rough green lumber is transported to one of four dry kilns after being cut to final stud length. Kilns 1-3 are indirect heated by steam, while kiln 4 is direct heated by a natural gas burner. Wood species dried in the kilns include jack pine, red pine, spruce, balsam, and insignificant amounts of white pine and tamarack. This flexible group contains a VOC emission limit of 176.8 tpy, and two material limits of no more than 210,000,000 BF/yr of red pine dried and 220,000,000 BF/yr of total wood dried.

The facility is required to track the type and amount of each wood species dried per calendar month and on a 12-month rolling time period basis in FG-DRYKILNS. Records provided show the amount and type of each wood species dried in each kiln per month and on a 12-month rolling basis. For 2019, a total of 16,582,820 BF of jack pine, 141,628,075 BF of red pine, and 35,568,859 BF of spruce were dried (SC II.1 and VI.2). This equates to a total of 193,779,754 BF/yr dried in FG-DRYKILNS (SC II.2).

VOC mass emission calculations are also required on a monthly and 12-month rolling basis for FG-DRYKILNS. The facility is required to provide the VOC emission factor (in lbs carbon per amount of board feet) for each wood species dried. The table below outlines the emission factors the source uses to calculate VOC mass emissions from lumber dried. These emission factors were results from the June 2014 kiln performance tests.

VOC EF, lb C/MBF	Jack Pine	Red Pine	Spruce	Balsam
EF	1.26	1.47	1.15	0.60

Monthly VOC emissions from FG-DRYKILNS are calculated using the formula below.

(Jack Pine BF/Month * 1/1000 * 1.26 lbs C/MBF) + (Red Pine BF/Month * 1/1000 * 1.47 lbs C/MBF) + (Spruce BF/Month * 1/1000*1.15 lbs) + (Spruce BF/Month *1/1000 * 0.60 lbs C/MBF) = VOC lb C/Month

The monthly VOC emissions are summed over a 12-month period. For 2019, the VOC emissions from FG-DRYKILNS were 134 tons (SC I.1).

FG-PLANERSYSTEM

After rough green lumber is kiln dried, the rough dried lumber is dimensioned with a high-speed planer and three end trimmers. Shavings are loaded into semi-truck trailers and trucked off site. The emission limitations for PM from FG-PLANERSYSTEM are subject to the federal Compliance Assurance Monitoring (CAM) rule under 40 CFR Part 64. This flexible group has a control device and potential pre-control emissions of PM greater than the major source threshold level. The emissions units EU-PLANER, EUENDTRIMMER1, EU-ENDTRIMMER2, EU-ENDTRIMMER3, EU-TRAILERS make up FGPLANERSYSTEM

and exhaust out a single point from a baghouse. Baghouses act as capture/collection systems for air pollution control and product recovery by separating wood residue from the airstream of pneumatic handling systems.

The planer system is not allowed to operate unless the baghouse is installed, maintained, and operating properly (SC IV.1). A differential pressure gauge is required to be installed to monitor the performance of the baghouse (SC IV.2). The differential pressure across the baghouse is required to be maintained at 0.1 to 6.0 in. WC. This differential pressure range was established during the March 2014 performance test on the baghouse and is correlated to PM emissions. The indicator range of 0.1 to 6.0 in. WC ensures compliance with PM emissions. In addition to monitoring the differential pressure across the baghouse, PotlatchDeltic is required to perform non-certified visible emission observations on the baghouse once per calendar month.

Records were provided of monthly visible emission observations for 2019. The records included the date, time, name of observer, whether the reader is certified, and the status of visible emissions. From the records provided, there were no visible emissions observed from FG-PLANERSYSTEM for 2019.

The differential pressure across the baghouse is to be recorded once per day during operation. Records provided show the differential pressure being recorded during each day of operations. The exhaust from the baghouse is also inspected, along with checks on the pulse jet to make sure cleaning of the baghouse is operating properly (SC VI.3). On 12/9/2019, a deviation in the pressure drop was recorded of 8.5 in. WC. This deviation was recorded with the date, reason, and corrective actions taken. The monitoring gauge had a malfunction and was repaired. During the deviation, no visible emissions were observed (SC VI.5 and 7).

Monthly inspection and maintenance logs were provided for the baghouse in FG-PLANERSYSREM. The tube sheet (clean side) is inspected for dust accumulations, along with rips or loose seals. Each inspection section of the baghouse is graded on a "Good", "Fair", or "Poor" basis. Notes are provided if parts are replaced. For example, on 7/28/19, the cover seals were inspected and the door seal was replaced (SC VI.7).

PotlatchDeltic has been prompt and complete in submitting semiannual CAM downtime incident summary reports and excursion/exceedance summary reports. There were no exceedances/excursions and downtime incidents during 2019 (SC VII.4 and 5).

FG-FIREPUMPS

The facility contains two 231 HP compression ignition (CI) fire pump engines for emergency situations. These engines are subject to 40 CFR Part 63, Subpart ZZZZ. Both engines are equipped with a non-resettable hour meter (SC IV.1). Records provided show engine #1 with 9.9 hours and engine #2 with 6.3 hours (SC VI.5). A maintenance log, dated 7/10/2019, was provided showing items inspected, the condition they are in, and if they were replaced (SC VI.4). On both engines, the engine oil and filters were changed, along with the air filters and fuel filter. These records indicate the engines are being maintained in a satisfactory manner. From the 2019 MAERS report, EU-FIREPUMP1 operated a total of 12.1 hours and EU-FIREPUMP2 operated for a total of 8.2 hours. These hours were for maintenance and readiness testing. The engines burned a combined 103.13 gallons of fuel oil.

Miscellaneous

The facility considers the following equipment exempt from permitting.

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
EU-PARTSWASHER	Four parts washers with air/vapor interface of less than 10 square feet	R 336.1212(4)(b)	R 336.1281(2)(h)
EU-GASOLINETANK	500-gallon gasoline tank, vented to atmosphere	R 336.1212(4)(c)	R 336.1284(2)(g)
EU-SAWFILE	Saw filing system with dust collector/filtration	R 336.1212(4)(d)	R336.1285(2)(l)(vi)

	system		
EU-KILN4BURNER	20 MMBtu/hr natural gas-fired burner for Kiln 4	R 336.1212(4)(i)	R 336.1291(2)

There are no additions or modifications planned for the facility.

Compliance

Based on the records provided, PotlatchDeltic is in compliance with MI-ROP-N5940-2019a. A follow up on-site inspection will be performed at a later date to ensure operational processes and air pollution control equipment are in compliance.

Records that were provided and reviewed can be found here: \\Gwn084m1oapf502\deq\GWN\SHARED\Air Quality Division\CONKLIN\Inspections\N5940\Records 3-20 .

NAME Michael Conklin (ESL) DATE 4/16/20 SUPERVISOR ESL