Technical Support Document
for Notice of Construction Approval Order No. DE02AQIS-3588
Modification 1

Packaging Corporation of America
Wallula, WA
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Contents

Background

Packaging Corporation of America (PCA) is a kraft and recycled pulp and paper mill located at 31827 US-12, Wallula, Washington, in Walla Walla County. The Permittee is classified as a major source.

Ecology originally issued this Notice of Construction (NOC) Order to the previous owner of the mill, Boise Cascade Corporation, on May 8, 2002. The original issuance of this NOC approved the installation of a multilevel combustion air system to the No.3 Recovery Furnace, which increased the firing capacity of the No.3 Recovery Furnace. The original issuance of the NOC also approved upgrades to the Hogged Fuel Boiler combustion and pollution control systems, including the removal of a scrubber and installation of a dry electrostatic precipitator. The project also increased steaming capacity at the Hogged Fuel Boiler. Further information regarding Ecology's original review of the original project is available in Appendix B of this fact sheet, which contains the text from the technical support document Ecology created in conjunction with the May 8, 2002 issuance of this order.

Ecology is proposing to modify NOC Order DE02AQIS-3588. PCA submitted a modification request to Ecology via email on September 23, 2022. The fee to allow Ecology to begin work on the modification was processed on September 11, 2023. Ecology considered the application complete on October 11, 2023.

The modification request is administrative in nature. The modifications to NOC Order DE02-AQIS3588 that Ecology is proposing would not approve additional physical changes to emissions units or operations. This order modification does not approve the emission of additional pollutants. The main proposed changes include:

- Removing references to the previous owner of the mill.
- A change in how the Permittee will demonstrate compliance with sulfur dioxide (SO_2) limits at the Hogged Fuel Boiler.
- The removal of requirements from 40 CFR Part 60, or the Washington State Administrative Code (WAC), for which NOC Order DE02-AQIS3588 is not the underlying applicable authority. These requirements are instead in the facility's Air Operating Permit.
- Reduction of minimum stack testing frequency at the Hogged Fuel Boiler and No. 3 Recovery Furnace.
- Other minor administrative changes to provide clarity or make the document compliant with the Americans with Disabilities Act requirements for accessibility.

The following pages of this document describe proposed changes in detail.

Proposed Changes

1. Ownership Change

Since the 2002 issuance of NOC Order DE02-AQIS3588 to Boise Cascade, the facility went through several changes in ownership. In 2008, Boise Cascade sold the facility to an investment firm and the mill became known as Boise Inc. In October 2013, PCA purchased the mill from Boise and shut down the bleaching operations, retaining only the pulping operation. PCA is the permit holder of the Air Operating and Notices of Constructions issued to this facility. To reflect the changes in ownership

that have occurred, Ecology changed all references to Boise in the proposed modified NOC Order DE02-AQIS3588 to PCA or "the Permittee."

2. Demonstrating Compliance with SO_2 Emissions at Hogged Fuel Boiler

Federal regulations require PCA to capture and incinerate low-volume, high concentration (LVHC) non-condensable gases (NCGs), also referred to as LVHCs. PCA uses their Lime Kiln as the primary mode of LVHCs destruction, and the Hogged Fuel Boiler as the backup.

NOC Order DE02-AQIS3588 currently limits emissions of SO_2 at the Hogged Fuel Boiler by limiting the amount of time the Permittee can burn LVHCs in the Hogged Fuel Boiler to 1200 hours per year. Ecology determined the total time that PCA may burn LVHCs based on an emission factor that Boise Cascade used in the original notice of construction application for the project (3.57 lbs of SO_2 per air-dried ton of unbleached pulp produced), and assuming the average pulping rate from the year 2000, which was 1,142 air dried tons of unbleached pulp per day (ADTUBP/D). In practice, because PCA uses the Hogged Fuel Boiler as a back-up incineration method for LVHCs, PCA uses it as an incinerator during pulping slowdowns. PCA provided data with their application to modify NOC Order DE02-AQIS3588 that showed actual pulping rates when they use the Hogged Fuel Boiler for LVHC incineration ranged from 158 – 908 ADTUBP/D in the years of 2017 through 2021.

The proposed modifications would allow PCA to use an emission factor in conjunction with their actual pulping rates, rather than an assumed pulping rate, to show compliance with the annual SO_2 limit of 102 tons/year from burning LVHCs in the Hogged Fuel Boiler. Ecology has also added a requirement in Appendix A for PCA to collect data and perform testing to create a site-specific emission factor they will use for the compliance demonstration calculation. PCA will use the original emission factor, which is based on an average value obtained from a study of other mills performed by an industry technical group, until Ecology approves the site-specific emission factor.

Ecology updated the "Parameter" column of Condition 2.3 in the proposed modified NOC Order DE02-AQIS3588 to clarify that the SO_2 limitation is related specifically to the combustion of LVHCs. Ecology replaced the limitation on combustion hours with a reference to calculations in Appendix A used for compliance. Ecology added the section titled "Condition for SO_2 Compliance Determination at the Hogged Fuel Boiler" to Appendix A. This includes an equation for determining compliance. Appendix A also includes a requirement for the Permittee to evaluate whether the site-specific emission factor results in a potential increase in hourly SO2 emissions between the original order and the modified order.

Affected Permit Conditions: Table 2, Condition 2.3 (Previously Condition 2.4 in 2002 issuance), Appendix A (Conditions for SO_2 Compliance Determination at the Hogged Fuel Boiler)

3. Opacity at No.3 Recovery Furnace and Change in Applicable Requirements

To document that No. 3 Recovery Furnace became subject to Subpart Db of Part 60 (New Source Performance Standards or NSPS) after the modifications approved under the 2002 issuance of NOC Order DE02-AQIS3588, Ecology incorporated an opacity limitation from 40 Code of Federal Regulations (CFR) Part 60, Subpart Db into the requirements for No. 3 Recovery Furnace, under Table 1, Condition 1.2. The opacity monitoring under Condition 1.2 is part of compliance with the particulate matter (PM) standard under Subpart Db.

In 2012, EPA amended of the applicability section in Subpart Db which clarified that recovery furnaces are not subject to the PM standards in Subpart Db. 40 CFR 60.40b(l) states that affected facilities that meet the applicability of both Subparts Db and BB are subject to the SO_2 and nitrogen oxides (NO_x) standards under Subpart Db and the PM standards under Subpart BB. Because No. 3 Recovery Furnace meets the applicability for both Subpart BB and Db, No. 3 Recovery Furnace is only subject to Subpart BB PM standards.

However, because Ecology incorporated the limit into NOC Order DE02-AQIS3588, Ecology must evaluate a potential increase in emissions before Ecology could propose lifting this limitation. Therefore, Ecology has retained the PM limit which originated from Subpart Db in the proposed modified order. However, Ecology has changed the "applicable requirement" to identify the order itself, rather than Subpart Db.

Ecology added the following under the "Limit and Averaging Period" column of Table 1 for Condition No 1.2 of the draft modified NOC Order DE02-AQIS3588: "except for one 6-minute period per hour of not more than 27 percent opacity." This language was part of NSPS Subpart Db when NOC Order DE02-AQIS3588 was originally issued but was erroneously missing from NOC Order DE02-AQIS3588. Because this language was part of NSPS Subpart Db when NOC Order DE02-AQIS3588 was originally issued, this is not a relaxation or increase in limits with which PCA must comply.

The permit condition also previously contained a statement that EPA Method 9 is the reference test method. Ecology has removed this statement in the proposed modification of NOC Order DE02-AQIS3588. The reference to EPA Method 9 made it unclear how the Permittee is required to determine compliance. The condition requires the Permittee to use a Continuous Opacity Monitoring System (COMS) and does not require the Permittee to perform an EPA Method 9. However, should COMS not be functioning properly, Ecology may use any credible evidence or other information to determine if the source is in compliance (40 C.F.R. 52.12), including an EPA Method 9. Ecology also generally has the authority to require source testing under WAC 173-400-105(4).

Affected Permit Condition: Table 1, Condition 1.2

4. Removal of Requirements with Underlying Applicable Authority 40 CFR Part 60 or WAC 173-400

The original issuance of NOC 02-AQIS3588 included requirements under Table 1, Condition 1.3 and 1.4 which have an underlying applicable requirement of 40 CFR. Part 60. The original issuance of NOC 02-AQIS3588 included a requirement under Table 2, Condition 2.3 (as labelled in original issuance) which has an underlying applicable requirement of WAC 173-400.

Ecology erroneously included the requirements described above in NOC Order DE02-AQIS3588. Ecology has removed the requirements described from the draft proposed NOC Order DE02-AQIS3588, but the requirements are still applicable to PCA. These requirements are specified in PCA's Air Operating Permit (AOP). Generally, NOC permits should only include requirements for which the NOC itself is the underlying applicable authority. Because these requirements are still applicable to PCA and included in their AOP, this does not constitute a relaxation or increase in limits with which PCA must comply.

The requirements under Condition 1.3 in the 2002 issuance of NOC Order DE02-AQIS3588 are included as Condition B.2.a of PCA's AOP. The requirements under Condition 1.4 in the 2002 issuance of NOC Order DE02-AQIS3588 are included as Condition B.4 of PCA's AOP. The requirement under Condition 2.3 in the 2002 issuance of NOC 02-AQIS3588 is included as Condition F.5 of PCA's AOP.

Removed Permit Condition: Table 1, Condition 1.3; Table 1, Condition 1.4; Table 2, Condition 2.3

5. Reduction in Monitoring Frequency for Stack Testing at Hogged Fuel Boiler and No.3 Recovery Boiler

Condition 1.1 of the original issuance of NOC Order DE02-AQIS3588 included a reference to footnote no.3 of Table 1. Ecology has removed this footnote in the proposed modification of NOC Order DE02-AQIS3588. The footnote previously contained the following requirements regarding stack testing frequency at the No.3 Recovery Furnace: *If monitored emissions are equal to or less than 75% of the emission limitation for any six consecutive months, emissions will be monitored by one 1-hour test per quarter and reported quarterly. The permittee shall monitor emissions within 105 days between two consecutive quarterly tests. If monitored emissions are greater than 75% of the emission limitation in any of the six most recent tests, the monitoring and reporting frequency will be as stated in the table.*

Table 2, Condition 2.1 of the original issuance of NOC Order DE02-AQIS3588 required quarterly stack testing at the Hogged Fuel Boiler. Ecology has removed this stack testing frequency in the proposed modification of NOC Order DE02-AQIS3588.

Ecology has instead incorporated the requirement for PCA to conduct a stack test at least annually in each condition. Ecology may require more frequent stack testing via the AOP. This will allow Ecology to maintain consistent requirements regarding stack test frequency across all emission units, if appropriate. PCA submitted recent stack test results from the past three years showing that they operate well below the applicable limits at the No. 3 Recovery Furnace and Hogged Fuel Boiler and that more frequent stack testing is not required to demonstrate compliance.

Affected Permit Condition: Table 1, Condition 1.1; Table 2, Condition 2.1

6. Other Minor Changes

a. Table 1 and Table 2 previously contained a reference to a footnote that stated, "Monitoring is only required with the emission unit is operating". Ecology has moved this requirement to the text above each table for clarity in the proposed modification of NOC Order DE02-AQIS3588.

b. The NOC previously included the following language for both the No.3 Recovery Boiler and Hogged Fuel Boiler: "A 180-day testing and break-in period is allowed, after any part or portion of this project becomes operational, to make any changes or adjustments required to comply with applicable rules and regulations pertaining to air quality and conditions of operation imposed herein." This language has been removed as the Permittee has installed the project and has been operating the equipment for more than 180 days.

c. Table 1, Condition 1.1 previously required EPA Method 5 testing to consist of one 1-hour test. Ecology revised the condition to require three 1-hour tests.

d. Table 1, Condition 1.1 previously contained a reference to footnote no.2 to the table. Footnote no.2 previously read: "PM10 emission limits satisfy the NSPS requirement of 0.044

grains per dry standard cubic feet in 40 CFR 52.21(j)." Ecology has removed this footnote in its entirety. It is best practice to only include requirements in a NOC for which the NOC is the applicable underlying authority. The NSPS limit stated is still applicable to PCA and is in Condition B.1.b of their AOP.

e. Table 1, Condition 1.2 previously included the statement "EPA Method 9 is the reference test method". Ecology has removed this statement as the NOC requires the Permittee to demonstrate compliance with the condition using a continuous opacity meter.

f. In the 2002 issuance of NOC Order DE02-AQIS3588, Table 1, Condition 1.1 contained a footnote that stated "PCA shall record levels of precipitator voltage and current during particulate compliance source testing for informational purposes only". For clarity, Ecology has removed the footnote and placed the text in the "Monitoring and Reporting" section of Table 1, Condition 1.1 of the proposed modification of NOC Order DE02-AQIS3588.

g. Ecology added a reference to calculation methods in Appendix A that PCA must use to demonstrate compliance with Table 2, Condition 2.2 to that condition in the proposed modification of NOC Order DE02-AQIS3588.

h. The 2002 issuance of NOC Order DE02-AQIS3588 did not have an applicable requirement listed for Table 2, Condition 2.4 (as labelled in proposed modification of NOC Order DE02-AQIS3588 – this condition is labelled Condition 2.5 in the 2002 issuance). Ecology added "NOC Order DE02-AQIS3588" as the applicable requirement.

i. The 2002 issuance of NOC Order DE02-AQIS3588 noted that the SO_2 limit under Condition 2.3 (as labelled in the proposed modification of NOC Order DE02-AQIS3588 – this condition is labelled Condition 2.4 in the 2002 issuance) is a "state BACT limit" in the right most column of Table 2. Ecology has removed the word "state". The term "state BACT limit" could incorrectly imply that the limit is a state-only limit and not federally enforceable.

j. Table 2 previously contained a footnote no.2, referenced by Condition 2.2 The footnote stated: "the approval condition listed in this permit supersedes any existing conditions in the previous permit". Ecology has removed this statement from the proposed modification of NOC Order DE02-AQIS3588. Ecology cannot use a NOC permit to make previously established limits inapplicable or streamline previous requirements.

k. Table 2 previously contained a footnote that said, "visual emissions observation is defined according to the Glossary of Terms at the end of this order". Ecology has removed this footnote in the proposed modification of NOC Order DE02-AQIS3588, as it no longer contains a visible emissions requirement in Table 2.

l. Condition 11 in the 2002 issuance of NOC Order DE02-AQIS3588 stated that the conditions in the NOC shall "supersede any overlapping conditions listed in previous permits". It stated that Conditions 2.1, 2.2, 2.4, and 2.5 superseded PM10 and SO_2 conditions in PSD-X-77-04. It also stated that Condition I.F.4 of the AOP is rescinded as the result of Hogged Fuel Boiler control technology replacement. Ecology has removed this condition from the modification of NOC Order DE02-AQIS3588. Ecology cannot use an NOC to modify or void conditions in previously issued permits.

m. Unnecessary definitions in Appendix B of the order have been removed. Terms removed are: “annual average”, “calendar year average”, “corrective action”, “visual emissions observation”, and “30 day rolling average”.

SEPA Compliance (State Environmental Policy Act)

The project complies with applicable SEPA requirements. PCA submitted a signed SEPA checklist evaluating potential impacts from the proposed modifications to NOC Order DE02-AQIS3588 dated September 12, 2024. Ecology issued a Determination of Nonsignificance (DNS) for this project and will hold a comment period for the determination concurrently with the comment period for the proposed modification of NOC Order DE02-AQIS3588.

This modification does not change the scope of the original project and does not allow for increases to the emissions from the respective emissions units.

Appendix A – Response to Comments

Ecology will update this section following the public comment period.

Appendix B – Text of Original Fact Sheet

The below text is from the fact sheet (or technical support document) that was published with the first issuance of Order DE 02-3588, issued on May 8, 2002. Minor formatting changes have been incorporated for accessibility.

1. Introduction

The Nonattainment and NSR Process

The Nonattainment New Source Review (NSR) procedure, as established in Washington Administrative Code (WAC) 173-400-112, is adopted from the federal procedures of Title 40, Code of the Federal Regulations, Part 81.348. Nonattainment NSR is required under state and federal law if a new or modified air pollution source is expected to have an emissions increase of a nonattainment pollutant within an area that is not in attainment for that particular pollutant.

The objective of the nonattainment NSR program is to prevent significant adverse environmental impacts within the nonattainment area from emissions into the atmosphere by a proposed new or modified source. The nonattainment rules require that an applicant utilize Lowest Achievable Emission Rate (LAER) controls for the particular nonattainment pollutants which are expected to increase as a result of the project.

In addition, the owner or operator of the source must submit a Notice of Construction (NOC) application to the appropriate agency, in this case the Washington Department of Ecology (Ecology). Ecology reviews the NOC to see that it meets the following criteria: (1) the project will not cause or contribute to the violation of any ambient standard; (2) it will not violate any applicable emission standard; (3) if applicable, the project will use best available control technology (BACT).

The draft approval that is the subject of this action addresses pollutants for which the area is not in attainment. Those pollutants for which the area is in attainment are the subject of a separate and concurrent approval.

The draft approval and this fact sheet are released as part of the 30-day public comment period; Ecology may hold a public hearing if it determines one is necessary. Any comments will be considered and may result in changes that will be incorporated into the final permit.

Mill Background

Boise Cascade's (Boise) kraft mill produces uncoated fine papers, corrugating medium, and bleached kraft market pulp. The mill uses continuous Kamyr and M&D (manufacturer's name) digesters for kraft pulping followed by a five-stage bleaching process. The bleached pulp is used onsite to manufacture fine paper and market pulp. Additionally, neutral sodium sulfite semichemical (NSSC) softwood unbleached pulp is produced in an American Defibrator digester to supply pulp for the onsite manufacture of corrugating medium.

Kraft pulp is manufactured by cooking wood chips with "white liquor" (a solution of sodium hydroxide and sodium sulfide) in the kraft digesters. The white liquor dissolves the lignin and other organics in the wood. This process produces a mixture of weak black liquor and pulp. The black liquor is washed from the pulp on the brown stock vacuum washers, dewatered, and

concentrated in evaporators. The resulting thickened black liquor is combusted in the recovery furnace generating a molten smelt of sodium carbonate and sodium sulfide. The molten smelt is dissolved in a weak wash and regenerated with lime so that the sodium carbonate is converted to sodium hydroxide as white liquor for cooking wood chips in the kraft Kamyr and M&D digester. The spent lime is regenerated in a lime kiln and recycled to produce more white liquor.

The steam generated by the chemical recovery furnaces is supplemented by two multifuel-fired power boilers capable of burning natural gas or oil and one multifuel-fired power boiler capable of firing natural gas and/or hogged wood waste.

2. The Project

Boise plans to perform major maintenance on the No. 3 Recovery Furnace. This will include replacing the economizer, boiler generating bank, superheater, and selected portions of the boiler walls. Boise also plans to upgrade the combustion air system on the No. 3 Recovery Furnace at its Wallula, Washington paper mill. These changes will preserve the furnace's mechanical integrity, allow for continued safe operation, and provide additional furnace capacity.

Boise also plans improvements to the Hog Fuel Boiler's pollution control systems, including upgrading the boiler's combustion air and fuel supply systems and replacing an existing post-combustion wet scrubber with a new, more efficient particulate control device.

These projects will also enhance pollution control efficiency at the Wallula facility.

In order to increase chemical recovery capacity, Boise will add a multilevel combustion air system to the No. 3 Recovery Furnace. The addition of multilevel combustion air equipment to the recovery furnace is expected to increase the firing capacity of the No. 3 Recovery Furnace to 3.4 million pounds per day of black liquor solids (BLS) on an as-fired basis, from the current firing capacity of 2.9 million pounds per day on an as-fired basis. As the result of the capacity increase of the No. 3 Recovery Furnace, the No. 1 Power Boiler and No. 2 Power Boiler are required to increase production by a combined 36,000 lb/hour of steam. The No. l Power Boiler and No. 2 Power Boiler are expected to increase steam production by 16,000 lb/hour and 20,000 lb/hr, respectively.

Boise may modify the fuel delivery and combustion air system of the No. 3 Recovery Furnace after its initial start-up for performance optimization. The fuel delivery and combustion air system optimization will allow Boise to operate the No. 3 Recovery Furnace most effectively. The modifications include but are not limited to relocation of liquor firing guns and air ports of the combustion air system. If Boise finds that modifications for performance optimization are needed, Boise will notify Ecology no later than 90 days after the initial start-up. Boise will submit an optimization plan no later than 180 days after the initial optimization notification. After the performance optimization, Boise will notify Ecology at least 30 days in advance of the start up of the optimized No. 3 Recovery Furnace.

The Hog Fuel Boiler combustion and pollution control systems will also be upgraded. The Hog Fuel Boiler is capable of firing natural gas, wood waste, and non-condensable gases (NCGs). Under current operations and configuration, wood waste comprises approximately 60% of the heat input to the unit, while natural gas makes up the remaining 40%. The steaming capacity to the furnace will be increased 17%. As a result of this project, Boise plans to fire wood waste to make up approximately

90 to 100% of the unit's heat input. Boise also plans to limit the SO2 emissions resulting from NCG combustion to 102 tpy at the Hog Fuel Boiler. The proposed physical modifications at the Hog Fuel Boiler include the installation of overfire air and the replacement of the existing scrubber with a new dry Electrostatic Precipitator. Both of these technology options will enhance the energy efficiency of the unit and will have a net environmental benefit.

Similar to the No. 3 Recovery Furnace optimization, Boise may also perform modifications to the fuel delivery and combustion air systems of the Hog Fuel Boiler after the initial start-up of the unit. The modifications include but are not limited to modifications to overfire air, underfire air, auger, and modulating air systems. If Boise finds that modifications for performance optimization are needed, Boise will notify Ecology no later than 180 days after the initial start-up of the Hog Fuel Boiler. Boise will submit an optimization plan no later than 180 days after the initial optimization notification. After the performance optimization, Boise will notify Ecology at least 30 days in advance of the start up of the optimized Hog Fuel Boiler.

Finally, Boise plans to make process and environmental improvements in its chemical recovery area, including changes at the slaker and evaporators. Boise may replace the slaker with a new and more effective unit, which would result in a reduction in emissions. Since neither the slaker nor the evaporators will cause any emission increases larger than the thresholds listed in Washington Administrative Code (WAC) 173-400-110(5), these changes are not subject to New Source Review (NSR) requirements.

3. Project Emissions

Air permitting regulatory requirements that apply to the proposed project are based on the net changes in emissions from the various modified units (No. 3 Recovery Furnace and Hog Fuel Boiler) as well as associated units (No. 3 Smelt Dissolving Tank, Lime Kiln, bleach plant, and pulping/washing operations). For the modified units, the changes in emissions were calculated using maximum allowable emissions after modification minus the average of the actual emissions from 1999 and 2000.

To offset project related increases in PM10, Boise has reduced PM10 emissions by 385 tons in recent years through the planting of several cottonwood plantations. Ecology granted Boise Emission Reduction Credits (ERCs) in 1993 for these PM10 emission reductions. The proposed project will have an overall emission increase of 189 tpy, which is less than the PM10 emission reduction. A positive net air quality benefit is demonstrated.

Resulting emission changes are included in Table 1.

Table 1. Nonattainment Pollutant Emissions Analysis

Pollutant	Past Actual Emissions (tpy)[a]	Future Potential Emissions (tpy)[b]	Emissions Increases (tpy)	ERC Utilized (tpy)	Net Change Including ERC (tpy)
PM_{10}	169	358	189	189	0

a The emissions listed include the PM10 emissions from the modified and the affected units. Due to non-representative operation in 1999, Hog Fuel Boiler PM10 past actual emissions are based upon

1998 and 2000 reported emissions, PM10 emissions for all other considered sources, past actual PM10 emissions are based upon 1999 and 2000 reported emissions.

The future potential emissions of modified units are calculated as follows: For the No. 3 Recovery Furnace (RF3), the future potential PM10 is based upon LAER. No change in PM10 emissions will result for the Hog Fuel Boiler.

As can be seen in Table 1, no increase in PM10 emissions is realized with the use of ERCs from the cottonwood plantation.

New Source Performance Standards (NSPS) Applicability

A physical or operational change to an affected facility that results in an increase in short-term potential emissions of a pollutant regulated by New Source Performance Standards (NSPS) is defined by 40 CPR 60.14 as a NSPS modification. The increase in emissions is based on the difference between potential hourly emissions of the source after the modification and potential hourly emissions of the source prior to the modification. Potentially applicable NSPS are considered below.

No. 3 Recovery Furnace

Since the No. 3 Recovery Furnace will be modified as a result of this project, the unit will become subject to NSPS Subparts Db and BB of 40 CFR, Part 60 (40 CFR 60).

Subparts Db and D- Fractional Use of Fossil Fuel Capacity

Subpart Db of 40 CFR 60 applies to steam generating units that have a heat input capacity of greater than 100 million British thermal units per hour (MMBtu/hr) and that have commenced construction, modification, or reconstruction after June 19, 1984. The No. 3 Recovery Furnace is a steam generating furnace with a nominal heat input capacity of 850 MMBtu/hr. Therefore, the proposed modifications will subject the furnace to NSPS in Subpart Db of 40 CPR Part 60.

However, the furnace will not be subject to emission standards for particulate matter under Subpart Db, based on the fuels to be fired in and the control technologies used on the No. 3 Recovery Furnace. Emissions from the furnace will, however, be subject to a limit of 20 percent opacity when firing fuel oil. The furnace will not be subject to these opacity requirements when firing 100 percent black liquor solids.

NSPS Subpart Db supersedes Subpart D. The requirements in Subpart D therefore do not apply to the No. 3 Recovery Furnace.

Subpart BB- Recovery Furnace Emission Limits on BLS

The modified No. 3 Recovery Furnace will also become subject to the applicable requirements stated in Subpart BB of 40 CFR 60. Of the total solids burned in the No. 3 Recovery Furnace, approximately 5 percent by weight of those solids are supplied by the NSSC process, which classifies the No. 3 Recovery Furnace as a straight kraft recovery furnace by 40 CFR 60.281(i). Subpart BB limits total reduced sulfur (TRS) emissions from a straight kraft recovery furnace to 5 parts per million by volume on a dry basis (ppmvd), corrected to 8 percent oxygen

(O2). In addition, Subpart BB of 40 CFR 60 limits particulate matter emissions from all recovery furnaces to 0.044 grains per dry standard cubic foot (dscf) corrected to 8 percent O2, and 35 percent opacity.

Boise will also be required to operate and maintain continuous monitoring systems for TRS, oxygen, and opacity on the No. 3 Recovery Furnace as per 40 CFR 60.284. The monitoring data need be collected and concentrations rep01ted following the guidance provided in Subpart BB of 40 CFR 60 and by the Washington Department of Ecology.

Hog Fuel Boiler

Since the Hog Fuel Boiler will be modified as a result of this project, the unit will become subject to elements of NSPS Subparts Db and D.

Subpart Db

Subpart Db of 40 CFR 60, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, applies to steam generating units that have a heat input capacity greater than I00 million British thermal units per hour (MMBtu/hr) and that have commenced construction, modification, or reconstruction after June 19, 1984. Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for which Construction is Commenced After August 17, 1971, applies to steam generating units that have a heat input capacity greater than 250 MMBtu/hr and that have commenced construction, modification, or reconstruction after August 17, 1971. Subpart Db supersedes Subpart D; therefore, if Subpart Db applies for a pollutant, then Subpart D does not apply.

The Hog Fuel Boiler must meet the emission standards for those pollutants whose short-tern emissions will increase as a result of the project and for which there is an applicable emission standard in either NSPS Subpart D or Db.

NSPS Subpart Db stipulates emission standards for PM emissions from wood waste fired boilers that have greater than 100 MMBtu/hr heat input. However, PM emissions will not increase as a result of the proposed changes to the Hog Fuel Boiler and the unit will not experience an increase in hourly potential emissions. Therefore, the proposed changes to the Hog Fuel Boiler are not considered a modification under 40 CFR 60.14, and PM will not be subject to the NSPS standards set forth in NSPS Subpart Db.

Subpart D

NSPS Subpart D stipulates emission standards for PM, NOx, and SO2 from fossil fuel and wood residue fired boilers that have greater than 250 MMBtu/hr heat input. The Hog Fuel Boiler burns natural gas and wood waste, and does not burn fossil fuel regulated under Subpart D. Therefore, no NSPS Subpart D emission limit is applicable to the Hog Fuel Boiler.

LAER and RACT Applicability

The modifications at the Wallula mill trigger nonattainment NSR permitting requirements for PM10. A LAER analysis, as required for modified units experiencing a significant increase of a nonattainment pollutant, was performed for the No. 3 Recovery Furnace. LAER is defined by regulation as either the most stringent emission limitation contained in the State Implementation Plan or achieved in practice. The LAER analysis was conducted for each new or modified unit that is expected to have any PM10 emission increase. The No. 3 Recovery Furnace is the only unit that is subject to LAER review. It was determined that the No. 3 Recovery Furnace can meet LAER limit with the existing Electrostatic Precipitator (ESP) and good operational practices.

State RACT requirements are addressed for the Hog Fuel Boiler, as described below.

No. 3 Recovery Furnace

LAER for PM10 from kraft recovery furnaces is documented in the RACT/BACT/LAER Clearinghouse (RBLC) database and is determined for this action to be 0.021 gr/dscf corrected to 8 percent oxygen. The Wallula facility currently controls PM10 emissions from the No. 3 Recovery Furnace with an ESP. Thus, Boise will meet the LAER requirement of 0.021 gr/dscf corrected to 8 percent oxygen for PM10 emissions from the No. 3 Recovery Furnace, on an annual average. Boise will also be required to comply with a short-term PM10 emission limitation of 0.027 gr/dscf corrected to 8 percent oxygen for the No. 3 Recovc1y Furnace. This limit represents a 73% reduction in the allowable emissions from the No. 3 Recovery Furnace.

Hog Fuel Boiler

The proposed changes to the Hog Fuel Boiler will result in no increase in PM10 emissions. Consequently, the unit will not be subject to LAER. A modified Reasonably Available Control Technology (RACT) analysis was performed for the Hog Fuel Boiler due to substantial alteration of the control device per WAC 173-400-114. RACT will be achieved by the replacement of the existing wet scrubber with a dry ESP, resulting in a 35% reduction in the emissions concentration limit, as well as a reduction in the annual mass emissions limit.

Boise may bypass the ESP when firing natural gas exclusively. Based on the PM10 emissions estimate submitted by Boise, Ecology concludes that the Hog Fuel Boiler will emit less PM10 emissions when burning exclusively natural gas without the ESP than it would emit when combusting hog fuel, and with the ESP in service. Boise will monitor and record the bypass valve position at all times to ensure compliance with the permit condition.

MACT II Applicability

40 CFR 63 Subpart MM (MACT 11) applies to new and existing chemical recovery combustion sources at Kraft pulp mills. Chemical recovery combustion sources include recovery furnaces, lime kilns, and smelt dissolving tanks. Because no chemical recovery combustion sources have been constructed or reconstructed at the Wallula mill since March 13, 2001, all the chemical recovery combustion sources at the Wallula mill are considered existing sources under MACT II.

Similar to NSPS, this PSD project does not change the existing status of any of the chemical recovery combustion sources. Existing sources of pulp and paper facilities must be in compliance with MACT II by March 13, 2004. This Order does not address any MACT II limits. A separate regulatory order addressing MACT II requirements will be issued by Ecology at a later date.

4. Nonattainment Area Analysis

The requirements for new or modified sources located in nonattainment area are listed in WAC 173-400-112. The Wallula mill is located in a nonattainment area for PM10. The proposed. modifications at the Wallula mill, when not considering the surrendered ERCs, will result in an overall PM10 emissions increase. Therefore, Boise must comply with the requirements set forth in WAC 173-400-112.

All the new or modified sources that will have an emission increase of the pollutant designated as nonattainment shall comply with the following requirements:

- Comply with applicable NSPS, National Emissions Standards for Hazardous Air Pollutants (NESHAP), state emission standards, PSD requirements, WAC 173-460 toxic requirements, and visibility protection review requirements
- At new and modified units, employ BACT for the attainment pollutants and LAER for nonattainment pollutants that will experience an increase as a result of the installation or modification of the units
- The emission increase must be offset by an emission decrease from an existing source which result in a positive net air quality benefit in the nonattainment area
- All major stationary sources in Washington owned by Boise are in compliance with all applicable emission limitations and standards

With exception of the PM10 National Ambient Air Quality Standards (NAAQS), the proposed modifications are or have the potential to be in compliance with all the applicable NSPS, NESHAP, ambient air quality standards, and state emission standards. A BACT/LAER analysis has been performed for the No. 3 Recovery Furnace and a modified RACT analysis has been performed for the Hog Fuel Boiler.

As indicated in Section 3, to offset project related increases in PM10, Boise has reduced PM10 emissions by 385 tons per year or more in recent years through the planting of several cottonwood plantations. The proposed project will have an overall emission increase of 189 tpy, which is less than the PM10 emission reduction of 385 tons. Upon construction of the project, Boise will surrender 189 tpy of emission reduction credits. A positive net air quality benefit is demonstrated by the following:

- The ERCs will offset the maximum potential emissions increases. The emission decreases from the cottonwood plantation represent the minimum expected emissions decreases over a multi-year period, while the increases represent the maximum allowable increases.

- The PM10 emissions from the Wallula mill will have the highest ground level impact under high-wind conditions, which corresponds to the conditions that produce the highest emissions reductions due to the cottonwood plantation.
- The increases in PM10 emissions are at an elevated release point, whereas the cottonwood plantation emissions reductions occur at ground level; thus the reduction in concentrations from cottonwood plantation is greater than the concentration increase from the proposed emissions increases.
- The windbreak as a result of the cottonwood plantation will serve to reduce soil erosion in the vicinity of the plantation.

5. Toxic Air Pollutant Analysis

TAP Best Available Control Technology (T-BACT) is required for control of all toxic air pollutants (TAPs) that will be increased as a result of the project. Ecology uses "acceptable source impact levels (ASILs)" for evaluating ambient concentrations of toxic air pollutants from new sources of TAPs. If emissions modeling predicts that a proposed source will cause ambient concentrations in excess of the ASILs, the source will be required to perform a detailed risk analysis.

The No. 3 Recove1y Furnace and Hog Fuel Boiler are physically modified as a part of this project. The Washington TAP analysis therefore includes the emissions increases from these two units. Since the operation of the No. 3 Smelt Dissolving Tank is closely tied to the operation of the No. 3 Recovery Furnace, its emissions increases are considered due to the capacity increase at the recovery furnace. The other associated, non-modified units at the facility will not experience any physical change or change in the method of operation by the NSPS definition; therefore, these associated units are not considered in the TAP analysis. New Source Review for TAP consists of quantifying TAP emissions increases, performing a T-BACT evaluation, and assessing ambient impacts due to the increases.

As required by WAC 173-460-080, any new or modified source that increases emissions of a TAP must complete an ASIL analysis. As part of the ASIL analysis and in accordance with WAC 173-460-080 (2)(e), each source can compare its emission rate to the Small Quantity Emission Rate (SQER). The SQER analysis revealed that 27 of 72 pollutants have TAP emission rates above the SQER and were required to be evaluated in a dispersion model . The 45 TAPs below the SQER therefore did not require further analysis.

Results of the dispersion modeling revealed that all of the remaining 27 pollutant concentrations were less than the corresponding ASIL and therefore demonstrated compliance with the ASIL analysis.

6. Additional Impacts Analysis

Construction and Growth Related Impacts

Construction of the proposed modifications may result in a temporary increase in emissions. The internal combustion engines on the construction equipment will emit small quantities of PM, CO, SO2, NOx, and VOCs. Ground excavation, demolition, cut and fill operations construction related traffic, and other construction related activities will generate fugitive PM emissions. The mill plans to employ fugitive dust control techniques to minimize fugitive dust beyond the mill site.

The proposed modifications of the No. 3 Recovery Furnace and the Hog Fuel Boiler will not lead to an increase in the number of employees that are required at the Wallula mill. Therefore, no increase in emissions from residential growth or in commuting-related mobile source emissions will be directly related to the operation of the modified recovery furnace and the Hog Fuel Boiler. Boise also does not anticipate that the project will cause any construction or growth related air quality impacts at or around the mill.

Heavy trucks, generators, and other fossil-fueled equipment will be operated during the construction phase of the project. These operations will emit air pollutants, but their emissions and resulting ambient impacts will be short term and will be a small fraction of present levels caused by normal vehicular traffic in the area.

Soil and Vegetation Impacts on Analysis

Air contaminants may be transferred from the atmosphere to the soil by wet deposition, dry deposition, chemical reaction, and absorption (includes plant uptake and assimilation). In its application, Boise evaluated the potential soil impacts resulting from increases in PM10 emissions from the proposed project on the PSD Class I areas located in the vicinity of the Wallula Mill.

7. Air Pollution Control Regulatory Requirements

This project is subject to the following federal regulations:

- New Source Performance Standards, 40 CPR 60, Subpart Db
- New Source Performance Standards, 40 CPR 60, Subpart BB
- New Source Performance Standards, Quality Assurance Procedures, 40 CPR 60, Appendix F
- New Source Performance Standards, Performance Specifications, 40 CPR 60, Appendix B

The source is subject to the following state regulations:

- General Regulations for Air Pollution Sources, 173-400 WAC
- Operating Permit Regulation, 173-401 WAC
- Kraft Pulping Mills, 173-405 WAC
- Controls for New Sources of Toxic Air Pollutants, 173-460 WAC

8. Conclusion

The analyses conducted in this permit consider various changes at Boise Cascade's kraft pulp mill in Wallula, Washington. The changes include combustion system upgrades and major maintenance to the No. 3 Recovery Furnace as well as combustion system upgrades and the replacement of the air pollution control device at the Hog Fuel Boiler.

The existing Electrostatic Precipitator is determined to be LAER for the No. 3 Recovery Furnace. The combustion system upgrade at the Hog Fuel Boiler improves of thermal efficiency of the unit. PM10 emissions from the Hog Fuel Boiler will be reduced after the replacement of the existing scrubber with a new control device. Therefore, LAER is not applicable to this unit. A modified RACT analysis

has been conducted for the Hog Fuel Boiler. The RACT requirements will be satisfied with the installation of the new ESP.

Allowable emissions increases from the modified emissions units, in conjunction with all other applicable emissions increases or reductions (including secondary emissions) will not cause or contribute to air pollution in violation of:

- Any national or state ambient air quality standard;
- Any applicable SIP requirements

Visibility impairment will not be perceptibly increased in any PSD Class I area.

The modifications will cause no noticeable effect on industrial, commercial, or residential growth in the Wallula area.

Ecology finds that the new and modified emission units satisfy all applicable state and federal standards required for the issuance of this permit.

Appendix C – Glossary of Terms to Original Fact Sheet

The below text is from the glossary of terms to the fact sheet (or technical support document) that was published with the first issuance of Order DE 02-3588, issued on May 8, 2002. Minor formatting changes have been incorporated for accessibility.

Best Available Control Technology (BACT). An emission limitation based on the maximum degree of reduction for each pollutant subject to regulation under the Act which would be emitted from any source which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs determines is achievable.

Lowest Achievable Emission Rate (LAER). The most stringent emission limitation contained in the State Implementation Plan or achieved in practice.

New Source Performance Standard (NSPS). Federal regulations established to set standards for new and modified emission sources, which are included in Title 40 of Code of Federal Regulation, Part 60.

New Source Review (NSR). All proposed new or modified sources of air pollutants in Washington State must go through a process known as new source review (NSR) for all minor sources (those sources emitting pollutants· that do not exceed PSD thresholds or for pollutants for which an area is not in attainment). The owner or operator of the source must submit a Notice of Construction (NOC) application to the appropriate agency, in this case the Department of Ecology Industrial Section.

Nonattainment New Source Review (NA SR). New source review procedures established in WAC 173-400-112 to regulate the air pollutants that are designated as nonattainment.

Reasonably Available Control Technology (RACT). The lowest emission limit that a particular source or source category is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility. RACT takes into account the impact of the source upon air quality, the availability of additional controls, the emission reduction to be achieved by additional controls, the impact of additional controls on air quality, and the capital and operating costs of the addition controls.

Prevention of Significant Deterioration (PSD). New source review procedure for major sources, as established in WAC 173-400-141, is adopted from the federal procedures of Title 40, Code of the Federal Regulations, Part 52.21. PSD is required under state and federal law if a new or modified air pollution source meets certain overall size and pollution emission rate criteria.