

PRELIMINARY DETERMINATION

Kronospan, LLC
Facility No. 301-0079

Introduction

On March 7, 2025, Kronospan, LLC, submitted a Prevention of Significant Deterioration (PSD) permit application for the construction of an oriented strand board (OSB) plant which would be located at the site of the current facility in Eastaboga. Four (4) previously permitting natural gas-fired cogeneration engines would be constructed with this project, however, these emissions were accounted for in the previous PSD project. Updated applications were received on July 5, 2025, October 13, 2025, November 25, 2025, February 3, 2026, February 24, 2026, and March 31, 2026. The facility is currently a major source under PSD regulations, a major source under Title V regulations, and a major source under HAP regulations. Air Permit Nos. X076 – X083 would be issued for the Oriented Strand Board Plant pending the resolution of any comments that may be received during the public comment period.

Background

Kronospan, LLC, produces both medium density fiberboard (MDF) and particle board, where wood fiber or sawdust is dried, combined with resin and pressed into a mat specific to the product, which is cooled and trimmed for sale. Kronospan also has flooring lines that apply resonated paper to either MDF or particle board and cut the boards into flooring planks. The resin for the processes (MDF, particle board, flooring) is produced on-site. Kronospan has several combustion sources that provide heat or power in support of these processes, to include thermal oil heaters, cogeneration engines, and emergency engines.

Proposed Project

The proposed OSB plant would be constructed at the Kronospan facility in Eastaboga. Processes would include one (1) log handling process, four (4) flakers and three (3) stranders, three (3) conveyor strand dryers, one (1) gluing/sifting process, one (1) continuous press, dust handling and granulate handling processes, sanding and finishing process, two (2) biomass-fired thermal oil heaters, four (4) natural gas-fired thermal oil heaters, and three (3) emergency generators. Resin would be purchased and stored onsite.

Log Handling and Processing

Incoming logs would be brought in via truck. The logs would be off-loaded, stored, and transferred to one of four (4) loading decks. From the decks the logs would be conveyed to four (4) individual debarkers. Debarked logs from three of the debarkers would be conveyed to one of three (3) stranders. Debarked logs from the fourth debarker would be conveyed to a chipper and then screened and conveyed to the existing stacker/reclaimer. The chipper would be located inside the flaker/strander building. Emissions from this process would be fugitive.

Flakers and Stranders

The debarked logs would be conveyed to three stranders where the logs would be cut into strands 100 to 150 mm long by 10 to 15 mm wide by 0.6 to 0.8 mm thick. The strands would be conveyed to the strand storage bins awaiting processing through the dryers. Emissions from the stranders would be ducted to individual cyclones that discharge into the individual dust collectors that

discharge inside the strander building. Wood chips from the stacker/reclaimer would be conveyed to one of four flakers, where the chips would be reduced to size prior to being stored and conveyed to the flaker storage bins awaiting processing through the dryers. Emissions from the flakers would be vented to individual cyclone/dust collector systems that discharge inside the strander building. Wood waste from the cyclones/dust collectors would be collected through the dust and granulate handling system for use as fuel in the biomass thermal oil heaters.

Dryers

Green wood strands and flakes would be fed from the storage bins to one of three (3) conveyer strand dryers that would operate in parallel. The dryers would be indirectly heated using thermal oil generated by two 204.73 MMBtu/hr (input) wood-fired thermal oil heaters and four (4) 56.20 MMBtu/hr natural gas-fired thermal oil heaters. Each of the three dryers would have sixteen (16) drying zones operating in series. The exhaust from zones 1, 2, 3, and 16 of each dryer would be ducted to a dust collector and then to the combustion zones of the two (2) biomass wood-fired thermal oil heaters. During times when the heaters are not in operation, Kronospan proposes to vent exhaust from the dryers to the MDF Dryer. Dryer exhaust from zones 4-15 of each dryer would be routed to six (6) dust collectors at each dryer. The exhaust from the six dust collectors would be vented to the atmosphere through a common stack for each dryer.

Sifting/Screening

The dried strands/flakes would be conveyed to a sifter/screen to remove fines and to separate the strands by surface area to be weighed before being stored in bins. Emissions from the sifter would be ducted to a dust collector that discharges to the atmosphere. Screening emissions (dust) would be ducted to a cyclofilter and dropped into the OSB Dust Silo. Screening emissions from oversized material (granulate) would be ducted to a cyclofilter and dropped into the OSB Granulate Silo.

Blenders and gluing

The three (3) storage bins would be designated as either surface, core, or fine core layer bins. From the bins the strands and flakes would be conveyed to six (6) blenders (BL1, BL2, BL3, BL4, BL5, and BL6) via weigh belts which would control the MDI/PMDI resin and wax distribution into the blenders. The resin and wax would be metered into the blenders by feeders. The MDI/PMDI resin would be stored in eight (8) liquid resin tanks. Wax would be stored in seven (7) heated tanks. The MDI/PMDI resin and wax used in this process would be delivered to the site by semi-truck or railcar and pumped directly into the storage tanks (top filling). Emissions from the blending operation would be ducted to a dust collector (DCB) that discharges to the atmosphere.

Mat Forming

The blended strands and flakes would be transported to one of two (2) core layer and four (4) surface layer stations with core or surface layer forming heads, which would be equipped with orientation devices. Orientation of the surface layer in the direction of the production would be carried out with the aid of disc orienters, while the core layer would be oriented in the transverse direction by means of fan-type rollers. The discharge from the forming heads onto the moving mat screen would be controlled in accordance with the required surface/core layer weight/volume proportion. Electromagnets after each spreading machine would ensure that any metallic foreign objects contained in the mat would be removed to protect the press plates. Emissions from the mat forming line would be exhausted to a cyclone that exhausts to dust collector which discharges inside the press hall.

Mat Trimming

The continuously formed mat would be cut into desired lengths by a side-trim saw. Waste from the trimming operation would be collected in a reject bin and conveyed back into the process for product reuse. A mat reject system would convey off specification/reject material mat sections to the OSB Boiler Dust Silo from where the material would be used as fuel for the thermal oil heaters. Emissions from the mat trimming operation would be exhausted to a cyclone that exhausts to a dust collector that is vented into the press hall. Wood waste from the cyclones/dust collectors would be collected through the dust and granulate handling system for use as fuel in the biomass thermal oil heaters.

Oriented Strand Board (OSB) press

The formed mats would be fed into a mat pre-heater where the mat would be steamed. After steaming, the mat would enter a continuous press where heat (provided by thermal oil) and pressure would cure the resin and press the mat to the desired thickness. Emissions from the press hall would be vented to a cyclone then through a wet scrubber and exhaust to atmosphere through the dryer #3 emission stack.

Finishing

The board exiting the press would be cut to size using diagonal and cut-to-size saws. Emissions from both cutting operations would be ducted to their respective cyclone and dust collector, then back into the press hall. Off-specification board would be sent to the reject bin for further use. Cut board would be transported to the sanding line and then to one of three (3) tongue and groove lines, as customer needs dictate. Emissions from the sanding operation would be ducted to a dust collector which discharges inside the press hall. Emissions from the tongue and groove lines would be ducted to individual cyclones and dust collector systems which would discharge back into the press hall. Finally, the board would be conveyed to the sealing, stenciling, and strapping areas. Non-HAP, water-based paints would be used in the edge sealing operations. The edge sealing would occur in one of three (3) booths with particulate filters that vent inside the building.

Wood Waste Handling

Granulate waste handling

Bark from the log handling and processing operations would be conveyed to the OSB Boiler Granulate Silo and used as fuel for the biomass thermal oil heaters. Collected wood granulate from the forming operation cyclone, the diagonal saw cyclone, cut-to-size saw cyclone, and tongue and groove cyclones would be conveyed to a cyclofilter and dropped into the OSB Granulate Silo. Some of the collected wood granulate in the OSB Granulate Silo would be conveyed to a cyclofilter and dropped into the Particleboard Flaker Silo. Some granulate from the MDF Granulate Silo would be conveyed to a cyclofilter and dropped into the OSB Boiler Granulate Silo. Some granulate from the Particleboard Core Layer Dry Silo would be conveyed to a cyclofilter and dropped into the OSB Core Layer Silo. Collected wood granulate from granulate screening operations would be conveyed to cyclofilter and dropped into the OSB Granulate Silo.

Dust waste handling

Collected wood dust from the strander dust collectors, flaker cyclofilters, dryer dust collectors, sifter dust collector, gluing/blending dust collector, forming line dust collector, and mat trimming dust collector, diagonal saw dust collector, cut-to-size dust collector, and tongue and groove dust

collectors, sanding dust collector, and granulate screening operations would be conveyed to the respective cyclofilter and dropped into the OSB Dust Silo. Collected wood waste at the OSB Dust Silo (ODS) would be conveyed to a cyclofilter and dropped into the OSB Boiler Dust Silo. Some of the collected wood dust in the OSB Boiler Dust would be conveyed to a cyclofilter and dropped into MDF Dust Silo. Some of the wood dust from the MDF Dust Silo would be conveyed to a cyclofilter and dropped into the OSB Boiler Dust Silo.

Energy Plant

Kronospan proposes to install two (2) 204.73 MMBtu/hr wood waste-fired thermal oil heaters (K7 & K8) to supply heat to the new OSB Plant. Incoming combustion air would be supplied by the exhaust from zones #1, 2, 3, and 16 at each of the three (3) new conveyor strand dryers. Particulate emissions from the heaters would be exhausted to individual multi-clones and then to individual hybrid filter systems, which are a combination dry electrostatic precipitator prior to a baghouse/fabric filter, that would discharge to atmosphere through a common stack (TOH-1) or, if only one of the two biomass heaters is operating, to the MDF Dryer. Nitrogen oxide (NO_x) and hydrochloric acid (HCl) would be controlled by urea injection (selective non-catalytic reduction (SNCR)) and lime injection, respectively. The facility also proposes to install four (4) new 56.20 MMBtu/hr natural gas-fired thermal oil heaters (K9, K10, K11, K12) that would also discharge to atmosphere through TOH-1 or to the MDF Dryer. The thermal oil heaters are proposed to operate according to the following scenarios:

1. Normal Operation - emissions from the wood-fired thermal oil heaters and two (2) of the four (4) natural gas-fired thermal oil heaters would discharge to atmosphere through TOH-1. Only two of the four natural gas-fired thermal heaters would operate when the wood-fired thermal oil heaters are in use.
2. Alternative Operating Scenarios - Venting to MDF Dryer
 - a. Alt. Scenario #1 - existing thermal oil heaters K2, K4, K5, and K6 along with four (4) of the six existing co-generation engines (NGE-1, NGE-2, NGE-3, NGE-4, NGE-5, and NGE-6) can be vented to the MDF dryer. In this scenario, none of the proposed equipment can vent to the MDF dryer
 - b. Alt. Scenario #2 - Zones #1, #2, #3, and #16 from each of the OSB dryers (D1, D2, and D3) along with existing thermal oil heater K4 and proposed natural gas-fired thermal oil heaters K9, K10, K11, and K12 would be vented to the MDF dryer. Proposed biomass thermal oil heaters K7 and K8 would not be in operation.
 - c. Alt. Scenario #3 - Zones #1, #2, #3, and #16 from each of the OSB dryers (D1, D2, and D3) would vent to either K7 or K8. The single biomass thermal oil heater (K7 or K8) and two (2) of the four (4) natural gas thermal oil heaters (K9, K10, K11, and K12) would be vented to the MDF dryer. K7 and K8 thermal oil heater would not be permitted to operate at the same time in this scenario.

Emergency Engines

Kronospan proposes to install three (3) 1220 brake horsepower (bhp) Cummins diesel fired emergency engines to assist in facility operations in the event of emergency situations.

Applicable Regulations

Standards of Performance for New Stationary Sources (NSPS), 40 CFR Part 60

Subpart A, General Provisions

Subpart A establishes requirements for initial notification and performance testing, recordkeeping, monitoring, provides reference methods, and mandates general control device requirements for all other subparts as applicable. All affected sources are subject to the general provisions of Subpart A, unless excluded by the source specific NSPS. Because the thermal oil heaters are subject to Subpart Db or Dc, Subpart A would be applicable.

Subpart Db, Standards of Performance for Industrial-Commercial Institutional Steam Generating Units

Subpart Db applies to steam generating units for which construction commenced after June 19, 1984, and that have a maximum design heat input capacity greater than 100 MMBtu/hr as defined in 40 CFR 60.40b(a). K7 and K8, the 204.73 MMBtu/hr biomass-fired thermal oil heaters (TOH) would be affected sources under this NSPS. As such, each TOH would be subject to a particulate matter standard of 0.030 lb/MMBtu and an opacity standard of 20% (24-hour average). The facility would be required to operate and maintain a continuous opacity monitor (COMS) for each unit and would be required to submit semiannual excess emission reports of opacity. The facility would be required to maintain records of fuel combusted on a daily or monthly basis.

Subpart Dc, Standards of Performance for Small Industrial-Commercial Institutional Steam Generating Units

Subpart Dc applies to steam generating units for which construction commenced after June 9, 1989, and that have a maximum design heat input capacity equal to or less than 100 MMBtu/hr as defined in 40 CFR 60.40c(a). K9, K10, K11 and K12, the 56.2 MMBtu/hr natural gas-fired thermal oil heaters (NGTOH), are affected sources under this NSPS. and to maintain records of fuel usage calculated on a daily or monthly basis (40 CFR §60.48c)

Subpart Kb, Standards of Performance for Volatile Organic Storage Vessels (including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced after July 23, 1984

The proposed resin tanks are not subject to Subpart Kb. Based upon the October 15, 2004, revisions, storage vessels with capacities greater than 151 m³ (39,889 gallons), which store liquids with vapor pressures less than 3.5 kPa (0.508 psia), and all storage vessels with capacities less than 75 m³ (19,812 gallons), are exempted from Subpart Kb. Tank Nos. R1 through R8 are specifically exempted because the tanks are 26,417 gallons, less than the 39,889 gallons regulatory capacity, and the vapor pressure of the products is 0.015 psi, which is less than the 1.5 psi regulatory threshold.

National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR 63

Subpart A, General Provisions

Subpart A establishes general provisions for initial notification and performance testing, recordkeeping, monitoring, provides reference methods, and mandates general control device

requirements for all other subparts as applicable. All affected sources are subject to general provisions of Subpart A, unless specifically excluded by the source specific NESHAP.

Subpart DDDD, National Emission Standards for Hazardous Air Pollutants for Plywood and Composite Wood Products (PCWP MACT)

The PCWP MACT regulates HAP emissions from plywood and composite wood products manufacturing facilities that are major HAP sources. Kronospan's OSB Plant would be a new affected source. The facility's conveyor strand dryers, blenders, formers, press, green end operations, resin preparation, and miscellaneous finishing operations, as well as onsite storage and preparation of raw materials used in the manufacture of PCWP products and onsite wastewater treatment operations, would all be affected sources at the site subject to the PCWP MACT. Compliance would be required upon startup.

For the dryers, Kronospan is proposing to demonstrate compliance by reducing HAP emissions according to 40 CFR §63.2240(b) and one of the options listed in Table 1B of Subpart DDDD. This options are as follows: (1) Reduce emissions of total HAP, measured as a, as THC (as carbon) by 90 percent; or (2) Limit emissions of total HAP, measured as a, THC (as carbon) to 20 ppmvd; or (3) Reduce methanol emissions by 90 percent; or (4) Limit methanol emissions to less than or equal to 1 ppmvd if uncontrolled methanol emissions entering the control device are greater than or equal to 10 ppmvd; or (5) Reduce formaldehyde emissions by 90 percent; or (6) Limit formaldehyde emissions to less than or equal to 1 ppmvd if uncontrolled formaldehyde emissions entering the control device are greater than or equal to 10 ppmvd. Kronospan would be required to establish a minimum firebox temperature during performance testing during which the TOH firebox successfully complies with one of the 6 options. Kronospan would be required to maintain the 3-hour block average firebox temperature of the TOH firebox above that minimum temperature [40 CFR §§63.2240(b) and 63.2271, Table 2 of Subpart DDDD]. The 3-hour block average firebox temperatures must be recorded and the records maintained in a format suitable for inspection for a period of five years [40 CFR §63.2269(a) through (b)]. Kronospan would need to complete an initial compliance demonstrations for the conveyor strand dryers within 180 days of startup.

For the press, Kronospan is proposing to demonstrate compliance by reducing HAP emissions measured as THC to less than 20 ppmvd utilizing a wet scrubber. If approved by EPA, records of the 3-hour block average liquid flow rate of the scrubber and the daily throughput would be required to be maintained. Since Kronospan is proposing the use of a wet scrubber for HAP control, they must submit a wastewater management plan according to 40 CFR §63.2268. The MACT also requires the press hall, including the board cooler, be designed as a "wood products enclosure" as defined in 40 CFR §63.2292, meet the requirements of 204A through 204F of 40 CFR Part 51, Appendix M, or use the alternative tracer gas method stated in Appendix A of 40 CFR Part 63, Subpart DDDD. Kronospan would need to complete an initial compliance demonstration within 180 days of startup on the wood products press and board cooler [40 CFR §63.2267]. Kronospan would also be required to use non-HAP coatings for the sealing operation as defined in 40 CFR §63.2292.

Kronospan would have a general duty to always operate and maintain affected sources, including air pollution control and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by this subpart [40 CFR §63.2250(g)]. Kronospan would also be required to address routine control device maintenance

in accordance with the regulation [40 CFR

The initial notification requirements [40 CFR§63.9(b)] were met by submitting the application prior to construction. A Notification of Compliance Status (NOCS) would be required according to 40 CFR §63.2280 and Table 5. Additionally, Semiannual Compliance Reports (SCRs) would be required according to 40 CFR §63.2281 and Table 9, where applicable.

Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters (Boiler MACT)

The Boiler MACT establishes emission limits, operating limits, work practice standards, testing, monitoring, reporting, and recordkeeping requirements that apply to boilers and process heaters located at major sources of HAP. The thermal oil heaters (K7, K8, K9, K10, K11, and K12) would be affected sources under the Boiler MACT. Per the subpart, K7 and K8 would each be classified as a “stoker/sloped grate/other unit designed to burn wet biomass/bio-based solids” and K9 - K12 would each be classified as a “unit designed to burn gas 1 fuels”. The K7 - K12 are new sources and are subject to initial and annual tune-ups in accordance with 40 CFR §63.7540(a)(10) and Table 3. The initial tune-ups for K7 – K12 would be required to be completed within 13 months of start-up.

K7 and K8 would be required to meet the following emission limits under this subpart: Particulate Matter (PM) :0.013 lb/MMBtu of heat input, Hydrogen Chloride (HCl) – 0.00021 lb/MMBtu of heat input, Mercury (Hg) – 0.0000008 lb/MMBtu of heat input, Carbon Monoxide (CO) – 390 ppm by volume on a dry basis corrected to 3% oxygen (30-day rolling average), and Opacity – less than 10% daily block average [40 CFR 63.7500(a), (f), Table 1, and Table 8] To comply with the PM, HCl, Hg, and CO emission limitations, Kronospan would be required to conduct performance testing according to 40 CFR §63.7515 and §63.7520 within 180 days of startup. Kronospan has proposed installing a CO CEMS to demonstrate continuous compliance with the CO emission standard [40 CFR §63.7540(a)(8)]. Emission monitoring, as required by 40 CFR §63.7540 and 40 CFR 63, Subpart DDDDD Table 8, would include collecting the opacity monitoring system data according to § 63.7525(c) and § 63.7535; reducing the opacity monitoring data to 6-minute averages; maintaining daily block average opacity to less than or equal to 10 percent, and continuously monitor the oxygen content using an oxygen analyzer system according to § 63.7525(a), reducing the data to 30-day rolling averages; and maintain the 30-day rolling average oxygen content at or above the lowest hourly average oxygen level measured during the CO performance test. Kronospan would be required to develop a site-specific monitoring plan for the CEMS and the COMS per 40 CFR §63.7505. Applicable notification, recordkeeping and reporting would be required by 40 CFR §63.7545, §63.7550, §63.7555 and Table 7.

K9 - K12 are not subject to any emissions limits or operational limitations under the Boiler MACT because they burn natural gas only. For these units, Kronospan is required to maintain records according to 40 CFR §63.7555 and submit an annual compliance report, according to 40 CFR §63.7550(b) through (c) and Table 9.

Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)

The RICE MACT establishes emission limits, operating limits, work practice standards, testing, monitoring, reporting, and recordkeeping requirements that apply to reciprocating internal combustion engines located at both major and area sources of HAP. The three proposed emergency generators (Nos. 7, 8 and 9) are categorized as new affected sources under the RICE MACT since they were constructed after June 12, 2006. According to §63.6590(b)(1)(i), any new emergency stationary RICE with a site rating >500 brake Hp located at a major source of HAP emissions does not have to meet the requirements of the RICE MACT or Subpart A (General Provisions) except for submitting an initial notification. However, in the definition of “Emergency stationary RICE” in §63.6675, a source must comply with the operational limitations in §63.6640(f) in order to meet the definition of an emergency RICE. §63.6640(f) limits the operation to emergency situations, 100 hours per year for maintenance checks and readiness testing, and 50 hours per year for non-emergency situations (this operation counts toward the 100 hours allowed for maintenance checks and readiness testing). The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. Kronospan has proposed to limit the operation of the each of the three proposed emergency generators to 500 hours per year.

State Regulations

ADEM Admin. Code r. 335-3-4-.01, “Control of Particulate Emissions: Visible Emissions”

ADEM Admin. Code r. 335-3-4-.01(1) sets forth a visible emissions standard which states that the facility shall not discharge more than one 6-minute average opacity greater than 20% in any 60-minute period from any source of emission. At no time shall any source discharge a 6-minute average opacity of particulate emissions greater than 40%.

ADEM Admin. Code r. 335-3-4-.03, “Fuel Burning Equipment”

The thermal oil heaters (K7 and K8) would be fuel combustion sources and would be subject to particulate matter (as TSP) emission limitation of ADEM Admin. Code r. 335-3-4-.03 (Class II County) since they meet the definition of fuel burning equipment. The limit for these units would be 0.13 lb/MMBtu.

The three emergency engines would be fuel combustion sources; however, they would not be subject to any particulate matter (as TSP) emission limitation of ADEM Admin. Code r. 335-3-4-.03 since they would not meet the definition of fuel burning equipment.

ADEM Admin. Code r. 335-3-4-.04, “Process Industries-General”

The particle board process, which includes chip handling, pre-press/press/post-press activities, would be subject to the particulate matter (as TSP) emission limitations of ADEM Admin. Code r. 335-3-4-.04 for Process Industries-General. The allowable emission rate for each process is calculated using one of the following process weight equations:

$$E = 3.59P^{0.62} \text{ (P < 30 tons per hour)}$$

OR

$$E = 17.31P^{0.16} \text{ (P ≥ 30 tons per hour)}$$

where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

ADEM Admin. Code r. 335-3-5-.01, “Fuel Combustion”

The proposed thermal oil heaters K7 and K8 (biomass) and K9-K12 (natural gas) would meet the definition of fuel combustion sources, therefore, they would be subject to the Department’s sulfur dioxide (SO₂) emission limitation of 4.0 lb/MMBtu of heat input as set forth in ADEM Admin. Code r. 335-3-5-.01(b).

The three emergency engines would be fuel combustion sources; however, they would not be subject to any sulfur dioxide (SO₂) emission limitation of ADEM Admin. Code r. 335-3-5-.01(b) since they would not meet the definition of fuel burning equipment.

ADEM Admin. Code r. 335-3-6-.03, “Loading and Storage of VOC”

The proposed storage tanks for the use in the Blending and Gluing process would not be subject to the loading and storage limitations of ADEM Admin. Code r. 335-3-6-.03 because the MDI/PMDI Resin and Wax are both petroleum derived products having a true vapor pressure of less than 0.015 psi, which is below the 1.5 psia threshold. In addition, the proposed storage tanks are 26,417 gallons, less than the 39,889 gallons regulatory threshold.

Preventative of Significant Deterioration (PSD) Review

The facility is located in an attainment area for all criteria pollutants. The facility is currently a major stationary source with respect to PSD. In order for a major stationary source to be required to undergo PSD review, it would have to undergo a major modification. The definition of a “major modification” is found in ADEM Admin. Code r. 335-3-14-.04(2)(b) and it reads as follows: A Major Modification “shall mean any physical change in or change in the method of operation of a major stationary source that would result in a significant net emission increase of any regulated NSR pollutant.” As seen in Table 1 below, the proposed project will result in a significant net increase of emissions for total PM, PM₁₀, PM_{2.5}, NO_x, CO, and VOC, therefore, a PSD review is required.

Table 1: Emissions Analysis of the Proposed OSB Plant

Pollutant	PSD Significant Emission Rate (TPY)	Proposed Net Emission Increase (TPY)	Significant Source
Particulate Matter (PM)	25	215.00	Y
Particulate Matter <10 _μ (PM ₁₀)	15	220.97	Y
Particulate Matter <2.5 _μ (PM _{2.5})	10	107.96	Y
Sulfur Dioxide (SO ₂)	40	20.33	N
Nitrogen Oxides (NO _x)	40	405.01	Y

Carbon Monoxide (CO)	100	437.31	Y
Volatile Organic Compounds (VOC)	40	765.58	Y
Greenhouse Gases (GHG)(CO _{2e})	75,000	522,300	Y

BACT

During a PSD review, new and modified sources must be assessed for Best Available Control Technology, or BACT, if the emissions increase is significant. BACT is an emission limit based on the maximum pollutant reduction achievable considering energy, economic, and environmental impacts. BACT is determined on a unit by unit, pollutant by pollutant basis. The BACT limit can be no less stringent than any applicable New Source Performance Standard (NSPS), National Emission Standard for Hazardous Air Pollutants (NESHAP), or other applicable standard. There are applicable NSPS regulations for the thermal oil heaters, and emergency engines. There are NESHAP regulations applicable to the oriented strand board processes (40 CFR 63, Subpart DDDD), thermal oil heaters (40 CFR 63, Subpart DDDDD), and emergency engines (40 CFR 63, Subpart ZZZZ).

For this proposed project, BACT must be determined for VOC, PM/PM₁₀/PM_{2.5}, CO, NO_x, and GHG emissions from the proposed processes. Kronospan utilized the “top-down” approach for the BACT analysis. This approach identifies the most stringent or top-level technology and emission limits for the process in question and requires the applicant to provide a basis for elimination of this technology. Elimination may be based on technical feasibility and/or economic considerations. Kronospan presented all of this information for each pollutant requiring a BACT analysis as part of this project. The Department reviewed the listed technologies for each pollutant to ensure that each technology that was rejected due to technical feasibility or economic considerations was justifiable. Each process of the project that will be subject to the PSD review will be discussed below and BACT limitations will be presented for each of the pollutants that are applicable.

The specific processes required to be evaluated for BACT are the biomass thermal oil heaters (2), natural gas-fired thermal oil heaters (4), stranders (3) and flakers (4), sifting/screening, blending and gluing, conveyer strand dryers (3), press hall (to include pre-press, press, and post-press activities), and emergency engines (3). The process emissions for each of these processes are routed to individual process exhaust points. These processes generate NO_x, CO, VOC, particulate (PM, PM₁₀, and PM_{2.5}) and GHG emissions. Please note that the Department determined the chipper and the various dust and granulate handling points to be de minimus sources and did not include them in the BACT evaluation. Although the granulate and dust handling was determined to be de minimus, the Department will require daily visual inspections and annual maintenance on each of the 15 cyclofilters. During the previous PSD project for the Particle Board plant, ten (10) cogeneration engines were assessed for BACT. Six of the ten have been installed. While the remaining four engines will not be considered with this project, due to placement changes their emissions were modeled with this project.

Biomass Thermal Oil Heaters (K7 and K8)

Wood granulate (wet wood, primarily bark) and wood dust will be used as fuel for the biomass heaters, which would be used to heat thermal oil for providing heat to the belt dryers. Emissions from the two (2) biomass heaters would exhaust to the Biomass Thermal Oil Heater stack (TOH-1).

Particulate Matter (PM/PM₁₀/PM_{2.5})

Potential particulate controls for biomass thermal oil heaters and their respective control efficiencies are shown in the table below.

Control Type	Estimated Combined Filterable PM, PM₁₀, PM_{2.5}, and CPM Control Efficiency
Baghouses/Fabric Filters/Dust Collectors	95 to 99.9+%
Dry Electrostatic Precipitators	95 to 99.9%
Hybrid Filters (Electrified Filter/Gravel Bed)	95 to 99.9%
Wet Electrostatic Precipitators	90 to 99.9%
Mechanical Collectors (High-Efficiency Cyclones/Multiclones)53F	80 to 99% high-efficiency single cyclones 80 to 95% multiple cyclones or multiclones
Cyclofilters	80 to 99%
High-Efficiency Venturi Scrubbers	70 to 90%
Building Enclosures	90%55F
Good Design/Operation	Varies
Good Combustion Practices and Maintenance	Varies

For the biomass heaters, a baghouse/fabric filter alone is determined to be technically infeasible because efficiency is limited to dry exhaust streams with temperatures less than 1,000°F. The biomass heaters are expected to have an exhaust temperature of approximately 338°F, and the exhaust will likely contain a significant amount of moisture. This moisture in combination with condensable PM can cause “blinding” of the fabric filter, which will likely result in lower airflows, greater pressure drops, and reduced control efficiencies. Therefore, a standalone baghouse is not considered technically feasible for the wood-fired biomass heaters exhaust.

However, Kronospan proposes to install Hybrid Filters (electrified field/gravel beds), which are a combination dry electrostatic precipitator prior to a baghouse/fabric filter, which should aid in eliminating the problems with “blinding” as described above. Therefore, a baghouse/fabric filter would be considered technically feasible for the biomass heaters when used after another control device.

Kronospan has proposed the use of Hybrid Filters, or “Hybrid ESP Sock Filtering Units” (electrified filter/gravel beds), to decrease particulate emissions from the Biomass Thermal Oil

Heaters. Kronospan also proposes good design/operation, good combustion practices and the following BACT limits for each biomass heater as follows: filterable PM - 2.66 lb/hr and 0.013 lb/MMBtu; filterable PM₁₀ – 6.14 lb/hr and 0.03 lb/MMBtu; filterable PM_{2.5} – 5.87 lb/hr and 0.0278 lb/MMBtu;; and Opacity - 10%. Kronospan would demonstrate compliance with these PM BACT limits through annual stack testing. Kronospan would indicate compliance with the PM BACT limits through parametric monitoring of the minimum secondary voltage of the electrostatic precipitator, as set during the annual compliance testing. Kronospan would also be required to install a continuous opacity monitor. Records of the 30-day rolling average secondary voltage, along with records of daily block average of the opacity, would be required to be maintained on file available for inspection for at least five years.

Volatile Organic Compounds (VOC)

Kronospan's proposed design for thermal oil heaters would incorporate the use of the heaters' fireboxes as the VOC control device for the exhaust emissions from Zones 1-3 and 16 of the conveyor strand dryers 1, 2, and 3. By incorporating this exhaust from the conveyor strand dryers, Kronospan is contributing to the total VOC generated by the TOH process. The use of the fireboxes as emission controls for the dryers enables Kronospan to ensure compliance with 40 CFR 63, Subpart DDDD (PCWP MACT).

Controls for biomass TOH, potentially include regenerative thermal oxidizers, regenerative catalytic oxidizers, wet scrubbers (including packed beds, spray towers), biofilters, good design/operation, and good combustion practices and maintenance. Regenerative thermal and catalytic oxidizers were determined to be cost prohibitive due to the high cost per ton removed (see chart below).

Control device	Annualized Cost	Estimated VOC Reduction (tpy)	Cost per Ton Removed
Regenerative Thermal Oxidizer (95 – 99%)	\$4,164,871	62.91	\$66,202
Recuperative Thermal Oxidizer (98 – 99.99%)	\$9,305,299	64.90-66.21	\$143,384
Direct Flame Thermal Oxidizer (Afterburner) (98 – 99.99%)	Not Available	64.90-66.21	Not Available
Catalytic Oxidizer (Fixed Bed) (90 – 99%)	\$5,949,941	59.60-65.56	\$99,831

The use of wet scrubbers is not widely used as controls on biomass TOH because their control efficiencies vary widely from 55% - 90%, so wet scrubbers, for this application, would not be technically feasible. Biofilters are typically used on OSB press halls because the exhaust temperatures do not exceed the limitations of the microbes used in the biofilter itself, and since biomass TOH exhaust temperatures exceed the temperature limits of biofilters, they would be

considered technically infeasible. The remaining control options for the biomass heaters are good design/operation and good combustion practices and maintenance.

Good design/operation, along with good combustion practices and maintenance, and good operating practices have been proposed as VOC BACT for the biomass heaters, and with BACT limits for both biomass heaters including combustion air from zones 1, 2, 3, and 16 from three (3) belt dryers as follows: VOC: 7.32 lb/hr and 0.036 lb/MMBtu for each biomass heater (K7 and K8). Kronospan would demonstrate compliance with these VOC BACT limits through annual stack testing. Kronospan would indicate compliance with the VOC BACT limits through combustion chamber temperature to be established during compliance testing. Records of combustion chamber temperature would be required to be maintained on file available for inspection for at least five years.

Nitrogen Oxides (NO_x)

The process of combustion to generate heat for work inherently produces additional pollutants such as nitrogen oxides. The biomass TOHs that Kronospan has proposed to install will require NO_x controls due to the potential amount of NO_x to be produced while the process is operating. Potential controls for NO_x as well as the respective control efficiencies are listed below:

Control Type	Estimated NO_x Control Efficiency
Selective Catalytic Reduction	70 to 95%
Selective Non-Catalytic Reduction	40 to 75%
Non-Selective Catalytic Reduction	90 to 98%
Water/Steam Injection (WSI)	60 to 80%
Low-NO _x Burners/Ultra Low-NO _x Burners	80 to 90%
Good Combustion Practices and Maintenance	Varies

Kronospan is proposing to use TOH's fireboxes as control devices for the conveyor strand dryers. Because of this, the fireboxes would potentially be required to operate at higher temperatures. The use of SCR as a potential control for NO_x is technically feasible, however, due to associated high PM loading and high ash alkalinity, ammonia slip could occur, reducing the effectiveness of SCR. NSCR control technology (which is typically used on the exhausts of automobiles and rich-burn combustion environments in which the exhaust contains minimal oxygen concentrations) has not been used as a control for biomass boilers at other OSB plants and will be assumed to be technically infeasible. SNCR has been determined to be technically infeasible for some biomass burning units, however, SNCR controls have been established as BACT at a few facilities with biomass boilers and will be considered technically feasible for this analysis. The remaining control technologies listed in the RBLC are low- NO_x burners/ultra-low NO_x burners, good design/operation, as well as good combustion practices and maintenance.

SNCR controls achieve the highest control efficiency of the technologies available for NO_x control on the biomass heaters and have been used effectively at facilities. Therefore, Kronospan proposes to equip the biomass heaters with SNCR. This, along with good design/operation and good combustion practices and maintenance are proposed as NO_x BACT for the biomass heaters, with proposed NO_x BACT emission limits for each biomass heater, including combustion air from zones 1, 2, 3, and 16 from three (3) belt dryers, of 36.65 lb/hr and 0.18 lb/MMBtu. Kronospan would demonstrate compliance with these NO_x BACT limits through annual stack testing. Kronospan would indicate compliance with the NO_x BACT limits through parametric monitoring of the injection flow rate of the urea, as set during the annual compliance testing. Records of the 3-hour block averages of the injection flow rate would be required to be maintained on file available for inspection for at least five years.

Carbon Monoxide (CO)

Carbon monoxide is formed as an intermediate combustion product that appears in the exhaust when the reaction of CO to CO₂ cannot proceed to completion. This situation occurs if there is a lack of available oxygen near the hydrocarbon (fuel) molecule during combustion, if the gas temperature is too low, or if the residence time in the combustion chamber is too short. The rate of CO emissions depends on the efficiency of combustion. Improperly tuned heaters operating at off-design levels decrease combustion efficiency resulting in increased CO emissions.

Kronospan has proposed many controls for CO mitigation and/or control. The proposed controls consist of applicable controls for biomass heaters that include regenerative thermal oxidizers or regenerative catalytic oxidizers (typically in combination with a baghouse or dry or wet electrostatic precipitator), good combustion practices and maintenance, and good design/operation. The control efficiencies for these proposed controls vary from 75% - 90% for regenerative thermal oxidizers to biofilters (40% -70% control), and good combustion and maintenance which has a varied control efficiency. All of the aforementioned methods of control are technically feasible, however the most commonly used is good combustion practices and maintenance.

Kronospan did evaluate the cost effectiveness of the thermal and catalytic methods of control and determined that the evaluated methods are not cost effective. They are listed in the table below.

Scenario	Annualized Cost	Estimated CO Reduction (tpy)	Cost per Ton Removed
Regenerative Thermal Oxidizer (95%)	\$5,190,477	288.95	\$17,963
Recuperative Thermal Oxidizer (75%)	\$11,995,546	240.79-305.00	\$49,817
Direct Flame Thermal Oxidizer (Afterburner) (75%)	\$Not Available	240.79-305.00	\$Not Available
Catalytic Oxidizer (Fixed Bed) (90%)	\$8,552,636	240.79-305.00	\$35,519

The use of a biofilter is temperature dependent, meaning that combustion temperatures being high enough for proper biomass heater operation would exceed the operational parameters for a biofilter. The remaining control options for the biomass heaters are good design/operation and good operating practices. Therefore, Kronospan proposes good combustion practices and maintenance as CO BACT for the biomass heaters along with a proposed CO BACT emission limit for each biomass heater (K7 and K8), including combustion air from zones 1, 2, 3, and 16 from three (3) belt dryers of 36.65 lb/hr and 0.18 lb/MMBtu. Kronospan would demonstrate compliance with these CO BACT limits through annual stack testing. Kronospan would indicate compliance with the CO BACT limits through installation of a continuous emissions monitoring system (CEMS). Records of the 30-day rolling averages would be required to be maintained on file available for inspection for at least five years.

Greenhouse Gas (GHG)

GHG is emitted from the heaters when hydrocarbons present in the fuel are not fully oxidized in the combustion chamber of the heater. This situation occurs if there is a lack of available oxygen near the hydrocarbon (fuel) molecule during combustion, if the gas temperature is too low, or if the residence time in the combustion chamber is too short.

Potential controls for biomass heaters include carbon capture and sequestration and good combustion control practices. Control efficiencies for these potential technologies are variable.

Carbon capture and sequestration (CCS) is an available control technology; however, this technology presents technical and major economic challenges. Factors to be considered in selecting CCS include technical feasibility, implementation costs, facility size, source location, and availability and accessibility to transportation and storage. Since there is no local customer or use for captured CO₂ near the facility, CCS would require off-site sequestration, involving utilization of a CO₂ pipeline to transport CO₂ to a suitable storage location. Due to the fact that there are no proven CO₂ storage locations close to the facility, the utilization of CCS is considered to be technically infeasible. Therefore, good combustion practices and maintenance, along with good design/operation has been proposed as GHG BACT for each biomass heater along with CO₂e BACT emission limits of 45,903 lb/hr and 224.464 lb/MMBtu. Kronospan would indicate compliance with these GHG BACT limits through daily fuel monitoring. Records of the fuel burned, weekly or monthly, would be required to be maintained on file available for inspection for at least five years.

Natural Gas-fired Thermal Oil Heaters (K9, K10, K11, and K12)

Kronospan proposes to operate four (4) 56.2 MMBtu/hr natural gas-fired thermal oil heaters that would exhaust to the Thermal Oil Heater Stack (TOH-1) or through the MDF dryer to the RTO-1 stack. During process operations, only two of the four natural gas-fired TOH will operate while the two biomass TOH are in operation.

Particulate Matter (PM/PM₁₀/PM_{2.5})

Typically, PM emissions from natural gas-fired thermal oil heaters are most apparent as white and/or black smoke. Filterable PM emissions are typically low from natural gas combustion. Particulate matter from natural gas combustion has been estimated to be less than 1 micrometer in size and has filterable and condensable fractions. Particulate matter in natural gas combustion is

usually larger molecular weight hydrocarbons that are not fully combusted. Increased PM emissions may result from poor air/fuel mixing or maintenance problems.

Potential particulate controls for natural gas-fired thermal oil heaters and their respective control efficiencies are shown in the table below.

Control Type	Estimated Combined Filterable PM, PM ₁₀ , PM _{2.5} , and CPM Control Efficiency
Baghouses/Fabric Filters/Dust Collectors	99 to 99.9+%
Dry Electrostatic Precipitators	99 to 99.9%
Wet Electrostatic Precipitators	99 to 99.9%
Mechanical Collectors (High-Efficiency Cyclones/Multiclones)	80 to 99% for high-efficiency cyclones and 80 to 95% for multiclones
Cyclofilters	80 to 99%
High Efficiency Venturi Scrubber	70 to 96%
Good Design/Operation	Varies
Good Combustion Practices and Maintenance	Varies

For the natural gas-fired thermal oil heaters, all the add-on control technologies are technically infeasible for filterable particulates. Natural gas-fired heaters generate relatively low levels of particulate emissions in comparison to other wood product industry sources or other fuel types and operate with large exhaust flow rates. The low level of particulate emissions combined with the large exhaust gas volume results in very low concentrations of particulate in natural gas-fired thermal oil heater exhaust (approximately 0.005 gr/scf). Therefore, removal of particulate from the thermal oil heaters with a fabric filter, dry ESP, wet ESP, mechanical collector, wet scrubber, or mechanical collector, is not technically feasible and would not provide any significant degree of emission reduction for the natural gas-fired thermal oil heater. Good design/operation and good combustion practices and maintenance are the remaining technically feasible control options for Filterable PM, PM₁₀, PM_{2.5}, and CPM from the natural gas-fired thermal oil heaters.

Good design/operation and good combustion practices and maintenance are applicable, economical, and could be employed for the natural gas-fired thermal oil heaters. Good combustion practices and maintenance include activities such as maintaining combustion equipment according to manufacturer's instructions and adjusting the air-to-fuel ratio per manufacturer's recommendations. Therefore, Kronospan proposes the use of good combustion and maintenance practices as PM BACT for the natural gas-fired thermal oil heaters along with proposed PM BACT limits for each natural gas-fired thermal oil heater as follows: filterable PM - 0.15 lb/hr and 0.00267 lb/MMBtu; FPM₁₀ - 0.47 lb/hr and 0.00837 lb/MMBtu; FPM_{2.5} - 0.47 lb/hr and 0.00837 lb/MMBtu; and Opacity - 5%. Kronospan would demonstrate compliance with these PM BACT limits through annual stack testing. Kronospan would indicate compliance with the PM BACT limits through installation of a continuous opacity monitoring system (COMS). Records of the daily block averages of opacity would be required to be maintained on file available for inspection

for at least five years.

Volatile Organic Compounds (VOCs)

Potential VOC controls for natural gas-fired thermal oil heaters and the respective control efficiencies are shown in the table below.

Control Type	Estimated VOC Control Efficiency
Direct Flame Thermal Oxidizers	98 to 99.99%
Recuperative Thermal Oxidizers	98 to 99.99%
Regenerative Thermal Oxidizers	95 to 99%
Regenerative Catalytic Oxidizers	90 to 99%
Wet Scrubbers/Packed Beds/Spray Towers	70 to 99% (Packed Beds) 50 to 95% (Spray Towers)
Condensers	50 to 99%
Adsorbers/Adsorption Systems	95 to 98%
Biofilters	40 to 77%
Good Design/Operation	Varies
Good Combustion Practices and Maintenance	Varies
Use of Clean Fuel (Natural Gas)	Varies

For the natural gas-fired thermal oil heaters, all the add-on control technologies are technically infeasible for VOC. Natural gas-fired heaters generate relatively low levels of VOC emissions in comparison to other wood product industry sources or other fuel types. In addition, heaters operate with large exhaust flow rates. The low level of VOC emissions combined with the large exhaust gas volume results in very low concentrations of VOC in natural gas-fired thermal oil heater exhaust. Therefore, removal of VOC from the thermal oil heaters with add-on controls is not technically feasible and would not provide any significant degree of emission reduction for the natural gas-fired thermal oil heaters.

The remaining control technology is good combustion practices and maintenance; therefore, Kronospan has proposed good combustion practices and maintenance and good design/operation as VOC BACT for the natural gas-fired thermal oil heaters along with a proposed VOC BACT limit for each natural gas-fired thermal oil heater of 0.031 lb/hr and 0.00095 lb/MMBtu. Kronospan would demonstrate compliance with these VOC BACT limits through annual stack testing. Kronospan would indicate compliance with the VOC BACT limits by combusting natural gas only. Records of fuel combusted along with weekly or monthly fuel usage would be required to be maintained on file available for inspection for at least five years.

Nitrogen oxide (NO_x)

Nitrogen oxide formation from natural gas combustion occurs through the thermal NO_x mechanism and the fuel NO_x mechanism. Most thermal NO_x is formed in the high-temperature

region of the flame from dissociated molecular nitrogen in the combustion air. Also, some prompt NO_x is formed in the early part of the flame from the reaction of nitrogen intermediary species, and hydrocarbon radicals in the flame. The second mechanism, fuel NO_x, occurs between a reaction of fuel-bound nitrogen compounds with oxygen. Natural gas has no chemically bound fuel N₂ and essentially all NO_x formed is thermal NO_x.

Potential NO_x controls for natural gas-fired thermal oil heaters and the respective control efficiencies are shown in the table below.

Control Type	Estimated NO _x Control Efficiency
Selective Catalytic Reduction	70 to 95%
Selective Non-Catalytic Reduction	40 to 75%
Low-NO _x Burners/Ultra Low-NO _x Burners	80% to 90%
Good Design/Operation	Varies
Good Combustion Practices and Maintenance	Varies

None of the NO_x control technologies for the heaters are technically infeasible; therefore, each of the technologies were considered.

The remaining NO_x control technologies for natural gas-fired thermal oil heaters are ranked, as shown below.

Rank	Technology
1	Low-NO _x Burners/Ultra Low-NO _x Burners
2	Selective Non-Catalytic Reduction
3	Good Design/Operation
4	Good Combustion Practices and Maintenance

RBLC lists low-NO_x burners and good combustion practices as BACT for heaters and boilers within the wood products industry. Since this option represents the best control option available as listed in the RBLC tables, low-NO_x burners have been proposed as NO_x BACT for the natural gas-fired thermal oil heaters with proposed NO_x BACT limits of 2.50 lb/hr and 0.0445 lb/MMBtu NO_x for each of the natural gas-fired thermal oil heaters. Kronospan would demonstrate compliance with these NO_x BACT limits through annual stack testing. Kronospan would indicate compliance with the NO_x BACT limits by maintaining records of fuel combusted, which would be required to be maintained on file available for inspection for at least five years.

Carbon Monoxide (CO)

Carbon monoxide is formed as an intermediate combustion product that appears in the exhaust when the reaction of CO to CO₂ cannot proceed to completion. This situation occurs if there is a

lack of available oxygen near the hydrocarbon (fuel) molecule during combustion, if the gas temperature is too low, or if the residence time in the combustion chamber is too short. The rate of CO emissions depends on the efficiency of combustion. Improperly tuned heaters operating at off-design levels decrease combustion efficiency resulting in increased CO emissions. In some cases, the addition of NO_x control systems such as low- NO_x burners and flue gas recirculation (FGR) may also reduce combustion efficiency, resulting in higher CO emissions relative to uncontrolled heaters.

Potential CO controls for natural gas-fired thermal oil heaters and their respective control efficiencies are shown in the table below.

Control Type	Estimated CO Control Efficiency
Direct Flame Thermal Oxidizers	75 to 95%
Recuperative Thermal Oxidizers	75 to 95%
Regenerative Thermal Oxidizers	95 to 99%
Regenerative Catalytic Oxidizers	90 to 99%
Biofilters	40 to 77% ³⁷
Good Design/Operation	Varies
Good Combustion Practices and Maintenance	Varies

For the natural gas-fired thermal oil heaters, all the add-on control technologies are technically infeasible for CO. Natural gas-fired heaters generate relatively low levels of CO emissions in comparison to other wood product industry sources or other fuel types. In addition, heaters operate with large exhaust flow rates. The low level of CO emissions combined with the large exhaust gas volume results in very low concentrations of CO in natural gas-fired thermal oil heater exhaust. Therefore, removal of CO from the natural gas-fired thermal oil heaters with add-on controls is not technically feasible and would not provide any significant degree of emission reduction for the natural gas-fired thermal oil heaters.

The remaining control technology is good combustion practices and maintenance; therefore, Kronospan has proposed good combustion practices and maintenance as CO BACT for the natural gas-fired thermal oil heaters with proposed CO BACT limits for each heater of 0.265 lb/hr and 0.00472 lb/MMBtu for CO. Kronospan would demonstrate compliance with these CO BACT limits through annual stack testing. Kronospan would indicate compliance with the CO BACT limits by maintaining records of fuel combusted, which would be required to be maintained on file available for inspection for at least five years.

Greenhouse Gas (GHG)

Thermal oil heaters produce CO₂ from the combustion of the hydrocarbons present in the fuel. Methane (CH₄) emissions are produced during incomplete combustion of the diesel fuel, and N₂O emissions are solely a by-product of combustion. These three components are all considered GHGs.

Potential GHG controls for natural gas-fired thermal oil heaters include carbon capture and sequestration (CCS), good design/operation, and good combustion practices and maintenance. Control efficiencies for these potential technologies vary.

Due to the limited use of CCS technology, the size of the units, the large economies of scale needed for CCS and the amount of CO₂ generated from the heaters, CCS is deemed technically infeasible as a control method. The remaining option is good design/operation and good combustion and maintenance practices, therefore, Kronospan has proposed good combustion practices and maintenance for GHG BACT for the natural gas-fired thermal oil heaters with CO₂e BACT emission limits of 6,785 lb/hr and 120,734 lb/MMBtu for each natural gas-fired thermal oil heater. Kronospan would demonstrate compliance with these GHG BACT limits by combusting natural gas only. Records of the weekly or monthly fuel burned and annual tune-ups would be required to be maintained on file available for inspection for at least five years.

Flakers and Stranders

The proposed flakers (4) and stranders (3), located in a building, would generate PM, PM₁₀, PM_{2.5}, and VOC emissions

Particulate Matter (PM/PM₁₀/PM_{2.5})

Potential particulate controls for the flakers/standers and their respective control efficiencies are shown in the table below.

Control Type	Estimated Filterable PM/PM₁₀/PM_{2.5} and CPM Control Efficiency
Baghouses/Fabric Filters/Dust Collectors	99 to 99.9+%
Dry Electrostatic Precipitators	99 to 99.9%
Wet Electrostatic Precipitators	99 to 99.9%
Mechanical Collectors (High-Efficiency Cyclones/Multiclones)1F	80 to 99% for high-efficiency cyclones and 80 to 95% for multiclones
Cyclofilters	80 to 99%3F
High-Efficiency Venturi Scrubbers Wet Scrubbers/Packed Beds/Spray Towers	70 to 99%
Building Enclosures	90%
Good Design/Operation	Varies

Kronospan intends to collect wood dust produced by the flakers and stranders for use as fuel for the biomass thermal oil heaters. As such, the use of a WESP or a venturi scrubber would render these control devices technically infeasible due to the amount of moisture introduced to the collected material.

The remaining PM control technologies for the flakers and stranders were ranked as shown in the table below.

Rank	Technology
1	Baghouses/Fabric Filters/Dust Collectors
2	Dry Electrostatic Precipitator / Wet Electrostatic Precipitator
3	Mechanical Collectors (High-Efficiency Cyclones/Multiclones)1F
4	Cyclofilters
5	Building Enclosures
5	Good Design/Operation

Kronospan proposes the use of cyclones/cyclofilters and building enclosure for the flakers and cyclones/dust collectors for the stranders to control particulate emissions, with proposed particulate BACT limits for flakers as follows: filterable PM - 0.060 lb/hr and 0.002185 gr/dscf (total for four [4] flakers); PM₁₀ - 0.044 lb/hr and 0.0016 gr/dscf; PM_{2.5} - 0.008 lb/hr and 0.0003 gr/dscf; and Opacity - 0%. In addition, Kronospan proposes emissions for stranders as follows: filterable PM - 0.15 lb/hr and 0.002185 gr/dscf (total for three [3] stranders); PM₁₀ - 0.114 lb/hr and 0.0016 gr/dscf; PM_{2.5} - 0.021 lb/hr and 0.0003 gr/dscf; and Opacity - 5%. The flakers would be further limited to a combined throughput of 6,690 wet tons/day @ 55% moisture and the stranders limited to 4,390 wet tons/day @ 55% moisture. Kronospan would not be required to test for particulate because the cyclones/cyclofilters exhaust back into the building and the building itself is expected to reasonably capture the remaining particulate emissions. Kronospan would demonstrate compliance with the particulate BACT limits by performing stack testing every three years. Kronospan would indicate compliance with the particulate BACT limits through parametric monitoring of the pressure differential across each cyclofilter and dust collector, and daily visible emissions observations. If the pressure differential is observed to be out of range or any emissions are observed from a cyclofilter or dust collector, corrective action would be required. Records of the daily differential pressure readings, daily visible emissions observations, and the daily throughput would be required to be maintained on file available for inspection for at least five years.

Volatile Organic Compounds (VOC)

Potential VOC controls for the flakers and their respective control efficiencies are shown in the table below. The Department has determined the VOC emissions from the stranders to be de minimus and, therefore, did not include them in this analysis.

Control Type	Estimated VOC Control Efficiency
Direct Flame Thermal Oxidizers	98 to 99.99%
Recuperative Thermal Oxidizers	98 to 99.99%

Regenerative Thermal Oxidizers	95 to 99%
Regenerative Catalytic Oxidizers	90 to 99%
Wet Scrubbers/Packed Beds/Spray Towers	70 to 99% (Packed Beds) 50 to 95% (Spray Towers)
Condensers	50 to 99%
Adsorbers/Adsorption Systems	95 to 98%
Biofilters	40% to 77% ^{6F}
Good Design/Operation	Varies
Good Operating Practices	Varies

Condensers and adsorbers/adsorption systems are often considered to be technically infeasible controls for wood products manufacturing processes. Condensation requires that the exhaust stream be cooled to a low enough temperature for the vapor pressure to be lower than the VOC concentration. Adsorption is not feasible because of the high moisture content of the exhaust stream from the flakers, and water vapor and VOC compounds would compete for the adsorption media's active sites. Biofilters require a pollutant stream to be in a steady-state condition to effectively control VOC. If there were any process upsets or changes in the character of the waste gas stream (temperature, humidity, and/or pressure variance) from the flakers, then the living organisms within the biofilter could be rendered ineffective. Therefore, Kronospan considers the use of a biofilter to be technically infeasible.

The remaining VOC control options for the OSB flakers are oxidizers, wet scrubbers, good design/operation, and good operating practices and are ranked below.

Rank	Technology
1	Direct Flame Thermal Oxidizers
1	Recuperative Thermal Oxidizers
1	Regenerative Thermal Oxidizers
1	Regenerative Catalytic Oxidizers
2	Wet Scrubbers/Packed Beds/Spray Towers
3	Good Design/Operation
3	Good Operating Practices

The tables below display the results of Kronospan's cost effectiveness evaluation for using oxidizers and scrubbers to control VOCs from the flakers.

Flaker Control Scenario	Annualized Cost	Estimated VOC Reduction (tpy)	Cost per Ton Removed
Regenerative Thermal Oxidizer (95% control, 10-yr life with media replacement at 7% interest) (updated based on 1/15/2026 quote)	\$1,627,893	34.86	\$46,704
Regenerative Thermal Oxidizer with WESP (95% control, 20-yr life with media replacement at 7% interest) (updated based on 1/15/2026 quote)	\$1,775,835	34.86	\$50,948
Regenerative Thermal Oxidizer without WESP (95% control, 20-yr life with media replacement at 7% interest) (updated based on 1/15/2026 quote)	\$1,301,850	34.86	\$37,350
Recuperative Thermal Oxidizer (98 - 99.99% control, 10-yr life at 7% control) (updated based on 1/15/2026 quote)	\$3,626,748	35.96 – 36.69	\$100,866 at 98% control
Direct Flame Thermal Oxidizer (Afterburner) (98 – 99.99% control)	Not Available	34.86–36.69	Not Available
Catalytic Oxidizer (Fixed Bed) (90 – 99% control, 10-yr life at 7% interest) (updated based on 1/15/2026 quote)	\$2,229,716	33.02 – 36.33	\$67,524 at 90% control
Packed Bed Scrubber (70 – 99% control, 10 yr life at 7% interest) (updated based on 1/21/2026 quote)	\$1,540,906	25.68 – 36.33 31.19 at 85%	\$49,409 at 85% control
Spray Tower Scrubber (50 – 95% control, 10-yr life at 7% interest)	\$Not Available	18.35 – 34.86	\$Not Available
Wet Scrubber (Venturi Scrubber) (50 – 95% control, 10-yr life at 7% interest)	\$Not Available	18.35 – 34.86	\$Not Available

Based on the costs shown above for the four (4) flakers, the economic impacts of these controls are considered excessive. These costs support elimination of regenerative thermal oxidizers, recuperative thermal oxidizers, regenerative catalytic oxidizers (fixed bed), and wet scrubbers as BACT for the flakers.

Kronospan noted in the BACT analysis that combining emission streams from multiple emission sources has been achieved in Kronospan's other plants (MDF and PB), which route all other sources to an RTO. However, to achieve this for the OSB plant would require an RTO much larger than for the other two plants, which would also not be cost effective. Combining flakers with other emission sources in the OSB plant, considering all possible combinations, is untenable and not

realistic; costs will be larger and not cost effective.

The remaining control options for the flakers are good design/operation and good operating practices, which Kronospan proposes as BACT for these sources. Kronospan proposes to route the flaker emissions into the Flaker/Strander Building. Kronospan also proposes the following BACT limits for the flakers (combined): 22.78 lb/hr and 0.082 lbs/wet tons @ 55% moisture. The flakers would be further limited to a combined throughput of 6,690 wet tons/day @ 55% moisture. Kronospan would demonstrate compliance with the VOC BACT limits by performing stack testing every three years. Kronospan would indicate compliance with the VOC BACT limits through monitoring of the daily process throughputs. Records the daily throughput would be required to be maintained on file available for inspection for at least five years.

Dryers

Kronospan has proposed to construct three (3) belt dryers (EP 20.1, Belt Dryer #1; EP 20.2, Belt Dryer #2; EP 20.3, Belt Dryer #3) which would be heated by thermal oil. The belt dryers would generate PM, PM₁₀, PM_{2.5}, VOC, CO and NO_x emissions, though the belt dryers themselves do not include combustion since they are heated by thermal oil. Emissions from the three (3) belt dryers are proposed to exhaust to atmosphere except for zones 1, 2, 3, and 16, which would provide combustion air to the two (2) biomass heaters or be routed through the existing MDF dryer to RTO-1. The existing limits on RTO-1 meet BACT/MACT for zones 1, 2, 3, and 16 of the dryers.

Particulate Matter (PM/PM₁₀/PM_{2.5})

Potential particulate controls for the belt dryers and their respective control efficiencies are shown in the table below.

Control Type	Estimated Filterable PM/PM₁₀/PM_{2.5} and CPM Control Efficiency
Baghouses/Fabric Filters/Dust Collectors	99 to 99.9+%
Dry Electrostatic Precipitators	99 to 99.9%
Wet Electrostatic Precipitators	99 to 99.9%
Mechanical Collectors (High-Efficiency Cyclones/Multiclones)	80 to 99% for high-efficiency cyclones and 80 to 95% for multiclones
Cyclofilters	80 to 99% ^{51F}
High-Efficiency Venturi Scrubbers Wet Scrubbers/Packed Beds/Spray Towers	70 to 99%
Building Enclosures	Varies
Good Design/Operation	Varies

As no potentially available control options would be technically infeasible, all technologies were evaluated for BACT and are ranked in the table below.

Rank	Technology
1	Baghouses/Fabric Filters/Dust Collectors
2	Dry Electrostatic Precipitators
3	Wet Electrostatic Precipitators
4	Mechanical Collectors (High-Efficiency Cyclones/Multiclones)
5	Cyclofilters
6	Building Enclosures
7	Good Design/Operation

As baghouses/fabric filters/dust collectors are among the highest ranked technologies, Kronospan proposes to utilize dust collectors to control particulate emissions from zones 4-15 of the belt dryers. Kronospan also proposes the following BACT limits for each of the belt dryers (zone 4-15): filterable PM - 12.80 lb/hr and 0.002185 gr/dscf; PM₁₀ - 9.66 lb/hr and 0.00165 gr/dscf; PM_{2.5} - 1.76 lb/hr and 0.0003 gr/dscf; and Opacity: 10%. The belt dryers would be further limited to a combined throughput of 2,917 ODT/day. Kronospan proposes to meet the requirements of BACT for zones 1, 2, 3, and 16 by exhausting into the firebox of the two biomass thermal oil heaters or into the MDF dryer, which is controlled by dual cyclones prior to exhausting to an RTO. Kronospan would demonstrate compliance with the particulate BACT limits by performing stack testing annually on both the control devices for zones 4-15 and for r zones 1, 2, 3, and 16. Kronospan would indicate compliance with the particulate BACT limits through parametric monitoring of the pressure differentials of each dust collectors and daily visible emissions observations. If the pressure differential is observed to be out of range or any emissions are observed from the process, corrective action would be required. Records of the daily pressure readings, daily visible emissions observations, and the daily throughput would be required to be maintained on file available for inspection for at least five years.

Volatile Organic Compounds (VOC)

Potential VOC controls for the belt dryers and their respective control efficiencies are shown in the table below.

Control Type	Estimated VOC Control Efficiency
Direct Flame Thermal Oxidizers	98 to 99.99%
Recuperative Thermal Oxidizers	98 to 99.99%
Regenerative Thermal Oxidizers	95 to 99%
Regenerative Catalytic Oxidizers	90 to 99%
Wet Scrubbers/Packed Beds/Spray Towers	70 to 99% (Packed Beds) 50 to 95% (Spray Towers)
Condensers	50 to 99%
Adsorbers/Adsorption Systems	95 to 98%

Biofilters	40 to 77%
Good Design/Operation	Varies

Condensers and adsorbers/adsorption systems are often considered to be technically infeasible controls for wood products manufacturing processes. Condensation requires that the exhaust stream be cooled to a low enough temperature for the vapor pressure to be lower than the VOC concentration. Adsorption is not feasible because of the high moisture content of the exhaust stream from the belt dryers, and water vapor and VOC compounds would compete for the adsorption media's active sites. Biofilters require a pollutant stream to be in a steady-state condition to effectively control VOC. If there were any process upsets or change in the character of the waste gas stream (temperature, humidity, and/or pressure variance) from the belt dryers, then the living organisms within the biofilter could be rendered ineffective. Therefore, Kronospan considers the use of a biofilter to be technically infeasible.

The remaining potential control technologies are listed below.

Rank	Technology
1	Direct Flame Thermal Oxidizers
1	Recuperative Thermal Oxidizers
1	Regenerative Thermal Oxidizers
1	Regenerative Catalytic Oxidizers
2	Good Design/Operation
3	Good Operating Practices

The tables below display the results of Kronospan's cost effectiveness evaluation for using oxidizers to control VOCs from the belt dryers.

Scenario (Dryer #1)	Annualized Cost	Estimated VOC Reduction (tpy)	Cost per Ton Removed
Regenerative Thermal Oxidizer (95% control, 10-yr life with media replacement at 7% interest)	\$13,262,085	126.41	\$104,912
Regenerative Thermal Oxidizer with WESP (95% control, 20- yr life with media replacement at 7% interest)	\$16,972,057	126.41	\$134,261
Regenerative Thermal Oxidizer without WESP (95% control, 20-yr life with media replacement at 7% interest)	\$11,284,040	126.41	\$89,265
Recuperative Thermal Oxidizer (98 – 99.99% control, 10-yr life at 7% interest)	\$38,629,730	130.42 – 133.06	\$296,233

Direct Flame Thermal Oxidizer (Afterburner) (98 – 99.99% control)	\$Not Available	130.42 – 133.07	\$Not Available
Catalytic Oxidizer (Fixed Bed) (90 – 99% control, 10-yr life at 7% interest)	\$24,300,376	119.77 – 131.76	\$202,912

Based on the costs shown above, the economic impacts of these controls are considered excessive. These costs support elimination of regenerative thermal oxidizers, recuperative thermal oxidizers, and regenerative catalytic oxidizers (fixed bed) as BACT for belt dryers #1, #2, and #3

As the only remaining control option, Kronospan has proposed the use of good design/operation and good operating practices as BACT for VOC from zones 4-15 of the belt dryers, with BACT limits of 30.38 lb/hr and 0.75 lb/ODT (from each belt dryer). For zones 1, 2, 3, and 16, Kronospan proposes to exhaust into the flame zone of the biomass thermal oil heaters or to the existing MDF dryer, which ultimately exhausts to an RTO. The proposed BACT limits associated with the biomass thermal oil heaters (K7/K8) include exhaust from zones 1, 2, 3, and 16. The belt dryers would be further limited to a combined throughput of 2,917 ODT/day. Kronospan would demonstrate compliance with the VOC BACT limits by performing stack testing annually on both the control devices (dust collectors) for zones 4-15 and for each permitted control scenario for zones 1, 2, 3, and 16. Kronospan would indicate compliance with the VOC BACT limits through monitoring of the daily combined throughput. Records of the daily throughput would be required to be maintained on file available for inspection for at least five years.

Nitrogen Oxide (NO_x)

Potential NO_x controls for the belt dryers and their respective control efficiencies are shown in the table below.

Control Type	Estimated NO _x Control Efficiency
Selective Catalytic Reduction	70 to 95%
Selective Non-Catalytic Reduction	40 to 75%
Non-Selective Catalytic Reduction	90 to 98%
Water/Steam Injection (WSI)	60 to 80%
Low-NO _x Burners/Ultra Low-NO _x Burners	80 to 90%
Staged Combustion/Controlled Burn	40%
Flue Gas Recirculation (FGR)	40%
Low Excess Air	10%
Good Design/Operations	Varies
Good Operating Practices	Varies

Each of the add-on control technologies would be technically infeasible for controlling NO_x emissions from the belt dryers. They would be heated by thermal oil with no combustion involved, so expected NO_x emissions would be quite small. The low level of NO_x emissions combined with the large exhaust gas volume results in very low concentrations of NO_x in the belt dryers' exhaust. Therefore, removal of NO_x emissions from the belt dryers would not be technically feasible and would not provide any significant degree of emission reduction for the belt dryers' exhaust

As the only remaining control technology, Kronospan proposes the use of good design/operation and good operating practices as NO_x BACT for zones 4-15 of the belt dryers, with proposed BACT limits of 0.31 lb/hr and 0.0077 lb/ODT (from each belt dryer). For zones 1, 2, 3, and 16, Kronospan proposes to exhaust into the flame zone of the biomass thermal oil heaters or to the existing MDF dryer, which ultimately exhausts to an RTO. The proposed BACT limits associated with the biomass thermal oil heaters (K7/K8) include exhaust from zones 1, 2, 3, and 16. The belt dryers would be further limited to a combined throughput of 2,917 ODT/day. Kronospan would indicate compliance with the NO_x BACT limits through monitoring of the daily combined throughput. Records of the daily throughput would be required to be maintained on file available for inspection for at least five years.

Carbon Monoxide (CO)

Potential CO controls for the belt dryers and their respective control efficiencies are shown in the table below.

Control Type	Estimated VOC Control Efficiency
Direct Flame Thermal Oxidizers	75 to 95%
Recuperative Thermal Oxidizers	75 to 95%
Regenerative Thermal Oxidizers	95 to 99%
Regenerative Catalytic Oxidizers	90 to 99%
Biofilters	40 to 77% ³⁷
Good Design/Operation	Varies
Good Operating Practices	Varies

Each of the add-on control technologies would be technically infeasible for controlling CO emissions from the belt dryers. They would be heated by thermal oil with no combustion involved, so expected CO emissions would be quite small. The low level of CO emissions combined with the large exhaust gas volume would result in very low concentrations of CO in the belt dryers' exhaust. Therefore, removal of CO from emissions from the belt dryers would not be technically feasible and would not provide any significant degree of emission reduction for the belt dryers' exhaust.

As the only remaining control technology, Kronospan has proposed the use of good design/operation and good operating practices as CO BACT for zones 4-15 of the belt dryers, with proposed BACT limits of 3.84 lb/hr and 0.095 lb/ODT (from each belt dryer). For zones 1, 2, 3, and 16, Kronospan proposes to exhaust into the flame zone of the biomass thermal oil heaters or to

the existing MDF dryer, which ultimately exhausts to an RTO. The proposed BACT limits associated with the biomass thermal oil heaters (K7/K8) include exhaust from zones 1, 2, 3, and 16. The belt dryers would be further limited to a combined throughput of 2,917 ODT/day. Kronospan would indicate compliance with the CO BACT limits through monitoring of the daily combined throughput. Records of the daily throughput would be required to be maintained on file available for inspection for at least five years.

Sifting/Gluing and Blending

The proposed OSB plant project includes a blending/gluing process (EP 2.1, Blending/Gluing) and a sifter/screening process (EP 2.2, Sifter/Screening), which would generate PM, PM₁₀, PM_{2.5}, and VOC emissions.

Particulate Matter (PM/PM₁₀/PM_{2.5})

Potential particulate controls for the blending/gluing and sifting/screening and their respective control efficiencies are shown in the table below.

Control Type	Estimated Filterable PM/PM₁₀/PM_{2.5} and CPM Control Efficiency
Baghouse/Fabric Filters/Dust Collectors	99 to 99.9+%/3F
Dry Electrostatic Precipitators	99 to 99.9%
Wet Electrostatic Precipitators	99 to 99.9%
Mechanical Collectors (High-Efficiency Cyclones/Multiclones) ^{14F}	80 to 99% for high-efficiency cyclones and 80 to 95% for multiclones
Cyclofilters	80 to 99%
High-Efficiency Venturi Scrubbers Wet Scrubbers/Packed Beds/Spray Towers	70 to 99%
Building Enclosures	90%
Good Design/Operation	Varies

Kronospan proposes to collect the particulate emissions from blending/gluing and sifter/screening for use as fuel for the wood-fired heaters (K7/K8) at the facility. As such, the use of a WESP or a venturi scrubber would render these control devices technically infeasible due to the amount of moisture introduced to the collected material.

The remaining PM control technologies for the blending/gluing and sifter/screening processes are ranked as shown in the table below.

Rank	Technology
1	Baghouses/Fabric Filters/Dust Collectors
2	Dry Electrostatic Precipitators

3	Mechanical Collectors (High-Efficiency Cyclones/Multiclones)
4	Cyclofilters
5	High-Efficiency Venturi Scrubbers Wet Scrubbers/Packed Beds/Spray Towers
6	Building Enclosures
7	Good Design/Operation

Kronospan proposes the use of dust collectors particulate BACT for blending/gluing and sifter/screening. The following BACT limits have been proposed for the blending/gluing process: filterable PM - 0.60 lb/hr and 0.002185 gr/dscf; PM₁₀ - 0.45 lb/hr and 0.00165 gr/dscf; PM_{2.5} - 0.08 lb/hr and 0.0003 gr/dscf; and Opacity: 0%. The following BACT limits have been proposed for the sifter/screening process: filterable PM - 0.80 lb/hr and 0.002185 gr/dscf; PM₁₀ - 0.60 lb/hr and 0.00165 gr/dscf; PM_{2.5} - 0.11 lb/hr and 0.0003 gr/dscf; and Opacity - 5%. Each process would also be limited to a throughput of 2,917 tons/day. Kronospan would demonstrate compliance with the particulate BACT limits by performing annual stack testing. Kronospan would indicate compliance with the particulate BACT limits through daily visible emissions observations. If any emissions are observed from the process, corrective action would be required. Kronospan would also be required to keep records of production. Records of the daily visible emissions observation and the daily throughput would be required to be maintained on file available for inspection for at least five years.

Volatile Organic Compounds (VOC)

Potential VOC controls for the gluing/blending and sifter/screening processes and their respective control efficiencies are shown in the table below.

Control Type	Estimated VOC Control Efficiency
Direct Flame Thermal Oxidizers	98 to 99.99%
Recuperative Thermal Oxidizers	98 to 99.99%
Regenerative Thermal Oxidizers	95 to 99%
Regenerative Catalytic Oxidizers	90 to 99%F
Wet Scrubbers/Packed Beds/Spray Towers	70 to 99% (Packed Beds) 50 to 95% (Spray Towers)
Condensers	50 to 99%
Adsorbers/Adsorption Systems	95 to 98%
Biofilters	40 to 77%
Good Design/Operation	Varies

Wet scrubbers could be technically infeasible since some of the VOCs present in the blending/gluing and sifter/screening emissions are only slightly soluble in water. Also, condensers

and adsorbers/adsorption systems are often considered to be technically infeasible controls for wood products manufacturing processes. Condensation requires that the exhaust stream be cooled to a low enough temperature for the vapor pressure to be lower than the VOC concentration. Adsorption is not feasible because the VOC compounds present in the exhaust stream would contain pMDI liquid droplets, solid resin aerosols, and other particulates that could quickly coat and plug the carbon causing it to lose its ability to remove additional VOCs.

Biofilters require a pollutant stream to be in a steady-state condition to effectively control VOC emissions. If there were any process upsets or change in the character of the waste gas stream (temperature, humidity, and/or pressure variance) from the blending/gluing and sifter/screening processes, then the living organisms within the biofilter could be rendered ineffective. Therefore, Kronospan considers the use of a biofilter to be technically infeasible.

The remaining VOC add-on control technologies for the OSB blending/gluing and sifter/screening processes are ranked below

Rank	Technology
1	Direct Flame Thermal Oxidizers
1	Recuperative Thermal Oxidizers
1	Regenerative Thermal Oxidizers
1	Regenerative Catalytic Oxidizers
2	Good Design/Operation

The tables below display the results of Kronospan's cost effectiveness evaluation for using oxidizers to control VOCs from blending/gluing and sifter/screening.

Gluings/Blending Control Scenario	Annualized Cost	Estimated VOC Reduction (tpy)	Cost per Ton Removed
Regenerative Thermal Oxidizer (95% control, 10-yr life with media replacement at 7% interest) (updated based on 1/15/2026 quote)	\$2,304,611	\$83.43	\$27,624
Regenerative Thermal Oxidizer with WESP (95% control, 20-yr life with media replacement at 7% interest) (updated based on 1/15/2026 quote)	\$3,129,294	\$83.43	\$37,500
Regenerative Thermal Oxidizer without WESP (95% control, 20-yr life with media replacement at 7% interest) (updated based on 1/15/2026 quote)	\$1,978,567	\$83.43	\$23,716

Recuperative Thermal Oxidizer (98 – 99.99% control, 10-yr life at 7% interest) (updated based on 1/15/2026 quote)	\$3,729,833	\$86.06 – 87.82	\$43,339 at 98% control
Direct Flame Thermal Oxidizer (Afterburner) (98 – 99.99% control)	Not Available	\$86.06 – 87.82	Not Available
Catalytic Oxidizer (Fixed Bed) (90 – 99% control, 10-yr life at 7% interest)(updated based on 1/15/2026 quote)	\$3,139,914	\$79.04 – 86.95	\$39,727 at 90% control

Sifter/Screening Control Scenario	Annualized Cost	Estimated VOC Reduction (tpy)	Cost per Ton Removed
Regenerative Thermal Oxidizer (95% control, 10-yr life with media replacement at 7% interest) (updated based on 1/15/2026 quote)	\$1,862,097	73.32	\$25,398
Regenerative Thermal Oxidizer with WESP (95% control, 20-yr life with media replacement at 7% interest) (updated based on 1/15/2026 quote)	\$2,211,532	73.32	\$30,164
Regenerative Thermal Oxidizer without WESP (95% control, 20-yr life with media replacement at 7% interest) (updated based on 1/15/2026 quote)	\$1,530,266	73.32	\$20,872
Recuperative Thermal Oxidizer (98 – 99.99% control, 10-yr life at 7% interest) (updated based on 1/15/2026 quote)	\$4,151,983	75.63 – 77.17	\$54,897 at 98% control
Direct Flame Thermal Oxidizer (Afterburner) (98 – 99.99% control)	\$Not Available	75.63 – 77.17	\$Not Available
Catalytic Oxidizer (Fixed Bed) (90 – 99% control, 10-yr life at 7% interest) (updated based on 1/15/2026 quote)	\$2,851,343	69.46 – 76.40	\$41,051 at 90% control

Based on the costs shown above for blending/gluing and sifter/screening, the economic impacts of these controls are considered excessive. These costs support elimination of regenerative thermal oxidizers, recuperative thermal oxidizers, and regenerative catalytic oxidizers (fixed bed) as BACT for any combination of blending/gluing, sifter/screening, and blending/gluing and sifter/screening. Kronospan noted that the blending/gluing process for the Particle Board (PB) plant is located in the PB press hall, making it possible to route the VOC emissions through the PB press hall to the PB RTO. However, blending/gluing for the OSB plant would not be located in the OSB press hall because resin application and type of resin necessitate the use of separate areas/buildings.

The remaining control options for the blending/gluing and sifter/screening processes are good design/operation, which Kronospan proposes as BACT for VOC emissions for these processes. Kronospan also proposes the following BACT limits: 20.05 lb/hr and 0.165 lb/ODT (blending/gluing); and 17.62 lb/hr and 0.145 lb/ODT (sifter/screening). Gluing/blending and sifter/screening would each be further limited to a throughput of 2,917 tons/day. Kronospan would demonstrate compliance with the VOC BACT limits by performing an annual stack. Kronospan would indicate compliance with the VOC BACT limits through monitoring of the daily process throughputs. Records of the daily throughput would be required to be maintained on file available for inspection for at least five years.

Press Activities

The press hall for the proposed OSB plant project includes the following processes, the emissions of which would be routed to the Press Hall:

- A forming line and a mat saw, which would generate filterable PM, PM₁₀, and PM_{2.5} emissions, as well as VOC emissions;
- The OSB Press, which would generate PM, PM₁₀, PM_{2.5}, VOC, CO, and NO_x emissions, though the OSB press itself does not include combustion since the biomass heaters and natural gas-fired thermal oil heaters will provide indirect heat to the press via a hot oil loop; and
- A diagonal saw, cut-to-size saw, three (3) tongue and groove lines, and sanding, which would generate PM, PM₁₀, PM_{2.5}, and VOC emissions

The PCWP MACT requires a permanent total enclosure for the press. The press hall would be constructed to meet this requirement.

Particulate Matter (PM/PM₁₀/PM_{2.5})

Particulates would be generated from the forming line activities to prepare the surface and core layers for forming, as well as from the mat saw process.

Potential particulate controls for the OSB press hall and their respective control efficiencies are shown in the table below.

Control Type	Estimated Filterable PM/PM₁₀/PM_{2.5} and CPM Control Efficiency
Baghouses/Fabric Filters/Dust Collectors	99 to 99.9+%/20F
Dry Electrostatic Precipitators	99 to 99.9%
Wet Electrostatic Precipitators	99 to 99.9%
Mechanical Collectors (High-Efficiency Cyclones/Multiclones)	80 to 99% for high-efficiency cyclones and 80 to 95% for multiclones
Cyclofilters	80 to 99%/23F
High-Efficiency Venturi Scrubbers Wet Scrubbers/Packed Beds/Spray Towers	70 to 99%

Building Enclosures	90%
Good Design/Operation	Varies

A dry ESP used for an OSB press can collect resin and wax particles in the press exhaust, but the cleaning process for the dry ESP would require modifications to the process that are considered to be technically infeasible. Therefore, a dry ESP is considered to be technically infeasible for controlling emissions from the OSB Press Hall

The remaining technically feasible control options for controlling filterable PM, PM₁₀, and PM_{2.5} from the OSB Press Hall are ranked in the table below

Rank	Technology
1	Baghouses/Fabric Filters/Dust Collectors
2	Mechanical Collectors (High-Efficiency Cyclones/Multiclones)
2	Cyclofilters
3	High-Efficiency Venturi Scrubbers Wet Scrubbers/Packed Beds/Spray Towers
4	Building Enclosures
5	Good Design/Operation

Kronospan proposes the use of dust collectors, which are the top ranked control devices, as BACT for particulate emissions from the diagonal saw, cut-to-size saw, tongue and groove lines, and sanding processes. In addition, Kronospan proposes to add cyclones to collect wood waste for reuse and a wet scrubber for additional particulate control efficiency for the diagonal saw, cut-to-size saw, and tongue and groove lines. The diagonal saw, cut-to-size saw, three (3) tongue and groove lines, and sanding would be combined with emissions from the other processes prior to being routed to the wet scrubber, which would exhaust out of the belt dryer #3 stack. Kronospan proposes the following combined BACT emission limits for all Press Hall sources: filterable PM - 2.92 lb/hr and 0.0206 lb/MSF 3/8"; PM₁₀ - 5.26 lb/hr and 0.0371 lb/MSF 3/8"; PM_{2.5} - 5.15 lb/hr and 0.0363 lb/MSF 3/8"; and Opacity - 15%. The diagonal saw, cut-to-size saw, three (3) tongue and groove lines, and sanding would also be limited to a throughput of 3,404 MSF 3/8'/day. Kronospan would demonstrate compliance with the particulate BACT limits by performing annual stack tests. Kronospan would indicate compliance with the particulate BACT limits through parametric monitoring of the scrubber flow rates. Kronospan would also be required to install a continuous opacity monitor. The facility would also be required to monitor the pressure differential of each dust collector and the wet scrubber to ensure it is in range. Records of the 3-hour block average liquid flow rate, the daily pressure readings, daily block averages of the opacity, and the daily throughput would be required to be maintained on file available for inspection for at least five years.

Volatile Organic Compounds (VOC)

VOC emissions will occur from the off gassing of newly dried wood and from the cutting, sawing, chipping, grinding, and handling of wood and mats, which contain glue and resins that emit VOC when cut, sawed, or chipped.

Potential VOC controls for the OSB press hall processes and their respective control efficiencies are shown in the table below.

Control Type	Estimated VOC Control Efficiency
Direct Flame Thermal Oxidizers	98 to 99.99%
Recuperative Thermal Oxidizers	98 to 99.99%
Regenerative Thermal Oxidizers	95 to 99%
Regenerative Catalytic Oxidizers	90 to 99%
Wet Scrubbers/Packed Beds/Spray Towers	70 to 99% (Packed Beds) 50 to 95% (Spray Towers)
Condensers	50 to 99%
Adsorbers/Adsorption Systems	95 to 98%
Biofilters	40% to 77%
Good Design/Operation	Varies

Condensers and adsorbers/adsorption systems are often considered to be technically infeasible controls for wood products manufacturing processes. Condensation requires that the exhaust stream be cooled to a low enough temperature for the vapor pressure to be lower than the VOC concentration. Adsorption is not feasible because the VOC compounds present in the exhaust stream would contain pMDI liquid droplets, solid resin aerosols, and other particulates that could quickly coat and plug the carbon causing it to lose its ability to remove additional VOCs.

The remaining technically feasible options for controlling VOC from the OSB Press Hall are ranked in the table below.

Rank	Technology
1	Direct Flame Thermal Oxidizers
1	Recuperative Thermal Oxidizers
1	Regenerative Thermal Oxidizers
1	Regenerative Catalytic Oxidizers
2	Wet Scrubbers/Packed Beds/Spray Towers
3	Biofilters

4	Good Design/Operation
---	-----------------------

The table below displays the results of Kronospan's cost effectiveness evaluation for using oxidizers and scrubbers to control VOCs from the OSB Press Hall.

Scenario	Annualized Cost	Estimated VOC Reduction (tpy)	Cost per Ton Removed
Regenerative Thermal Oxidizer (95% control, 10-yr life with media replacement at 7% interest)	\$3,469,867	42.98	\$80,732
Regenerative Thermal Oxidizer with WESP (95% control, 20-yr life with media replacement at 7% interest)	\$3,175,651	42.98	\$73,887
Regenerative Thermal Oxidizer without WESP (95% control, 20-yr life with media replacement at 7% interest)	\$2,147,003	42.98	\$49,954
Recuperative Thermal Oxidizer (98 – 99.99% control, 10-yr life at 7% interest)	\$8,474,597	44.35 – 45.25	\$191,125 at 98% control
Direct Flame Thermal Oxidizer (Afterburner) (98 – 99.99% control)	\$Not Available	44.35 – 45.25	\$Not Available
Catalytic Oxidizer (Fixed Bed) (90 – 99% control, 10-yr life at 7% interest)	\$5,632,618	40.73 – 44.80	\$138,323 at 90% control
Packed Bed Scrubber (70 – 99% control, 10-yr life at 7% interest) (updated based on 1/29/2026 quote)	\$4,573,646	31.67 – 44.79 38.46 at 85%	\$118,924 at 85% control
Spray Tower Scrubber (50 – 95% control)	\$Not Available	31.67 – 44.79	\$Not Available
Wet Scrubber (Venturi Scrubber) (50 – 95% control)	\$1,522,850	31.67 – 44.79	\$39,597 at 85% control

Based on the costs shown above for using oxidizers to control the OSB Press Hall emissions, the economic impacts of these controls are considered excessive. These costs support elimination of regenerative thermal oxidizers, recuperative thermal oxidizers, and regenerative catalytic oxidizers (fixed bed) as BACT. The next most stringent control is a wet scrubber, which removes VOCs that are soluble in the scrubbing liquid (usually water, though chemical additives could be used). OSB press emissions contain various VOCs, including terpenes, aldehydes (like formaldehyde and acetaldehyde), methanol, and phenol, which have varying solubilities. Control efficiency depends on system design and operation, including contact time, liquid-to-gas ratio and liquid flow rate,

pH, and chemical composition of scrubbing liquid. Based on the costs shown above for the wet scrubber for the OSB press hall, the economic impacts of these controls are outweighed by the process benefits.

Kronospan proposes a wet scrubber and good design/operation for controlling VOC emissions from the Press Hall sources, with VOC BACT limits of 10.33 lb/hr and 0.073 lb/MSF 3/8". The diagonal saw, cut-to-size saw, three (3) tongue and groove lines, and sanding would also be limited to a throughput of 3,404 MSF 3/8"/day. Kronospan would demonstrate compliance with these VOC BACT limits through annual stack testing. Kronospan would indicate compliance with the VOC BACT limits through parametric monitoring of the scrubber flow rates. If approved by EPA for parametric monitoring, records of the 3-hour block average liquid flow rate of the scrubber and the daily throughput would be required to be maintained on file available for inspection for at least five years.

Nitrogen Oxide (NO_x)

NO_x emissions are emitted from the OSB press because the resin used in the process contains nitrogen. NO_x emissions are not expected from the other Press Hall sources.

Potential NO_x controls for the OSB press hall processes and their respective control efficiencies are shown in the table below.

Control Type	Estimated NO _x Control Efficiency
Resin Reformulation/Material Usage	Varies
Good Design/Operation	Varies

Kronospan's resin technology uses nitrogen-containing resins to manufacture OSB products, and there are no non-nitrogen resins that are technically feasible for Kronospan's OSB press process. Therefore, resin reformulation/material usage is determined to be technically infeasible.

As the only remaining option, Kronospan proposes to use good design/operations as BACT for controlling emissions of NO_x from the OSB press. This control option includes efficiently utilizing resins to reduce NO_x emissions. Kronospan also proposes BACT limits of 6.24 lb/hr and 0.044 lb/MSF 3/8". Kronospan would demonstrate compliance with these NO_x BACT limits through an initial compliance test, then compliance testing once every three years. Kronospan would indicate compliance with the NO_x BACT limits through monitoring of the daily process throughput. Records of the daily throughput would be required to be maintained on file available for inspection for at least five years.

Carbon Monoxide (CO)

Emissions of CO from the OSB press result from the resin formulation used during the board-making process. CO emissions are not expected from the other Press Hall sources.

Potential CO controls for the OSB press hall processes and their respective control efficiencies are shown in the table below.

Control Type	Estimated CO Control Efficiency
Direct Flame Thermal Oxidizers	75 to 95%
Recuperative Thermal Oxidizers	75 to 95%
Regenerative Thermal Oxidizers	75 to 95%
Regenerative Catalytic Oxidizers	75 to 95%
Biofilters	40 to 77% ³⁷
Good Design/Operation	Varies
Good Operating Practices	Varies

The technically feasible control options for controlling CO from the OSB press are ranked in the table below.

Rank	Technology
1	Direct Flame Thermal Oxidizer
1	Recuperative Thermal Oxidizer
1	Regenerative Thermal Oxidizer
1	Regenerative Catalytic Oxidizer
2	Biofilters
3	Good Design/Operation
3	Good Operating Practices

The table below displays the results of Kronospan's cost effectiveness evaluation for using oxidizers and scrubbers to control VOCs from the OSB Press Hall. Based on the costs shown below, the economic impacts of these controls are considered excessive. These costs support elimination of regenerative thermal oxidizers, recuperative thermal oxidizers, regenerative catalytic oxidizers (fixed bed), and biofilters as BACT for the OSB press.

Scenario	Annualized Cost	Estimated CO Reduction (tpy)	Cost per Ton Removed
Regenerative Thermal Oxidizer (90% control, 10-yr life with media replacement at 7% interest)	\$3,469,867	50.34	\$68,930
Regenerative Thermal Oxidizer with WESP (90% control, 20-yr life with media replacement at 7% interest)	\$3,175,651	50.34	\$63,085

Regenerative Thermal Oxidizer without WESP (90% control, 20-yr life with media replacement at 7% interest)	\$2,147,003	50.34	\$42,651
Recuperative Thermal Oxidizer (75 – 95% control, 10-yr life at 7% interest)	\$8,474,597	41.95 – 53.14	\$202,019 at 75% control
Direct Flame Thermal Oxidizer (Afterburner) (75 - 95%)	\$Not Available	41.95 – 53.14	\$Not Available
Catalytic Oxidizer (Fixed Bed) (75 - 95% control, 10-yr life at 7% interest)	\$5,632,618	41.95 – 53.14	\$134,272 at 75% control
Biofilter (77% control, 10-yr life with biofilter bed replacement at 7% interest)	\$1,762,278	43.07	\$40,918

As the only remaining control option, Kronospan proposes good design/operation and good operating practices as BACT, with CO BACT limits of 12.77 lb/hr and 0.09 lb/MSF 3/8". Kronospan would demonstrate compliance with these CO BACT limits through an initial compliance test, then compliance testing once every three years annual. Kronospan would indicate compliance with the CO BACT limits through monitoring of the daily process throughput. Records of the daily throughput would be required to be maintained on file available for inspection for at least five years.

Diesel-fired Emergency Generators (ENG-06, ENG-07, and ENG-08)

The Department has determined that the appropriate BACT for the three emergency engines is compliance with 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Kronospan would be required to maintain records of operation and maintenance and to submit a semiannual report certifying that proper maintenance and operating practices were accomplished.

BACT Summary

BACT Emission Limits for Oriented Strand Board Project															
	PM		PM10		PM2.5		VOC		NOx		CO		GHG		VE%
Process	lb/hr	gr/dscf	lb/hr	gr/dscf	lb/hr	gr/dscf	lb/hr	lbs/wet tons @55% moisture					lb/hr	CO2e lb/MMBtu	
Flakers (4)	0.06	0.002185	0.044	0.0016	0.008	0.0003	22.78	0.082							5
Stranders (3)	0.15	0.002185	0.114	0.0016	0.021	0.0003	De minimus								5
	lb/hr	gr/dscf	lb/hr	gr/dscf	lb/hr	gr/dscf	lb/ODT	lb/hr							
Blending/Gluing	0.60	0.002185	0.45	0.00165	0.08	0.0003	0.165	20.05							5
Sifter/Screening	0.80	0.002185	0.60	0.00165	0.11	0.0003	0.145	17.62							5
	lb/hr	lb/MSF 3/8"	lb/hr	lb/MSF 3/8"	lb/hr	lb/MSF 3/8"	lb/hr	lb/MSF 3/8"	lb/hr	lb/MSF 3/8"	lb/hr	lb/MSF 3/8"			
Press Hall Activities	2.94	0.0206	5.26	0.0371	5.15	0.0363	10.33	0.073	6.24	0.044	12.77	0.09			15
	lb/hr	gr/dscf	lb/hr	gr/dscf	lb/hr	gr/dscf	lb/hr	lb/MSF 3/8"							
Dust/Granulate Handling Process (total emissions)	De minimus		De minimus		De minimus		De minimus								5
	lb/hr	gr/dscf	lb/hr	gr/dscf	lb/hr	gr/dscf	lb/hr	lb/ODT	lb/hr	lb/ODT	lb/hr	lb/ODT			
(3) - Dryers (each unit)	12.80	0.002185	9.66	0.00165	1.76	0.0003	30.38	0.75	0.31	0.0077	3.84	0.0950			10
	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	CO2e lb/MMBtu	
(2) - 204.73 MMBtu/hr Biomass TOH (each unit)	2.66	0.013	6.14	0.03	5.87	0.0287	7.32	0.036	36.65	0.18	36.65	0.18	45,903	224.464	10
	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	CO2e lb/MMBtu	
(4) - 56.2 MMBtu/hr Biomass TOH (each unit)	0.15	0.00267	0.47	0.00837	0.47	0.00837	0.031	0.00095	2.50	0.0445	0.264	0.00472	6,785	120.734	5
	lb/hr	gr/bhp-hr	lb/hr	gr/bhp-hr	lb/hr	gr/bhp-hr	lb/hr	gr/bhp-hr	lb/hr	gr/bhp-hr	lb/hr	gr/bhp-hr	lb/hr	CO2e lb/MMBtu	
(3) - 1220 bhp Emergency Engine (based on 500 hr/yr)	0.40	0.15	0.46	0.15	0.46	0.15	1.29	4.8	11.62	4.8	6.99	2.6	1,150	162.10	5

Ambient Air Impact Analysis (Modeling)

An ADEM review of the modeling and MERPs analysis determined that the proposed facility would not be expected to cause or contribute to any violation of a National Ambient Air Quality Standard (NAAQS) or PSD Increment. For further discussion of the analysis, see the attached memo from the Meteorological Section of the Planning Branch (Appendix A) and the final Report of Dispersion Modeling Analysis of the application.

Class I

The PSD regulations require that an analysis of the potential ambient impacts of Federal Class I areas within 100 km of a proposed source be completed. This project would be located greater than 100 km from the nearest Class I Area (about 149 km from the Sipsey Wilderness Area). The project emissions are not expected to affect the Sipsey Wilderness Area.

Visibility

The PSD regulations require that an analysis of the potential impairment to visibility in Class I areas be completed. Since Kronospan is located greater than 100 km from the nearest Class I area (Sipsey Wilderness Area), it is unlikely that the proposed project would adversely affect visibility in this area.

Secondary Impacts

The MERPs analysis for Ozone was performed and based on the contribution of this project to the design value of the closest monitor, this project passes the Tier 1 assessment for ozone. Additionally, particulate emissions are not expected to cause adverse effects on vegetation. As such, a soil and vegetation analysis were not performed.

Public Participation

In order to satisfy the public participation requirement, a copy of the preliminary determination and the permit application will be provided on the ADEM website for at least 30 days for public review. After the 30-day public comment period and within 5 days of the PSD permit issuance, the final determination will be made available on the ADEM website. The final determination consists of copies of the signed permits, any comments received during the public comment period, and any responses made to those comments.

Recommendations

The analysis indicates that this facility would meet the requirements of all federal and State rules and regulations. Therefore, I recommend that Kronospan be issued Air Permit Nos. X076-X083 for the proposed OSB project, pending resolution of any comments received during the 30-day public comment period. The proposed permits have been included in Appendix C.

Corey Ohme
Chemical Branch
Air Division

Appendix A

Modeling Memo

EDWARD F. POOLOS
DIRECTOR

JEFFERY W. KITCHENS
DEPUTY DIRECTOR



Alabama Department of Environmental Management
adem.alabama.gov

1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ■ FAX (334) 271-7950

KAY IVEY
GOVERNOR

March 20, 2026

MEMORANDUM

TO: *CO* Corey Ohme
Natural Resources Section
Chemical Branch
Air Division

FROM: *ML* Michael Leach/Scott Southwick
Meteorological Section
Planning Branch
Air Division

SUBJECT: Air Dispersion Modeling for Kronospan OSB Plant Expansion Prevention
of Significant Deterioration (PSD) Permit Application

ADEM has completed its review of an air quality modeling analysis performed by ERM on behalf of Kronospan, LLC. The purpose of this analysis was to assess the impacts on air quality from emissions of nitrogen dioxide (NO₂), particulate matter with an aerodynamic diameter less than 2.5 microns (PM_{2.5}), particulate matter with an aerodynamic diameter less than 10 microns (PM₁₀), and Carbon Monoxide (CO) from a proposed expansion of Kronospan's Eastaboga, Alabama facility. An air quality analysis was performed for NO₂, PM_{2.5}, PM₁₀, and CO to demonstrate that emissions from the proposed modification will not cause or contribute to a violation of any applicable National Ambient Air Quality Standard (NAAQS) or PSD Increment.

AIR QUALITY MODELS:

The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD), version 24142, was used in default mode for modeling all pollutants. The NO₂ modeling was performed using the regulatory default Tier 2 Ambient Ratio Method 2 (ARM2) in AERMOD.



Birmingham Office
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Office
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Coastal Office
1615 South Broad Street
Mobile, AL 36605
(251) 450-3400
(251) 479-2593 (FAX)

METEOROLOGICAL DATA:

Surface and upper air meteorological data for the years 2019-2023 were used in all modeling. The surface data was from the Anniston, AL National Weather Service (NWS) site and the upper air data was from the Birmingham (Alabaster), AL NWS site.

GOOD ENGINEERING PRACTICE ANALYSIS:

A Good Engineering Practice (GEP) Analysis was performed to assess possible building downwash effects. It was determined that all the stacks that were modeled are within the influence area (5L) of one or more of the controlling buildings and have heights less than the GEP stack height. Therefore, building downwash was considered for those sources in the modeling.

SCREENING MODELING & PRECONSTRUCTION MONITORING:

Screening modeling was performed for NO₂, PM_{2.5}, PM₁₀, and CO proposed emissions at Kronospan. Appendix A lists the stack parameters and emission rates for the proposed new and modified sources at Kronospan that were used in the modeling.

A Cartesian receptor grid extending out to 50 kilometers (km) was used in the modeling analysis. The receptor grid was generated using the following:

- (1.) 100 meter (m) spacing along the fence line.
- (2.) 100 m spacing from fence line out to 4 km.
- (3.) 250 m spacing from 4 km to 7 km.
- (4.) 500 m spacing from 7 km to 20 km.
- (5.) 1000 m spacing from 20 km to 50 km.

All maximum predicted concentrations for all pollutants for all averaging periods were resolved to within 100-meter receptor spacing. Receptor terrain elevations were generated using the EPA AERMAP program.

Table 1 lists the results of screening modeling performed for PM_{2.5}, PM₁₀, NO₂, and CO.

TABLE 1
Screening Modeling Results

Pollutant	Averaging Period	Max Conc. ($\mu\text{g}/\text{m}^3$)	Signif. Level ($\mu\text{g}/\text{m}^3$)	SIA (km)
NO ₂	1 hour	68.80	7.5	50
NO ₂	Annual	0.58	1	-
PM _{2.5}	24 hour	1.33*	1.2	9.3
PM _{2.5}	Annual	0.37*	0.13	1.66
PM ₁₀	24 hour	5.37	5	0.58
PM ₁₀	Annual	1.32	1	0.71
CO	1 hour	89.69	2,000	-
CO	8 hour	29.83	500	-

*Includes MERPs values for secondary concentrations.

Results of the modeling indicated that the maximum predicted concentration for annual NO₂ and for 1 hour and 8 hour CO were below the significance levels. Therefore, further modeling of annual NO₂ and 1 hour and 8 hour CO was not required. However, the 1 hour NO₂, 24 hour and annual PM_{2.5}, and 24 hour and annual PM₁₀ averaging periods were predicted to have concentrations greater than their significance levels. Therefore, further modeling of 1 hour NO₂, PM_{2.5}, and PM₁₀ was required.

Also, during this initial screening modeling analysis, preconstruction monitoring requirements were addressed, and it was determined that preconstruction monitoring for all pollutants was not required.

MERPs ANALYSIS:

Precursor emission impacts to Ozone and PM_{2.5} (secondary PM_{2.5}) were considered and a Modeled Emission Rates for Precursors (MERPs) analysis was performed. The Ozone precursors are the pollutants VOC and NO_x, and the precursor emissions of interest for secondary PM_{2.5} are NO_x and SO₂. For secondary PM_{2.5}, the following total emissions were considered: for NO_x, 383 TPY; and for SO₂, 20 TPY. For Ozone, the following total emissions were considered: for VOC, 812 TPY; and for NO_x, 383 TPY. The results for the MERPs analyses are presented in Table 2.

TABLE 2
MERPs Analysis Results

Pollutant	Results
Secondary PM _{2.5} (24 hour)	0.083 $\mu\text{g}/\text{m}^3$
Secondary PM _{2.5} (Annual)	0.0298 $\mu\text{g}/\text{m}^3$
Ozone (8 hour)	1.54 ppb

The secondary concentrations from the MERPs analysis were added to the screening modeling, NAAQS, and Class II Increment modeling results for PM_{2.5}. Also, the nearest ozone monitor to the proposed project is the Southside, AL monitor. Based on that monitor, the addition of 1.54 ppb of ozone from the MERPs analysis added to the

Southside, AL monitor's 8 hour design value of 61.00 ppb gives a total of 62.54 ppb. This is less than the standard of 70 ppb and thus demonstrates passing the Tier 1 assessment for ozone.

REFINED MODELING:

NAAQS ANALYSIS:

When modeling for the NAAQS, all emission sources at Kronospan and other nearby facilities were included. An inventory of sources was required for PM_{2.5}, PM₁₀, and NO₂. Results of the NAAQS modeling are found in Table 3.

TABLE 3
NAAQS Modeling Results

Pollutant	Averaging Period	Predicted Conc. (µg/m ³)	Back-ground (µg/m ³)	Total Conc. (µg/m ³)	NAAQS (µg/m ³)	% of NAAQS
NO ₂	1 hour	889.11	31	920.11	188	489
PM _{2.5}	24 hour	9.48*	16	25.48*	35	73
PM _{2.5}	Annual	2.57*	6.2	8.77*	9	97
PM ₁₀	24 hour	17.66	57	74.66	150	50

*Includes Secondary Concentrations from project emissions and nearby sources

As shown in Table 3, there are no predicted violations of the NAAQS standards for 24 hour and annual PM_{2.5} and for 24 hour PM₁₀. However, there were predicted violations of the 1 hour NO₂ NAAQS. A culpability analysis was performed for 1 hour NO₂ using the MAXDCONT values generated by AERMOD. The results of the analysis showed that the proposed new and modified sources at Kronospan did not cause or significantly contribute to any of the predicted violations. ADEM is committed to resolving the predicted 1 hour NO₂ violations.

CLASS II INCREMENT ANALYSIS:

When modeling for the Class II Increment, all sources at Kronospan and other nearby facilities were included for PM_{2.5} and PM₁₀. An inventory of sources was required for PM_{2.5} and PM₁₀. Results of the Class II Increment modeling are shown in Table 4.

TABLE 4
Class II Increment Modeling Results

Pollutant	Averaging Period	Predicted Conc. ($\mu\text{g}/\text{m}^3$)	Increment ($\mu\text{g}/\text{m}^3$)	% of Increment
PM _{2.5}	24 hour	9*^	9	100
PM _{2.5}	Annual	2*	4	50
PM ₁₀	24 hour	19	30	63
PM ₁₀	Annual	6	17	35

*includes Secondary concentrations from project sources

As shown in Table 4, there are no predicted violations of the PM_{2.5} and PM₁₀ Class II Increments for any averaging period.

^The application shows a violation of the Class II Increment for 24-hour PM_{2.5} due to a nearby source included in the modeling. ADEM reviewed the inventory for PM_{2.5} and determined that the source in question was outside of the area of influence for the Kronospan project and therefore should not have been included in the modeling for Kronospan. In addition, ADEM reviewed the emissions for the source in question and found that the emissions modeled were vastly higher than they should have been. The source also should not have been included in the inventory for that reason. ADEM reperformed the Class II Increment modeling for 24 hour PM_{2.5} and the result is shown in the table above.

CLASS I AREA MODELING:

The nearest Class I area to Kronospan is the Sipsey Wilderness Area (located 149 km northwest of Kronospan). ADEM did not require a Class I analysis and the applicable Federal Land Manager did not require a Class I AQRV analysis either based on information that was provided to them.

CONCLUSION:

In conclusion, emissions of NO₂, PM_{2.5}, PM₁₀, and CO from the proposed project at the Kronospan facility in Eastaboga, Alabama are not expected to cause or significantly contribute to any violation of a NAAQS or Class II Increment.

Appendix A

TABLE A1
Project Source Parameters

Source ID	Description	Release Type	UTM Easting (m)	UTM Northing (m)	Base Elevation (ft)	Stack Height (ft)	Stack Temp (F)	Exit Diameter (ft)	Exit Velocity (ft/s)
POINT SOURCES									
BLUE	Glueing	Vertical	594425.49	3719457.94	603.33	100	86	2.95	86.11
SIFTER	Sifter / Screening	Vertical	594521.47	3719479.02	603.33	100	86	3.28	92.88
DUST1	HP Dust dryer 1-3	Vertical	594671.24	3719481.75	603.33	98.43	86	0.66	71.66
DUST2	HP Dust screening/gluing/forming	Vertical	594668.33	3719481.17	603.33	98.43	86	0.66	100.35
DUST3	HP Dust sanding	Vertical	594667.28	3719480.52	603.33	98.43	86	0.66	100.35
BRAN1	HP Granulate forming line	Vertical	594667.46	3719486.90	603.33	98.43	86	0.66	100.35
DUST4	HP OSB Dust to boiler dust	Vertical	594769.71	3719462.10	603.33	98.43	86	0.98	91.03
DUST5	HP boiler Dust to MDF dust	Vertical	594944.13	3719472.93	603.33	98.43	86	0.98	91.03
DUST6	HP MDF Dust to boiler dust	Vertical	594772.42	3719462.96	603.33	98.43	86	0.98	71.52
DUST7	HP dust strander to dust silo	Vertical	594672.11	3719478.99	603.33	98.43	86	0.66	100.35
BRAN2	HP MDF Granulate to boiler granulate	Vertical	594778.79	3719464.96	603.33	98.43	86	0.98	91.03
BRAN3	HP Granulate from PB to OSB	Vertical	594532.84	3719508.90	603.33	98.43	86	0.98	91.03
BRAN4	HP Granulate from OSB to PB flaker silo	Vertical	594845.15	3719621.21	603.33	98.43	86	0.98	91.03
BRAN5	HP Granulate saws	Vertical	594666.23	3719490.81	603.33	98.43	86	0.98	71.52
DUST8	HP dust from saw filter to dust silo	Vertical	594670.14	3719478.41	603.33	98.43	86	0.98	71.52
BRAN6	HP Granulate screening to granulate silo	Vertical	594666.85	3719488.86	603.33	98.43	86	0.98	91.03
BRAN7	HP Granulate screening dust to dust silo	Vertical	594668.13	3719477.82	603.33	98.43	86	0.66	100.35
BELTDYR1	Belt dryer 1	Vertical	594628.62	3719558.61	603.33	230	131	13.78	102.03
BELTDYR2	Belt dryer 2	Vertical	594600.88	3719539.74	603.33	230	131	13.78	102.03
BELTDYR3	Belt dryer 3 and Press exhaust	Vertical	594556.57	3719516.08	603.33	230	125	13.78	128.35
BIOMASS	Biomass Heaters #1 and #2 (K7 and K8), two of four ¹ gas-fired thermal oil heaters (K9-K12)	Vertical	594867.12	3719479.78	603.33	230	338	8.5	72.02

1. Kronospan is proposing to install four gas-fired thermal oil heaters. The modeled parameters for the BIOMASS stack represent the worst-case scenario of 2 biomass heaters running with 2 gas-fired thermal oil heaters.

Source ID	Description	UTM Easting (m)	UTM Northing (m)	Base Elevation (ft)	Release Height ³ (ft)	Initial Horizontal Dimension ⁴ (ft)	Initial Vertical Dimension ⁵ (ft)
VOLUME SOURCES²							
FSR_0001	Fugitive emissions from Strander Hall	594589.91	3719420.28	603.33	36.575	20.465	34.023
FSR_0002	Fugitive emissions from Strander Hall	594618.22	3719428.99	603.33	36.575	20.465	34.023
FSR_0003	Fugitive emissions from Strander Hall	594646.53	3719437.70	603.33	36.575	20.465	34.023
FSR_0004	Fugitive emissions from Strander Hall	594674.83	3719446.41	603.33	36.575	20.465	34.023
FSR_0005	Fugitive emissions from Strander Hall	594703.14	3719455.12	603.33	36.575	20.465	34.023

2. Emissions from four (4) OSB flakers, three (3) OSB stranders, and the chipper vent into the Strander Hall. Fugitive emissions from the building are represented by five (5) volume sources along the length of the building.

3. Release height: Building height / 2 = 73.15 ft / 2 = 36.575 ft

4. Initial horizontal dimension: Building width / 4.3 = 88 ft / 4.3 = 20.465 ft

5. Initial vertical dimension: Building height / 2.15 = 73.15 ft / 2.15 = 34.023 ft

TABLE A2
Project Source Modeled Emission Rates

Source ID	Description	CO (lb/hr)	NO _x (lb/hr)	PM ₁₀ (lb/hr)	PM _{2.5} (lb/hr)
GLUE	Glueing	-	-	0.45	0.08
SIFTER	Sifter / Screening	-	-	0.60	0.11
DUST1	HP Dust dryer 1-3	-	-	0.020	0.003
DUST2	HP Dust screening/gluing/forming	-	-	0.03	0.005
DUST3	HP Dust sanding	-	-	0.03	0.005
GRAN1	HP Granulate forming line	-	-	0.03	0.005
DUST4	HP OSB Dust to boiler dust	-	-	0.050	0.01
DUST5	HP boiler Dust to MDF dust	-	-	0.050	0.01
DUST6	HP MDF Dust to boiler dust	-	-	0.040	0.008
DUST7	HP dust strander to dust silo	-	-	0.03	0.005
GRAN2	HP MDF Granulate to boiler granulate	-	-	0.050	0.01
GRAN3	HP Granulate from PB to OSB	-	-	0.050	0.01
GRAN4	HP Granulate from OSB to PB flaker silo	-	-	0.050	0.01
GRAN5	HP Granulate saws	-	-	0.040	0.008
DUST8	HP dust from saw filter to dust silo	-	-	0.040	0.008
GRAN6	HP Granulate screening to granulate silo	-	-	0.050	0.01
GRAN7	HP Granulate screening dust to dust silo	-	-	0.03	0.005
BELTDY1	Belt dryer 1	3.84	0.31	9.66	1.76
BELTDY2	Belt dryer 2	3.84	0.31	9.66	1.76
BELTDY3	Belt dryer 3 and Press exhaust	16.61	6.55	14.92	6.91
BIOMASS	Biomass Heaters #1 and #2 (K7 and KB), two of four ¹ gas-fired thermal oil	73.82	78.30	13.32	12.67
FSR_0001	Fugitive emissions from Strander Hall	-	-	0.0424	0.0112
FSR_0002	Fugitive emissions from Strander Hall	-	-	0.0424	0.0112
FSR_0003	Fugitive emissions from Strander Hall	-	-	0.0424	0.0112
FSR_0004	Fugitive emissions from Strander Hall	-	-	0.0424	0.0112
FSR_0005	Fugitive emissions from Strander Hall	-	-	0.0424	0.0112

1. Kronospan is proposing to install four gas-fired thermal oil heaters. The modeled parameters for the BIOMASS stack represent the worst-case scenario of 2 biomass heaters running with 2 gas-fired thermal oil heaters.

Appendix B

Proposed Permits

AIR PERMIT

PERMITTEE: KRONOSPAN, LLC
FACILITY NAME: KRONOSPAN, LLC
LOCATION: EASTABOGA, CALHOUN COUNTY, ALABAMA

PERMIT NUMBER	DESCRIPTION OF EQUIPMENT, ARTICLE OR DEVICE
301-0079-X076	204.73 MMBtu/hr Biomass Thermal Oil Heater (K7) controlled by a Multiclone and Hybrid Filter (Dry Electrostatic Precipitator/Baghouse)
	204.73 MMBtu/hr Biomass Thermal Oil Heater (K8) controlled by a Multiclone and Hybrid Filter (Dry Electrostatic Precipitator/Baghouse)

In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, Ala. Code §§ 22-28-1 to 22-28-23, as amended, the Alabama Environmental Management Act, Ala. Code §§ 22-22A-1 to 22-22A-17, as amended, and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.

ISSUANCE DATE: DRAFT

Alabama Department of Environmental Management

**KRONOSPAN, LLC
EASTABOGA, ALABAMA
PERMIT NO. 301-0079-X076
PROVISOS**

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.
2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.
3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate, reduce, or control the issuance of air contaminants.
4. The permittee shall keep this permit under file or on display at all times at the site where the facility for which the permit is issued is located and shall make the permit readily available for inspection by any or all persons who may request to see it.
5. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.
6. On completion of construction of the device(s) for which this permit is issued, written notification of the fact is to be submitted to the Chief of the Air Division. The notification shall indicate whether the device(s) was constructed as proposed in the application. The device(s) shall not be operated until authorization to operate is granted by the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.
7. Each point of emission, which requires testing, will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.
8. All air pollution control equipment shall be operated at all times while this process is operational. In the event of scheduled maintenance, unscheduled maintenance, or a breakdown of the pollution control equipment, the process shall be shut down as expeditiously as possible (unless this act and subsequent re-start would clearly cause greater emissions than continuing operations of the process for a short period). The Department shall be notified of all such events **that exceed 1 hour** within 24 hours. The notification shall include all pertinent facts, including the duration of the process operating without the control device and the level of excess emissions which have occurred. Records of all such events, regardless of reporting requirements, shall be made and maintained for a period of five years. These records shall be available for inspection.
9. This process, including all air pollution control devices and capture systems for which this permit is issued, shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is

properly operated and maintained so as to minimize the emission of air contaminants shall be established.

10. Deviations from permit requirements shall be reported within 48 hours or 2 working days of such deviations, including those attributable to upset conditions as defined in the permit. The report will include the probable cause of said deviations, and any corrective actions or preventive measures that were taken.
11. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.
12. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.
13. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.
14. Unless otherwise stated in this permit or an applicable regulation, the Air Division must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.

To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:

- (a) The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.
- (b) A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).
- (c) A description of the process(es) to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.
- (d) A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

All test reports must be submitted to the Air Division within 60 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

15. Any performance tests required shall be conducted and data reduced in accordance with the test methods and procedures contained in each specific permit condition unless the Director (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (2) approves the use of an equivalent method, or (3) approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance.
16. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.
17. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

- (a) by the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;
- (b) by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;
- (c) by paving;
- (d) by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

18. Precautions shall be taken by the permittee and its personnel to ensure that no person shall ignite, cause to be ignited, permit to be ignited, or maintain any open fire in such a manner as to cause the Department's rules and regulations applicable to open burning to be violated.
19. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

PERMIT NO. 301-0079-X076

20. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.
21. Reports to the Air Division of any required monitoring shall be submitted at least every 6 months. All instances of deviations from permit requirements must be clearly identified in said reports. All required reports must be certified by a responsible official consistent with ADEM Admin. Code r. 335-3-16-.04(9).
22. The permittee shall submit an Annual Compliance Certification for the two (2) 204.73 Biomass Thermal Oil Heater processes (K7 and K8) to the Air Division by January 14th of each year for each annual reporting period (November 16th – November 15th).
 - (a) The compliance certification shall include the following:
 - i) The identification of each term or condition of this permit that is the basis of the certification;
 - ii) The compliance status;
 - iii) The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with Rule 335-3-16-.05(c) (Monitoring and Recordkeeping Requirements);
 - iv) Whether compliance has been continuous or intermittent; and
 - v) Such other facts as the Department may require to determine the compliance status of the source.
 - (b) The compliance certification shall be submitted to:

Alabama Department of Environmental Management
Air Division
P.O. Box 301463
Montgomery, AL 36130-1463

The compliance certification shall contain certification by a responsible official of truth, accuracy and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

204.73 MMBtu/hr Wood-fired Thermal Oil Heater (K7)
204.73 MMBtu/hr Wood-fired Thermal Oil Heater (K8)

Summary Page

Description: 204.73 MMBtu/hr Biomass-fired Thermal Oil Heater (K7) controlled by a Multiclone (MC1) and Hybrid Filter (Dry Electrostatic Precipitator/Baghouse - EF1) exhausting to TOH-1

204.73 MMBtu/hr Biomass-fired Thermal Oil Heater (K8) controlled by a Multiclone (MC2) and Hybrid Filter (Dry Electrostatic Precipitator/Baghouse - EF2) exhausting to TOH-1

Operating Schedule: 24 hrs/day, 7 days/week, 52 weeks/yr

Pollutants Emitted:

Emission Point No.	Description	Pollutant	Emission limit (each unit)	Regulation
TOH-1	Two (2) 204.73 MMBtu/hr Biomass - fired Thermal Oil Heaters (K7 and K8) each controlled by a Multiclone (MC1 and MC2) and Hybrid Filter (Dry Electrostatic Precipitator/Baghouse, EF1 and EF2)	Opacity	10%	40 CFR §63.7500(a)(1)
		PM	0.17 gr/dscf @ 50% EA	ADEM Admin. Code r. 335-3-4-.08(2)(a)
			0.030 lb/MMBtu	ADEM Admin. Code r. 335-3-10-.02(2)(c) 40 CFR §60.43b(h)(1)
			0.013 lb/MMBtu	ADEM Admin. Code r. 335-3-11-.06(107) 40 CFR §63.7500(a)(1) and Table 1
			2.66 lb/hr	ADEM Admin Code r. 335-3-14-.04
			0.013 lb/MMBtu	
		PM ₁₀	6.14 lb/hr	ADEM Admin Code r. 335-3-14-.04
			0.03 lb/MMBtu	ADEM Admin Code r. 335-3-14-.04
		PM _{2.5}	5.87 lb/hr	ADEM Admin Code r. 335-3-14-.04
			0.0287 lb/MMBtu	
		NO _x	36.65 lb/hr	ADEM Admin Code r. 335-3-14-.04

			0.18 lb/MMBtu	
		CO	390 ppmvd @ 3% O ₂ (30-day rolling average)	ADEM Admin. Code r. 335-3-11-.06(107) 40 CFR §63.7500(a)(1) and Table 1
			36.65 lb/hr	ADEM Admin Code r. 335-3-14-.04
			0.18 lb/MMBtu	
		VOC	7.32 lb/hr	ADEM Admin Code r. 335-3-14-.04
			0.036 lb/MMBtu	
		SO ₂	4.0 lb/MMBtu	ADEM Admin. Code r. 335-3-5-.01(b)
		HCl	0.00021 lb/MMBtu	ADEM Admin. Code r. 335-3-11-.06(107) 40 CFR §63.7500(a)(1) and Table 1
		Hg	0.0000008 lb/MMBtu	ADEM Admin. Code r. 335-3-11-.06(107) 40 CFR §63.7500(a)(1) and Table 1
		GHG (CO ₂ e)	45,903 lb/hr	ADEM Admin Code r. 335-3-14-.04
			224.464 lb/MMBtu	

K7 and K8 (Biomass-fired Thermal Oil Heaters)

Unit Specific Provisos

Federally Enforceable Provisos	Regulations
1. <u>Applicability</u> (a) The permittee is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, “Major Source Operating Permits.” (b) These units are subject to the applicable requirements of 40 CFR Part 64, Compliance Assurance Monitoring. (c) These units are subject to the applicable requirements of ADEM Admin. Code r. 335-3-14-.04, “Air Permits Authorizing Construction in Clean Air Areas (Prevention of Significant Deterioration Permitting (PSD))”. (d) These units are subject to the applicable requirements of Standards of Performance for New Stationary Sources, General Provisions, 40 CFR Part 60, Subpart A [adopted by reference at ADEM Admin. Code r. 335-3-10-.02(1)], and to the Standards of Performance for New Stationary Sources, Industrial-Commercial-Institutional Steam Generating Units, 40 CFR Part 60, Subpart Db. (e) These units are subject to the applicable requirements of the National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters, 40 CFR Part 63, Subpart DDDDD [adopted by reference at ADEM Admin. Code r. 335-3-11-.06(107)], and to the NESHAP General Provisions, 40 CFR Part 63, Subpart A, as provided in 40 CFR §63.7565 and Table 10 of Subpart DDDDD. The permittee shall be in compliance with these standards upon startup (1) The K7 and K8 boilers have been classified as a stoker/sloped grate/other unit designed to burn wet biomass/bio-based solids.	ADEM Admin. Code r. 335-3-16-.03 ADEM Admin. Code r. 335-3-16-.05(c); 40 CFR Part 64 ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-10-.02(2)(b); 40 CFR 60, Subpart A; 40 CFR 60, Subpart Db ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63, Subpart A; 40 CFR 63, Subpart DDDDD ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR §63.7499(i)
2. <u>Emission Standards</u> (a) The permittee shall not operate both biomass-fired thermal oil heaters (K7 and/or K8) at the same time if more than two (2) of the natural gas-fired thermal oil heaters (K9, K10, K11, and/or K12) are in operation. (b) The permittee shall not cause or allow the sulfur dioxide (SO₂) emissions from K7 or K8 (each) exceed 4.0 pounds per million BTU heat input (lb/MMBtu).	ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-5-.01(b)

Federally Enforceable Provisos	Regulations
(c) The particulate emission rate from this unit (as measured in accordance with 40 CFR Part 60, Appendix A, Method 5) shall not exceed the amount determined by the use of the following equation: $E=1.38(H)^{-0.44}$ Where: E=Emissions in pounds per MMBtu heat input H=Heat input in MMBtu/hr	ADEM Admin. Code r. 335-3-4-.03(1),
(d) The permittee shall not cause or allow particulate emissions (as TSP) from K7 or K8 to exceed 0.17 grains per dry standard cubic foot (gr/dscf), adjusted to fifty percent (50%) excess air	ADEM Admin. Code r. 335-3-4-.08(2)(a)
(e) The permittee shall not cause or allow the particulate emissions (as TSP) from K7 or K8 to exceed 0.030 pounds per million BTU heat input (lb/MMBtu).	ADEM Admin. Code r. 335-3-10-.02(2)(b); 40 CFR §60.43b(h)(1)
(f) The permittee shall not cause or allow the particulate emission rate from K7 or K8 to exceed 2.66 lb/hr and 0.013 lb/MMBtu.	ADEM Admin Code r. 335-3-14-.04
(g) The permittee shall not cause or allow the 10-micron particulate (PM₁₀) emission rate from K7 or K8 to exceed 6.14 lb/hr and 0.03 lb/MMBtu.	ADEM Admin Code r. 335-3-14-.04
(h) The permittee shall not cause or allow the 2.5-micron particulate emission (PM_{2.5}) rate from K7 or K8 to exceed 5.87lb/hr and 0.0287 lb/MMBtu.	ADEM Admin Code r. 335-3-14-.04
(i) The permittee shall not cause or allow the nitrogen dioxide (NO_x) emissions from K7 or K8 to exceed 36.65 lb/hr and 0.18 lb/MMBtu.	ADEM Admin Code r. 335-3-14-.04
(j) The permittee shall not cause or allow the carbon monoxide (CO) emissions from K7 or K8 to exceed 36.65 lb/hr and 0.18 lb/MMBtu.	ADEM Admin Code r. 335-3-14-.04
(k) The permittee shall not cause or allow the volatile organic compounds emissions, as propane, from K7 or K8 to exceed 7.32 lb/hr and 0.036 lb/MMBtu.	ADEM Admin Code r. 335-3-14-.04
(l) The permittee shall not cause or allow the greenhouse gas (GHG/CO₂e) emissions, from K7 or K8 to exceed 45,903 lb/hr and 224.464 lb/MMBtu.	ADEM Admin Code r. 335-3-14-.04
(m) The permittee shall not discharge into the atmosphere gases from K7 or K8 that exhibit greater than 10% opacity in a 24-hour period.	ADEM Admin. Code r. 335-3-11-.06(107);40 CFR 63, Subpart DDDDD, Table 8(1); ADEM Admin Code r. 335-3-14-.04

Federally Enforceable Provisos	Regulations
(n) The permittee shall not discharge into the atmosphere gases from K7 or K8 that exhibit greater than 20% opacity (6-minute average), except for one period per hour of not more than 27% opacity. (o) The NSPS particulate matter emissions limits and opacity limits for K7 and K8 apply at all times, except during periods of startup, shutdown, or malfunction. (p) The permittee shall record and maintain records of the amounts of each fuel combusted for K7 or K8 during each calendar month. (q) For each applicable emission limit for K7 or K8, if the permittee chooses to comply using paragraph (2) of the definition of “startup” in 40 CFR §63.7575, a written startup and shutdown plan (SSP) must be developed and implemented according to the requirements in Table 3 of 40 CFR 63, Subpart DDDDD. The SSP must be maintained onsite and available upon request for inspection. (r) The permittee shall comply with the following emission limits for K7 and K8: (1) Particulate Matter (PM):0.013 lb/MMBtu of heat input (2) Hydrogen Chloride (HCl):0.00021 lb/MMBtu of heat input (3) Mercury (Hg):0.0000008 lb/MMBtu of heat input (4) Carbon Monoxide (CO): 390 ppm by volume on a dry basis corrected to 3% oxygen (30-day rolling average) (s) The permittee must comply with these standards at all times the affected unit is operating, except during periods of startup and shutdown. During periods of startup and shutdown, the permittee must comply with items 5 and 6 of Table 3 of Subpart DDDDD.	ADEM Admin. Code r. 335-3-10-.02(2)(b); ADEM Admin. Code r. 335-3-10-.02(2)(c); 40 CFR §60.43b(f) ADEM Admin. Code r. 335-3-10-.02(2)(b); ADEM Admin. Code r. 335-3-10-.02(2)(c); 40 CFR §60.43b(g) ADEM Admin. Code r. 335-3-10-.02(2)(c); 40 CFR §60.49b(d) ADEM Admin. Code r. 335-3-11-.06(107) ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR §63.7500(f); 40 CFR §63.7500(a) and Table 1 ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR §63.7500(f)
3. <u>Compliance and Performance Test Methods and Procedures</u> (a) The permittee must demonstrate initial compliance according to applicable requirements listed in 40 CFR §60.8.	ADEM Admin. Code r. 335-3-10-.02(2)(b); 40 CFR 60, Subpart A; 40 CFR 60, Subpart Db

Federally Enforceable Provisos	Regulations
(b) The permittee must demonstrate initial compliance according to applicable requirements listed in 40 CFR §63.7510.	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63, Subpart A; 40 CFR 63, Subpart DDDDD
(c) Prior to a date to be specified by the Chief of the Air Division in the authorization to operate, emission tests are to be conducted by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Written tests results are to be reported to the Air Division within 60 days of completion of testing. Particulate (all species).....(x) Carbon Monoxide.....(x) Sulfur Dioxide.....(x).....Nitrogen Oxides.....(x) Volatile Organic Compounds (as propane).....(x)	ADEM Admin. Code r. 335-3-1-.05; ADEM Admin Code r. 335-3-14-.04
(d) Emissions testing is to be conducted for the Biomass-fired Thermal Oil Heater Nos. K7 and K8 for the following pollutants at intervals not to exceed 14 months and no earlier than 11 months following the date of prior compliance testing. All test reports must be submitted to the Air Division within 60 days of completion of testing, by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Particulate (all species).....(x) Carbon Monoxide.....(x) Sulfur Dioxide.....(x).....Nitrogen Oxides.....(x) Volatile Organic Compounds (as propane).....(x)	ADEM Admin. Code r. 335-3-1-.05; ADEM Admin Code r. 335-3-14-.04
(e) The permittee must conduct all applicable performance tests according to 40 CFR §63.7520 on an annual basis except as specified below: (1) Annual performance tests must be completed no more than 13 months after the previous performance test.	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR §63.7515

Federally Enforceable Provisos	Regulations
(2) For performance tests for a given pollutant for at least 2 consecutive years that show that your emissions are at or below 75 percent of the emission limit for the pollutant and there are no changes to the operation or air pollution control equipment that could increase emissions a. You may choose to conduct performance tests for the pollutant every third year; however, b. Each such performance test must be conducted no more than 37 months after the previous performance test. c. If a performance test shows emissions exceeded the emission limit or 75 percent of the emission limit for a pollutant, the permittee must conduct annual performance tests for that pollutant until all performance tests over a consecutive 2-year period meet the required level (at or below 75 percent of the emission limit).	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR §63.7515(b) and (c)
(f) The permittee shall conduct an annual tune-up of each boiler to demonstrate continuous compliance as specified below: (1) the burner, and clean or replace any components of the burner as necessary; (2) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available; (3) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly; (4) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NO_x requirement to which the unit is subject; (5) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer; and, (6) Maintain on-site and submit, if requested by the Administrator, a report containing the information in 40 CFR §63.7540 (10)(vi)(a) through (C).	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR §63.7540(a)(10)

Federally Enforceable Provisos	Regulations
(g) The permittee shall conduct each annual tune-up specified in §63.7540(a)(10) no more than 13 months after the previous tune-up for K7 and K8.	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR §63.7515(d)
(h) The carbon monoxide (CO) emission rate shall be determined in accordance with Method 10 at 40 CFR Part 60, Appendix A.	ADEM Admin. Code r. 335-3-1-.05
(i) The particulate emission rate from this unit shall be determined in accordance with Method 5 at 40 CFR Part 60, Appendix A.	ADEM Admin. Code r. 335-3-1-.05
(j) The speciated particulate emissions (PM ₁₀ and PM _{2.5}) shall be determined as measured in accordance with 40 CFR Part 60, Appendix A, Method 201A and 202.	ADEM Admin. Code r. 335-3-1-.05
(k) The sulfur dioxide (SO _x) emissions from each unit shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 6C	ADEM Admin. Code r. 335-3-1-.05
(l) The nitrogen oxide (NO _x) emissions from each unit shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 7E	ADEM Admin. Code r. 335-3-1-.05
(m) The volatile organic compounds (VOC as propane) emission rates of these units shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 25A	ADEM Admin. Code r. 335-3-1-.05
(n) If the permittee determines to conduct a compliance test for Total Select Metals (TSM) emission rate from this unit, it shall be determined in accordance with Method 29 at 40 CFR Part 60, Appendix A.	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63, Subpart DDDDD Table 5
(o) If the permittee determines to conduct a compliance test for Hydrogen Chloride (HCl) emission rate from this unit, it shall be determined in accordance with Method 26 or 26A at 40 CFR Part 60, Appendix A.	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63, Subpart DDDDD Table 5
(p) If the permittee determines to conduct a compliance test for Mercury (Hg) emission rate from this unit, it shall be determined in accordance with Method 29, 30A or 30B at 40 CFR Part 60, Appendix A.	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63, Subpart DDDDD Table 5
(q) If the permittee determines to use fuel analysis for compliance with Total Select Metals, Hydrogen Chloride (HCl), or Mercury, it shall be determined using the procedures stated in 40 CFR §63.7521 and Subpart DDDDD Table 6.	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR §63.7515(e)

Federally Enforceable Provisos	Regulations
(r) Following the results of compliance testing, if the results indicate that either nitrogen oxides emission rates from each of the Biomass-fired Thermal Oil Heater No. K7 or K8 exceeds 90 percent of the allowable rate stated in Proviso Nos. 2(h), the permittee shall install and maintain a continuous emission monitoring system (CEMS) for determining compliance with the nitrogen oxides emission limits in Proviso Nos. 2(h) and continuously record the output of the system. The CEMS shall be installed within 18 months of submittal of the performance test results. The CEMS shall meet the requirements in 40 CFR 60, Appendix B, Performance Specification 2, and 40 CFR 60 Appendix F, Quality Assurance Procedures.	ADEM Admin. Code r. 335-3-14-.04
4. <u>Emission Monitoring</u>	
(a) The permittee shall only burn wood for fuel in K7 and K8.	ADEM Admin. Code r. 335-3-16-.05(c)
(b) The hybrid filter shall be physically inspected to ensure that the device has been properly maintained and operates as designed at least annually. If the results of the inspection indicate that cleaning, maintenance, and/or bag/filter replacement is needed, such action shall be initiated within 24 hours of completing the inspection	ADEM Admin. Code r. 335-3-14-.04
(c) The permittee shall establish electrostatic precipitator operating parameters according to §63.7530(b) for K7 and K8.	ADEM Admin. Code r. 335-3-14-.04
(d) The permittee will demonstrate emissions monitoring by performing the following: (1) Collecting the total secondary electrical power input monitoring system data for the electrostatic precipitator according to §§63.7525 and 63.7535; (2) Reducing the data to 30-day rolling averages; (3) Maintaining the 30-day rolling average total secondary electric power input at or above the operating limits established during the performance test according to 40 CFR §63.7530(b)	ADEM Admin. Code r. 335-3-14-.04

Federally Enforceable Provisos	Regulations
(e) The exhaust from K7 and K8 to their respective Hybrid Bag Filter (electrostatic precipitator/baghouse, EF1 or EF2) shall only be allowed to bypass the control device via the abort stack during an emergency situation. The duration of any such occurrence shall be minimized. The permittee shall record the date, nature, duration, and cause of any such emergency situation during which the control device was bypassed. These records shall be kept in a permanent form suitable for inspection and must be retained for at least five years following the date of each occurrence. The permittee shall also submit a report to the Air Division within two working days of each incident during which the control device was bypassed. This report shall specify the date, nature, duration, and cause of the emergency situation as well as the actions the permittee took to minimize emissions during the event. (f) To demonstrate continuous compliance with the VOC limit, the permittee must (1) Install, operate, and maintain a monitoring device for the firebox temperature of K7 and K8; (2) You must install, operate, and maintain each continuous parameter monitoring system (CPMS) according to paragraphs (a) through (c). a. The CPMS must be capable of completing a minimum of one cycle of operation (sampling, analyzing, and recording) for each successive 15-minute period; b. At all times, you must maintain the monitoring equipment including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment; and, c. Record the results of each inspection, calibration, and validation check	ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04

Federally Enforceable Provisos	Regulations
(3) For each temperature monitoring device, you must meet the requirements in 4(g)(2) above and (a) through (e) below: a. Locate the temperature sensor in a position that provides a representative temperature. b. Use a temperature sensor with a minimum accuracy of 4 °F or 0.75 percent of the temperature value, whichever is larger. c. Validate the temperature sensor's reading at least semiannually using the requirements below: i) Compare measured readings to a National Institute of Standards and Technology (NIST) traceable temperature measurement device or simulate a typical operating temperature using a NIST traceable temperature simulation device. When the temperature measurement device method is used, the sensor of the NIST traceable calibrated device must be placed as close as practicable to the process sensor, and both devices must be subjected to the same environmental conditions. The accuracy of the temperature measured must be 2.5 percent of the temperature measured by the NIST traceable device or 5 °F, whichever is greater. ii) Follow applicable procedures in the thermocouple manufacturer owner's manual. iii) Request thermocouple manufacturer to certify or re-certify electromotive force (electrical properties) of the thermocouple. iv) Replace thermocouple with a new certified thermocouple in lieu of validation. v) Permanently install a redundant temperature sensor as close as practicable to the process temperature sensor. The sensors must yield a reading within 30 °F of each other for each firebox. d. Conduct validation checks using the procedures in 4(g)(3) above any time the sensor exceeds the manufacturer's specified maximum operating temperature range or install a new temperature sensor. e. At least quarterly, inspect all components for integrity and all electrical connections for continuity, oxidation, and galvanic corrosion.	

Federally Enforceable Provisos	Regulations
(g) The permittee shall maintain the 3-hour block average firebox temperature of K7 and K8 firebox temperatures above the minimum temperature established during the most recent performance test. Reduce the firebox temperature monitoring system data to the specified averages in units of the applicable limit. (h) The permittee must monitor and collect data according to the following: (1) Except for, as appropriate, monitor malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must conduct all monitoring in continuous operation at all times that the process unit is operating. For the purposes of calculating data averages, you must not use data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities. You must use all the data collected during all other periods in assessing compliance. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. Any period for which the monitoring system is out-of-control and data are not available for required calculations constitutes a deviation from the monitoring requirement. (2) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities or data recorded during periods of safety-related shutdown, or control device downtime covered in any approved routine control device maintenance exemption in data averages and calculations used to report emission or operating levels, nor may such data be used in fulfilling a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing the operation of the control system. (3) Determine the 3-hour block average of all recorded readings, calculated after every 3 hours of operation as the average of the evenly spaced recorded readings in the previous 3 operating hours (excluding periods described in (h)(1) and (2) above). (4) To calculate the data averages for each 3-hour or 24-hour averaging period, you must have at least 75 percent of the required recorded readings for that period using only recorded readings that are based on valid data (<i>i.e.</i>, not from periods described in (h)(1) and (2) above).	ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04

Federally Enforceable Provisos	Regulations
(i) The permittee shall certify, operate and maintain a continuous emission monitoring system for CO and oxygen (or carbon dioxide analyzer) according to the procedures in 40 CFR §63.7525(a)(1) through (6). (j) If the permittee demonstrates compliance with the applicable alternative CO CEMS emission standard listed in Tables 1, 2, or 11 through 13 to 40 CFR 63, Subpart DDDDD, the permittee must meet the following requirements; (1) Continuously monitor CO according to 40 CFR §§63.7525(a)(CEMS monitoring, installation, operation, and maintenance requirements) and 63.7535 (minimum monitoring data requirements); (2) Maintain a CO emission level below or at your applicable alternative CO CEMS-based standard in Tables 1 or 2 or 11 through 13 to this subpart at all times the affected unit is subject to numeric emission limits; (3) Keep records of CO levels according to 40 CFR §63.7555(b); (4) You must record and make available upon request results of CO CEMS performance audits, dates and duration of periods when the CO CEMS is out of control to completion of the corrective actions necessary to return the CO CEMS to operation consistent with your site-specific monitoring plan. (k) The permittee will demonstrate compliance with CO emission standard utilizing a CO CEMS. The CEMS shall meet the requirements in 40 CFR 60, Appendix B, Performance Specification 4, and 40 CFR 60 Appendix F, Quality Assurance Procedures (l) The permittee shall calibrate, maintain, and operate a continuous opacity monitoring system (COMS) to measure opacity emissions and record the output of the systems. The permittee shall follow the applicable procedures under 40 CFR §60.13 and 63.7525(c)(1) through (7) for the installation, evaluation, and operation of the continuous monitoring system. This must be done by the compliance date specified in §63.7495. The span value for a continuous monitoring system for measuring opacity shall be between 60 and 80 percent. (m) The permittee must develop a site-specific monitoring plan according to the paragraphs listed in section 40 CFR §63.7505(d)(1) through (7) for the use of any COMS.	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR §63.7525 ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR §63.7540(a)(8) ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-10-.02(2)(b) and 335-11-.06(107); 40 CFR §60.48b(a); 40 CFR §63.7525(c) ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR §63.7505

Federally Enforceable Provisos	Regulations
(n) The permittee shall maintain equipment to monitor the performance of the selective non-catalytic reduction (SNCR) system. The monitoring system shall be designed in such a manner as to be capable of compliance with the monitoring design criteria of 40 CFR §64.3, Compliance Assurance Monitoring, and appropriate performance-indicating parameters shall be monitored during the initial compliance test. (1) The permittee shall operate the SNCR system at all times during K7 and K8 TOH operations. The injection rate is to be set to the manufacture specifications, between 55 liters per hour (L/hr)(minimum) and 82 liters per hour (L/hr) (maximum). (2) The permittee is not allowed at any time to operate the boilers (K7 and K8) without utilizing the SNCR. Operation of K7 and K8 without the SNCR is considered an operational deviation. If this occurs, the permittee shall do the following: a. Correct the process upset/malfunction immediately or shutdown the process, b. Notify the Department within 24 hours (via email) of the event, (3) The permittee shall notify the Department, in writing, within 48 hours of the cause of the deviation, the duration of the deviation, how the deviation was resolved, and what practices have been instituted to prevent the occurrence of the event.	ADEM Admin Code r. 335-3-14-.04 ADEM Admin Code r. 335-3-14-.04
(o) The permittee shall maintain equipment to monitor the performance of the baghouse lime injection (BLI) system. The monitoring system shall be designed in such a manner as to be capable of compliance with the monitoring design criteria of 40 CFR §64.3, Compliance Assurance Monitoring, and appropriate performance-indicating parameters shall be monitored during the initial compliance test. (1) The permittee shall operate the baghouse lime injection system (BLI) system at all times during K7 and K8 TOH operations. The injection rate is to be set to the manufacture specifications, between 37 kilograms per hour (kg/hr)(minimum) and 61 kilograms per hour (kg/hr) (maximum). (2) The permittee is not allowed at any time to operate the TOH (K7 and K8) without utilizing the BLI system. Operation of K7 and K8 without the BLI system is considered an operational deviation. If this occurs, the permittee shall do the following: a. Correct the process upset/malfunction immediately or shutdown the process, b. Notify the Department within 24 hours (via email) of the event,	ADEM Admin Code r. 335-3-14-.04

Federally Enforceable Provisos	Regulations
3. The permittee shall notify the Department, in writing, within 48 hours of the cause of the deviation, duration of the deviation, how the deviation was resolved, and what practices have been instituted to prevent the occurrence of the event.	
5. <u>Recordkeeping and Reporting Requirements</u>	
(a) The permittee shall maintain records of 3-hour block average injection rates for the SNCR system and BLI system.	ADEM Admin Code r. 335-3-14-.04; 40 CFR §64.9
(a) The permittee shall maintain records of 3-hour block average firebox temperatures for K7 and K8.	ADEM Admin Code r. 335-3-14-.04
(b) The permittee shall maintain records of 30-day rolling average CO emissions for K7 and K8.	ADEM Admin Code r. 335-3-14-.04
(c) For K7 and K8, the permittee shall record and maintain records of the amounts of each fuel combusted during each calendar month.	ADEM Admin. Code r. 335-3-10-.02(2)(b); 40 CFR §60.49b(d)
(d) The permittee shall maintain records of the monthly and calendar year totals of the boiler operation. These records shall be kept in a permanent form suitable for inspection, shall be retained on-site for a period of five years from the date of generation of each record, and shall be made available for inspection upon request.	ADEM Admin. Code r. 335-3-16-.05(c)
(1) The dates and times of all monitoring conducted, excursions, corrective actions taken, and emission related maintenance performed.	
(2) The date(s) and results of any calibrations performed.	
(e) All required records, which includes, but is not limited to the occurrence and duration of any startup, shutdown, or malfunction in the operation of the process equipment and any malfunction of the air pollution control equipment, shall be maintained in a permanent form on-site and available for inspection for at least five (5) years from the date of generation of each record.	ADEM Admin. Code r. 335-3-16-.05(c); 40 CFR §63.7560
(f) K7 and K8, the permittee shall comply with the applicable notification, reporting, and recordkeeping requirements specified in 40 CFR §60.7, and 40 CFR §60.49b.	ADEM Admin. Code r. 335-3-10-.02(2)(b); 40 CFR 60, Subpart Db
(g) For K7 and K8, the permittee shall comply with the applicable notification, reporting, and recordkeeping requirements specified in 40 CFR §§63.7545, 63.7550, and 63.7555.	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63, Subpart DDDDD
(h) For K7 and K8, the permittee shall maintain onsite, and submit if requested by the Administrator, an annual report pertaining to the tune-up containing the information in 40 CFR §63.7540 (10)(vi)(A) through (C).	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63, Subpart DDDDD

Federally Enforceable Provisos	Regulations
(i) The permittee shall report the results of performance tests and the associated fuel analyses within 60 days after the completion of the performance tests. This report must also verify that the operating limits for each boiler or process heater have not changed or provide documentation of revised operating limits established according to 40 CFR §63.7530 and Table 7 to Subpart DDDDD, as applicable. The reports for all performance tests must include all applicable information required in 40 CFR §63.7550.	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR §63.7515(f)
(j) A written report shall be submitted no later 60 days after the end of each semiannual reporting period January 1 st – June 30 th and July 1 st – December 31 st) to the Air Division and EPA. The report should include any exceedances of opacity specifications as defined by 40 CFR Part 60 Subpart Db, certification of fuel combustion during the reporting period, and monitoring system performance as defined by 40 CFR §60.7, the cause of the exceedance and corrective actions taken, if any.	ADEM Admin. Code r. 335-3-10-.02(2)(b); 40 CFR 60, Subpart A; 40 CFR 60, Subpart Db; 40 CFR §60.7
(k) A Semiannual Monitoring Report (SMR) shall be submitted no later than 30 days after the end of each semiannual reporting period (January 1 st – June 30 th and July 1 st – December 31 st). The report shall include the following information for K7 and K8:	ADEM Admin. Code r. 335-3-16-.05(c); 40 CFR §64.9
(1) A statement describing the emission monitoring that was required during the reporting period, whether all emission monitoring was completed as required, and if not, the date(s) and reasons(s) why the monitoring was not performed;	
(2) A statement as to whether the annual inspection of the hybrid filter was accomplished during the reporting period, and if so, the date and results of the inspection(s); and	
(3) The date(s), nature, and results of any corrective action taken when (1) a deviation from an emission monitoring parameter was observed or (2) an inspection of the control device indicated that cleaning or emission-related maintenance was needed.	
(4) The date(s) and results of any equipment calibrations conducted during the reporting period.	
(l) A Semiannual Compliance Report (SCR) shall be submitted no later than 30 days after the end of each semiannual reporting period (January 1 st – June 30 th and July 1 st – December 31 st). The report shall include the following information for K7 and K8:	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR §63.7550(a) (b) and (c)

Federally Enforceable Provisos	Regulations
(1) If there are no deviations from any emission limitation (emission limit and operating limit) that applies to you and there are no deviations from the requirements for work practice standards for periods of startup and shutdown in Table 3 to this subpart that apply to you, a statement that there were no deviations from the emission limitations and work practice standards during the reporting period. If there were no periods during which the CMSs, including continuous emissions monitoring system, continuous opacity monitoring system, and operating parameter monitoring systems, were out-of-control as specified in 40 CFR §63.8(c)(7), a statement that there were no periods during which the CMSs were out-of-control during the reporting period; and (2) If you have a deviation from any emission limitation (emission limit and operating limit) where you are not using a CMS to comply with that emission limit or operating limit, or a deviation from a work practice standard for periods of startup and shutdown, during the reporting period, the report must contain the information in 40 CFR §63.7550(d); and (3) If there were periods during which the CMSs, including continuous emissions monitoring system, continuous opacity monitoring system, and operating parameter monitoring systems, were out-of-control as specified in 40 CFR §63.8(c)(7), or otherwise not operating, the report must contain the information in 40 CFR §63.7550(e).	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63 Subpart DDDDD, Table 9; 40 CFR §64.9

AIR PERMIT

PERMITTEE: KRONOSPAN, LLC
FACILITY NAME: KRONOSPAN, LLC
LOCATION: EASTABOGA, CALHOUN COUNTY, ALABAMA

PERMIT NUMBER	DESCRIPTION OF EQUIPMENT, ARTICLE OR DEVICE
301-0079-X077	Four (4) 56.20 MMBtu/hr Natural Gas-fired Thermal Oil Heaters (K9, K10, K11, and K12)

In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, Ala. Code §§ 22-28-1 to 22-28-23, as amended, the Alabama Environmental Management Act, Ala. Code §§ 22-22A-1 to 22-22A-17, as amended, and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.

ISSUANCE DATE: DRAFT

**KRONOSPAN, LLC
EASTABOGA, ALABAMA
PERMIT NO. 301-0079-X077
PROVISOS**

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.
2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.
3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate, reduce, or control the issuance of air contaminants.
4. The permittee shall keep this permit under file or on display at all times at the site where the facility for which the permit is issued is located and shall make the permit readily available for inspection by any or all persons who may request to see it.
5. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.
6. On completion of construction of the device(s) for which this permit is issued, written notification of the fact is to be submitted to the Chief of the Air Division. The notification shall indicate whether the device(s) was constructed as proposed in the application. The device(s) shall not be operated until authorization to operate is granted by the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.
7. Each point of emission, which requires testing, will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.
8. All air pollution control equipment shall be operated at all times while this process is operational. In the event of scheduled maintenance, unscheduled maintenance, or a breakdown of the pollution control equipment, the process shall be shut down as expeditiously as possible (unless this act and subsequent re-start would clearly cause greater emissions than continuing operations of the process for a short period). The Department shall be notified of all such events **that exceed 1 hour** within 24 hours. The notification shall include all pertinent facts, including the duration of the process operating without the control device and the level of excess emissions which have occurred. Records of all such events, regardless of reporting requirements, shall be made and maintained for a period of five years. These records shall be available for inspection.
9. This process, including all air pollution control devices and capture systems for which this permit is issued, shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is

properly operated and maintained so as to minimize the emission of air contaminants shall be established.

10. Deviations from permit requirements shall be reported within 48 hours or 2 working days of such deviations, including those attributable to upset conditions as defined in the permit. The report shall include the probable cause of said deviations, and any corrective actions or preventive measures that were taken.
11. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.
12. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.
13. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.
14. Unless otherwise stated in this permit or an applicable regulation, the Air Division must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.

To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:

- (a) The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.
- (b) A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).
- (c) A description of the process(es) to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.
- (d) A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

All test reports must be submitted to the Air Division within 60 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

15. Any performance tests required shall be conducted and data reduced in accordance with the test methods and procedures contained in each specific permit condition unless the Director (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (2) approves the use of an equivalent method, or (3) approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance.
16. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.
17. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

- (a) by the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;
- (b) by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;
- (c) by paving;
- (d) by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

18. Precautions shall be taken by the permittee and its personnel to ensure that no person shall ignite, cause to be ignited, permit to be ignited, or maintain any open fire in such a manner as to cause the Department's rules and regulations applicable to open burning to be violated.
19. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

PERMIT NO. 301-0079-X077

20. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.
21. Reports to the Air Division of any required monitoring shall be submitted at least every 6 months. All instances of deviations from permit requirements must be clearly identified in said reports. All required reports must be certified by a responsible official consistent with ADEM Admin. Code r. 335-3-16-.04(9).
22. The permittee shall submit an Annual Compliance Certification for the Natural Gas-fired Thermal Oil Heater Nos. K9, K10, K11, and K12 processes to the Air Division by January 14th of each year for each annual reporting period (November 16th – November 15th).
 - (a) The compliance certification shall include the following:
 - i) The identification of each term or condition of this permit that is the basis of the certification;
 - ii) The compliance status;
 - iii) The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with Rule 335-3-16-.05(c) (Monitoring and Recordkeeping Requirements);
 - iv) Whether compliance has been continuous or intermittent; and
 - v) Such other facts as the Department may require to determine the compliance status of the source.
 - (b) The compliance certification shall be submitted to:

Alabama Department of Environmental Management
Air Division
P.O. Box 301463
Montgomery, AL 36130-1463

The compliance certification shall contain certification by a responsible official of truth, accuracy and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

**Thermal Oil Heater Nos. K9, K10, K11, and K12
Summary Page**

Description: four (4) 56.2 MMBtu/hr Natural Gas-fired Thermal Oil Heaters

Operating Schedule: 24 hrs/day, 7 days/week, 52 weeks/yr

Pollutants Emitted:

Emission Point	Point Description	Pollutant	Emission Limit (each unit)	Standard
TOH-1	K9, K10, K11, and/or K12 combined exhaust	PM	0.15 lb/hr	ADEM Admin. Code r. 335-3-10-.02(2)(c); 40 CFR 60, Subpart Dc ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63, Subpart DDDDD ADEM Admin Code r. 335-3-14-.04
			0.00267 lb/MMBtu	
		PM10	0.47 lb/hr	
			0.00837 lb/MMBtu	
		PM2.5	0.47 lb/hr	
			0.00837 lb/MMBtu	
		NOx	2.50 lb/hr	
			0.0445 lb/MMBtu	
		CO	0.264 lb/hr	
			0.00472 lb/MMBtu	
		VOC	0.031 lb/hr	
			0.00095 lb/MMBtu	
		SOx	4.0 lb/MMBtu	ADEM Admin. Code r. 335-3-4-.01(1)
		Opacity	0%	ADEM Admin Code r. 335-3-14-.04
		GHG (CO ₂ e)	6,785 lb/hr	ADEM Admin Code r. 335-3-14-.04
			120.734 lb/MMBtu	

Thermal Oil Heater Nos. K9, K10, K11, and K12 Provisos

	Regulations
1. <u>Applicability</u>	
(a) These sources are subject to the applicable requirements of Rule 335-3-16-.03, "Major Source Operating Permits".	ADEM Admin. Code r. 335-3-16-.03
(b) These units are subject to the applicable requirements of ADEM Admin. Code r. 335-3-14-.04, "Air Permits Authorizing Construction in Clean Air Areas (Prevention of Significant Deterioration Permitting (PSD))"	ADEM Admin Code r. 335-3-14-.04
(c) These units are subject to the applicable requirements of Standards of Performance for New Stationary Sources, General Provisions, 40 CFR Part 60, Subpart A	ADEM Admin. Code r. 335-3-10-.02(1); 40 CFR 60, Subpart A
(d) These units are subject to the applicable requirements of the Standards of Performance for New Stationary Sources, Industrial-Commercial-Institutional Steam Generating Units, 40 CFR Part 60, Subpart Dc	ADEM Admin. Code r. 335-3-10-.02(2)(c); 40 CFR 60, Subpart A; 40 CFR 60, Subpart Dc
(e) These units are subject to the applicable requirements of the National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters, 40 CFR Part 63, Subpart DDDDD [adopted by reference at ADEM Admin. Code r. 335-3-11-.06(107)], and to the NESHAP General Provisions, 40 CFR Part 63, Subpart A, as provided in 40 CFR §63.7565 and Table 10 of Subpart DDDDD. The permittee shall be in compliance with these standards upon startup.	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63, Subpart A; 40 CFR 63, Subpart DDDDD
(f) These units (K9, K10, K11, and K12) have been classified as a unit designed to burn gas 1 fuels	40 CFR §63.7499(l)
2. <u>Emission Standards</u>	
(a) The permittee shall not operate more than two (2) natural gas-fired thermal oil heaters (K9, K10, K11, and/or K12) at one time, unless both of the biomass thermal oil heaters (K7 and/or K8) are non-operational.	ADEM Admin. Code r. 335-3-14-.04
(b) The permittee shall exhaust the natural gas-fired thermal oil heaters (K9, K10, K11, and K12) to either the biomass thermal oil heater exhaust (TOH-1) or to the MDF Dryer which exhausts through RTO-1.	ADEM Admin. Code r. 335-3-14-.04

	Regulations
(c) The particulate emission rate from this unit (as measured in accordance with 40 CFR Part 60, Appendix A, Method 5) shall not exceed the amount determined by the use of the following equation: $E=1.38(H)^{-0.44}$ Where: E=Emissions in pounds per MMBtu heat input H=Heat input in MMBtu/hr	ADEM Admin. Code r. 335-3-4-.03(1),
(d) The permittee shall not allow any source of particulate emissions to discharge more than one 6-minute average opacity greater than 20% in any 60-minute period. At no time shall any source discharge a 6-minute average opacity of particulate emissions greater than 40%.	ADEM Admin. Code r. 335-3-4-.01(1)
(e) The permittee shall not cause or allow the sulfur dioxide emission rate from each of these units to exceed 4.0 lb/MMBtu of heat input.	ADEM Admin. Code r. 335-3-5-.01(b)
(f) The permittee shall not cause or allow the particulate emission (PM) rate from each of these units to exceed 0.15 lb/hr and 0.00267 lb/MMBtu.	ADEM Admin. Code r. 335-3-14-.04
(g) The permittee shall not cause or allow the 10-micron particulate (PM₁₀) emission rate from each of these units to exceed 0.47 lb/hr and 0.00837 lb/MMBtu.	ADEM Admin. Code r. 335-3-14-.04
(h) The permittee shall not cause or allow the 2.5-micron particulate emission (PM_{2.5}) rate from each of these units to exceed 0.47 lb/hr and 0.00837 lb/MMBtu.	ADEM Admin. Code r. 335-3-14-.04
(i) The permittee shall not cause or allow the nitrogen oxides emission rate from each of these units to exceed 2.50 lb/hr and 0.0445 lb/MMBtu	ADEM Admin. Code r. 335-3-14-.04
(j) The permittee shall not cause or allow the carbon monoxide emission rate from each of these units to exceed 0.265 lb/hr and 0.00472 lb/MMBtu.	ADEM Admin. Code r. 335-3-14-.04
(k) The permittee shall not cause or allow the volatile organic compound (as propane) emission rate from each of these units to exceed 0.031 lb/hr. and 0.00095 lb/MMBtu.	ADEM Admin. Code r. 335-3-14-.04
(l) The greenhouse gas (GHG/CO₂e) emission rate from each of these units shall not exceed 6,785 lb/hr and 120.734 lb/MMBtu.	ADEM Admin. Code r. 335-3-14-.04
(m) The opacity from each of these units shall not exceed 5% in a 24-hour period.	ADEM Admin. Code r. 335-3-14-.04
3. Compliance and Performance Test Methods and Procedures	
(a) The permittee must demonstrate initial compliance according to applicable requirements listed in 40 CFR §60.8.	ADEM Admin. Code r. 335-3-10-.02(2)(b); 40 CFR 60, Subpart A; 40 CFR 60, Subpart Dc

	Regulations
(b) Prior to a date to be specified by the Chief of the Air Division in the authorization to operate, emission tests are to be conducted by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Written tests results are to be reported to the Air Division within 60 days of completion of testing. Particulate (all species).....(x) Carbon Monoxide.....(x) Sulfur Dioxide.....().....Nitrogen Oxides.....(x) Volatile Organic Compounds (as propane).....(x)	ADEM Admin. Code r. 335-3-1-.05; ADEM Admin Code r. 335-3-14-.04
(c) Emissions testing is to be conducted for the Natural Gas-fired Thermal Oil Heater Nos. K9, K10, K11 and K12 for the following pollutants at intervals not to exceed 39 months and no earlier than 35 months following the date of the prior compliance testing. All test reports must be submitted to the Air Division within 60 days of completion of testing, by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Particulates (all species).....(x) Carbon Monoxide.....(x) Sulfur Dioxide.....() Nitrogen Oxides.....(x) Volatile Organic Compounds.....(x)	ADEM Admin. Code r. 335-3-1-.05; ADEM Admin Code r. 335-3-14-.04
(d) Compliance with the particulate emission rates of these units shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 5.	ADEM Admin. Code r. 335-3-1-.05
(e) Compliance with the speciated particulate emissions (PM₁₀ and PM_{2.5}) shall be determined as measured in accordance with 40 CFR Part 60, Appendix A, Method 201A and 202.	ADEM Admin. Code r. 335-3-1-.05
(f) Compliance with the visible emissions from each unit shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9.	ADEM Admin. Code r. 335-3-1-.05
(g) Compliance with the sulfur dioxide emissions from each unit shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 6C.	ADEM Admin. Code r. 335-3-1-.05
(h) Compliance with the nitrogen oxides from each unit shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 7E	ADEM Admin. Code r. 335-3-1-.05
(i) Compliance with the carbon monoxide from each unit shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 10	ADEM Admin. Code r. 335-3-1-.05

	Regulations
(j) Compliance with the volatile organic compounds (VOC) emission rates of these units shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 25A.	ADEM Admin. Code r. 335-3-1-.05
(k) Compliance with the opacity limit from these units shall be determined by a shared continuous opacity monitor system (COMS)	ADEM Admin. Code r. 335-3-14-.04
(l) The permittee shall comply with the applicable work practice standards stated in 40 CFR §63.7540 and Table 3. This includes a tune-up of the unit. The tune-up shall include the following:	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63, Subpart DDDDD
(1) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (you may perform the burner inspection any time prior to the tune-up or delay the burner inspection until the next scheduled unit shutdown;	
(2) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (you may delay the inspection until the next scheduled unit shutdown)	
(3) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NO _x requirement to which the unit is subject	
(4) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer; and	
(5) Maintain onsite and submit, if requested by the Administrator, a report containing the information in 40 CFR §63.7540(a)(10)(vi)(A) through (C).	
(6) The permittee shall conduct each subsequent annual tune-ups not more than 13 months after the previous tune up [40 CFR §63.7515(d)]	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63, Subpart DDDDD
4. <u>Emission Monitoring</u>	
(a) The permittee is limited to the use of natural gas only as fuel for these units (K9, K10, K11, and K12).	ADEM Admin. Code r. 335-3-16-.05(c)
(b) The permittee shall install a continuous opacity monitoring system (COMS) to measure opacity emissions for K9, K10, K11, and K12.	ADEM Admin. Code r. 335-3-14-.04
(1) If the permittee installs more than one COMS, the multiple COMS will represent the opacity for each unit they are installed to monitor.	

	Regulations
(2) If the permittee elects to install only one COMS, that single COMS will be representative of the opacity of all units in operation. (c) The permittee shall calibrate, maintain, and operate a continuous opacity monitoring system (COMS) to measure opacity emissions and record the output of the systems. The permittee shall follow the applicable procedures under 40 CFR §60.13 and 63.7525(c)(1) through (7) for the installation, evaluation, and operation of the continuous monitoring system. This must be done by the compliance date specified in §63.7495. The span value for a continuous monitoring system for measuring opacity shall be between 60 and 80 percent. (d) The permittee must develop a site-specific monitoring plan according to the paragraphs listed in section 40 CFR §63.7505(d)(1) through (7) for the use of any COMS. (e) The permittee must conduct an annual boiler tune-up according to §63.7540(a).	ADEM Admin. Code r. 335-10-.02(2)(b) and 335-11-.06(107); 40 CFR §63.7525(c) ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR §63.7505 ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63, Subpart DDDDD
5. <u>Recordkeeping and Reporting Requirements</u>	
(a) In accordance with 40 CFR §60.48c(g)(1), (2), and (3), the permittee shall record and maintain records of the amount of natural gas combusted. The records shall be kept in a permanent form suitable for inspections and shall be maintained for a period of five(5) years from date of such record. (b) The permittee shall demonstrate compliance with the selected opacity limit by: (1) Collecting the opacity monitoring system data according to §63.7525(c) and §63.7535; and (2) Reducing the opacity monitoring data to 6-minute averages; and (3) Maintaining daily block average opacity to less than or equal to 10 percent or the highest hourly average opacity reading measured during the performance test run demonstrating compliance with the PM (or TSM) emission limitation. (c) The permittee shall comply with the applicable notification, reporting, and recordkeeping requirements specified in 40 CFR §60.7 and 40 CFR §60.48c (d) The permittee shall submit a Semiannual Monitoring Report (SMR) for the 56.20 MMBtu/hr Natural Gas-fired Thermal Oil Heaters (K9, K10, K11, and K12) to the Air Division no later than 30 days after the end of each semiannual reporting period (January 1st through June 30th and July 1st through December 31st) affirming that only natural gas was burned in each of these units.	ADEM Admin Code r. 335-3-10-.02(2)(c); 40 CFR 60, Subpart Dc ADEM Admin. Code r. 335-3-14-.04 ADEM Admin Code r. 335-3-10-.02(2)(c); 40 CFR 60, Subpart Dc ADEM Admin. Code r. 335-3-16-.05(c)

	Regulations
(e) The permittee shall comply with the applicable recordkeeping and reporting requirements stated in 40 CFR §§63.7550 and 63.7555. For these units (K9, K10, K11, and K12), the permittee may submit only a compliance report, as applicable, as specified in 40 CFR §63.7550 (b)(1) through (4).	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63, Subpart DDDDD;
(f) The permittee shall comply with the applicable compliance reporting requirements stated in 40 CFR §63.7550(c) and Table 9 of Subpart DDDDD.	ADEM Admin. Code r. 335-3-11-.06(107); 40 CFR 63, Subpart DDDDD

AIR PERMIT

PERMITTEE: KRONOSPAN, LLC
FACILITY NAME: KRONOSPAN, LLC
LOCATION: EASTABOGA, CALHOUN COUNTY, ALABAMA

PERMIT NUMBER	DESCRIPTION OF EQUIPMENT, ARTICLE OR DEVICE
301-0079-X078	Green Wood Processing for the Oriented Strand Board Plant) including: • Four (4) Debarkers • One (1) Chipper • Four (4) Flakers with cyclofilters • Three (3) Strandors with dust collectors

In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, Ala. Code §§ 22-28-1 to 22-28-23, as amended, the Alabama Environmental Management Act, Ala. Code §§ 22-22A-1 to 22-22A-17, as amended, and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.

ISSUANCE DATE: DRAFT

Alabama Department of Environmental Management

**KRONOSPAN, LLC
EASTABOGA, ALABAMA
PERMIT NO. 301-0079-X078
PROVISOS**

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.
2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.
3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate, reduce, or control the issuance of air contaminants.
4. The permittee shall keep this permit under file or on display at all times at the site where the facility for which the permit is issued is located and shall make the permit readily available for inspection by any or all persons who may request to see it.
5. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.
6. On completion of construction of the device(s) for which this permit is issued, written notification of the fact is to be submitted to the Chief of the Air Division. The notification shall indicate whether the device(s) was constructed as proposed in the application. The device(s) shall not be operated until authorization to operate is granted by the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.
7. Each point of emission, which requires testing, will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.
8. All air pollution control equipment shall be operated at all times while this process is operational. In the event of scheduled maintenance, unscheduled maintenance, or a breakdown of the pollution control equipment, the process shall be shut down as expeditiously as possible (unless this act and subsequent re-start would clearly cause greater emissions than continuing operations of the process for a short period). The Department shall be notified of all such events **that exceed 1 hour** within 24 hours. The notification shall include all pertinent facts, including the duration of the process operating without the control device and the level of excess emissions which have occurred. Records of all such events, regardless of reporting requirements, shall be made and maintained for a period of five years. These records shall be available for inspection.
9. This process, including all air pollution control devices and capture systems for which this permit is issued, shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is

properly operated and maintained so as to minimize the emission of air contaminants shall be established.

10. Deviations from permit requirements shall be reported within 48 hours or 2 working days of such deviations, including those attributable to upset conditions as defined in the permit. The report will include the probable cause of said deviations, and any corrective actions or preventive measures that were taken.
11. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.
12. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.
13. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.
14. Unless otherwise stated in this permit or an applicable regulation, the Air Division must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.

To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:

- (a) The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.
- (b) A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).
- (c) A description of the process(es) to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.
- (d) A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

All test reports must be submitted to the Air Division within 60 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

15. Any performance tests required shall be conducted and data reduced in accordance with the test methods and procedures contained in each specific permit condition unless the Director (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (2) approves the use of an equivalent method, or (3) approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance.
16. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.
17. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

- (a) by the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;
- (b) by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;
- (c) by paving;
- (d) by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

18. Precautions shall be taken by the permittee and its personnel to ensure that no person shall ignite, cause to be ignited, permit to be ignited, or maintain any open fire in such a manner as to cause the Department's rules and regulations applicable to open burning to be violated.
19. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

PERMIT NO. 301-0079-X078

20. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.
21. Reports to the Air Division of any required monitoring shall be submitted at least every 6 months. All instances of deviations from permit requirements must be clearly identified in said reports. All required reports must be certified by a responsible official consistent with ADEM Admin. Code r. 335-3-16-.04(9).
22. The permittee shall submit an Annual Compliance Certification for the Flakers and Stranders process to the Air Division by January 14th of each year for each annual reporting period (November 16th – November 15th).
 - (a) The compliance certification shall include the following:
 - i) The identification of each term or condition of this permit that is the basis of the certification;
 - ii) The compliance status;
 - iii) The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with Rule 335-3-16-.05(c) (Monitoring and Recordkeeping Requirements);
 - iv) Whether compliance has been continuous or intermittent; and
 - v) Such other facts as the Department may require to determine the compliance status of the source.
 - (b) The compliance certification shall be submitted to:

Alabama Department of Environmental Management
Air Division
P.O. Box 301463
Montgomery, AL 36130-1463

The compliance certification shall contain certification by a responsible official of truth, accuracy and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

**Green Wood Processing (OSB Plant)
Summary Page**

Description: Green wood processing for the OSB plant

- Four (4) Debarkers (fugitive)
- One (1) Chipper
- Four (4) Flakers controlled by four (4) Cyclofilters
- Three (3) Stranders controlled by three (3) Dust Collectors

Operating Schedule: 24 hrs/day, 7 days/week, 52 weeks/yr

Pollutants Emitted:

Emission Point No.	Description	Pollutant	Emission limit	Regulation
FUG-1	Four (4) Debarkers	NA	NA	NA
FUG-2	Chipper (enclosed within Flanker and Strander building)	NA	NA	NA
CFFL1 CFFL2 CFFL3 CFFL4	Four (4) Flaker operation controlled by Cyclofilters (CFFL1, CFFL2, CFFL3, and CFFL4)	Opacity	5%	ADEM Admin Code r. 335-3-14-.04
		PM	0.06 lb/hr	
			0.002185 gr/dscf	
		PM ₁₀	0.044 lb/hr	
			0.0016 gr/dscf	
		PM _{2.5}	0.008 lb.hr	
			0.0003 gr/dscf	
		VOC	22.78 lb/hr	
			0.082 lbs/wet tons @ 55% moisture	
DCST1 DCST2 DCST3	Three (3) Stranders controlled by Dust Collectors (DCST1, DCST2, and DCST3)	Opacity	5%	ADEM Admin Code r. 335-3-14-.04
		PM	0.15 lb/hr	
			0.002185 gr/dscf	
		PM ₁₀	0.114 lb/hr	
			0.0016 gr/dscf	
		PM _{2.5}	0.021 lb/hr	
			0.0003 gr/dscf	

PERMIT NO. 301-0079-X078

		VOC	2.67 lb/hr	
			0.015 lbs/wet tons @ 55% moisture	
*The combined throughput for the four (4) Flakers is limited to less than 6,690 wet tons/day @ 55% moisture.				
*The combined throughput for the three (3) Stranders is limited to less than 4,390 wet tons/day @ 55% moisture.				

Green Wood Processing (OSB Plant)
Unit Specific Provisos

Federally Enforceable Provisos	Regulations
1. <u>Applicability</u> (a) These units are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, "Major Source Operating Permits." (b) This process is subject to the applicable requirements of 40 CFR 63, Subpart DDDD, National Emission Standards for Hazardous Air Pollutants for Plywood and Composite Wood Products, and the applicable requirements of 40 CFR 63, Subpart A, General Provisions as provided in Table 10 to Subpart DDDD (c) This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-14-.04, "Air Permits Authorizing Construction in Clean Air Areas (Prevention of Significant Deterioration Permitting (PSD))". 2. <u>Emission Standards</u> (a) The Permittee shall not cause or allow the emission of particulate matter in any one hour from each unit in excess of the amount determined by the following equation: $E = 3.59 (P)^{0.62} \quad (P < 30 \text{ tons per hour}) \quad \text{OR}$ $E = 17.31 (P)^{0.16} \quad (P \geq 30 \text{ tons per hour})$ where E = Emissions in pounds per hour P = Process weight in tons per hour (b) Any source of particulate emissions shall not discharge more than one 6-minute average opacity greater than 20% in any 60-minute period. At no time shall any source discharge a 6-minute average opacity of particulate emissions greater than 40%. (c) Opacity from the exhaust of the Flaker process shall not exceed 5% as determined by a 6-minute average. (d) Opacity from the exhaust of the Strander process shall not exceed 5% as determined by a 6-minute average. (e) The combined filterable particulate emission (PM) rate from the exhaust of the four (4) flakers shall not exceed 0.060 lb/hr and 0.002185 gr/dscf.	ADEM Admin. Code r. 335-3-16-.03 ADEM Admin. Code r. 335-3-11-.06(81); ADEM Admin. Code r. 335-3-11-.06(1); 40 CFR 63, Subpart A; 40 CFR 63, Subpart DDDD ADEM Admin Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-4-.04(1) ADEM Admin. Code r. 335-3-4-.01(1) ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04

Federally Enforceable Provisos	Regulations
(f) The combined 10-micron particulate (PM₁₀) emission rate from the exhausts of the four (4) flakers shall not exceed 0.044 lb/hr and 0.0016 gr/dscf. (g) The combined 2.5-micron particulate emission (PM_{2.5}) rate from the exhausts of the four (4) flakers shall not exceed 0.008 lb/hr and 0.0003 gr/dscf. (h) The combined volatile organic compound (VOC as propane) emission rate from the exhaust of four (4) Flakers shall not exceed 22.78 lb/hr and 0.082 lbs/wet tons @ 55% moisture. (i) The combined filterable particulate emission (PM) rate from the exhaust from the three (3) stranders shall not exceed 0.15 lb/hr and 0.002185 gr/dscf. (j) The combined 10-micron particulate (PM₁₀) emission rate from the exhausts of the three (3) stranders shall not exceed 0.114 lb/hr and 0.0016 gr/dscf (k) The combined 2.5-micron particulate emission (PM_{2.5}) rate from the exhausts of the three (3) stranders shall not exceed 0.021 lb/hr and 0.0003 gr/dscf. (l) The Flaker process is limited to less than 6,690 wet tons/day @ 55% moisture. (m) The Strander process is limited to less than 4,390 wet tons/day @ 55% moisture.	ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04
3. <u>Compliance and Performance Test Methods and Procedures</u>	
(a) Prior to a date to be specified by the Chief of the Air Division in the authorization to operate for the Flakers, emission tests are to be conducted by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Written tests results are to be reported to the Air Division within 60 days of completion of testing. Particulate (all species).....() Carbon Monoxide.....() Sulfur Dioxide.....().....Nitrogen Oxides.....() Volatile Organic Compounds (as propane).....(x)	ADEM Admin. Code r. 335-3-1-.05; ADEM Admin Code r. 335-3-14-.04

Federally Enforceable Provisos	Regulations
(b) Emissions tests for the Flakers are to be conducted for the following pollutants at intervals not to exceed 39 months and no earlier than 35 months following the date of initial compliance testing. All test reports must be submitted to the Air Division within 30 days of completion of testing, by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Written tests results are to be reported to the Air Division within 30 days of completion of testing. Particulates (all species).....() Carbon Monoxide.....() Sulfur Dioxide.....() Nitrogen Oxides.....() Volatile Organic Compounds.....(x) (c) Compliance with the visible emissions standard shall be determined in accordance with Method 9 at 40 CFR Part 60, Appendix A, during the particulate testing. (d) Particulate emissions shall be determined as measured in accordance with 40 CFR Part 60, Appendix A, Method 5. (e) Speciated particulate emissions (PM₁₀ and PM_{2.5}) shall be determined as measured in accordance with 40 CFR Part 60, Appendix A, Method 201A. (f) Condensable particulate emissions shall be determined as measured in accordance with 40 CFR Part 60, Appendix A, Method 202. (g) The volatile organic compound (VOC as propane) emission rate shall be determined, as measured in accordance with 40 CFR Part 60, Appendix A, Method 25A.	ADEM Admin. Code r. 335-3-1-.05; ADEM Admin. Code r. 335-3-16-.05(c) ADEM Admin. Code r. 335-3-1-.05 ADEM Admin. Code r. 335-3-1-.05 ADEM Admin. Code r. 335-3-1-.05 ADEM Admin. Code r. 335-3-1-.05 ADEM Admin. Code r. 335-3-1-.05
4. Emission Monitoring (a) Properly maintained devices shall be utilized to monitor the pressure differential across each cyclofilter and dust collector. The devices shall be replaced annually or calibrated in accordance with the manufacturer's recommendations and necessary parts maintained for routine repair. (b) While the process is operating, the four Cyclofilters (Flakers) and three Dust Collectors (Stranders) shall be visually observed a minimum of once a day for a normal differential pressure drop of +1.0 – +8.0 inches of water daily. (c) Whenever the pressure differential across a cyclofilter or dust collector is outside of normal operating range, the permittee shall initiate action within three (3) hours to correct the problem and return the system to its normal operating parameters.	40 CFR §64.7 ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04; ADEM Admin. Code r. 335-3-16-.05(c)

Federally Enforceable Provisos	Regulations
(d) While the process(s) are operating, someone familiar with the process(s) shall observe the visible emissions from all cyclofilters associated with this process a minimum of once daily during daylight hours for any visible emissions.	ADEM Admin. Code r. 335-3-16-.05(c)
(e) Whenever visible emissions are observed from the cyclofilters or dust collectors, the permittee shall initiate corrective action as soon as practicable but no longer than 24 hours from the time of observation, followed by an additional observation to confirm that visible emissions have been eliminated.	ADEM Admin. Code r. 335-3-16-.05(c)
(f) The cyclofilters and dust collectors shall be physically inspected to ensure that the device has been properly maintained and operates as designed at least annually, but more frequently whenever visible emissions are observed or the pressure differential across the device is outside of normal operating range. If the results of the inspection indicate that cleaning, maintenance, and/or bag/filter replacement is needed, such action shall be initiated within 24 hours of completing the inspection.	ADEM Admin. Code r. 335-3-16-.05(c)
(g) While the Flaker process is operating, the daily throughput shall be monitored and recorded.	ADEM Admin. Code r. 335-3-14-.04
(h) While the Stander process is operating, the daily throughput shall be monitored and recorded.	ADEM Admin. Code r. 335-3-14-.04
5. <u>Recordkeeping and Reporting Requirements</u>	
(a) Records of emission monitoring performed shall be maintained in a permanent form on-site and available for inspection for at least five (5) years from the date of generation of each record. These records shall include:	ADEM Admin. Code r. 335-3-16-.05(c); ADEM Admin. Code r. 335-3-14-.04
(1) The date, time, and results of each daily observation for visible emissions and differential pressure;	
(2) The date, nature, and results of any corrective action taken when any visible emissions were observed or the differential pressure across any cyclofilter or dust collector was outside of normal range;	
(3) The date and time each cyclofilter and dust collector were inspected for proper operation and, if the results of the inspection indicated that cleaning or emissions-related maintenance was needed, the date(s) and nature of the cleaning/maintenance performed.	
(4) The daily throughput of the flakers and stranders.	

Federally Enforceable Provisos	Regulations
(b) The permittee shall submit a Semiannual Monitoring Report (SMR) to the Air Division no later than 30 days after the end of each semiannual reporting period (January 1st through June 30th and July 1st through December 31st). The report shall include the following for this process: (1) A statement describing the emission monitoring that was required during the reporting period, whether all emission monitoring was completed as required, and if not, the date(s) and reasons(s) why the monitoring was not performed: (2) A statement as to whether the annual inspection of each cyclofilter and dust collector was accomplished during the reporting period, and if so, the date and results of the inspection; and, (3) The date, nature, and results of any corrective action taken when (1) any visible emissions were observed from a cyclofilter or dust collector , (2) the differential pressure across a cyclofilter or dust collector was outside of the normal operating range, or (3) an inspection of a cyclofilter or dust collector indicated that cleaning or emissions-related maintenance was needed. (4) A statement verifying the throughputs for the flakers and stranders were below the daily allowable for each day of the reporting period.	ADEM Admin. Code r. 335-3-16-.05(c)

AIR PERMIT

PERMITTEE: KRONOSPAN, LLC
FACILITY NAME: KRONOSPAN, LLC
LOCATION: EASTABOGA, CALHOUN COUNTY, ALABAMA

PERMIT NUMBER	DESCRIPTION OF EQUIPMENT, ARTICLE OR DEVICE
301-0079-X079	Three (3) Conveyer Strand Dryers including: - All Three (3) Dryers (Zones 1-3 and 16) exhausting to Dust Collectors then to the K7 and/or K8 TOH firebox or to the MDF dryer; and - All Three (3) Dryers (Zones 4-15) exhausting to Dust Collectors then to atmosphere

In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, Ala. Code §§ 22-28-1 to 22-28-23, as amended, the Alabama Environmental Management Act, Ala. Code §§ 22-22A-1 to 22-22A-17, as amended, and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.

ISSUANCE DATE: DRAFT

Alabama Department of Environmental Management

**KRONOSPAN, LLC
EASTABOGA, ALABAMA
PERMIT NO. 301-0079-X079
PROVISOS**

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.
2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.
3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate, reduce, or control the issuance of air contaminants.
4. The permittee shall keep this permit under file or on display at all times at the site where the facility for which the permit is issued is located and shall make the permit readily available for inspection by any or all persons who may request to see it.
5. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.
6. On completion of construction of the device(s) for which this permit is issued, written notification of the fact is to be submitted to the Chief of the Air Division. The notification shall indicate whether the device(s) was constructed as proposed in the application. The device(s) shall not be operated until authorization to operate is granted by the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.
7. Each point of emission, which requires testing, will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.
8. All air pollution control equipment shall be operated at all times while this process is operational. In the event of scheduled maintenance, unscheduled maintenance, or a breakdown of the pollution control equipment, the process shall be shut down as expeditiously as possible (unless this act and subsequent re-start would clearly cause greater emissions than continuing operations of the process for a short period). The Department shall be notified of all such events **that exceed 1 hour** within 24 hours. The notification shall include all pertinent facts, including the duration of the process operating without the control device and the level of excess emissions which have occurred. Records of all such events, regardless of reporting requirements, shall be made and maintained for a period of five years. These records shall be available for inspection.
9. This process, including all air pollution control devices and capture systems for which this permit is issued, shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is

properly operated and maintained so as to minimize the emission of air contaminants shall be established.

10. Deviations from permit requirements shall be reported within 48 hours or 2 working days of such deviations, including those attributable to upset conditions as defined in the permit. The report will include the probable cause of said deviations, and any corrective actions or preventive measures that were taken.
11. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.
12. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.
13. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.
14. Unless otherwise stated in this permit or an applicable regulation, the Air Division must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.

To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:

- (a) The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.
- (b) A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).
- (c) A description of the process(es) to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.
- (d) A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

All test reports must be submitted to the Air Division within 60 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

15. Any performance tests required shall be conducted and data reduced in accordance with the test methods and procedures contained in each specific permit condition unless the Director (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (2) approves the use of an equivalent method, or (3) approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance.
16. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.
17. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

- (a) by the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;
- (b) by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;
- (c) by paving;
- (d) by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

18. Precautions shall be taken by the permittee and its personnel to ensure that no person shall ignite, cause to be ignited, permit to be ignited, or maintain any open fire in such a manner as to cause the Department's rules and regulations applicable to open burning to be violated.
19. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

PERMIT NO. 301-0079-X079

20. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.
21. Reports to the Air Division of any required monitoring shall be submitted at least every 6 months. All instances of deviations from permit requirements must be clearly identified in said reports. All required reports must be certified by a responsible official consistent with ADEM Admin. Code r. 335-3-16-.04(9).
22. The permittee shall submit an Annual Compliance Certification for the Three (3) Conveyor Strand Dryers processes to the Air Division by January 14th of each year for each annual reporting period (November 16th – November 15th).
 - (a) The compliance certification shall include the following:
 - i) The identification of each term or condition of this permit that is the basis of the certification;
 - ii) The compliance status;
 - iii) The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with Rule 335-3-16-.05(c) (Monitoring and Recordkeeping Requirements);
 - iv) Whether compliance has been continuous or intermittent; and
 - v) Such other facts as the Department may require to determine the compliance status of the source.
 - (b) The compliance certification shall be submitted to:

Alabama Department of Environmental Management
Air Division
P.O. Box 301463
Montgomery, AL 36130-1463

The compliance certification shall contain certification by a responsible official of truth, accuracy and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

Three (3) Conveyer Strand Dryer processes* (OSB Plant) Summary Page

Description: Conveyer Strand Dryer No.1 (Zones 1-3 and 16) exhausting through Dust Collector D1C1 to Biomass TOH (TOH-1) or MDF Dryer (exhausting through RTO-1), and (Zones 4-15) exhausting to Dust Collectors (D1C2 - D1C7) and then atmosphere

Conveyer Strand Dryer No.2 (Zones 1-3 and 16) exhausting through Dust Collector D2C1 to Biomass TOH (TOH-1) or MDF Dryer (exhausting through RTO-1), and (Zones 4-15) exhausting to Dust Collectors (D2C2 - D2D7) and then atmosphere

Conveyer Strand Dryer No.3 (Zones 1-3 and 16) exhausting through Dust Collector D3C1 to Biomass TOH (TOH-1) or MDF Dryer (exhausting through RTO-1), and (Zones 4-15) exhausting to Dust Collectors (D3C2 – D3DC7) and then atmosphere

Operating Schedule: 24 hrs/day, 7 days/week, 52 weeks/yr

Pollutants Emitted:

Emission Point No.	Description	Pollutant	Emission limit (each Dryer)	Regulation
TOH-1	Zones 1-3 and 16 exhausting to Biomass TOH K7 and/or K8 firebox	HAP	Reduce emissions of total HAP, measured as THC (as carbon), by 90 percent; or Limit emissions of total HAP, measured as THC (as carbon), to 20 ppmvd; or Reduce methanol emissions by 90 percent; or Limit methanol emissions to less than or equal to 1 ppmvd if uncontrolled methanol emissions entering the control device are greater than or equal to 10 ppmvd; or Reduce formaldehyde emissions by 90 percent; or Limit formaldehyde emissions to less than or equal to 1 ppmvd if uncontrolled formaldehyde emissions entering the control device are greater than or equal to 10 ppmvd	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR §63.2240

D-20.1 D-20.2 D-20.3	Zones 4-15 exhausting to Dust Collectors and then atmosphere	Opacity	10%	ADEM Admin Code r. 335-3-14-.04
		PM	12.80 lb/hr	
			0.002185 gr/dscf	
		PM ₁₀	9.66 lb/hr	
			0.00165 gr/dscf	
		PM _{2.5}	1.76 lb.hr	
			0.0003 gr/dscf	
		VOC	30.38 lb/hr	
			0.75 lb/ODT	
		NOx	0.31 lb/hr	
			0.0077 lb/ODT	
		CO	3.84 lb/hr	
0.095 lb/ODT				

*The combined throughput for Dryer Nos. 1, 2, and 3 is limited to less than 2,917 oven dried tons per day (ODT/day).

Three (3) Conveyer Strand Dryer processes (OSB Plant)

Unit Specific Provisos

Federally Enforceable Provisos	Regulations
1. <u>Applicability</u> (a) These units are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, "Major Source Operating Permits." (b) This process is subject to the applicable requirements of 40 CFR 63, Subpart DDDD, National Emission Standards for Hazardous Air Pollutants for Plywood and Composite Wood Products, and the applicable requirements of 40 CFR 63, Subpart A, General Provisions as provided in Table 10 to Subpart DDDD (c) These units are subject to the applicable requirements of ADEM Admin. Code r. 335-3-14-.04, "Air Permits Authorizing Construction in Clean Air Areas (Prevention of Significant Deterioration Permitting (PSD))". 2. <u>Emission Standards</u> (a) The permittee shall exhaust Zones 1-3 and 16 from Dryers 1, 2, and 3 according to one of the following scenarios: (1) into the combustion zones of the K7 and K8 Thermal Oil Heater (TOH) Nos. 1* and/or 2* exhausting through TOH-1; or (2) to the MDF Dryer* exhausting through RTO-1 *process must be operating in order to receive Dryer exhaust. (b) The Permittee shall not cause or allow the emission of particulate matter in any one hour from each unit in excess of the amount determined by the following equation: $E = 3.59 (P)^{0.62} \quad (P < 30 \text{ tons per hour}) \text{ OR}$ $E = 17.31 (P)^{0.16} \quad (P \geq 30 \text{ tons per hour})$ where E = Emissions in pounds per hour P = Process weight in tons per hour (c) Any source of particulate emissions shall not discharge more than one 6-minute average opacity greater than 20% in any 60-minute period. At no time shall any source discharge a 6-minute average opacity of particulate emissions greater than 40%.	ADEM Admin. Code r. 335-3-16-.03 ADEM Admin. Code r. 335-3-11-.06(81); ADEM Admin. Code r. 335-3-11-.06(1); 40 CFR 63, Subpart A; 40 CFR 63, Subpart DDDD ADEM Admin Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-4-.04(1) ADEM Admin. Code r. 335-3-4-.01(1)

Federally Enforceable Provisos	Regulations
(d) Opacity from each dryer (Zones 4-15) shall not exceed 10%, as determined by a six-minute average.	ADEM Admin. Code r. 335-3-14-.04
(e) The permittee shall not cause or allow the filterable particulate emission (PM) rate of each dryer to exceed 12.80 lb/hr and 0.002185 gr/dscf.	ADEM Admin. Code r. 335-3-14-.04
(f) The permittee shall not cause or allow the 10-micron particulate (PM ₁₀) emission rate from each dryer to exceed 9.66 lb/hr and 0.00165 gr/dscf.	ADEM Admin. Code r. 335-3-14-.04
(g) The permittee shall not cause or allow the 2.5-micron particulate emission (PM _{2.5}) rate from each dryer to exceed 1.76 lb/hr and 0.0003 gr/dscf.	ADEM Admin. Code r. 335-3-14-.04
(h) The permittee shall not cause or allow the volatile organic compound (as propane) emission rate from each dryer to exceed 30.38 lb/hr and 0.75 lb/ODT.	ADEM Admin. Code r. 335-3-14-.04
(i) The permittee shall not cause or allow the nitrogen dioxide (NO _x) emissions from each dryer exceed 0.31 lb/hr and 0.0077 lb/ODT.	ADEM Admin. Code r. 335-3-14-.04
(j) The permittee shall not cause or allow the carbon monoxide (CO) emissions from each dryer to exceed 3.84 lb/hr and 0.095 lb/ODT.	ADEM Admin. Code r. 335-3-14-.04
(k) In accordance with 40 CFR §63.2240(b) and Table 1B to Subpart DDDD, the permittee shall route the exhaust from the heated zones of the dryer to the control device and shall comply with Subpart DDDD by one or more of the following options: (1) Reduce emissions of total HAP, measured as THC (as carbon), by 90 percent; or (2) Limit emissions of total HAP, measured as THC (as carbon), to 20 ppmvd; or (3) Reduce methanol by 90 percent; or (4) Limit methanol emissions to less than or equal to 1 ppmvd if uncontrolled methanol emissions entering the control device are greater than or equal to 10 ppmvd; or (5) Reduce formaldehyde emissions by 90 percent; or (6) Limit formaldehyde emissions to less than or equal to 1 ppmvd if uncontrolled formaldehyde emissions entering the control device are greater than or equal to 10 ppmvd.	ADEM Admin. Code r. 335-3-11-.06(81); ADEM Admin. Code r. 335-3-11-.06(1); 40 CFR 63, Subpart A; 40 CFR 63, Subpart DDDD

Federally Enforceable Provisos	Regulations
(l) In accordance with 40 CFR §63.2241(a), the Permittee shall comply with the work practice requirements of Table 3(6) to Subpart DDDD. (m) In accordance with 40 CFR §63.2250(g), the Permittee shall always operate and maintain affected sources, including air pollution control and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by Subpart DDDD. (n) When applicable, the Permittee shall request exemptions to routine control device maintenance in accordance with 40 CFR §63.2251(a) and (b)(1). (o) The conveyor strand dryer process (Dryer Nos. 1, 2, and 3 combined) is limited to a throughput of less than 2,917 ODT/day total.	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR 63, Subpart DDDD ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR 63, Subpart DDDD ADEM Admin. Code r. 335-3-11-.06(81) ADEM Admin. Code r. 335-3-14-.04
3. <u>Compliance and Performance Test Methods and Procedures</u>	
(a) Prior to a date to be specified by the Chief of the Air Division in the authorization to operate, emission tests are to be conducted by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Written tests results are to be reported to the Air Division within 60 days of completion of testing. Particulates (all species).....(x) Carbon Monoxide....(x) Sulfur Dioxide.....() Nitrogen Oxides.....(x) Volatile Organic Compounds (as propane).....(x) (b) Emissions testing is to be conducted for the following pollutants at intervals not to exceed 14 months and no earlier than 11 months following the date of initial compliance testing. All test reports must be submitted to the Air Division within 60 days of completion of testing, by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Written tests results are to be reported to the Air Division within 60 days of completion of testing. Particulates (all species).....(x) Carbon Monoxide.....() Sulfur Dioxide.....() Nitrogen Oxides.....() Volatile Organic Compounds (as propane).....(x) (c) Compliance with the BACT limits will be demonstrated at the exhaust from Dryer Nos. 1(D-20.1), 2 (D-20.2), and 3 (D-20.3) for zones 4-15.	ADEM Admin. Code r. 335-3-1-.05; ADEM Admin Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-11-.06(81); ADEM Admin. Code r. 335-3-11-.06(1); 40 CFR 63, Subpart A; 40 CFR 63, Subpart DDDD ADEM Admin. Code r. 335-3-14-.04

Federally Enforceable Provisos	Regulations
(d) Compliance with the BACT limits for zone 1-3 and 16 will be determined either at the inlet and outlet of the firebox of K7/K8 or at the exhaust of K7/K8. (e) Compliance with the visible emissions standard shall be determined in accordance with Method 9 at 40 CFR Part 60, Appendix A, during the particulate testing. (f) The particulate emissions shall be determined as measured in accordance with 40 CFR Part 60, Appendix A, Method 5. (g) Speciated particulate emissions (PM₁₀ and PM_{2.5}) shall be determined as measured in accordance with 40 CFR Part 60, Appendix A, Method 201A and Method 202. (h) The volatile organic compound (VOC as propane) emission rate shall be determined, as measured in accordance with 40 CFR Part 60, Appendix A, Method 25A. (i) The nitrogen dioxide (NO_x) emission rate shall be determined, as measured in accordance with 40 CFR Part 60, Appendix A, Method 7E (j) The carbon monoxide (CO) emission rate shall be determined, as measured in accordance with 40 CFR Part 60, Appendix A, Method 10.	ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-1-.05 ADEM Admin. Code r. 335-3-1-.05 ADEM Admin. Code r. 335-3-1-.05 ADEM Admin. Code r. 335-3-1-.05 ADEM Admin. Code r. 335-3-1-.05 ADEM Admin. Code r. 335-3-1-.05
4. <u>Emission Monitoring</u> (a) Properly maintained devices shall be utilized to monitor the pressure differential across each dust collector. The devices shall be replaced annually or calibrated in accordance with the manufacturer's recommendations and necessary parts maintained for routine repair. (b) While the process is operating, the dust collectors shall be visually observed a minimum of once a day for a normal differential pressure drop of +1.0 – +8.0 inches of water daily. (c) Whenever the pressure differential across any dust collector is outside of normal operating range, the permittee shall initiate action within three (3) hours to correct the problem and return the system to its normal operating parameters. (d) While the process(s) are operating, someone familiar with the process(s) shall observe the visible emissions from all dust collectors associated with this process a minimum of once daily during daylight hours for any visible emissions. (e) Whenever any visible emissions are observed, the permittee shall initiate corrective action as soon as practicable but no longer than 24 hours from the time of observation, followed	40 CFR §64.7 ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04; ADEM Admin. Code r. 335-3-16-.05(c) ADEM Admin. Code r. 335-3-16-.05(c) ADEM Admin. Code r. 335-3-16-.05(c)

Federally Enforceable Provisos	Regulations
by an additional observation to confirm that visible emissions have been eliminated.	
(f) The dust collectors shall be physically inspected to ensure that the devices have been properly maintained and operate as designed at least annually, but more frequently whenever visible emissions are observed or the pressure differential across the device is outside of normal operating range. If the results of the inspection indicate that cleaning, maintenance, and/or bag/filter replacement is needed, such action shall be initiated within 24 hours of completing the inspection.	ADEM Admin. Code r. 335-3-16-.05(c)
(g) While the conveyor strand dryer processes (Dryer Nos. 1, 2, and 3) are operating, the throughput shall be monitored and recorded.	ADEM Admin. Code r. 335-3-14-.04
5. <u>Recordkeeping and Reporting Requirements</u>	
(a) The permittee shall submit a Notification of Compliance Status as specified in 40 CFR §63.9(h)(2)(ii). The permittee shall submit the Notice of Compliance Status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to 40 CFR §63.10(d)(2).	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR §63.2280(d)
(b) The Permittee shall maintain all applicable records specified in 40 CFR §63.2282 and Tables 7 and 8 to Subpart DDDD. These records shall be in a form suitable and readily available for an expeditious review. Each record shall be retained for a period of 5 years from the date of generation of each record.	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR 63, Subpart DDDD
(c) Records of emission monitoring performed shall be maintained in a permanent form on-site and available for inspection for at least five (5) years from the date of generation of each record. These records shall include:	ADEM Admin. Code r. 335-3-16-.05(c); ADEM Admin. Code r. 335-3-14-.04

Federally Enforceable Provisos	Regulations
(1) The date, time, and results of each daily observation for visible emissions and differential pressure; (2) The date, nature, and results of any corrective action taken when any visible emissions were observed or the differential pressure across any dust collector was outside of normal range; (3) The date and time each dust collector was inspected for proper operation and, if the results of the inspection indicated that cleaning or emissions-related maintenance was needed, the date(s) and nature of the cleaning/maintenance performed. (4) The daily throughput of the conveyor strand dryer process (Dryer Nos. 1, 2, and 3 combined). (5) The date and duration of the dryer process exhaust according to each operational scenario in Proviso 2(a). (d) The records required by Table 7 for the temperature monitoring of the control device shall indicate the operating mode of the control device (K7 and K8 fireboxes) for each 3-hour block average calculated. (e) The permittee shall submit all of the applicable notifications specified in 40 CFR §63.2280. These notifications include, but may not be limited to: (1) The permittee shall submit a written notification of the intent to conduct a performance test to the Air Division at least 60 days prior to conducting a performance test. The notification shall include a copy of the site-specific test plan required by 40 CFR §63.7(c)(2). (2) The permittee shall submit a written notification of the intent to conduct a performance evaluation of the continuous monitoring system to the Air Division at least 60 days prior to conducting a performance evaluation. The notification shall include a copy of the site-specific performance evaluation test plan required by 40 CFR §63.8(e)(3). (3) The permittee shall submit a written notification of the intent to modify or replace the control system for these sources to the Air Division at least 30 days prior to taking any action. (4) The permittee shall submit a written notification of the intent to change the continuous monitoring parameter or the value or range of values of a continuous monitoring parameter for these sources or their control device to the Air Division at least 30 days prior to making any change.	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR 63, Subpart DDDD ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR 63, Subpart DDDD

Federally Enforceable Provisos	Regulations
(f) The permittee shall submit a Semiannual Monitoring Report (SMR) to the Air Division no later than 30 days after the end of each semiannual reporting period (January 1st through June 30th and July 1st through December 31st). The report shall include the following for this process: (1) A statement describing the emission monitoring that was required during the reporting period, whether all emission monitoring was completed as required, and if not, the date(s) and reasons(s) why the monitoring was not performed: (2) A statement as to whether the annual inspection of each dust collector was accomplished during the reporting period, and if so, the date and results of the inspection; and, (3) The date, nature, and results of any corrective action taken when (1) any visible emissions were observed from a dust collector , (2) the differential pressure across a dust collector was outside of the normal operating range, or (3) an inspection of a dust collector indicated that cleaning or emissions-related maintenance was needed. (4) A statement verifying the throughputs for the conveyor strand dryer process (Dryer Nos. 1, 2, and 3 combined) were below the daily allowable for each day of the reporting period.	ADEM Admin. Code r. 335-3-16-.05(c)
(g) The permittee shall submit all of the applicable reports specified in 40 CFR §63.2281, 40 CFR §63.2271 and Table 9 to Subpart DDDD. These reports include, but may not be limited to, a Semiannual Compliance Report (SCR) to be submitted no later than 30 days after the end of each reporting period (January 1st - June 30th and July 1st – December 31st).	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR 63, Subpart DDDD

AIR PERMIT

PERMITTEE: KRONOSPAN, LLC
FACILITY NAME: KRONOSPAN, LLC
LOCATION: EASTABOGA, CALHOUN COUNTY, ALABAMA

PERMIT NUMBER	DESCRIPTION OF EQUIPMENT, ARTICLE OR DEVICE
301-0079-X080	Sifter/Screening and Blending and Gluing processes for OSB Plant

In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, Ala. Code §§ 22-28-1 to 22-28-23, as amended, the Alabama Environmental Management Act, Ala. Code §§ 22-22A-1 to 22-22A-17, as amended, and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.

ISSUANCE DATE: DRAFT

**KRONOSPAN, LLC
EASTABOGA, ALABAMA
PERMIT NO. 301-0079-X0xx
PROVISOS**

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.
2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.
3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate, reduce, or control the issuance of air contaminants.
4. The permittee shall keep this permit under file or on display at all times at the site where the facility for which the permit is issued is located and shall make the permit readily available for inspection by any or all persons who may request to see it.
5. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.
6. On completion of construction of the device(s) for which this permit is issued, written notification of the fact is to be submitted to the Chief of the Air Division. The notification shall indicate whether the device(s) was constructed as proposed in the application. The device(s) shall not be operated until authorization to operate is granted by the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.
7. Each point of emission, which requires testing, will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.
8. All air pollution control equipment shall be operated at all times while this process is operational. In the event of scheduled maintenance, unscheduled maintenance, or a breakdown of the pollution control equipment, the process shall be shut down as expeditiously as possible (unless this act and subsequent re-start would clearly cause greater emissions than continuing operations of the process for a short period). The Department shall be notified of all such events **that exceed 1 hour** within 24 hours. The notification shall include all pertinent facts, including the duration of the process operating without the control device and the level of excess emissions which have occurred. Records of all such events, regardless of reporting requirements, shall be made and maintained for a period of five years. These records shall be available for inspection.
9. This process, including all air pollution control devices and capture systems for which this permit is issued, shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is

properly operated and maintained so as to minimize the emission of air contaminants shall be established.

10. Deviations from permit requirements shall be reported within 48 hours or 2 working days of such deviations, including those attributable to upset conditions as defined in the permit. The report will include the probable cause of said deviations, and any corrective actions or preventive measures that were taken.
11. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.
12. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.
13. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.
14. Unless otherwise stated in this permit or an applicable regulation, the Air Division must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.

To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:

- (a) The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.
- (b) A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).
- (c) A description of the process(es) to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.
- (d) A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

All test reports must be submitted to the Air Division within 60 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

15. Any performance tests required shall be conducted and data reduced in accordance with the test methods and procedures contained in each specific permit condition unless the Director (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (2) approves the use of an equivalent method, or (3) approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance.
16. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.
17. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

- (a) by the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;
- (b) by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;
- (c) by paving;
- (d) by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

18. Precautions shall be taken by the permittee and its personnel to ensure that no person shall ignite, cause to be ignited, permit to be ignited, or maintain any open fire in such a manner as to cause the Department's rules and regulations applicable to open burning to be violated.
19. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

PERMIT NO. 301-0079-X080

20. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.
21. Reports to the Air Division of any required monitoring shall be submitted at least every 6 months. All instances of deviations from permit requirements must be clearly identified in said reports. All required reports must be certified by a responsible official consistent with ADEM Admin. Code r. 335-3-16-.04(9).
22. The permittee shall submit an Annual Compliance Certification for the Sifting/Screening and the Blending and Gluing processes to the Air Division by January 14th of each year for each annual reporting period (November 16th – November 15th).
 - (a) The compliance certification shall include the following:
 - i) The identification of each term or condition of this permit that is the basis of the certification;
 - ii) The compliance status;
 - iii) The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with Rule 335-3-16-.05(c) (Monitoring and Recordkeeping Requirements);
 - iv) Whether compliance has been continuous or intermittent; and
 - v) Such other facts as the Department may require to determine the compliance status of the source.
 - (b) The compliance certification shall be submitted to:

Alabama Department of Environmental Management
Air Division
P.O. Box 301463
Montgomery, AL 36130-1463

The compliance certification shall contain certification by a responsible official of truth, accuracy and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

**Sifting/Screening (OSB Plant)
Blending and Gluing Process (OSB Plant)
Summary Page**

Description: Sifter/Screeners controlled by a dust collector

Blending and Gluing of flakes and strands controlled by a dust collector.

Operating Schedule: 24 hrs/day, 7 days/week, 52 weeks/yr

Pollutants Emitted:

Emission Point No.	Description	Pollutant	Emission limit	Regulation
SS-2.2	Sifter/Screen (SI/SS) exhausting to a dust collector (DCSS)	Opacity	5%	ADEM Admin Code r. 335-3-14-.04
		PM	0.80 lb/hr	
			0.002185 gr/dscf	
		PM ₁₀ (includes PM cond)	0.60 lb/hr	
			0.00165 gr/dscf	
		PM _{2.5} (includes PM cond)	0.11 lb/hr	
			0.0003 gr/dscf	
		VOC	17.62 lb/hr	
			0.145 lb/ODT	
BG-2.1	Blending and Gluing (BL1, BL2, BL3, BL4, BL5, and BL6) process exhausting to a dust collector (DCB)	Opacity	5%	ADEM Admin Code r. 335-3-14-.04
		PM	0.60 lb/hr	
			0.002185 gr/dscf	
		PM ₁₀ (includes PM cond)	0.45 lb/hr	
			0.00165 gr/dscf	
		PM _{2.5} (includes PM cond)	0.08 lb.hr	
			0.0003 gr/dscf	
		VOC	20.05 lb/hr	
			0.165 lb/ODT	

PERMIT NO. 301-0079-X080

The throughput for the Sifter/Screening process is limited to less than 2,917 oven dried tons per day (ODT/day).

The throughput for the Blending and Gluing process is limited to less than 2,917 oven dried tons per day (ODT/day)

Sifter/Screening Process and Blending and Gluing Process (OSB Plant)

Unit Specific Provisos

Federally Enforceable Provisos	Regulations
1. <u>Applicability</u> (a) These units are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, "Major Source Operating Permits." (b) These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-14-.04, "Air Permits Authorizing Construction in Clean Air Areas (Prevention of Significant Deterioration Permitting (PSD))". (c) These processes are subject to the applicable requirements of 40 CFR 63, Subpart DDDD, National Emission Standards for Hazardous Air Pollutants for Plywood and Composite Wood Products, and the applicable requirements of 40 CFR 63, Subpart A, General Provisions as provided in Table 10 to Subpart DDDD. 2. <u>Emission Standards</u> (a) The Permittee shall not cause or allow the emission of particulate matter in any one hour from each unit in excess of the amount determined by the following equation: $E = 3.59 (P)^{0.62} \quad (P < 30 \text{ tons per hour}) \text{ OR}$ $E = 17.31 (P)^{0.16} \quad (P \geq 30 \text{ tons per hour})$ where E = Emissions in pounds per hour P = Process weight in tons per hour (b) Any source of particulate emissions shall not discharge more than one 6-minute average opacity greater than 20% in any 60-minute period. At no time shall any source discharge a 6-minute average opacity of particulate emissions greater than 40%. (c) Opacity from the exhaust of the Sifter/Screening process shall not exceed 5% as determined by a 6-minute average. (d) Opacity from the exhaust of the Blending and Gluing process shall not exceed 5% as determined by a 6-minute average. (e) The permittee shall not cause or allow the filterable particulate emission rate from the Sifter/Screening process to exceed 0.80 lb/hr and 0.002185 gr/dscf.	ADEM Admin. Code r. 335-3-16-.03 ADEM Admin Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-11-.06(81); ADEM Admin. Code r. 335-3-11-.06(1); 40 CFR 63, Subpart A; 40 CFR 63, Subpart DDDD ADEM Admin. Code r. 335-3-4-.04(1) ADEM Admin. Code r. 335-3-4-.01(1) ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04

Federally Enforceable Provisos	Regulations
(f) The permittee shall not cause or allow the 10-micron particulate (PM₁₀) emission rate from the Sifter/Screen process to exceed 0.60 lb/hr and 0.00165 gr/dscf. (g) The permittee shall not cause or allow the 2.5-micron particulate emission (PM_{2.5}) rate from the Sifter/Screen process to exceed 0.11 lb/hr and 0.0003 gr/dscf (h) The permittee shall not cause or allow the volatile organic compound (VOC as propane) emission rate from the Sifter/Screening process to exceed 17.62 lb/hr and 0.145 lb/ODT. (i) The permittee shall not cause or allow the filterable particulate emission rate from the Blending and Gluing process to exceed 0.60 lb/hr and 0.002185 gr/dscf. (j) The permittee shall not cause or allow the 10-micron particulate (PM₁₀) emission rate from the Blending and Gluing process to exceed 0.45 lb/hr and 0.00165 gr/dscf. (k) The permittee shall not cause or allow the 2.5-micron particulate emission (PM_{2.5}) rate from the Blending and Gluing process to exceed 0.08 lb/hr and 0.0003 gr/dscf. (l) The permittee shall not cause or allow the volatile organic compound (VOC as propane) emission rate from the Blending and Gluing process to exceed 20.05 lb/hr and 0.165 lb/ODT. (m) The Sifting/Screening process shall be limited to less than 2,917 ODT/day (n) The Blending and Gluing process shall be limited to less than 2,917 ODT/day	ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04
3. <u>Compliance and Performance Test Methods and Procedures</u> (a) Prior to a date to be specified by the Chief of the Air Division in the authorization to operate, emission tests are to be conducted by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Written tests results are to be reported to the Air Division within 60 days of completion of testing. Particulate (all species).....(x) Carbon Monoxide.....() Sulfur Dioxide.....().....Nitrogen Oxides.....() Volatile Organic Compounds (as propane).....(x)	

Federally Enforceable Provisos	Regulations
(b) Emissions tests are to be conducted for the following pollutants at intervals not to exceed 39 months and no earlier than 35 months following the date of initial compliance testing. All test reports must be submitted to the Air Division within 60 days of completion of testing, by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Written tests results are to be reported to the Air Division within 30 days of completion of testing. Particulates (all species).....(x) Carbon Monoxide.....() Sulfur Dioxide.....() Nitrogen Oxides.....() Volatile Organic Compounds.....(x) (c) Compliance with the visible emissions standard shall be determined in accordance with Method 9 at 40 CFR Part 60, Appendix A, during the particulate testing. (d) Particulate emissions shall be determined as measured in accordance with 40 CFR Part 60, Appendix A, Method 5. (e) Speciated particulate emissions (PM₁₀ and PM_{2.5}) shall be determined as measured in accordance with 40 CFR Part 60, Appendix A, Method 201A and 202. (f) The volatile organic compound (VOC as propane) emission rate shall be determined, as measured in accordance with 40 CFR Part 60, Appendix A, Method 25A.	ADEM Admin. Code r. 335-3-1-.05; ADEM Admin. Code r. 335-3-16-.05(c) ADEM Admin. Code r. 335-3-1-.05 ADEM Admin. Code r. 335-3-1-.05 ADEM Admin. Code r. 335-3-1-.05 ADEM Admin. Code r. 335-3-1-.05
4. <u>Emission Monitoring</u> (a) While the process(s) are operating, someone familiar with the process(s) shall observe the visible emissions from all dust collectors associated with these processes a minimum of once daily during daylight hours for any visible emissions. (b) Whenever any visible emissions are observed, the permittee shall initiate corrective action as soon as practicable but no longer than 24 hours from the time of observation, followed by an additional observation to confirm that visible emissions have been eliminated. (c) Each dust collector shall be physically inspected to ensure that the device has been properly maintained and operates as designed at least annually, but more frequently whenever visible emissions are observed. If the results of the inspection indicate that cleaning, maintenance, and/or bag/filter replacement is needed, such action shall be initiated within 24 hours of completing the inspection.	ADEM Admin. Code r. 335-3-16-.05(c) ADEM Admin. Code r. 335-3-16-.05(c) ADEM Admin. Code r. 335-3-16-.05(c)

Federally Enforceable Provisos	Regulations
(d) While the Sifter/Screening process is operating, the daily throughput shall be monitored and recorded.	ADEM Admin. Code r. 335-3-14-.04
(e) While the Blending and Gluing process is operating, the daily throughput shall be monitored and recorded.	ADEM Admin. Code r. 335-3-14-.04
5. Recordkeeping and Reporting Requirements	
(a) The permittee shall submit a Notification of Compliance Status as specified in 40 CFR §63.9(h)(2)(ii). The permittee shall submit the Notice of Compliance Status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to 40 CFR §63.10(d)(2).	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR §63.2280(d)
(b) The permittee shall comply with the applicable notification requirements in 40 CFR §63.2280, reporting requirements in 40 CFR §63.2281 and Table 9 to Subpart DDDD, and recordkeeping requirements in 40 CFR §§63.2282 and 63.2283.	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR 63, Subpart DDDD
(c) Records of emission monitoring performed shall be maintained in a permanent form on-site and available for inspection for at least five (5) years from the date of generation of each record. These records shall include: 1. The date, time, and results of each daily observation for visible emissions reading; 2. The date(s), nature, and results of any corrective action taken when visible emissions were observed from each dust collector; 3. The date any dust collector was inspected for proper operation and, if the results of the inspection indicated that cleaning or emissions-related maintenance was needed, the date(s) and nature of the cleaning/maintenance performed. 4. The daily throughput of the Sifter/Screening process. 5. The daily throughput of the Blending and Gluing process.	ADEM Admin. Code r. 335-3-16-.05(c); ADEM Admin. Code r. 335-3-14-.04
(d) The permittee shall submit all of the applicable reports specified in 40 CFR §63.2281, 40 CFR §63.2271 and Table 9 to Subpart DDDD. These reports include, but may not be limited to, a Semiannual Compliance Report (SCR) to be submitted no later than 30 days after the end of each reporting period (January 1st - June 30th and July 1st - December 31st).	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR 63, Subpart DDDD

Federally Enforceable Provisos	Regulations
(e) The permittee shall submit a Semiannual Monitoring Report (SMR) to the Air Division no later than 30 days after the end of each semiannual reporting period (January 1st through June 30th and July 1st through December 31st). The report shall include the following for this process: 1. A statement describing the emission monitoring that was required during the reporting period, whether all emission monitoring was completed as required, and if not, the date(s) and reasons(s) why the monitoring was not performed: 2. A statement as to whether the annual inspection of each dust collector was accomplished, and if so, the date and results of the inspection; and, 3. The date, nature, and results of any corrective action taken when (1) greater than normal visible emissions were observed from any dust collector and/or (2) an inspection of the dust collectors indicated that cleaning or emissions-related maintenance was needed. 4. A statement verifying the throughputs for the Sifter/Screening process were below the daily allowable. 5. A statement verifying the throughputs for the Blending and Gluing process were below the daily allowable for each day of the reporting period.	ADEM Admin. Code r. 335-3-16-.05(c)

AIR PERMIT

PERMITTEE: KRONOSPAN, LLC
FACILITY NAME: KRONOSPAN, LLC
LOCATION: EASTABOGA, CALHOUN COUNTY, ALABAMA

PERMIT NUMBER	DESCRIPTION OF EQUIPMENT, ARTICLE OR DEVICE
301-0079-X081	Oriented Strand Board Press Activities • Mat Forming with cyclone/dust collector • Mat Trimming with cyclone/dust collector • OSB Press • Finishing operations (sawing, tongue and groove, sanding, sealing/stenciling) with cyclones and/or dust collectors

In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, Ala. Code §§ 22-28-1 to 22-28-23, as amended, the Alabama Environmental Management Act, Ala. Code §§ 22-22A-1 to 22-22A-17, as amended, and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.

ISSUANCE DATE: DRAFT

Alabama Department of Environmental Management

**KRONOSPAN, LLC
EASTABOGA, ALABAMA
PERMIT NO. 301-0079-X078
PROVISOS**

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.
2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.
3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate, reduce, or control the issuance of air contaminants.
4. The permittee shall keep this permit under file or on display at all times at the site where the facility for which the permit is issued is located and shall make the permit readily available for inspection by any or all persons who may request to see it.
5. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.
6. On completion of construction of the device(s) for which this permit is issued, written notification of the fact is to be submitted to the Chief of the Air Division. The notification shall indicate whether the device(s) was constructed as proposed in the application. The device(s) shall not be operated until authorization to operate is granted by the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.
7. Each point of emission, which requires testing, will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.
8. All air pollution control equipment shall be operated at all times while this process is operational. In the event of scheduled maintenance, unscheduled maintenance, or a breakdown of the pollution control equipment, the process shall be shut down as expeditiously as possible (unless this act and subsequent re-start would clearly cause greater emissions than continuing operations of the process for a short period). The Department shall be notified of all such events **that exceed 1 hour** within 24 hours. The notification shall include all pertinent facts, including the duration of the process operating without the control device and the level of excess emissions which have occurred. Records of all such events, regardless of reporting requirements, shall be made and maintained for a period of five years. These records shall be available for inspection.
9. This process, including all air pollution control devices and capture systems for which this permit is issued, shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is

properly operated and maintained so as to minimize the emission of air contaminants shall be established.

10. Deviations from permit requirements shall be reported within 48 hours or 2 working days of such deviations, including those attributable to upset conditions as defined in the permit. The report will include the probable cause of said deviations, and any corrective actions or preventive measures that were taken.
11. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.
12. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.
13. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.
14. Unless otherwise stated in this permit or an applicable regulation, the Air Division must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.

To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:

- (a) The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.
- (b) A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).
- (c) A description of the process(es) to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.
- (d) A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

All test reports must be submitted to the Air Division within 60 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

15. Any performance tests required shall be conducted and data reduced in accordance with the test methods and procedures contained in each specific permit condition unless the Director (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (2) approves the use of an equivalent method, or (3) approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance.
16. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.
17. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

- (a) by the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;
- (b) by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;
- (c) by paving;
- (d) by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

18. Precautions shall be taken by the permittee and its personnel to ensure that no person shall ignite, cause to be ignited, permit to be ignited, or maintain any open fire in such a manner as to cause the Department's rules and regulations applicable to open burning to be violated.
19. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

PERMIT NO. 301-0079-X078

20. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.
21. Reports to the Air Division of any required monitoring shall be submitted at least every 6 months. All instances of deviations from permit requirements must be clearly identified in said reports. All required reports must be certified by a responsible official consistent with ADEM Admin. Code r. 335-3-16-.04(9).
22. The permittee shall submit an Annual Compliance Certification for the Oriented Strandboard Press Activities process to the Air Division by January 14th of each year for each annual reporting period (November 16th – November 15th).
 - (a) The compliance certification shall include the following:
 - i) The identification of each term or condition of this permit that is the basis of the certification;
 - ii) The compliance status;
 - iii) The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with Rule 335-3-16-.05(c) (Monitoring and Recordkeeping Requirements);
 - iv) Whether compliance has been continuous or intermittent; and
 - v) Such other facts as the Department may require to determine the compliance status of the source.
 - (b) The compliance certification shall be submitted to:

Alabama Department of Environmental Management
Air Division
P.O. Box 301463
Montgomery, AL 36130-1463

The compliance certification shall contain certification by a responsible official of truth, accuracy and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

**Oriented Strand Board Manufacturing Process
(Press Activities)
Summary Page**

Description:

- Mat Forming with cyclone and Dust Collector
- Mat Trimming with cyclone and Dust Collector
- Mat Pre-Heater
- Continuous Press enclosed by Press Hall
- Diagonal Saw and Cut-to-size Saw
- Stacker
- Sanding with Dust Collector
- Tongue and Groove Operations with three cyclones and three Dust Collectors
- Edge Sealer with three (3) dust collectors exhausting within the building

All processes listed above exhaust back into the Press Hall, then to a Cyclone and Wet Scrubber. Final exhaust is to Dryer #3 exhaust stack (D-20.3)

Operating Schedule: 24 hrs/day, 7 days/week, 52 weeks/yr

Pollutants Emitted:

Emission Point No.	Description	Pollutant	Emission limit	Regulation
PCY-4.1	Press Hall Wet Scrubber exhausting to Dryer No. 3 stack (D-20.3)	PM	$E=3.59P^{0.62}$ [P < 30 TPH] or $E=17.31P^{0.16}$ [P ≥ 30 TPH]	ADEM Admin. Code r. 335-3-4-.04(SIP)
			2.92 lb/hr	ADEM Admin Code r. 335-3-14-.04
			0.0206 lb/MSF (3/8" basis)	
		PM ₁₀	5.26 lb/hr	ADEM Admin Code r. 335-3-14-.04
			0.0371 lb/MSF (3/8" basis)	
		PM _{2.5}	5.15 lb/hr	ADEM Admin Code r. 335-3-14-.04
			0.0363 lb/MSF (3/8" basis)	
		Opacity	15%	ADEM Admin Code r. 335-3-14-.04
		NO _x	6.24 lb/hr	ADEM Admin Code r. 335-3-14-.04
			0.044 lb/MSF (3/8" basis)	
		CO	0.09 lb/MSF (3/8" basis)	ADEM Admin Code r. 335-3-14-.04
			12.77 lb/hr	ADEM Admin Code r. 335-3-14-.04

PERMIT NO. 301-0079-X078

		VOC (as propane)	0.073 lb/MSF (3/8" basis)	ADEM Admin Code r. 335-3-14-.04
			10.33 lb/hr	ADEM Admin Code r. 335-3-14-.04
		Total HAP	THC (as Carbon) < 20 ppm	ADEM Admin Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-11-.06(81) 40 CFR 63 Subpart DDDD

Federally Enforceable Provisos	Regulations
1. <u>Applicability</u> (a) This process is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, "Major Source Operating Permits." (b) These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-14-.04, "Air Permits Authorizing Construction in Clean Air Areas (Prevention of Significant Deterioration Permitting (PSD))". (c) These sources are subject to the applicable requirements of 40 CFR 63, Subpart DDDD, National Emission Standards for Hazardous Air Pollutants for Plywood and Composite Wood Products, and the applicable requirements of 40 CFR 63, Subpart A, General Provisions as provided in Table 10 to Subpart DDDD.	ADEM Admin. Code r. 335-3-16-.03 ADEM Admin Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-11-.06(81); ADEM Admin. Code r. 335-3-11-.06(1); 40 CFR 63, Subpart A; 40 CFR 63, Subpart DDDD
2. <u>Emission Standards</u> (a) The Permittee shall not cause or allow the emission of particulate matter in any one hour from each unit in excess of the amount determined by the following equation: $E = 3.59 (P)^{0.62} \quad (P < 30 \text{ tons per hour}) \text{ OR}$ $E = 17.31 (P)^{0.16} \quad (P \geq 30 \text{ tons per hour})$ where E = Emissions in pounds per hour P = Process weight in tons per hour. (b) The permittee shall not discharge more than one 6-minute average opacity greater than 20% in any 60-minute period. At no time shall any source discharge a 6-minute average opacity of particulate emissions greater than 40%. (c) Opacity from the Press Activities process shall not exceed 15%. (d) The permittee shall comply with Subpart DDDD by reducing the total HAP emissions as Total Hydrocarbons (THC as Carbon) to less than 20 ppm by the use of Wet Scrubber (PCY-4.1). (e) The permittee shall not cause or allow the particulate emissions (PM) rate from the Wet Scrubber (PCY-4.1) to exceed 2.92 lb/hr and 0.0206 lb/MSF (3/8" basis). (f) The permittee shall not cause or allow the 10-micron particulate (PM₁₀) emission rate from the Wet Scrubber (PCY-4.1) to exceed 5.26 lb/hr and 0.0371 lb/MSF (3/8" basis).	ADEM Admin. Code r. 335-3-4-.04(1) ADEM Admin. Code r. 335-3-4-.01(1) ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR §63.2240(b), Table 1B(2) ADEM Admin. Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-14-.04

Federally Enforceable Provisos	Regulations
(g) The permittee shall not cause or allow the 2.5-micron particulate emission (PM _{2.5}) rate from the Wet Scrubber (PCY-4.1) to exceed 5.15 lb/hr and 0.0363 lb/MSF (3/8" basis).	ADEM Admin. Code r. 335-3-14-.04
(h) The permittee shall not cause or allow the nitrogen oxides (NO _x) emission rate from the Wet Scrubber (PCY-4.1) to exceed 6.24 lb/hr and 0.044 lb/MSF (3/8" basis).	ADEM Admin. Code r. 335-3-14-.04
(i) The permittee shall not cause or allow the carbon monoxide (CO) emission rate from the Wet Scrubber (PCY-4.1) to exceed 12.77 lb/hr and 0.09 lb/MSF (3/8" basis).	ADEM Admin. Code r. 335-3-14-.04
(j) The permittee shall not cause or allow the volatile organic compound (VOC as propane) emission rate from the Wet Scrubber (PCY-4.1) to exceed 10.33 lb/hr and 0.073 lb/MSF (3/8" basis).	ADEM Admin. Code r. 335-3-14-.04
(k) The Diagonal Cut Saw process throughput is limited to less than 3,404 MSF/day (3/8" basis).	ADEM Admin. Code r. 335-3-14-.04
(l) The Cut to Size Saw process throughput is limited to less than 3,404 MSF/day (3/8" basis).	ADEM Admin. Code r. 335-3-14-.04
(m) The Sanding process throughput is limited to less than 3,404 MSF/day (3/8" basis).	ADEM Admin. Code r. 335-3-14-.04
(n) The Tongue and Groove process (Lines 1, 2, and 3) throughput is limited to less than 3,404 MSF/day (3/8" basis).	ADEM Admin. Code r. 335-3-14-.04
(o) In accordance with 40 CFR §63.2241(a), the Permittee shall comply with the work practice requirements of Table 3(6) to Subpart DDDD.	ADEM Admin. Code r. 335-3-11-.06(81)
(p) In accordance with 40 CFR §63.2250(g), the Permittee shall always operate and maintain affected sources, including air pollution control and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by Subpart DDDD.	ADEM Admin. Code r. 335-3-11-.06(81)
(q) When applicable, the Permittee shall request exemptions to routine control device maintenance in accordance with 40 CFR §63.2251(a) and (b)(2).	ADEM Admin. Code r. 335-3-11-.06(81)
(r) The Permittee shall only use non-HAP coatings, as defined in 40 CFR §63.2292, for the Group 1 Miscellaneous Coating Operations. Non-HAP coating means a coating with HAP contents below 0.1 percent by mass for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4), and below 1.0 percent by mass for other HAP compounds.	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR Part 63, Subpart DDDD

Federally Enforceable Provisos	Regulations
(s) The OSB press enclosure shall be designed to meet the definition of a “wood products enclosure” as defined in 40 CFR §63.2292. The Permittee shall submit documentation that the enclosure meets the design criteria in § 63.2292 with the facility’s Notification of Compliance Status.	ADEM Admin. Code r. 335-3-11-.06(81)
3. <u>Compliance and Performance Test Methods and Procedures</u>	
(a) Prior to a date to be specified by the Chief of the Air Division in the authorization to operate, emission tests are to be conducted by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Written tests results are to be reported to the Air Division within 60 days of completion of testing. Particulates (all species)(x) Carbon Monoxide.....(x) Sulfur Dioxide.....() Nitrogen Oxides.....(x) Volatile Organic Compounds.....(x) Formaldehyde....(x)	
(b) Emissions tests are to be conducted for the following pollutants at intervals not to exceed 14 months and no earlier than 11 months following the date of prior compliance testing. All test reports must be submitted to the Air Division within 60 days of completion of testing, by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Particulates (all species)(x) Carbon Monoxide.....() Sulfur Dioxide.....() Nitrogen Oxides.....() Volatile Organic Compounds.....(x) Formaldehyde....(x)	ADEM Admin. Code r. 335-3-1-.05; ADEM Admin. Code r. 335-3-16-.05(c)
(c) Emissions tests are to be conducted for the following pollutants at intervals not to exceed 39 months and no earlier than 35 months following the date of initial compliance testing. All test reports must be submitted to the Air Division within 60 days of completion of testing, by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Particulates (all species)() Carbon Monoxide.....(x) Sulfur Dioxide.....() Nitrogen Oxides.....(x) Volatile Organic Compounds.....() Formaldehyde....()	
(d) Compliance with the visible emissions standard shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9 during the particulate testing.	ADEM Admin. Code r. 335-3-1-.05

Federally Enforceable Provisos	Regulations
(e) Compliance with the particulate emission rate from the Wet Scrubber (PCY-4.1) shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 5.	ADEM Admin. Code r. 335-3-1-.05
(f) Compliance with the speciated particulate (PM ₁₀ and PM _{2.5}) emissions rate from the Wet Scrubber (PCY-4.1) shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 201A and Method 202.	ADEM Admin. Code r. 335-3-1-.05
(g) Compliance with the nitrogen oxides emission rate from the Wet Scrubber (PCY-4.1) shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 7E.	ADEM Admin. Code r. 335-3-1-.05
(h) Compliance with the carbon monoxide emission rate from the Wet Scrubber (PCY-4.1) shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 10. .	ADEM Admin. Code r. 335-3-1-.05
(i) Compliance with the volatile organic compound (VOC as propane) emission rate from the Wet Scrubber (PCY-4.1) shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 25A.	ADEM Admin. Code r. 335-3-1-.05
(j) The Permittee shall conduct each performance test to determine compliance with 40 CFR 63, Subpart DDDD, according to the requirements in 40 CFR §63.7(e)(1), the requirements in paragraphs (b) through (o) of 40 CFR §63.2262, and according to the methods specified in Table 4 to Subpart DDDD.	ADEM Admin. Code r. 335-3-11-.06(81)
4. Emission Monitoring	
(a) Properly maintained devices shall be utilized to monitor the pressure differential across each dust collector and the wet scrubber. The devices shall be replaced annually or calibrated in accordance with the manufacturer's recommendations and necessary parts maintained for routine repair.	40 CFR §64.7
(b) While the process is operating, the Diagonal Saw dust collector shall be visually observed a minimum of once a day for a normal differential pressure drop of +1.0 – +8.0 inches of water daily.	ADEM Admin. Code r. 335-3-14-.04
(c) While the process is operating, the Cut-to-size Saw dust collector shall be visually observed a minimum of once a day for a normal differential pressure drop of +1.0 – +8.0 inches of water daily.	ADEM Admin. Code r. 335-3-14-.04
(d) While the process is operating, the Sanding dust collector shall be visually observed a minimum of once a day for a normal differential pressure drop of +1.0 – +8.0 inches of water daily.	ADEM Admin. Code r. 335-3-14-.04
(e) While the process is operating, each dust collector of Tongue and Groove lines 1. 2. and 3 shall be visually observed a minimum of once a day for a normal differential pressure drop of +1.0 – +8.0 inches of water daily.	ADEM Admin. Code r. 335-3-14-.04

Federally Enforceable Provisos	Regulations
(f) The Press Hall wet scrubber shall maintain a pressure differential of 2.0 – 6.0 inches of water (in. H ₂ O) while the process is operating. More specific flow requirements will be established during compliance testing as needed.	ADEM Admin. Code r. 335-3-16-.05(c); ADEM Admin. Code r. 335-3-14-.04
(g) The Press Hall wet scrubber shall maintain a water/liquid flow rate of 800 – 1000 gallons per day (gal/day). More specific flow requirements will be established during compliance testing as needed.	ADEM Admin. Code r. 335-3-16-.05(c); ADEM Admin. Code r. 335-3-14-.04
(h) The permittee shall maintain the 3-hour block average water/liquid flow through the wet scrubber at or above the minimum flow established during the most recent performance test.	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR 63, Subpart A; 40 CFR §63.2240(b); 40 CFR 63, Subpart DDDD, Table 2
(i) While the process is operating, the wet scrubber shall be visually observed a minimum of once a day for the differential pressure drop and liquid flow rate.	ADEM Admin. Code r. 335-3-16-.05(c)
(j) The permittee must install, operate, and maintain a continuous parameter monitoring system (CPMS) for the scrubber according to (1) through (3) below:	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR §63.2269
(1) The CPMS must be capable of completing a minimum of one cycle of operation (sampling, analyzing, and recording) for each successive 15-minute period;	
(2) At all times, you must maintain the monitoring equipment including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment; and,	
(3) Record the results of each inspection, calibration, and validation check.	
(l) Whenever the liquid flow rate across the wet scrubber is outside of normal operating range, the permittee shall initiate action within three (3) hours to correct the problem and return the system to its normal operating parameters.	ADEM Admin. Code r. 335-3-14-.04; ADEM Admin. Code r. 335-3-16-.05(c)
(m) Whenever the pressure differential across any dust collector or the wet scrubber is outside of normal operating range, the permittee shall initiate action within three (3) hours to correct the problem and return the system to its normal operating parameters.	
(n) The wet scrubber shall be inspected for proper operation at least annually, but more frequently if greater than normal process deviations occur that cleaning or maintenance is needed, such action shall be initiated within 24 hours of completing the inspection.	ADEM Admin. Code r. 335-3-16-.05(c)

Federally Enforceable Provisos	Regulations
(o) Each dust collector and the cyclone shall be inspected for proper operation at least annually, but more frequently if greater than normal process deviations occur that cleaning or maintenance is needed, such action shall be initiated within 24 hours of completing the inspection.	ADEM Admin. Code r. 335-3-16-.05(c)
(p) The permittee must develop and implement a plan for review and approval to address how organic HAP captured in the wastewater from the wet scrubber is contained or destroyed to minimize re-release to the atmosphere such that the desired emission reductions are obtained. The wastewater plan must be submitted with the Notice of Compliance Status (NOCS)	40 CFR §63.2268
(q) The permittee shall:	
(1) Conduct performance tests to determine the reduction in total HAP emissions and establish the site-specific operating requirement (i.e. the 3-hour block average water flow for the wet scrubber according to the requirements in 40 CFR §63.2262 and Table 4 to Subpart DDDD to demonstrate continuous compliance. As part of the performance test, the permittee shall calculate the percent reduction across the control system using Equation 1 of 40 CFR §63.2262(h);	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR §63.2260
(2) Demonstrate initial compliance with the selected compliance option and operating requirement according to Table 5 to Subpart DDDD, which specifies that compliance is demonstrated if: a. The average total HAP emissions, measured over the 3-hour performance test, not exceed 20 ppm, and b. The permittee has a record of the gallons per minute (gpm) of water flow across the wet scrubber over the performance test during which emissions did not exceed 20 ppmvd.	ADEM Admin. Code r. 335-3-11-.06(81); ADEM Admin. Code r. 335-3-11-.06(1); 40 CFR 63, Subpart A; 40 CFR 63, Subpart DDDD

Federally Enforceable Provisos	Regulations
(r) The permittee shall demonstrate continuous compliance with the selected compliance option and operating requirement according to 40 CFR §63.2269 and Table 7 to Subpart DDDD, which specifies that to demonstrate continuous compliance the permittee must: (1) Install, operate, and maintain the monitoring device for the wet scrubber; (2) Collect and record the wet scrubber liquid flow rate according to 40 CFR §63.2269(a) and 40 CFR §63.2270; and (3) Reduce the wet scrubber monitoring system data to the specified averages in units of the applicable requirement according to calculations in 40 CFR §63.2270; and (4) Maintain the 3-hour block average gallons per minute (gpm) wet scrubber flow at or above the minimum established according to 40 CFR §63.2262; and (5) Implement the plan to address how organic HAP captured in the wastewater from the wet scrubber is contained or destroyed to minimize re-release to the atmosphere.	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR §63.2269; 40 CFR §63.2270; 40 CFR §63.2271
(s) The permittee shall calibrate, maintain, and operate a continuous opacity monitoring system (COMS) to measure opacity emissions and record the output of the systems. The permittee shall follow the applicable procedures under 40 CFR §63.8 and §60 Appendix B, Performance Specification-1 (PS-1) for the installation, evaluation, and operation of the continuous monitoring system. This must be conducted before startup of the process. The span value for a continuous monitoring system for measuring opacity shall be between 60 and 80 percent.	40 CFR §63 Subpart A; ADEM Admin. Code r. 335-3-14-.04
(t) The permittee must develop a site-specific monitoring plan according to the paragraphs listed in section 40 CFR §63.8 for the use of any COMS	40 CFR §63 Subpart A; ADEM Admin. Code r. 335-3-14-.04
(u) To demonstrate continuous compliance with the opacity standard, the permittee must: (1) Reduce the opacity monitoring data to 6-minute averages, and (2) Maintain a daily block average opacity to less than or equal to 15 percent.	ADEM Admin. Code r. 335-3-14-.04
(v) The permittee shall submit a written notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin as specified in 40 CFR §63.7(b)(1).	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR §63.2280(c)

Federally Enforceable Provisos	Regulations
(w) While the Diagonal Saw process is operating, the daily throughput shall be monitored and recorded.	ADEM Admin. Code r. 335-3-14-.04
(x) While the Cut-to-size Saw process is operating, the daily throughput shall be monitored and recorded.	ADEM Admin. Code r. 335-3-14-.04
(y) While the Sanding process is operating, the daily throughput shall be monitored and recorded.	ADEM Admin. Code r. 335-3-14-.04
(z) While the Tongue and Groove process is operating, the daily throughput shall be monitored and recorded.	ADEM Admin. Code r. 335-3-14-.04
(aa) The Permittee shall maintain records (e.g. material safety data sheets) showing that the coatings used in these operations are non-HAP coatings as defined in 40 CFR §63.2292.	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR Part 63, Subpart DDDD
5. <u>Recordkeeping and Reporting Requirements</u>	
(a) Records of emission monitoring performed shall be maintained in a permanent form on-site and available for inspection for at least five (5) years from the date of generation of each record. These records shall include: (1) The date, time, and results of each daily observation for liquid flow rate and pressure differential of the wet scrubber; (2) The date, time, and results of each daily observation of the pressure differential of each dust collector; (3) The date(s), nature, and results of any corrective action taken when the liquid flow rate or pressure differential that was outside of the normal range across the wet scrubber/cyclone or any dust collector; (4) The date and time the wet scrubber, cyclone, and each dust collector/cyclone was inspected for proper operation and, if the results of the inspection indicated that cleaning or emissions-related maintenance was needed, the date(s) and nature of the cleaning/maintenance performed. (5) The daily throughput for the Diagonal Saw, Cut-to-size Saw, Sanding, and Tongue and Groove.	ADEM Admin. Code r. 335-3-16-.05(c); ADEM Admin. Code r. 335-3-14-.04
(b) The Permittee shall maintain all applicable records specified in 40 CFR §63.2282 and Tables 7 and 8 to Subpart DDDD. These records shall be in a form suitable and readily available for an expeditious review. Each record shall be retained for a period of 5 years from the date of generation of each record.	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR 63, Subpart DDDD

Federally Enforceable Provisos	Regulations
(c) For the Group 1 Miscellaneous Coating Operations, the Permittee shall maintain records (e.g. material safety data sheets) showing that the coatings used in these operations are non-HAP coatings as defined in 40 CFR §63.2292.	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR Part 63, Subpart DDDD
(c) The permittee shall comply with the applicable notification requirements in 40 CFR §63.2280, reporting requirements in 40 CFR §63.2281 and Table 9 to Subpart DDDD, and recordkeeping requirements in 40 CFR §§63.2282 and 63.2283.	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR 63, Subpart DDDD
(d) The permittee shall submit a Notification of Compliance Status as specified in 40 CFR §63.9(h)(2)(ii). The permittee shall submit the Notice of Compliance Status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to 40 CFR §63.10(d)(2)	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR §63.2280(d)
(e) The permittee shall comply with the notification, reporting, and recordkeeping requirements specified in 40 CFR §60.7.	ADEM Admin. Code r. 335-3-14-.04
(f) A Semiannual Monitoring Report (SMR) shall be submitted no later than 30 days after the end of each semiannual reporting period (January 1 st – June 30 th and July 1 st – December 31 st). The report shall include the following information for this process: (1) Excess emission report per 40 CFR §60.7; (2) A statement describing the emission monitoring that was required during the reporting period, whether all emission monitoring was completed as required, and if not, the date(s) and reasons(s) why the monitoring was not performed; (3) A statement as to whether the annual inspections of the wet scrubber and each dust collector were accomplished during the reporting period, and if so, the date and results of the inspection; and, (4) The date(s), nature, and results of any corrective action taken when (1) greater than normal process deviations occur, or (2) the differential pressure across a dust collector or the wet scrubber was outside of the normal operating range, or (3) the liquid flow rate of the scrubber is outside the normal range, or (4) an inspection of the wet scrubber, cyclone, or any dust collector indicated that cleaning or emissions-related maintenance was needed.	ADEM Admin. Code r. 335-3-16-.05(c)

Federally Enforceable Provisos	Regulations
(5) A statement verifying the daily throughput of the Diagonal Saw, Cut-to-size Saw, Sanding, and Tongue and Groove were below the allowable for each day of the reporting period. (6) A statement verifying the coatings utilized in the Group 1 Miscellaneous Coating Operations during the reporting period were non-HAP coatings as defined in 40 CFR §63.2292 (g) The permittee shall submit all of the applicable reports specified in 40 CFR §63.2281, 40 CFR §63.2271 and Table 9 to Subpart DDDD. These reports include, but may not be limited to, a Semiannual Compliance Report (SCR) to be submitted no later than 30 days after the end of each reporting period (January 1st - June 30th and July 1st – December 31st).	ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR 63, Subpart DDDD

AIR PERMIT

PERMITTEE: KRONOSPAN, LLC
FACILITY NAME: KRONOSPAN, LLC
LOCATION: EASTABOGA, CALHOUN COUNTY, ALABAMA

PERMIT NUMBER	DESCRIPTION OF EQUIPMENT, ARTICLE OR DEVICE
301-0079-X082	Dust and Granulate Handling (OSB Plant) including: Fifteen dust collectors collecting and distributing material to and from MDF, Particle Board, and OSB processes

In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, Ala. Code §§ 22-28-1 to 22-28-23, as amended, the Alabama Environmental Management Act, Ala. Code §§ 22-22A-1 to 22-22A-17, as amended, and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.

ISSUANCE DATE: DRAFT

**KRONOSPAN, LLC
EASTABOGA, ALABAMA
PERMIT NO. 301-0079-X082
PROVISOS**

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.
2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.
3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate, reduce, or control the issuance of air contaminants.
4. The permittee shall keep this permit under file or on display at all times at the site where the facility for which the permit is issued is located and shall make the permit readily available for inspection by any or all persons who may request to see it.
5. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.
6. On completion of construction of the device(s) for which this permit is issued, written notification of the fact is to be submitted to the Chief of the Air Division. The notification shall indicate whether the device(s) was constructed as proposed in the application. The device(s) shall not be operated until authorization to operate is granted by the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.
7. Each point of emission, which requires testing, will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.
8. All air pollution control equipment shall be operated at all times while this process is operational. In the event of scheduled maintenance, unscheduled maintenance, or a breakdown of the pollution control equipment, the process shall be shut down as expeditiously as possible (unless this act and subsequent re-start would clearly cause greater emissions than continuing operations of the process for a short period). The Department shall be notified of all such events **that exceed 1 hour** within 24 hours. The notification shall include all pertinent facts, including the duration of the process operating without the control device and the level of excess emissions which have occurred. Records of all such events, regardless of reporting requirements, shall be made and maintained for a period of five years. These records shall be available for inspection.
9. This process, including all air pollution control devices and capture systems for which this permit is issued, shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is

properly operated and maintained so as to minimize the emission of air contaminants shall be established.

10. Deviations from permit requirements shall be reported within 48 hours or 2 working days of such deviations, including those attributable to upset conditions as defined in the permit. The report will include the probable cause of said deviations, and any corrective actions or preventive measures that were taken.
11. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.
12. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.
13. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.
14. Unless otherwise stated in this permit or an applicable regulation, the Air Division must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.

To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:

- (a) The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.
- (b) A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).
- (c) A description of the process(es) to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.
- (d) A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

All test reports must be submitted to the Air Division within 60 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

15. Any performance tests required shall be conducted and data reduced in accordance with the test methods and procedures contained in each specific permit condition unless the Director (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (2) approves the use of an equivalent method, or (3) approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance.
16. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.
17. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

- (a) by the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;
- (b) by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;
- (c) by paving;
- (d) by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

18. Precautions shall be taken by the permittee and its personnel to ensure that no person shall ignite, cause to be ignited, permit to be ignited, or maintain any open fire in such a manner as to cause the Department's rules and regulations applicable to open burning to be violated.
19. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

PERMIT NO. 301-0079-X082

20. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.
21. Reports to the Air Division of any required monitoring shall be submitted at least every 6 months. All instances of deviations from permit requirements must be clearly identified in said reports. All required reports must be certified by a responsible official consistent with ADEM Admin. Code r. 335-3-16-.04(9).
22. The permittee shall submit an Annual Compliance Certification for the Dust and Granulate Handling System process to the Air Division by January 14th of each year for each annual reporting period (November 16th – November 15th).
 - (a) The compliance certification shall include the following:
 - i) The identification of each term or condition of this permit that is the basis of the certification;
 - ii) The compliance status;
 - iii) The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with Rule 335-3-16-.05(c) (Monitoring and Recordkeeping Requirements);
 - iv) Whether compliance has been continuous or intermittent; and
 - v) Such other facts as the Department may require to determine the compliance status of the source.
 - (b) The compliance certification shall be submitted to:

Alabama Department of Environmental Management
Air Division
P.O. Box 301463
Montgomery, AL 36130-1463

The compliance certification shall contain certification by a responsible official of truth, accuracy and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

**Wood Dust and Granulate Handling (OSB Plant)
Summary Page**

Description: Wood Dust and Granulate Handling including:

- EP 8.1 - HP Dust Dryers #1, #2, and #3 (Dryer Dust Collectors to OSB Dust Silo);
- EP 9.1 - HP Dust Sifter/Gluing/Forming (Sifter, Screen, Blending, Gluing, Mat Forming, and Mat Trimming Dust Collectors to OSB Dust Silo);
- EP10.1 - HP Dust Sanding (Sanding Dust Collector to OSB Dust Silo);
- EP 11.1 - HP Granulate Forming Line (Mat Forming Cyclone to OSB Granulate Silo);
- EP 12.1 - HP OSB Dust to Boiler Dust (Dust from OSB Dust Silo to OSB Boiler Dust Silo);
- EP 12.2 - HP Boiler Dust to MDF Dust (Dust from OSB Boiler Dust Silo to MDF Dust Silo);
- EP 13.1 - HP MDF Dust to Boiler Dust (Dust from MDF Dust Silo to OSB Boiler Dust Silo);
- EP 14.1 - HP Dust Strander to Dust Silo (Strander Dust Collectors and Flaker Cyclofilters to OSB Dust Silo);
- EP 15.1 - HP MDF Granulate to Boiler Granulate (MDF Granulate Silo to OSB Boiler Granulate Silo);
- EP 16.1 - HP Granulate from PB to OSB (PB Core Layer Silo to OSB Core Layer Silo);
- EP 16.2 - HP Granulate from OSB to PB Flaker Silo (OSB Granulate Silo to PB Flaker Silo);
- EP 18. - HP Granulate Saws (Diagonal Saw, Cut-to-Size Saw, and Tongue and Groove Dust Collectors to OSB Granulate Silo);
- EP 18.2 - HP Dust from Saw Filter to Dust Filter (Diagonal Saw, Cut-to-Size Saw, and Tongue and Groove Dust Collectors to OSB Dust Silo);
- EP 19.1 - HP Granulate Screening to Granulate Silo (OSB Sifting/Screening Granulate to OSB Granulate Silo); and
- EP 19.2 - HP Granulate Screening Dust to Dust Silo (OSB Sifting/Screening Dust to OSB Dust Silo).

Operating Schedule: 24 hrs/day, 7 days/week, 52 weeks/yr

Pollutants Emitted:

Emission Point No.	Description	Pollutant	Emission limit (combined emissions)	Regulation
EP 8.1 EP 9.1 EP 10.1 EP 11.1 EP 12.1 EP 12.2 EP 13.1 EP 14.1 EP 15.1 EP 16.1 EP 16.2 EP 18.1 EP 18.2 EP 19.1 EP 19.2	Dust and Granulate Handling Cyclofilters (15), combined emissions	PM	$E = 3.59 (P)^{0.62}$ $(P < 30 \text{ tons per hour})$ OR $E = 17.31 (P)^{0.16}$ $(P \geq 30 \text{ tons per hour})$	ADEM Admin. Code r. 335-3-4-.04(1)
		Opacity	20%	ADEM Admin. Code r. 335-3-4-.01(1)

Dust and Granulate Handling (OSB Plant)
Unit Specific Provisos

Federally Enforceable Provisos	Regulations
1. <u>Applicability</u> (a) These units are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, "Major Source Operating Permits." (b) This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-14-.04, "Air Permits Authorizing Construction in Clean Air Areas (Prevention of Significant Deterioration Permitting (PSD))". 2. <u>Emission Standards</u> (a) The Permittee shall not cause or allow the emission of particulate matter in any one hour from each unit in excess of the amount determined by the following equation: $E = 3.59 (P)^{0.62} \quad (P < 30 \text{ tons per hour}) \text{ OR}$ $E = 17.31 (P)^{0.16} \quad (P \geq 30 \text{ tons per hour})$ where E = Emissions in pounds per hour P = Process weight in tons per hour (b) Any source of particulate emissions shall not discharge more than one 6-minute average opacity greater than 20% in any 60-minute period. At no time shall any source discharge a 6-minute average opacity of particulate emissions greater than 40%. 3. <u>Compliance and Performance Test Methods and Procedures</u> (a) Compliance with the visible emissions standard shall be determined in accordance with Method 9 of 40 CFR Part 60, Appendix A, during particulate testing. 4. <u>Emission Monitoring</u> (a) While the process(s) are operating, someone familiar with the process(s) shall observe the visible emissions from all cyclofilters associated with this process a minimum of once daily during daylight hours for any visible emissions. (b) Whenever any visible emissions are observed, the permittee shall initiate corrective action as soon as practicable but no longer than 24 hours from the time of observation, followed by an additional observation to confirm that visible emissions have been eliminated.	ADEM Admin. Code r. 335-3-16-.03 ADEM Admin Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-4-.04(1) ADEM Admin. Code r. 335-3-4-.01(1) ADEM Admin. Code r. 335-3-1-.05 ADEM Admin. Code r. 335-3-16-.05(c) ADEM Admin. Code r. 335-3-16-.05(c)

Federally Enforceable Provisos	Regulations
(c) Each cyclofilter shall be physically inspected at least annually, but more frequently whenever visible emissions are observed, to ensure that the device has been properly maintained and operates as designed. If the results of the inspection indicate that cleaning, maintenance, and/or bag/filter replacement is needed, such action shall be initiated within 24 hours of completing the inspection.	ADEM Admin. Code r. 335-3-16-.05(c)
5. <u>Recordkeeping and Reporting Requirements</u>	
(a) Records of emission monitoring performed shall be maintained in a permanent form on-site and available for inspection for at least five (5) years from the date of generation of each record. These records shall include: (1) The date, time, and results of each daily observation for visible; (2) The date(s), nature, and results of any corrective action taken when visible emissions were observed from any cyclofilter; (3) The date each cyclofilter was inspected for proper operation and, if the results of the inspection indicated that cleaning or emissions-related maintenance was needed, the date(s) and nature of the cleaning/maintenance performed.	ADEM Admin. Code r. 335-3-16-.05(c); ADEM Admin. Code r. 335-3-14-.04
(b) The permittee shall submit a Semiannual Monitoring Report (SMR) for the cyclofilters to the Air Division no later than 30 days after the end of each semiannual reporting period (January 1st through June 30th and July 1st through December 31st). The report shall include the following for this process: (1) A statement describing the emission monitoring that was required during the reporting period, whether all emission monitoring was completed as required, and if not, the date(s) and reasons(s) why the monitoring was not performed; (2) A statement as to whether the annual inspections of each cyclofilter was accomplished, and if so, the date and results of the inspection; and, (3) The date(s), nature, and results of any corrective action taken when (1) any visible emissions were observed from any cyclofilter and/or (2) an inspection of any cyclofilter indicated that cleaning or emissions-related maintenance was needed.	ADEM Admin. Code r. 335-3-16-.05(c)

AIR PERMIT

PERMITTEE: KRONOSPAN, LLC.
FACILITY NAME: KRONOSPAN, LLC.
LOCATION: EASTABOGA, CALHOUN COUNTY, ALABAMA

PERMIT NUMBER	DESCRIPTION OF EQUIPMENT, ARTICLE OR DEVICE
301-0079-X083	1,220 bHp (910 kW _m) Cummins Compression Ignition Diesel-fired Reciprocating Internal Combustion Engine [Emergency Generator No. 6 (ENG-06)]
	1,220 bHp (910 kW _m) Cummins Compression Ignition Diesel-fired Reciprocating Internal Combustion Engine [Emergency Generator No. 7 (ENG-07)]
	1,220 bHp (910 kW _m) Cummins Compression Ignition Diesel-fired Reciprocating Internal Combustion Engine [Emergency Generator No. 8 (ENG-08)]

In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, Ala. Code §§ 22-28-1 to 22-28-23, as amended, the Alabama Environmental Management Act, Ala. Code §§ 22-22A-1 to 22-22A-17, as amended, and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.

ISSUANCE DATE: DRAFT

Alabama Department of Environmental Management

**KRONOSPAN, LLC
EASTABOGA, ALABAMA
PERMIT NO. 301-0079-X083
PROVISOS**

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.
2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.
3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate, reduce, or control the issuance of air contaminants.
4. The permittee shall keep this permit under file or on display at all times at the site where the facility for which the permit is issued is located and shall make the permit readily available for inspection by any or all persons who may request to see it.
5. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.
6. On completion of construction of the device(s) for which this permit is issued, written notification of the fact is to be submitted to the Chief of the Air Division. The notification shall indicate whether the device(s) was constructed as proposed in the application. The device(s) shall not be operated until authorization to operate is granted by the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.
7. Each point of emission, which requires testing, will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.
8. All air pollution control equipment shall be operated at all times while this process is operational. In the event of scheduled maintenance, unscheduled maintenance, or a breakdown of the pollution control equipment, the process shall be shut down as expeditiously as possible (unless this act and subsequent re-start would clearly cause greater emissions than continuing operations of the process for a short period). The Department shall be notified of all such events **that exceed 1 hour** within 24 hours. The notification shall include all pertinent facts, including the duration of the process operating without the control device and the level of excess emissions which have occurred. Records of all such events, regardless of reporting requirements, shall be made and maintained for a period of five years. These records shall be available for inspection.
9. This process, including all air pollution control devices and capture systems for which this permit is issued, shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is

properly operated and maintained so as to minimize the emission of air contaminants shall be established.

10. Deviations from permit requirements shall be reported within 48 hours or 2 working days of such deviations, including those attributable to upset conditions as defined in the permit. The report will include the probable cause of said deviations, and any corrective actions or preventive measures that were taken.
11. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.
12. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.
13. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.
14. Unless otherwise stated in this permit or an applicable regulation, the Air Division must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.

To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:

- (a) The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.
- (b) A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).
- (c) A description of the process(es) to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.
- (d) A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

All test reports must be submitted to the Air Division within 60 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

15. Any performance tests required shall be conducted and data reduced in accordance with the test methods and procedures contained in each specific permit condition unless the Director (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (2) approves the use of an equivalent method, or (3) approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance.
16. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.
17. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

- (a) by the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;
- (b) by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;
- (c) by paving;
- (d) by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

18. Precautions shall be taken by the permittee and its personnel to ensure that no person shall ignite, cause to be ignited, permit to be ignited, or maintain any open fire in such a manner as to cause the Department's rules and regulations applicable to open burning to be violated.
19. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

PERMIT NO. 301-0079-X083

20. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.
21. Reports to the Air Division of any required monitoring shall be submitted at least every 6 months. All instances of deviations from permit requirements must be clearly identified in said reports. All required reports must be certified by a responsible official consistent with ADEM Admin. Code r. 335-3-16-.04(9).
22. The permittee shall submit an Annual Compliance Certification for the Emergency Engine Nos. 6, 7 and 8 process to the Air Division by January 14th of each year for each annual reporting period (November 16th – November 15th).
 - (a) The compliance certification shall include the following:
 - i) The identification of each term or condition of this permit that is the basis of the certification;
 - ii) The compliance status;
 - iii) The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with Rule 335-3-16-.05(c) (Monitoring and Recordkeeping Requirements);
 - iv) Whether compliance has been continuous or intermittent; and
 - v) Such other facts as the Department may require to determine the compliance status of the source.
 - (b) The compliance certification shall be submitted to:

Alabama Department of Environmental Management
Air Division
P.O. Box 301463
Montgomery, AL 36130-1463

The compliance certification shall contain certification by a responsible official of truth, accuracy and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

**Emergency Engine Nos. 6, 7, and 8
Summary Page**

Description: 1,220 bHp (910 kW_m) Cummins Compression Ignition Diesel-fired Reciprocating Internal Combustion Engine [Emergency Generator No. 6 (ENG-06)]
 1,220 bHp (910 kW_m) Cummins Compression Ignition Diesel-fired Reciprocating Internal Combustion Engine [Emergency Generator No. 7 (ENG-07)]
 1,220 bHp (910 kW_m) Cummins Compression Ignition Diesel-fired Reciprocating Internal Combustion Engine [Emergency Generator No. 8 (ENG-08)]

Operating Schedule: 500 hours/year per unit (engine)

Pollutants Emitted:

Emission Point	Point Description	Pollutant	Emission Limit (each unit)	Standard
	ENG-06, ENG-07, and ENG-08 exhausts	Opacity	5%	ADEM Admin. Code r. 335-3-14-.04
		NO _x + NMHC	4.8 g/bHp-hr*	ADEM Admin. Code r. 335-3-10-.03(87); 40 CFR 60, Subpart IIII ADEM Admin. Code r. 335-3-11-.06(103); 40 CFR 63, Subpart ZZZZ ADEM Admin. Code r. 335-3-14-.04
			11.62 lb/hr	
		VOC	1.29 lb/hr	
		CO	2.6 g/bHp-hr	
			6.99 lb/hr	
		PM	0.15 g/bHp-hr	
			0.40 lb/hr	
		PM ₁₀	0.46 lb/hr	
			0.15 g/bHp-hr	
		PM _{2.5}	0.46 lb/hr	
			0.15 g/bHp-hr	
		GHG	1,150 lb/hr	ADEM Admin. Code r. 335-3-14-.04
			162.19 lb/MMBtu	

*g/hp-hr value includes VOC

Unit Specific Provisos

	Regulations
1. <u>Applicability</u> (a) These sources are subject to the applicable requirements of Rule 335-3-16-.03, "Major Source Operating Permits". (b) This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-14-.04, "Air Permits Authorizing Construction in Clean Air Areas (Prevention of Significant Deterioration Permitting (PSD))". (c) These units are subject to the applicable requirements of the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, 40 CFR Part 63, Subpart ZZZZ (d) These units are subject to the applicable requirements of the 40 CFR 60, Subpart IIII, the Standards of Performance for Stationary Compression Ignition Internal Combustions Engines	ADEM Admin. Code r. 335-3-16-.03 ADEM Admin Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-11-.06(103); 40 CFR 63, Subpart A; 40 CFR 63, Subpart ZZZZ ADEM Admin. Code r. 335-3-10-.03(87); 40 CFR 60, Subpart A; 40 CFR 60, Subpart IIII
2. <u>Emission Standards</u> (a) The Permittee shall not cause or allow <u>each</u> of these engines (ENG-06, ENG-07, or ENG-08) to operate more than 500 hours during any consecutive 12-month period. (b) Any source of particulate emissions shall not discharge more than one 6-minute average opacity greater than 20% in any 60-minute period. At no time shall any source discharge a 6-minute average opacity of particulate emissions greater than 40%. (c) Opacity from <u>each of these units</u> shall not exceed 5%. (d) The permittee shall not cause or allow the particulate (PM) emission rate from <u>each of these units</u> to exceed 0.40 lb/hr and 0.15 g/bHp-hr. (e) The permittee shall not cause or allow the 10 micron particulate (PM₁₀) emission rate from <u>each of these units</u> to exceed 0.46 lb/hr and 0.15 g/bHp-hr.	ADEM Admin Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-4-.01(1) ADEM Admin Code r. 335-3-14-.04 ADEM Admin. Code r. 335-3-10-.03(87); 40 CFR 60, Subpart A; 40 CFR 60, Subpart IIII ADEM Admin. Code r. 335-3-10-.03(87); 40 CFR 60, Subpart A; 40 CFR 60, Subpart IIII

	Regulations
(f) The permittee shall not cause or allow the 2.5 micron particulate (PM _{2.5}) emission rate from <u>each of these units</u> to exceed 0.46 lb/hr and 0.15 g/bHp-hr.	ADEM Admin. Code r. 335-3-10-.03(87); 40 CFR 60, Subpart A; 40 CFR 60, Subpart III
(g) The permittee shall not cause or allow the nitrogen oxide emission rate from <u>each of these units</u> to exceed 11.62 lb/hr or 4.8 g/bHp-hr.	ADEM Admin. Code r. 335-3-10-.03(87); 40 CFR 60, Subpart A; 40 CFR 60, Subpart III
(h) The carbon monoxide emission rate from the exhausts <u>from each of these units</u> shall not exceed 6.99 lb/hr and 2.6 g/bHp-hr.	ADEM Admin. Code r. 335-3-10-.03(87); 40 CFR 60, Subpart A; 40 CFR 60, Subpart III
(i) The volatile organic compound (VOC as propane) emission rate from the exhausts <u>from each of these units</u> shall not exceed 1.29 lb/hr	ADEM Admin. Code r. 335-3-10-.03(87); 40 CFR 60, Subpart A; 40 CFR 60, Subpart III
(j) The permittee shall not cause or allow the emissions from <u>each of these units</u> to exceed the applicable emission standards in 40 CFR §89.112, specifically	ADEM Admin. Code r. 335-3-10-.03(87); 40 CFR §60.4205(b) and §60.4202(a)(2)
(1) The sum of the emissions of non-methane hydrocarbons (NMHC) and nitrogen oxides (NO _x) shall not exceed 4.8 g/bHp-hr:	
(2) Carbon monoxide emissions shall not exceed 2.6 g/bHp-hr;	
(3) Particulate matter (PM) emissions shall not exceed 0.15 g/bHp-hr.	
(k) The greenhouse gas (GHG) emission rate from <u>each of these units</u> shall not exceed 1,150 lb/hr and 162.10 lb/MMBtu.	ADEM Admin. Code r. 335-3-14-.04
3. <u>Compliance and Performance Test Methods and Procedures</u>	
(a) Compliance with the visible emissions standard shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9.	ADEM Admin. Code r. 335-3-1-.05
(b) Compliance with the particulate emission rates of these units shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 5.	ADEM Admin. Code r. 335-3-1-.05

	Regulations
(c) Compliance with the nitrogen oxide emission rate from each unit shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 7E	ADEM Admin. Code r. 335-3-1-.05
(d) Compliance with the carbon monoxide emission rate from each unit shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 10	ADEM Admin. Code r. 335-3-1-.05
(e) Compliance with the volatile organic compounds (VOC) emission rates of these units shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 25, 25A.	ADEM Admin. Code r. 335-3-1-.05
(f) The permittee shall comply with the applicable requirements as specified in 40 CFR §63.6675, the permittee shall not operate these units except as allowed in §63.6640(f)(1) through (4), which includes the following:	ADEM Admin. Code r. 335-3-11-.06(103); 40 CFR 63, Subpart ZZZZ
(1) Emergency situations;	
(2) Maintenance checks and readiness testing, not to exceed 100 hours per year; and	
(3) Non-emergency situations, not to exceed 50 hours per year (these 50 hours count toward the 100 hours per year allowed for maintenance checks and readiness testing). The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.	
(g) In accordance with 40 CFR §60.4206 and §60.4211(a), the permittee shall operate and maintain these units according to the manufacturer's written instructions	ADEM Admin. Code r. 335-3-10-.03(87); 40 CFR 60, Subpart IIII
(h) In accordance with 40 CFR §60.4207, the permittee shall meet the following fuel requirements:	ADEM Admin. Code r. 335-3-10-.03(87);
(1) The permittee shall not burn any diesel fuel in this unit that does not meet the following per-gallon standards of 40 CFR §80.510(b):	ADEM Admin. Code r. 335-3-10-.03(87); 40 CFR 60, Subpart IIII
a. Sulfur content shall not exceed 15 parts per million (ppm)	
b. Cetane index shall be a minimum of 40 <u>or</u> the aromatic content shall not exceed 35 volume percent;	
(2) In accordance with 40 CFR §60.4209, the permittee shall install and operate a non-resettable hour meter for these units;	

	Regulations
(3) In accordance with §60.4211(e), the permittee shall only operate these units as specified below: a. Emergency situations; and b. Maintenance checks and readiness testing not to exceed 100 hours per year for these units.	
4. <u>Emission Monitoring</u>	
(a) While the processes are operating, someone familiar with the process(s) shall observe the visible emissions from each of the exhausts associated with these processes a minimum of once daily during daylight hours for any visible emissions.	ADEM Admin. Code r. 335-3-4-.01
(b) Whenever any visible emissions are observed from each of these the exhausts, the permittee shall initiate corrective action as soon as practicable but no longer than 24 hours from the time of observation, followed by an additional observation to confirm that visible emissions have returned to normal.	ADEM Admin. Code r. 335-3-4-.01
(c) The permittee shall operate and maintain these units according to the manufacturer's emission-related written instructions or develop a maintenance plan that provides for, to the extent practicable, the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.	ADEM Admin. Code r. 335-3-11-.06(103); 40 CFR §63.6625(e) and §63.6640(a)
(d) The permittee shall install a non-resettable hour meter if one is not already installed.	ADEM Admin. Code r. 335-3-11-.06(103); 40 CFR §63.6625(f); ADEM Admin. Code r. 335-3-10-.03(87); §60.4209
(e) The permittee shall calculate by the 10th of each calendar month, for the previous calendar month, the total number of hours of operation for the calendar year for each emergency engine.	ADEM Admin Code r. 335-3-14-.04
5. <u>Recordkeeping and Reporting Requirements</u>	
(a) To demonstrate compliance with the fuel limitations, the permittee shall maintain records of the sulfur content <u>and</u> either the Cetane index or aromatic content of the diesel fuel that is burned in this unit. These records shall be maintained in a permanent form suitable for inspection and shall be readily available for inspection upon request. These records shall be retained for a period of 5 years from the date of generation of each record.	ADEM Admin. Code r. 335-3-10-.03(87); 40 CFR 60, Subpart III
(b) Records must be kept for a period of five (5) years from the date of generation, and the records must be kept in a suitable format and readily available for review.	ADEM Admin. Code r. 335-3-11-.06(103); 40 CFR §63.6660, 40 CFR §63.10(b)(1)

	Regulations
(c) The permittee shall submit a Semiannual Monitoring Report (SMR) for the three (3) emergency engines (ENG-06, ENG-07 and ENG-08) to the Air Division no later than 30 days after the end of each semiannual reporting period (January 1 st through June 30 th and July 1 st through December 31 st). This report shall include a certification that all emission monitoring, proper maintenance, and operating practices were accomplished as required during the reporting period, and if not, describe the date and reason any required action was not accomplished.	ADEM Admin. Code r. 335-3-16-.05(c)
(d) The permittee shall submit a Semiannual Compliance Report (SCR) for the three (3) engines (ENG-06, ENG-07 and ENG-08) to the Air Division no later than 30 days after the end of each semiannual reporting period (January 1 st through June 30 th and July 1 st through December 31 st). The report should include any applicable requirements stated in 40 CFR §63.6650 and Table 7 of Subpart ZZZZ.	ADEM Admin. Code r. 335-3-11-.06(103); 40 CFR §63.6650 and Table 7 of Subpart ZZZZ