DEPARTMENT OF ECOLOGY
State of Washington

Prevention of Significant Deterioration Applicability Determination

McKinley Paper Company – Washington Mill Stock Preparation Project

January 2019

Table of Contents

List of Tables

Page

Tables

Executive Summary

Based on the information submitted to the Washington Department of Ecology (Ecology) on November 9, 2018, Ecology finds that the Stock Preparation Project (Project) is not subject to PSD review.

This determination is based on our review of the information presented to Ecology by the McKinley Paper Company. While we have made every effort to verify all data and assumptions provided to Ecology by the McKinley Paper Company and discussed the situation with ORCAA, we are not endorsing the accuracy or completeness of that information.

The Facility

The McKinley mill is the former Nippon Paper (Nippon) Thermal Mechanical Pulp (TMP) mill located at 1902 Marine Drive, Port Angeles, in Clallam County, Washington. While owned by Nippon, the mill used TMP pulp, recycled pulp, and purchased Kraft pulp to make paper. The new owner, McKinley, is proposing to upgrade the mill's existing pulping and stock preparation system to allow the use of alternative recovered fiber sources and allow the mill to produce more competitive paper grades. McKinley does not plan to produce printing and writing paper after the project is completed. The Project is located on the mill site.

The mill operates under Air Operating Permit number 11AOP816 issued by Olympic Region Clean Air Agency (ORCAA) on November 12, 2014. This air operating permit expires on November 12, 2019.

The Process

The existing mill is an integrated pulp and paper mill with two paper machines and three operational scenarios for producing pulp. The three scenarios are:

- A mechanical refiner pulp mill (TMP).
- A post-consumer recycled fiber pulp mill (deinking plant).
- An old corrugated container (OCC) tub pulper.

In addition, the mill currently has the capability to purchase virgin pulp to blend with the other pulp feedstocks.

Stock preparation system

The existing stock preparation system includes an old newsprint (ONP) drum pulper, an OCC tub pulper, a deinking plant, two mechanical refiner lines, and a purchased Kraft re-pulper.

Kraft re-pulper

The project does not directly affect the current Kraft re-pulper because virgin Kraft pulp may still be purchased from other mills and re-pulped on site. The decision to purchase Kraft pulp will depend on market conditions.

Refiners

The existing two refiner lines will be decommissioned as part of the project. The existing refiners were used to make virgin TMP pulp. The design capacity of the existing refiners is 500 Oven Dried Tons of Pulp (ODTP) per day.

OCC tub pulper

The OCC tub pulper will be decommissioned as part of the project. The design capacity of the existing OCC tub pulper is 230 ODTP per day.

Paper machines

Two existing paper machines have a combined existing capacity of 550–800 Air Dried Tons (ADT) per day depending on the paper grade being manufactured. The paper grade being manufactured depends on market demand. The existing paper machines system is optimized for the production of lightweight directory grade paper. The combined existing paper machines capacity when manufacturing lightweight printing and writing grades are 550 ADT per day. The combined existing paper machines capacity when manufacturing heavyweight liner and bag grades is 800 ADT per day.

Cogen boiler

McKinley stated in their submittal that there would not be an increase in the steam demand and subsequent emissions from the #13 Cogen Boiler (EU8), or the Cogen Cooling Tower (EU9) because of the project. McKinley did note that there is planned a separate reliability improvement project for EU8 that will not increase the boiler capacity or emissions. Therefore, McKinley in their PSD applicability analysis did not include EU8 and EU9. Ecology has no information to contradict this statement. Ecology notes that if the reliability improvement project for EU8 does result in an increase to the boiler capacity or emissions, PSD permitting may be triggered.

The cogeneration facility includes two emission units, which are the biomass boiler (boiler #11) and the cooling towers. Boiler #11 is a vibrating grate stoker boiler rated at 225,000 pounds per hour (lb/hr) of steam at 900 pounds per square inch gauge (psig). The boiler is rated at 420 Million British thermal unit per hour (MMBtu/hr) heat input (gross). Boiler #11 is a designed woody biomass boiler that combusts hog fuel, recycled wood-derived fuel, dewatered clarifier sludge, natural gas, and low sulfur diesel. The Cogen cooling tower is a two-cell cooling tower that operates at 5,500 gallons per minute.

The Proposed Project

Proposed stock preparation system and paper machine modifications

McKinley is proposing the following changes to the existing pulping system:

- A new single-line continuous pulper with 900 tons per day (tpd) capacity will replace the existing ONP pulper.
- Existing stock contaminant removal system will be modified by the addition of new cleaning and screening equipment.
- Upgrades to the pulping reject removal, dewater, and compaction system.
- Addition of a dissolved air floatation system for effluent clarification.
- The OCC tub pulper and refiners will be decommissioned.

All the proposed equipment upgrades will occur in the existing recycling plant building. No new vents to the exterior will be constructed as part of the project.

Proposed paper machine changes

The new-targeted grades of paper planned for production are bag and liner grades. If the paper machines in their existing configuration were used to produce heavyweight liner and bag grades, the capacity of the existing paper machines would be 800 ADT per day. A gross production capacity of 840 ADT per day of liner and bag grades (representing a 40 ADT per day increase) are expected after the following proposed changes are made to the paper machines:

- Improvements to the Paper Machine 1 (formerly PM1) to improve formation and increase paper strength. This paper machine was formerly referred to as Paper Machine 3 (PM3).
- Replacement of four dryer cans to the drying section of PM1 (formerly PM3) that are currently not in service.

PSD Applicability Discussion

The mill is located in Port Angeles, Clallam County, Washington, and is in an area that is in attainment for all pollutants. The mill is located within 10 kilometers of the Olympic National Park, which is a Class I area.

Baseline actual emissions

The criteria pollutants that are emitted from the existing air emissions units or will be emitted from the modified air emission units affected by the project are particulate matter (PM), particulate matter 10 microns and less (PM_{10}), particulate matter 2.5 microns and less ($PM_{2.5}$), sulfur dioxide (SO_2), and volatile organic compounds (VOCs). The existing pulping system and paper machines, as well as the proposed emissions after the installation of the new stock preparation system, are not emissions sources for carbon monoxide (CO), oxides of nitrogen (NO_X), or lead. The calculation of baseline actual emissions for PM and VOC from the paper machines, SO_2, and VOC from the refiners, and VOC from the existing pulpers is based on production data from January 2012 through December 2013. The baseline actual emissions (BAE) are listed below in Table 1. Note that VOC emissions are reported on a propane basis.

Analysis of emissions increases due to the project

An existing major stationary source in regards to the PSD program is defined by 40 CFR 52.21(b)(1). In order for this project to become subject to PSD review, it must be a major stationary source and have a significant emissions increase from the proposed project (Step 1 analysis). If a Step 1 analysis shows that the project does cause a significant emission increase, their emission increase is examined to see if the net emissions increase as calculated over the 5-year contemporaneous period will result in a significant increase (Step 2 analysis). A determination of the proposed project's emissions utilizing the actual-to-projected actual test was performed. The results of that test were compared to the PSD significant emission rate (SER) to determine PSD applicability. The results are reported below.

Step 1 analysis – determination of PSD emissions increase

The Step 1 analysis to determine the PSD emissions increase due to the project consists of selecting the BAE, and comparing it to the projected actual emissions (PAE). The result of this Step 1 analysis is shown below in Table 4, which shows the project's emissions increase, and SER analysis.

Table 1: Baseline Actual Emissions (tpy) from Existing Stock Preparation and Pulping System and the Paper Machines (Jan. 2012–Dec. 2013)

Pollutant	BAE OCC Tub Pulper	BAE Deinking/ONP Pulper	BAE Refiners	BAE Paper Machines	Total BAE for All Units
$PM_{2.5}$	0	0	0	2.1	2.1
PM_{10}	0	0	0	3.0	3.0
PM	0	0	0	3.3	3.3
SO_2	0	0	78.9	0	78.9
NO_X	0	0	0	0	0
CO	0	0	0	0	0
VOC	<1	1.4	17.0	11.5	29.9
Lead	0	0	0	0	0

Ecology found that the BAE seem reasonable, and comply with the BAE requirements in 40 CFR 52.21(b)48(ii).

Projected actual emissions

The PAE are the maximum annual rate, in tpy at which an existing emissions unit is projected to emit a regulated NSR pollutant in any one of the five years (12-month period) following the date the unit resumes regular operation after the project, or in any one of the 10 years following that date, if the project involves increasing the emission unit's design capacity or its potential to emit that regulated NSR pollutant and full utilization of the unit would result in a significant emissions increase or a significant net emissions increase at the major stationary source (40 CFR 52.21(b)(41)(i)).

The PAE are estimated using the potential pulping production resulting from the proposed project. In this case, the project will result in changes of the types of fiber that is pulped, and a change in the configuration of the pulping equipment (a change in the method of operation). Therefore, there was a change to the emissions factors used in the calculation of the project BAE. The PAE assumed that the equipment would operate 24 hours per day, and 365 days per year. Downtime for maintenance work was not included. The future pulping production used by McKinley was 900 tpd, which is the manufacturer's design capacity pulping rate. After the project is completed, the new pulper installed will have the capability to pulp feedstock that range from 0%–100% OCC or mixed paper. The PAE is listed below in Table 2.

Table 2: Projected Actual Emissions in TPY

Pollutant	PAE OCC Tub Pulper	PAE Deinking/ ONP Pulper	PAE Refiners	PAE New MP Pulper	PAE Paper Machines	Total PAE for All Units
$PM_{2.5}$	0	0	0	0	4.1	4.1
PM_{10}	0	0	0	0	5.9	5.9
PM	0	0	0	0	6.5	6.5
SO_2	0	0	0	0	0	0
NO_X	0	0	0	0	0	0
CO	0	0	0	0	0	0
VOC	0	0	0	1.4	54.3	55.7
Lead	0	0	0	0	0	0

In 40 CFR 52.21(b)(41)(ii)(c) it states that PAE shall exclude, in calculating any increase in emissions that results from the particular project, that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the BAE under paragraph (b)(48) of this section and that are also unrelated to the particular project, including any increased utilization due to product demand growth. The existing ONP pulper, OCC tub pulper, refiners, and stock preparation system design production rate is 700 ODTP per day. After the project is installed, the new pulping and stock preparation system design production rate will be 900 ODTP per day.

Emissions increase calculation and PSD applicability analysis

The net emissions change from the project is listed below in Table 3.

Table 3: Emissions Increase Calculation and Net Changes in TPY

Pollutant	Pre-Project Actual Emissions	Projected Actual Emissions	Emissions Increase/ Decrease
$PM_{2.5}$	2.1	4.1	+2
PM_{10}	3.0	5.9	+2.9
PM	3.3	6.5	+3.2
SO_2	78.9	0	-78.9
NO_X	0	0	0
CO	0	0	0
VOC	29.9	55.7	+25.8
Lead	0	0	0

The net increases resulting from the project are compared to their respective SER thresholds in Table 4 below.

Table 4: Net Emissions Resulting from Project Compared to PSD Thresholds

Pollutant	Net Emissions Resulting from Project	PSD SER (tpy)	PSD Triggered?
PM	+3.2	25	No
PM_{10}	+2.9	15	No
$PM_{2.5}$	+2.0	10	No
SO_2	-78.9	40	No
NO_X	0	40	No
VOC	+25.8	40	No
CO	0	100	No

As noted in Table 4 above, the emissions increase from the proposed Stock Preparation Project does not trigger for PSD permitting. Therefore, it is not necessary to continue with a Step 2 analysis for this project.

However, the project does result in the emission increase of a pollutant of 50 percent or greater of the SER. The result of the Step 1 analysis for VOC is greater than 50 percent of VOC SER. Therefore, the project does have a reasonable possibility of resulting in a significant emissions increase and is subject to the recordkeeping and reporting requirements outlined in WAC 173-400-720(4)(b)(iii)(D)(ii) through (v).

Modeling

The project location is within 10 kilometers of a Class I Area. The Class I area is the Olympic National Park. Therefore, air dispersion modeling is required. Ecology completed a review of the results of the air dispersion modeling. The modeled maximum 24-hour impacts due to the project NSR emissions increases are below the "significant" threshold of 1 microgram per cubic meter ($\mu g/m^3$). VOC modeled impact was 0.38 $\mu g/m^3$. The emissions rate was 25.8 tpy VOC. The modeling report is provided below this applicability determination report.

Aggregation Analysis

All NSR air permit related actions done at the mill are posted on ORCAA's web page. PSD permit actions are posted on Ecology's Air Quality Program web page. Evaluation of NSR actions, and discussions with ORCAA, did not indicate any projects that should be aggregated with this project.

PSD Applicability Conclusion

Ecology has reviewed all of the information presented by McKinley for the project. Therefore, based on the information submitted and assuming the information is complete and accurate; Ecology concludes that the project is not subject to PSD review.

As noted above, the project does result in the emission increase of a pollutant of 50 percent or greater of the SER. The result of the Step 1 analysis for VOC is greater than 50 percent of VOC SER. Therefore, the project does have a reasonable possibility of resulting in a significant emissions increase and is subject to the recordkeeping and reporting requirements outlined in WAC 173-400-720 (4)(b)(iii)(D)(ii) through (v).

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