MARYLAND DEPARTMENT OF THE ENVIRONMENT

AIR AND RADIATION ADMINISTRATION
APPLICATION FOR A PERMIT TO CONSTRUCT

DOCKET #01-25

COMPANY: Great Southern Wood – MD, Inc.

LOCATION: 1201 Maryland Ave
Hagerstown Ave 21740

APPLICATION: Installation of one (1) direct-fired batch lumber drying kiln equipped with a 7 MMBtu/hr natural gas burner.

ITEM	DESCRIPTION
1	Notice of Application and Opportunity to Request an Informational Meeting
2	Environmental Justice (EJ) Information - EJ Fact Sheet
3	Permit to Construct Application – Project Description Site Map Process Flow Diagram Emission Calculation Methodology Best Available Control Technology (BACT) Analysis for Toxics Proposed Equipment Information Emissions Calculations Form 5, 5T, and 5EP Modeling Report MDE EJ Score and Screening Report Zoning Approval Evidence of Workman's Compensation Insurance

DEPARTMENT OF THE ENVIRONMENT
AIR AND RADIATION ADMINISTRATION

NOTICE OF APPLICATION AND
OPPORTUNITY TO REQUEST AN INFORMATIONAL MEETING

The Maryland Department of the Environment, Air and Radiation Administration (ARA) received a permit-to-construct application from Great Southern Wood – MD, Inc. on November 12, 2024 for one (1) direct-fired batch lumber drying kiln with a 7 MMBtu/hr natural gas burner. The proposed installation will be located at 1201 Maryland Ave, Hagerstown, MD 21740.

In accordance with HB 1200/Ch. 588 of 2022, the applicant provided an environmental justice (EJ) Score for the census tract in which the project is located using the MDE EJ Screening Tool. The EJ Score, expressed as a statewide percentile, was shown to be 55 which the Department has verified. This score considers three demographic indicators, minority population above 50%, poverty rate above 25% and limited English proficiency above 15%, to identify underserved communities. Multiple environmental health indicators are used to identify overburdened communities.

Copies of the application, the MDE EJ Screening Tool Report (which includes the score), and other supporting documents are available for public inspection on the Department's website at https://mde.maryland.gov/programs/Permits/AirManagementPermits/Pages/index.aspx (click on Docket Number 01-25). Any applicant-provided information regarding a description of the environmental and socioeconomic indicators contributing to that EJ score can also be found at the listed website. Such information has not yet been reviewed by the Department. A review of the submitted information will be conducted when the Department undertakes its technical review of all documents included in the application.

Pursuant to the Environment Article, Section 1-603, Annotated Code of Maryland, the Department will hold an informational meeting to discuss the application and the permit review process if the Department receives a written request for a meeting within 10 working days from the date of the second publication of this notice. A requested informational meeting will be held virtually using teleconference or internet-based conferencing technology unless a specific request for an in-person informational meeting is received. All requests for an informational meeting should be directed to the attention of Ms. Shannon Heafey, Air Quality Permits Program by email to shannon.heafey@maryland.gov or by mail to the Air and Radiation Administration, 1800 Washington Boulevard, Baltimore, Maryland 21230.

Further information may be obtained by calling Ms. Shannon Heafey at 410-537-4433.

Christopher R. Hoagland, Director
Air and Radiation Administration

Maryland
Department of
the Environment

The Applicant's Guide to Environmental Justice and Permitting

What You Need to Know

This fact sheet is designed to provide guidance to applicants on incorporating environmental justice screening requirements pursuant to House Bill 1200, effective October 1, 2022.

What is Environmental Justice?

The concept behind the term environmental justice (EJ) is that regardless of race, color, national origin, or income, all Maryland residents and communities should have an equal opportunity to enjoy an enhanced quality of life. How to assess whether equal protection is being applied is the challenge.

Communities surrounded by a disproportionate number of polluting facilities puts residents at a higher risk for health problems from environmental exposures. It is important that residents who may be adversely affected by a proposed source be aware of the current environmental issues in their community in order to have meaningful involvement in the permitting process. Resources may be available from government and private entities to ensure that community health is not negatively impacted by a new source located in the community.

Extensive research has documented that health disparities exist between demographic groups in the United States, such as differences in mortality and morbidity associated with factors that include race/ethnicity, income, and educational attainment. House Bill 1200 adds to MDE's work incorporating diversity, equity and inclusion into our mission to help overburdened and underserved communities with environmental issues.

What is House Bill 1200 and what does it require?

Effective October 1, 2022, House Bill 1200 requires a person applying for a permit from the Department under §1-601 of the Environment Article of the Annotated Code of Maryland or any permit requiring public notice and participation to include in the application an EJ Score for the census tract where the applicant is seeking the permit; requiring the Department, on receiving a certain permit application to review the EJ Score; and requiring notices to include information related to EJ Scores and generally relating to environmental permits and environmental justice screenings.

What is a "Maryland EJ Tool"?

The term "Maryland EJ Tool" means a publicly available state mapping tool that allows users to: (1) explore layers of environmental justice concern; (2) determine an overall EJ score for census tracts in the state; and (3) view additional context layers relevant to an area. The MDE EJ Screening Tool is considered a Maryland EJ Tool.

What is an "EJ Score"?

The term "EJ Score" means an overall evaluation of an area's environment and environmental justice indicators, as defined by MDE in regulation, including: (1) pollution burden exposure; (2) pollution burden environmental effects; (3) sensitive populations; and (4) socioeconomic factors.

The MDE EJ Screening Tool considers three demographic indicators, minority population above 50%, poverty rate above 25% and limited English proficiency above 15%, to identify underserved communities, and multiple environmental health indicators to identify overburdened communities. The tool uses these indicators to calculate a

Final EJ Score Percentile, statewide. It is that score, linked to the census tract where the project is to be located, that needs to be reported to MDE as part of your permit application.

What does the application require?

The link for the MDE EJ Screening Tool is located on the Department's website, www.mde.maryland.gov. Click on the Environmental Justice header at the top of the Department's home page, then select EJ Screening Tool from the menu on the left. Click on Launch the EJ Screening Tool. After you open the tool, click okay on the opening screen. At the top right, please click the first button for the MDE Screening Report. Input the address of the proposed installation in the address bar. Click on the Report button. Once the report has been generated select the print icon and save it in a .pdf format.

The applicant needs to include the MDE Screening Report with the EJ Score from the MDE EJ Screening Tool as part of the permit application upon submission. An application will not be considered complete without the report.

The applicant is encouraged to provide the Department with a discussion about the environmental exposures in the community. This will provide pertinent information about how the applicant should proceed with engaging with the community. Residents of a community with a high indicator score and a high degree of environmental exposure should be afforded broader opportunities to participate in the permit process and understand the impacts a project seeking permit approval may have on them.

Questions

For air quality permits, please call 410-537-3230.
For water permits, please call 410-537-4145.
For land permits pertaining to Solid Waste, please call 410-537-3098. For land permits pertaining to Oil Control, please call 410-537-3483.
For land permits pertaining to Animal Feeding Operations, please call 410-537-4423.
For land permits pertaining to Biosolids, please call 410-537-3403.

GREAT SOUTHERN WOOD PRESERVING

October 9, 2024

Schuyler Fearins
Regulatory and Compliance Engineer
Air and Radiation Administration
Maryland Department of Environment
1800 Washington Boulevard
Baltimore, Maryland 21230

Re: Great Southern Wood - MD, Inc.
Permit to Install Application

Mr. Fearins,

Please find enclosed a Permit to Install application for authorization to install and operate a lumber drying kiln (KILN) at Great Southern Wood – MD, Inc. (GSW) wood preserving facility at 1201 Maryland Avenue, Hagerstown, MD 21740.

This submittal includes the required MDE forms and additional information. As previously discussed with the Department, GSW hopes to install this unit as soon as authorization is obtained from the Department. Please advise if there is any assistance we can provide to expedite your review.

You may contact Joe Pennock at 301.791.5518 or jpennock@yellawood.com or Brad Dethero at 256.710.4221 or bdethero@geo-source.com if you have any questions about the application.

We appreciate your assistance.

Sincerely,
Great Southern Wood Preserving, Inc.

Kevin B. Savoy
Vice President

Attachment

Air Permit Application
AI No. 5181

Great Southern Wood – MD, Inc.

1201 Maryland Avenue

Hagerstown, MD 21740

October 2024

APPLICATION SUMMARY

Great Southern Wood – MD, Inc. (GSW) operates a wood preserving facility at 1201 Maryland Avenue, Hagerstown, MD 21740 under Agency Interest Number 5181 and ARA Registration No. 043-0190.

With this permit to construction application, the facility proposes the construction and operation of a direct natural gas-fired lumber drying kiln (KILN) at this site. This project meets the requirement to obtain a permit to construct under COMAR 26.11.02.09 and the project will exceed the threshold requiring public notice. This application includes the required Maryland Department of Environment (MDE or Department) information and supplemental information to assist the MDE in permitting the proposed project. The application includes the following:

- Application Summary
- Project Description
- Site Map
- Process Flow Diagram
- Emission Calculation Methodology
- Best Available Control Technology (BACT) Analysis for Toxics
- Appendices
    - Appendix A: Proposed Equipment Information
    - Appendix B: Potential to Emit (PTE) calculations and emission factor background documentation
    - Appendix C: MDE Forms (Form 5, Form 5T, Form 5EP)
    - Appendix D: Modeling Report (modeling files can be provided by email)
    - Appendix E: Environmental Justice Screening Report
    - Appendix F: Documentation of Zoning/Land Use Compliance
    - Appendix G: Evidence of Workman's Compensation Insurance

The facility hopes to begin construction of the kiln as soon as the permit is issued, and we respectfully request expedited review.

PROJECT DESCRIPTION

Great Southern Wood – MD, Inc. (GSW) operates a wood preserving facility at 1201 Maryland Avenue, Hagerstown, MD 21740 under Agency Interest No. 5181 and ARA Registration No. 043-0190.

Previously kiln-dried lumber (lumber at a moisture content of 19% or less) is brought on-site by truck as a raw material. Under the current authorization of MDE, the lumber is loaded and pressure-treated within cylindrical pressure vessels on-site with waterborne solutions to protect against bacteria, fungi, insects, and marine organisms. After pressure treating and drip-drying, with the authorization requested here, some lumber will be set aside for kiln drying. This kiln drying is required per customer demands to get the lumber to a "paint-ready" dryness upon delivery.

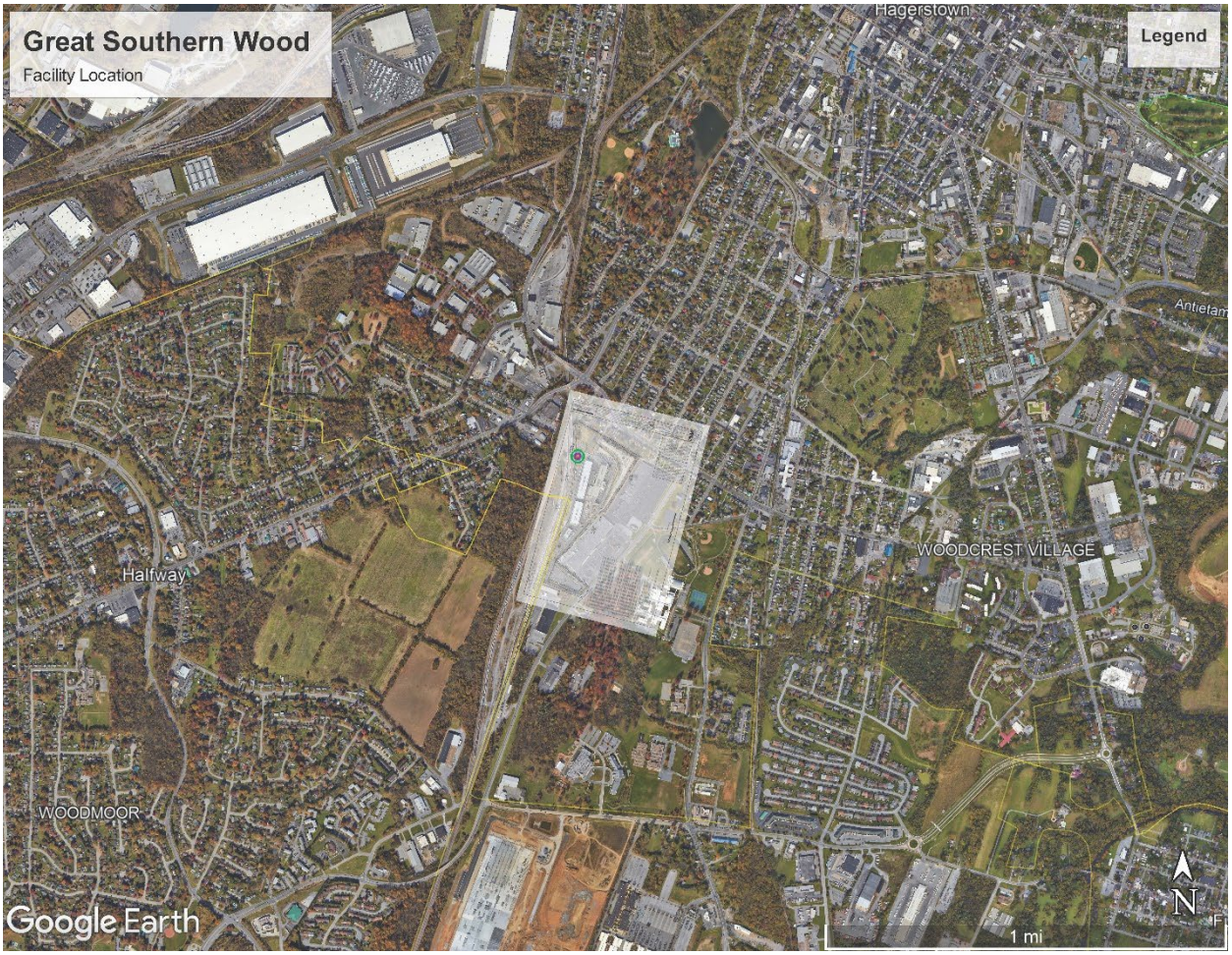
Proposed Project

A direct natural gas-fired batch Dry Kiln (KILN) will be installed on-site. A 7 MMBtu/hr natural gas burner will provide heat directly into the batch kiln and lumber contained within. The kiln will be used to reduce the moisture introduced from the aqueous solution treatment and get the lumber to a "paint-ready" dryness. The batch kiln can be loaded with a charge of treated lumber up to 102.144 thousand board feet, MBf. The lumber at GSW weighs roughly 3,300 lb/MBf. After loading, the kiln doors will be closed, and the kiln will be heated to no more than 160°F using the associated natural gas burner. The treated lumber dries at this low temperature for between 48 and 72 hours until the moisture in the lumber meets the customer's specifications. The proposed kiln has five vents on each side of the kiln roof. Fans inside the kiln will direct airflow either toward the front or the back of the kiln. The exhaust will vent through the five vents on one side while air is drawn in through the five vents on the opposite side. At the end of the drying process, the kiln will be shut down, and upon cooling, the doors will be opened to remove the dried lumber, and a fresh charge can be added. The site has estimated no more than one batch per week will be dried, equivalent to a maximum of 5.311 MMBf/yr. Kiln emissions, from lumber drying and natural gas combustion, are released mostly through the ten vents on the top of the kiln but can also be released through the kiln doors when opened to remove a dried charge. After drying, the lumber will be shipped off-site.

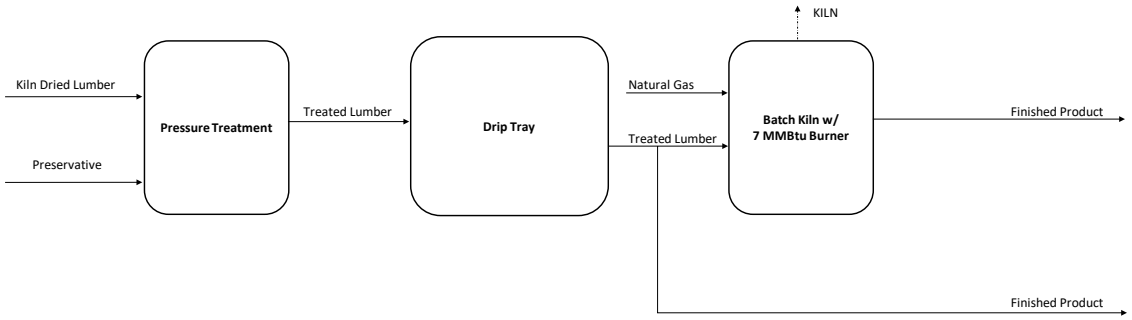
A Site Map and Process Flow Diagram follow. Kiln information is provided by the proposed kiln vendor, Southeastern Installation, Inc. (SII), as manufacturer specifications (Appendix A: Proposed Equipment Information). Various cost details have been deleted.

SITE MAP

The following map is provided for Great Southern Wood – MD, Inc. at 1201 Maryland Avenue, Hagerstown, MD 21740 as the Site plan with the kiln (KILN) identified with the green dot.



PROCESS FLOW DIAGRAM



EMISSION CALCULATION METHODOLOGY

Great Southern Wood – MD, Inc. (AI# 5181) is requesting to add a direct natural gas-fired batch lumber drying kiln (KILN). A 7 MMBtu/hr natural gas burner will provide heat directly into the batch kiln.

The kiln will be loaded with a charge of treated lumber; the kiln is designed to hold up to 102.144 thousand board feet (MBf) per batch. After loading, the kiln doors will be closed, and the kiln will be heated to no more than 160^0F using the 7 MMBtu/hr natural gas burner. The treated lumber dries at a low temperature for between 48 and 72 hours until the lumber reaches the customer's dryness specifications at which time the unit is shut down and once sufficiently cool, the doors are opened, and the batch is removed.

Emissions are estimated from "drying" lumber as well as from the combustion of natural gas as the kiln heat source. Published emission factors of VOC and toxics for drying previously kiln-dried lumber after reintroducing moisture are not found. It is expected that only the moisture added through the treatment process is driven out of the lumber, but as a conservative approach, potential emissions from this process are based on emission factors recommended for use or commonly accepted by regulatory agencies for drying green lumber in sawmills. As the kiln will not operate above 160^0F, emission factors from U.S. EPA Region 10 for low-temperature drying are used.

As documented in the attached potential to emit calculations (Appendix B), hourly emissions are based on the kiln's batch size of 102.144 MBf with a "worst case assumption" of only 48-hour batch time (or 2.13 MBf/hr) and the kiln's burner design capacity of 7 MMBtu/hr. The planned operation of the kiln is one batch per week, each week of the year, resulting in a throughput of 5.311 MMBf/yr of dried lumber; annual emissions from lumber drying are based on this amount. The total board footage dried will be tracked by GSW. For pollutants of combustion, we conservatively assume the kiln burner operates at full capacity (7 MMBtu/hr), year-round, to avoid compliance tracking through hours of operation or natural gas consumption.

Estimates of lumber drying emissions use U.S. EPA Region 10 factors as provided in Appendix B. Where drying temperature impacts the emission rate, a temperature of 160^0F is used. Emissions of phenol are expected but a factor is not provided in the U.S. EPA Region 10 document, thus a value from the U.S. EPA's PCWP MACT guidance memo is used. Emissions from natural gas combustion use the U.S. EPA's AP-42 emission factors for SO_2, CO, NO_X, lead, and various HAP. GHG estimates use U.S. EPA's GHG Mandatory Reporting Rule factors.

A toxic air pollutant evaluation of lumber drying emissions was completed. It is assumed that the pollutants generated from the combustion of natural gas as the heat source for the kiln are exempt from Chapter 15 Toxic Air Pollutant regulation per COMAR 26.11.15.03B.(2)(a). For the six pollutants regulated by the U.S. EPA from lumber drying kilns, we have completed Form 5T and addressed the various steps outlined through COMAR 26.11.15.06.

Pollutant	Emission Factors lb/MBf	Potential Emissions		TAP Evaluation	
		lb/hr	lb/yr	TAP Class	Step 2 Evaluation
Acetaldehyde	0.0340	0.072	180.59	06C	Not exempt because Annual SL <1
Acrolein	0.0026	0.006	13.81	Class II	Not exempt because Short-term SL <200
Formaldehyde	0.0030	0.006	15.93	06B	Not exempt because Short-term SL <200 and Annual SL <1
Methanol	0.0550	0.117	292.13	Class II	EXEMPT: lb/hr <0.5 SL>200
Phenol	0.0100	0.021	53.11	Class II	Not exempt because Short-term SL <200
Propionaldehyde	0.0010	0.002	5.31	Class II	EXEMPT: lb/hr <0.5 SL>200

For acetaldehyde, acrolein, formaldehyde, and phenol, as toxics that are not exempt from the "Step 2" Small Quantity Emitter Exemption, we have completed further review under Step 3 and Step 4. Step 3 documentation is provided in the Best Available Control Technology (BACT) Analysis for Toxics. As with federally enforceable Prevention of Significant Deterioration (PSD) permits for lumber drying kilns, no add-on pollution control equipment has been deemed achievable for lumber drying kilns.

Step 4 considered the batch kiln design and utilized the "Shorter Stack, Possible Downwash, or Fugitive" equations from the TAP Guidance Document to address Test 1: Allowable Emissions".

The following table is copied from Form 5T.

Toxic Air Pollutant (TAP)	CAS Number	Screening Levels ($\mu g/m^3$)			Premises Wide Total TAP Emissions		Allowable Emissions Rate (AER) per COMAR 26.11.16.02A		Off-site Concentrations per Screening Analysis ($\mu g/m^3$)			Compliance Method Used?
		1-hour	8-hour	Annual	(lb/hr)	(lb/yr)	(lb/hr)	(lb/yr)	1-hour	8-hour	Annual	AER or Screen
ex. ethanol	*64175*	*18843*	*3769*	*N/A*	*0.75*	*1500*	*0.89*	*N/A*	*N/A*	*N/A*	*N/A*	*AER*
ex. benzene	*71432*	*80*	*16*	*0.13*	*1.00*	*400*	*0.04*	*36.52*	*1.5*	*1.05*	*0.12*	*Screen*
Acetaldehyde	75070	450.41	2300.00	5	0.07	180.59	1.612	182.5	N/A	N/A	N/A	AER
Acrolein	107028	2.29	1.80	N/A	0.006	13.81	0.006	N/A	3.74	3.37	N/A	
Formaldehyde	50000	3.68	1.23	0.91	0.006	15.93	0.073	29.2	4.32	3.89	0.43	
Phenol	108952	N/A	192.5	N/A	0.02	53.11	0.689	N/A	N/A	12.96	N/A	AER

Form 5T, Step 4 documents the fugitive emissions Test 1 analysis completed for the non-exempt TAP. Acetaldehyde and phenol emissions meet Test 1, so the emissions are acceptable as proposed based on the Allowable Emissions Rate per COMAR 26.11.16.02A. The MDE forms are provided in Appendix C.

Computer screening modeling has been completed for acrolein and formaldehyde. Results are provided within the Modeling Report (Appendix D). Within the report, we propose the modeled impacts from the kiln for acrolein and formaldehyde, while slightly above the screening level, should be considered acceptable as they occur in an area limited to a rail yard adjacent to the GSW facility. The slight exceedances are within the same order of magnitude as the screening levels and exposure to the general public is not likely to occur in this area. Further, as documented in the report, the impacts at the fence line are two orders of magnitude below the threshold limit values (TLVs) which are designed to be set at levels that nearly all workers may be repeatedly exposed to without adverse health effects.

Appendix B includes the full PTE calculations, as well as the supporting emission factor documentation (EPA Region 10 documentation, AP-42 Section 1.4 tables, and EPA PCWP MACT

Memo for the phenol emission factor, and GHG MRR for GHG emission factors). Appendix C contains the required MDE Forms and Appendix D is the Modeling Report.

BEST AVAILABLE CONTROL TECHNOLOGY

Great Southern Wood – MD, Inc. has completed a utilized a Best Available Control Technology review for Toxics (T-BACT) for the toxics that are subject to Step 3 of COMAR 26.11.15.05: acetaldehyde, acrolein, formaldehyde, and phenol.

This T-BACT analysis mirrors that which is completed for lumber drying kilns when required for Prevention of Significant Deterioration (PSD) permitting for volatile organic compounds (VOCs). The toxics emitted are volatile organics and the issues that negate the identification of any achievable add-on control equipment for VOCs will be the same for the toxics under review.

EPA recently reviewed the Maximum Achievable Control Technology (MACT) standard for lumber kilns as part of the Residual Risk and Technology Review (RRTR) of the National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products (PCWP MACT) which applies to lumber drying kilns at major sources of hazardous air pollutants. While the revised PCWP MACT[1] has not been issued final, we reference EPA's efforts in the BACT review. Also, GSW is not a HAP major source, but EPA's determinations apply to kilns regardless of the HAP category. EPA's proposal for standards to limit emissions of all HAP from lumber kilns at HAP major sources is "work practices" to limit over-drying of lumber. Of the 680 kilns reviewed by EPA as part of the RRTR, none operate with any add-on air pollution controls. EPA has documented "Given the impracticability of capturing and measuring emissions from lumber kilns, we have concluded that the criteria in CAA section 112(h) for establishing a design, equipment, work practice, or operational standard apply for lumber kilns."

The MDE-required "top down" approach for T-BACT considers the most stringent control option available and a determination of its technical feasibility for the emission unit in question. If the option is not rejected, the option is analyzed based on economic, environmental, and energy considerations. Below are the five basic steps of a top-down BACT review procedure as identified by the U.S. EPA in the March 15, 1990, Draft BACT Guidelines:

Step 1 – Identify all control technologies
Step 2 – Eliminate technically infeasible options
Step 3 – Rank remaining control technologies by control effectiveness
Step 4 – Evaluate the most effective controls and document results
Step 5 – Select BACT

Step 1 – Identify all control technologies:

Potentially applicable emission control technologies for VOC (and organic toxics) are identified by researching the U.S. EPA control technology database, technical literature, state permitting authority files, and using process knowledge and experience. As mentioned above, U.S. EPA's RRTR identified no add-on controls. If any control (for VOC) is identified, it mentions work practice requirements to include good design, proper kiln operation/maintenance, good combustion practices, and a proper drying schedule.

As current add-on controls for lumber drying kilns are not identified, additional volatile HAP control technologies were evaluated:

[1] https://www.federalregister.gov/documents/2023/05/18/2023-10067/national-emission-standards-for-hazardous-air-pollutants-plywood-and-composite-wood-products

- Regenerative Thermal Oxidation (RTO)
- Regenerative Catalytic Oxidation (RCO)
- Carbon Adsorption
- Condensation
- Biofiltration
- Wet Scrubbing
- Proper Maintenance & Operation

Regenerative Thermal Oxidation

According to U.S. EPA Air Pollution Control Technology, RTOs use a high-density media such as a ceramic-packed bed still hot from a previous cycle to preheat an incoming organic-laden waste gas stream. The preheated, partially oxidized gases then pass into a combustion chamber where they are heated by auxiliary fuel (natural gas) combustion to a final oxidation temperature typically between 1,400 – 1,500°F and maintained at this temperature to achieve maximum organic destruction. Purified hot gases exit this chamber and are directed to one or more different ceramic-packed beds cooled by an earlier cycle. The heat from the purified gases is absorbed by these beds before the gases are exhausted into the atmosphere. The reheated packed bed then begins a new cycle by heating a new incoming waste gas stream. The destruction efficiency of organics depends upon the design criteria (i.e., chamber temperature, residence time, inlet organic concentration, compound type, and degree of mixing). Typical organic destructive efficiency ranges from 95% to 99% for RTO systems. Lower control efficiencies are generally associated with lower concentration flows.

Regenerative Catalytic Oxidation

An RCO operates in the same manner as an RTO but uses a catalyst material rather than ceramic material in the packed bed. This allows for the destruction of organics at a lower oxidation temperature. An RCO uses a precious metal catalyst in the packed bed, allowing oxidation to occur at approximately 800°F. The lower temperature requirement reduces the amount of natural gas needed to fuel the system and the overall size of the incinerator. Destruction efficiencies range from 90 to 99% for RCO systems.

Carbon Adsorption

In adsorption, gaseous pollutants are removed from an air stream by transferring the pollutants to the solid surface of an adsorbent and the cleaned gas passes to the atmosphere. Activated carbon is the most commonly used adsorbent. When the limit to the mass of pollutants that can be collected by an adsorbent is reached, the adsorbent is no longer effective in removing pollutants. To recover the ability to capture gaseous pollutants, adsorbents typically are "regenerated", meaning, the pollutant is desorbed or removed from the adsorbent. This regeneration may occur off-site or on-site. Organic destructive efficiencies range from 90% to 95% for carbon adsorption systems in proper operating capacity.

Condensation

Condensation employs a drop in temperature and/or increase in pressure to cause the organics in the emission stream to condense. The cleaned air stream is separated from the condensate containing target pollutants. The removal efficiency of a condenser is dependent on the emission stream characteristics including the nature of the organics in question (vapor pressure/temperature relationship), organic concentration, and the type of coolant used. Any component of any vapor mixture can be condensed if brought to a low enough temperature and allowed to come to equilibrium. A condenser cannot lower the inlet concentration to levels below the saturation concentration at the coolant temperature. In many cases, very large temperature drops are required to achieve effective condensation, requiring significant energy investment to accomplish cooling.

Biofiltration

In biofiltration, gases containing biodegradable organic compounds are vented through a biologically active material. The biofilm contains a population of microorganisms on a porous filter material. As gases pass through the biofilter, the organics partition from the gaseous phase to the liquid phase of the biofilm. From the liquid phase, the contaminants are available for the oxidation process through the microorganism on the biofilm. Control efficiency varies on several things including water solubility of the organics and can range from 10% - 90%.

Wet Scrubbing

Scrubbing pollutants from a gas stream often uses packed-bed scrubbers. The packing is held in place by wire mesh retainers and supported by a plate near the bottom of the scrubber. Scrubbing liquid is introduced above the packing and flows down through the bed. The liquid coats the packing and establishes a thin film. The organics must be soluble in the absorbing liquid and even then, for any given absorbent liquid, only soluble organics can be removed.

Proper Maintenance and Operation

Proper maintenance and operation of well-designed lumber drying kilns can effectively reduce organic emissions. Over-drying lumber releases additional organics into the air; this can be minimized through proper kiln operation. Proper drying through efficient unit operation and kiln temperature management based on lumber moisture content, along with routine maintenance completed per manufacturer recommendations, reduces organic emissions.

Step 2 - Eliminate technically infeasible options:

All add-on controls discussed in Step 1 require the collection of the kiln exhaust. The organics emitted from natural gas fuel combustion as well as that emitted from lumber drying exhaust through the vents at the roof side of the kiln. This exhaust has a relative humidity of 100% and exhausts at approximately less than 160°F.

Regenerative Thermal Oxidation

The use of an RTO is technically infeasible for lumber drying kiln exhaust given the high moisture content and low exit temperature of the stream. No known lumber kilns have successfully utilized this control.

Regenerative Catalytic Oxidation

An RCO can operate at a lower temperature than an RTO, however, the temperature of the lumber drying kiln exhaust remains below that required for the efficient function of an RCO. Catalyst poisoning from particulate and other contaminants in the gas stream is possible requiring the removal of those contaminants from the incoming gas stream, adding to the cost of the control system. To our knowledge, no such system has been applied to a lumber dry kiln. The system is technically infeasible for this process.

Carbon Adsorption

The high moisture content of the lumber drying kiln exhaust indicates carbon adsorption is not practical. The water molecules compete with the hydrocarbon molecules for active adsorption sites reducing the capacity and efficiency of the adsorption system. There are no known lumber dry kilns equipped with a carbon adsorption system and it is deemed technically infeasible.

Condensation

Condensation is effective when the gas stream can be cooled to a temperature where volatile organics condense as a liquid out of the gas stream. To condense the typical organics emitted from lumber drying, temperatures often must be reduced to -40°F. At this temperature, freezing of the water vapor would generate ice, causing plugging of the unit. This technology is technically infeasible.

Biofiltration

Temperature is an important variable affecting biofilter operations. The lumber drying kiln exhaust temperature near 160°F exceeds that at which microorganisms thrive. The organics found in kiln exhaust, being highly viscous, would foul the biofilter. There are no known lumber kilns successfully utilizing this application and this option is determined to be technically infeasible.

Wet Scrubbing

The organics within kiln exhaust are not highly soluble but are highly viscous. This would lead to plugging the absorption media of a wet scrubber and leave the process technically infeasible.

Step 3 – Rank remaining control technologies by control effectiveness:

Proper Maintenance and Operation

The only technically feasible control technology for organic toxics emitted from the proposed lumber drying kiln is the use of proper maintenance and operating practices. Since this was the only remaining BACT control technology technically or economically feasible, ranking is not needed.

Step 4 – Evaluate the most effective controls and document results:

Proper Maintenance and Operation

Using the steps from the U.S. EPA guidelines, only proper maintenance and operation remains technically feasible for the lumber drying kilns.

Step 5 – Select BACT:

BACT is the most effective control technology remaining of the previous four steps. Proper kiln maintenance and operation is the only remaining technology for the control of organic toxics from the kiln.

GSW proposes BACT for the lumber drying kilns as proper kiln maintenance and operation as a work practice standard. The site will dry the treated lumber at no more than 160°F for no longer than required to meet the customer's dryness specification. The kiln and burner will be maintained per vendor recommendations. Records of kiln and burner maintenance will be recorded.

APPENDIX A

Proposed Equipment Information

SII DRY KILNS

Southeastern Installation, Inc. **P. O. Drawer I, Lexington, NC 27293**
(336) 357-7146 - (336) 357-2267
1-800-545-6379

December 27, 2023

Mr. Kevin Hitt
Great Southern Wood Preservers
1201 Maryland Ave.
Hagerstown, MD 21740

Proposal No. SII 23-196
Phone: (304) 940-4015

Dear Mr. Hitt,

We are pleased to offer the following quotation to manufacture and/or supply and install the *SII Lumber Drying System* as detailed on the accompanying specification pages.

PRICE: One (1) Prefab Dry Kiln with Direct Fired Burner, Stainless Steel Wall Panels, "Kiln Dry 9060" Computerized Controls, Expandable Wall and a 20' x 15' Control Room

$

These prices are F.O.B. **Shipping Points** and do not include any local, state, or federal sales or use taxes.

TERMS: 30% with order, 35% when ready for shipment, 20% when buildings are under roof, 10% upon substantial completion of installation, and the balance at start-up, not to exceed thirty (30) days.

SUBMITTED BY:_____
Bob Pope

SII SPECIFICATIONS

GENERAL INFORMATION

I. Kiln Specifications

A. Method of Loading	Fork Lift
B. Dimensions	
1. Width	46’
2. Depth	26’
3. Door Height	19’
4. Absolute Clearance	19’
C. Number of Chambers	1
D. Building Type	Aluminum/Stainless
E. Control Room	20’ x 15’

II. Holding Capacity and Package Information

A. Package Width	4’
B. Lumber Thickness	2”
C. Package Height	47”
D. Overall Lumber Height	17’ 4”
E. Sticker Size	3/4”
F. Bolster Size	4”
G. Package Lengths	8’-16’
H. Package Arrangement	4 high x 4 deep
I. Average Holding Capacity	102,144 BF

SII SPECIFICATIONS

III. Fan System

A. Number of Fans	9
B. Diameter of Fans	48”
C. H.P. of Motors	10 HP

IV. Heating System

A. Fuel Source	Natural Gas or Propane
B. BTU Rating per Kiln	7,000,000 BTUs
C. Maximum Operating Temperature	200° F

V. Electrical Requirements

A. Voltage	480
B. Phase	3
C. Cycle	60

Note: Equipment is designed for 480 volts with a tolerance of 10%. Nothing is included to regulate power company’s supply. If an isolation transformer is required due to the type of service supplied, it is the responsibility of the owner.

SII SPECIFICATIONS

EQUIPMENT: (Per Chamber): 46' wide by 26' deep.

A. **FAN SYSTEM:** There will be nine (9) 48", cast aluminum, reversible blades. At start-up of the system, the blades will be adjusted to ensure efficient output of the 10 H.P., 1200 RPM-Class H, direct drive motors with a **three year warranty.**

SII fan housings are fabricated of heavy-duty materials including housing with spun "double-venturi" orifice for reversing system in 1/8" aluminum, and motor mounts in 1/4" aluminum.

B. **MOTOR CONTROL CENTER/FREQUENCY DRIVE:** There will be one (1) Motor Control Center per kiln consisting of overload protection on each motor, reversing capability, direction lights in the door, mounted and prewired in a heavy steel cabinet for wall mounting. Included is a Yaskawa, 156 amp frequency drive including a DC link inductor (internal line reactor) with a **two year warranty on labor and materials**.

C. **HEATING SYSTEM: DIRECT FIRED (NATURAL GAS OR PROPANE):** There will be one (1) 7,000,000 BTUs/hr. direct fired gas burner mounted on the wall of the chamber. The state-of-the-art unit is designed for maximum combustion efficiency and operating dependability. The unit comes with a 3450 rpm motor, squirrel cage blower, gas electric pilot and gas ignition transformer, pilot, flame safeguard with flame rod, intermittent pilot, air safety switch, and dual gas safety valve. Additionally, SII will provide an internal SS (304) firing tube for heat distribution.

D. **MODULATING ELECTRIC VENT SYSTEM:** To consist of ten (10) 24" x 24" aluminum vents, located in two (2) rows (as dictated by configuration). Each vent has **insulated and silicone caulked walls and an insulated lid with gasket** and each row of vents is operated by an electric motor.

E. **HYDRAULIC KILN DOOR:** Our insulated (R-22), special heavy-extruded aluminum kiln door structure is for an opening 46' wide x 19' high. The SII kiln door features the R-LOK design allowing the 48" wide, full-length panels to "snap" together with a phenolic wedge key. Each door system is complete with one access door with outside dimensions of 2'8" wide by 6' high, required safety guards, **silicone** gasketing, and hardware. There will be one access door for rear plenum, per kiln.

There will be an 8" I beam of heavy galvanized steel construction with a hydraulic door carrier (110V, ½ hp pump) with three 4-wheel trolleys allowing for one man operation.

In addition, SII will supply and install an existing lintel to allow the door to slide out of the during loading.

SII SPECIFICATIONS

F. **SII/PLC CONTROL SYSTEM**: The PLC Control System will consist of a Siemens programmable logic controller, one per kiln, with all appropriate equipment. The system provides programmable setpoint capability on both dry bulb setpoints and wet bulb setpoints. Included are necessary RTDs per kiln along with wet bulb water box, wicks, and RTD wire. In addition, there will be switches and indicator lights for manual control of fans, heat, spray and vents.

"KILN-DRY 9060" COMPUTERIZED CONTROL SYSTEM: This Windows based computerized control system is designed to control several kilns from a single location via a PLC network. The "Kiln Dry 9060" system includes an industrial grade computer, flat screen monitor, A & D digital scales, a UPS power supply and all required cables**. The owner is responsible for a printer, if required.** This hardware provides an owner with everything required for automatic operation of dry kilns based on kiln sample weights and projected daily moisture loss. The kiln operator will input weights to the computer (daily), where all calculations are done, and kiln setpoints are updated hourly automatically. Additionally, if frequency drives are being used for the fan system, the computer will make the required adjustments for fan speed. Customer is to provide internet access for troubleshooting and technical support.

G. **BAFFLE AND DECK SYSTEM:** This system will consist of all required fan deck (.050" aluminum), filler panels, and baffles (.090" aluminum). There will be two rear corner, vertical, aluminum hinged baffles; two front corner, vertical aluminum hinged baffles; one rear horizontal, aluminum fixed baffle; and one front horizontal, overhead aluminum hinged baffle. Sizes to be shown on detailed installation drawings.

SII SPECIFICATIONS

BUILDING:

There will be one (1) chamber, 46' wide by 26' deep by approximately 25' high with 19' high door opening. The kiln will be standalone with an expandable sidewall for future expansion. The chamber is to hold approximately 102,144 bd. ft. There will be one 2' 8" wide personnel door for access to the rear plenum. There will be a 20' x 15' control room to be located on the rear wall.

Construction will consist of: **SII ALUMINUM / STAINLESS PREFAB**

I. **STRUCTURAL ALUMINUM FRAME:**

A. All structural and miscellaneous aluminum to consist of, but not be limited to the following:

1. Structural columns
2. Reinforcing members as required by equipment specifications and/or where needed for complete installation
3. Door lintel
4. Extension lintel and supports where required
5. Complete foundation drawings
6. All required fasteners shall be stainless steel

II. **PANEL STRUCTURE:**

A. All **STAINLESS STEEL PANELS:** All roof and wall panels will be 3" thick using aluminum foil-faced polyisocyanurate foam insulation sandwiched by aluminum foil facers. Top and bottom edges of all panels are "ship-lapped" and have two (2) beads of silicone caulking to insure a positive thermal/moisture barrier. The interior of panels is skinned with a 24 ga. stainless steel sheeting. The exterior of the panel is open-backed to allow the insulation to "breathe". The exterior skin is .040" corrugated aluminum, fastened with stainless steel screws. This unique design delivers an "R" value of 21+, rated at 40 deg. Fht. temperature. ("U" coefficient = 0.04). Includes stainless steel sheeting on interior of doors. **Stainless steel panels include a three year warranty on perforation of the stainless, interior face.**

III. **PANEL ASSEMBLY:**

A. Panel installation will be indicated on the construction drawings.
B. Silicone is used to weather seal panel joints.

IV. **CONTROL ROOM: 20' x 15'**

A. Steel frame, 2" insulation with aluminum skins.
B. Any HVAC by others.

SII SPECIFICATIONS

FOUNDATION WORK shall consist of slabs, footings, placing embedded items, and building drainage. To be installed by purchaser according to SII drawings.

1. Slabs will consist of 8", 4000 PSI concrete with 6 x 6 - w2.9/w2.9 mesh reinforcing, placed on top of 6 mil. vapor barrier on 4" crushed stone base.

2. Footings shall consist of 4000 PSI concrete sizes as indicated on drawings. Footing excavations shall be cleaned of excess dirt prior to placing reinforcing steel. Unless otherwise shown, rebars shall be 5/8" diameter running continuously through footings with cross bars 10' O.C. to maintain proper placement.

3. Bumper posts (by SII) shall be 4" x 6" steel, primed and painted with enamel, wide flange to be placed at 8' O.C. (maximum). Posts shall be attached with stainless steel anchor bolts with base plate, approximately 1/2" above floor level.

4. Building drains shall consist of appropriate size and frequency to insure proper floor drainage.

   All specifications are typical unless otherwise noted on drawings.

   NOTE: Embedded items (anchor bolts for columns and posts) are supplied by SII.

SII recommends Die-Tanic (two part) floor epoxy to customers who choose to coat their kiln floors. Specifications, installation and material pricing are available through SII.

SII SPECIFICATIONS

INSTALLATION: This proposal is for the complete installation up to and including start-up and operator training with customer being responsible for the following:

(x) 1. Responsible for unloading all material and equipment and storing all non-structural materials in a dry, protected area, as they arrive.

(x) 2. All tests, permits and/or licenses, state or federal.

(x) 3. All insurance except contractors' liability and any requirements to comply with local codes.

(x) 4. All electrical requirements including any required disconnects brought to and connected with control room equipment and/or SII prewired panels.

(x) 5. Metered service (saw service) available ten (10) days prior to construction. Any lighting/service receptacles in kiln or buildings.

(x) 6. Water supply to site and control room and connected with control room equipment. Any required sprinklers.

(x) 7. Fuel supply brought to and connected with the gas- fired unit (Min 1 – Max 2 psig).

(x) 8. All site preparation including adequate drainage and site leveling at least 5' around the perimeter of foundations (scissor-lift accessible).

(x) 8. All footings, foundations, floor and aprons. (This work must be 100% complete seven days prior to installation work beginning.

(x) 9. Easy access to job site and appropriate facilities for sanitation and the accumulation and removal of project debris.

( ) 10. All buildings.

( ) 11. All installation labor.

(x) 12. Appropriate personnel to be available for startup and training.

(x) 13. All additional components necessary to meet specific national, regional or local code will be provided by owner.

NOTE: Start up services are based on the SII technician being on site for three (3) days. Should additional days be required, there will be additional charges at $650.00 per day for labor plus all incurred expenses. The owner is to verify the completion of installation including final termination of the required gas lines and electrical connections prior to the arrival of the SII startup technician.

Owner _____ SII _____

APPENDIX B

Emission Calculations
Emission Factor Background Documentation

Great Southern Wood - MD, Inc.
POTENTIAL TO EMIT CALCULATIONS

Batch Kiln (KILN)

Potential emissions are estimated from lumber drying and natural gas combustion. Emissions of both processes are released through vents along the roof of the batch kiln and the door. The criteria and hazardous air pollutants are estimated using various emission factors as identified below. The hourly emissions are estimated from the natural gas burner at design capacity (7 MMBtu/hr) and the batch kiln at design capacity (102.144 MBf/batch assuming the minimum dry time of 48 hrs, though batch time is expected between 48 - 72 hours). Annual emissions assume no more than 1 batch per week (5.311 MMBf/yr).

Batch Kiln with Natural Gas Burner (KILN)					
Burner Rating	7	MMBtu/hr	61,320	MMBtu/yr	Natural gas burner design assumed at full operation, 8,760 hrs
Dried Lumber Production	2.13	MBf/hr	5,311	MBf/yr	Hourly rate reflects 102.144 MBf/batch with no less than 48 hr batch time. Annual production is expected at 5.311 MMBf/yr as one batch (102.144 MBf) will be dried per week (52 weeks/year).
Weight of Lumber Production	3.5112	tph	3,300	lb/MBf	The calculated weight of kiln throughput for consideration of COMAR 26.11.02.13A(9) using site-specific weight of 3,300 lb/MBf entering kiln.
Natural Gas Heating Value	1,020		btu/scf		Conversion

Pollutant	Emission Factors		Potential Emissions				Reference
	Lumber Drying, lb/MBf	Fuel Combustion, lb/MMScf	lb/hr	lb/day	lb/yr	tpy	
PM_{TOT}	0.02	7.6	0.09	2.27		0.28	EPA Region 10 PM for Lumber Drying Resinous Softwood and AP-42 Table 1.4-2 for NG Emissions (PM_{TOT}). Annual emissions for drying 5.3 MMBf/yr and burning 61,320 MMBtu/yr.
PM_{10TOT}	0.02	7.6	0.09	2.27		0.28	EPA Region 10 PM for Lumber Drying Resinous Softwood and AP-42 Table 1.4-2 for NG Emissions. Annual emissions for drying 5.3 MMBf/yr and burning 61,320 MMBtu/yr.
$PM_{2.5TOT}$	0.02	7.6	0.09	2.27		0.28	EPA Region 10 PM for Lumber Drying Resinous Softwood and AP Table 1.4-2 for NG Emissions. Annual emissions for drying 5.3 MMBf/yr and burning 61,320 MMBtu/yr.
PM_{CON}	0.01	5.7	0.06	1.45		0.20	GA EPD EF for Lumber Kilns documents NCASI recommended ratio of Condensable to Filterable PM of 1.016; this is applied to EPA Region 10 PM factor of 0.02 lb/MBf to determine CON portion and AP Table 1.4-2 for NG Emissions. Annual emissions for drying 5.3 MMBf/yr and burning 61,320 MMBtu/yr.
VOC (WPP1)	2.03	--	4.33	103.80	10795.60	5.40	EPA Region 10 EF for Lumber Drying Resinous Softwood at 160 deg F; annual emissions based on 5.3 MMBf/yr
SO_2	--	0.6	4.12E-03	0.10		0.02	AP-42 Table 1.4-2
CO	--	84	0.58	13.84		2.52	AP-42 Table 1.4-1
NO_x	--	50	0.34	8.24		1.50	AP-42 Table 1.4-1
Lead	--	5.00E-04	3.43E-06	8.24E-05		1.50E-05	AP-42 Table 1.4-2
CO_2	--	150,281	1,031	24,752		4,517	U.S. EPA EF for GHG MRR, Tables C-1 (convert to lb/MMscf) and A-1, GWP = 1
CH_4	--	2.25	0.02	0.37		0.07	U.S. EPA EF for GHG MRR, Tables C-2 (convert to lb/MMscf) and A-1, GWP = 25
N_2O	--	0.22	1.54E-03	0.04		0.01	U.S. EPA EF for GHG MRR, Tables C-2 (convert to lb/MMscf) and A-1, GWP = 298
GHG	--	150,284	1,031	24,753		4,517	Sum of individual GHGs
Total CO_2e	--	150,405	1,032	24,773		4,521	U.S. EPA EF for GHG MRR, Tables C-1, C-2, and A-1
Acetaldehyde	0.0340	--	0.072	1.74	180.59	0.09	EPA Region 10 EF for Lumber Drying Resinous Softwood at 160 deg F; annual emissions based on 5.3 MMBf/yr
Acrolein	0.0026	--	0.006	0.13	13.81	0.007	EPA Region 10 EF for Lumber Drying Resinous Softwood at 160 deg F; annual emissions based on 5.3 MMBf/yr
Formaldehyde	0.0030		0.006	0.15	15.93	0.008	EPA Region 10 EF for Lumber Drying Resinous Softwood at 160 deg F; annual emissions based on 5.3 MMBf/yr
Methanol	0.0550	--	0.117	2.81	292.13	0.15	EPA Region 10 EF for Lumber Drying Resinous Softwood at 160 deg F; annual emissions based on 5.3 MMBf/yr
Phenol	0.0100	--	0.021	0.51	53.11	0.03	U.S. EPA PCWP MACT Memo; Annual emissions based on 5.3 MMBf/yr
Propionaldehyde	0.0010	--	0.002	0.05	5.31	0.003	EPA Region 10 EF for Lumber Drying Resinous Softwood at 160 deg F; annual emissions based on 5.3 MMBf/yr
Benzene	--	2.10E-03	1.44E-05	3.46E-04		6.31E-05	AP-42 Table 1.4-4
Hexane	--	1.80	0.01	0.30		0.05	AP-42 Table 1.4-4
Naphthalene	--	6.10E-04	4.19E-06	1.00E-04		1.83E-05	AP-42 Table 1.4-4
Toluene	--	3.40E-03	2.33E-05	5.60E-04		1.02E-04	AP-42 Table 1.4-4
Arsenic	--	2.00E-04	1.37E-06	3.29E-05		6.01E-06	AP-42 Table 1.4-4
Barium	--	4.40E-03	3.02E-05	7.25E-04		1.32E-04	AP-42 Table 1.4-4
Beryllium	--	1.20E-05	8.24E-08	1.98E-06		3.61E-07	AP-42 Table 1.4-4
Cadmium	--	1.10E-03	7.55E-06	1.81E-04		3.31E-05	AP-42 Table 1.4-4
Chromium	--	1.40E-03	9.61E-06	2.31E-04		4.21E-05	AP-42 Table 1.4-4
Cobalt	--	8.40E-05	5.76E-07	1.38E-05		2.52E-06	AP-42 Table 1.4-4
Copper	--	8.50E-04	5.83E-06	1.40E-04		2.56E-05	AP-42 Table 1.4-4
Manganese	--	3.80E-04	2.61E-06	6.26E-05		1.14E-05	AP-42 Table 1.4-4
Mercury	--	2.60E-04	1.78E-06	4.28E-05		7.82E-06	AP-42 Table 1.4-4
Molybdenum	--	1.10E-03	7.55E-06	1.81E-04		3.31E-05	AP-42 Table 1.4-4
Nickel	--	2.10E-03	1.44E-05	3.46E-04		6.31E-05	AP-42 Table 1.4-4
Selenium	--	2.40E-05	1.65E-07	3.95E-06		7.21E-07	AP-42 Table 1.4-4
Total HAP	--	--	0.24	5.69		0.34	Summation

Example Calculation: Pollutant Contribution from both lumber drying and natural gas combustion

Total Hourly Kiln Emissions, lb/hr = hourly production, MBF/hr x emission factor, lb/MBF + burner design capacity, MMBtu/hr / 1,020 MMBtu/MMscf * emission factor, lb/MMscf

$PM_{2.5}$ = 2.13 MBf/hr * 0.02 lb/MBf + 7 MMBtu/hr * MMscf/ 1,020 MMBtu * 7.6 lb/MMscf = 0.09 lb/hr

Total Annual Kiln Emissions (other than VOC and PCWP MACT HAPs), tpy = (hourly production, MBF/hr x emission factor, lb/MBF + burner design capacity, MMBtu/hr / 1,020 MMBtu/MMscf * emission factor, lb/MMscf) * 8760 hr/yr * ton/2,000 lb

$PM_{2.5}$ = (2.13 MBf/hr * 0.02 lb/MBf + 7 MMBtu/hr * MMscf/ 1,020 MMBtu * 7.6 lb/MMscf) * 8,760 hr/yr * ton/2,000 lb = 0.28 tpy

Total Annual VOC Emissions, tpy = annual production at 5.3 MBf/yr * emission factor, lb/MBf * ton/2,000 lb

VOC = 5,311 MBf/yr * 2.03 lb/MBf / 2000 lb/ton = 5.40 tpy

The above methodology is also used for PCWP MACT HAPs: acetaldehyde, acrolein, formaldehyde, methanol, phenol, and propionaldehyde.

Great Southern Wood - MD, Inc.
POTENTIAL TO EMIT CALCULATIONS

Batch Kiln (KILN)
That following documents the Toxic Air Pollutant (TAP) evaluation and compliance demonstration for completeion of Form 5T.

Pollutant	TAP Evaluation								
	TAP Class	Step 2 Evaluation	Step 2 Evaluation	Step 2	Step 2	Step 2	Test 1 AER Annual 365*SL	Test 1 AER ST 0.00358*SL	Test 1 AER ST 0.00358* SL
PM_{TOT}	EXEMPT from Chapter 15 Toxic Air Pollutant regulation as pollutants are not TAP								
PM_{10}									
$PM_{2.5}$									
PMCON									
VOC (WPP1)									
SO_2									
CO									
NO_x									
Lead									
CO_2									
CH_4									
N_2O									
GHG									
Total CO_2e									
Acetaldehyde	06C	Not exempt because Annual SL	**<0.5 lb/hr**	**<350 lb/yr**	**SL>200**	**Not Exempt with Step 2 b/c annual**	**182.5**	**1.6124678**	**8.234**
Acrolein	Class II	Not exempt because Short-term	**<0.5 lb/hr**	**XXX b/c SL <200**				0.0081982	0.00644
Formaldehyde	06B	Not exempt because Short-term	**<0.5 lb/hr**	**<350 lb/yr**	**XXX b/c SL <200**		29.2		0.07267
Methanol	Class II	EXEMPT: lb/hr <0.5 SL>200	**<0.5 lb/hr**	**SL>200**	**EXEMPT with Step 2**				
Phenol	Class II	Not exempt because Short-term	**<0.5 lb/hr**	**XXX b/c SL <200**		**Not Exempt with Step 2 b/c SL<200;**			**0.68897**
Propionaldehyde	Class II	EXEMPT: lb/hr <0.5 SL>200	**<0.5 lb/hr**	**SL>200**	**EXEMPT with Step 2**				
Benzene	EXEMPT from Chapter 15 Toxic Air Pollutant regulation as pollutants generated from the combustion of natural gas per COMAR 26.11.15.03B.(2)(a)								
Hexane									
Naphthalene									
Toluene									
Arsenic									
Barium									
Beryllium									
Cadmium									
Chromium									
Cobalt									
Copper									
Manganese									
Mercury									
Molybdenum									
Nickel									
Selenium									

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
AIR, WASTE, AND TOXICS

MAY 08 2014

MEMORANDUM

SUBJECT: Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country

FROM: Dan Meyer, Environmental Engineer
Air Permits & Diesel Unit

THRU: Donald A. Dossett, P.E., Manager
Air Permits & Diesel Unit

TO: Permit File

EPA Region 10 has compiled the attached list of particulate matter (PM – CAA § 111 pollutant, PM_{10} and $PM_{2.5}$ – criteria pollutants) emission factors ("EFs") for use in determining the potential emissions, more commonly referred to as potential to emit ("PTE"), for activities at sawmills, excluding boilers, located in Pacific Northwest Indian Country.[1] The EFs are presented in units appropriate for the particular activity. PTE generally represents the maximum capacity of a source to emit a pollutant under its physical and operational design taking into consideration restrictions that are federally enforceable. While PM, PM_{10} and $PM_{2.5}$ PTE are all used to determine applicability of the Compliance Assurance Monitoring program and Prevention of Significant Deterioration construction permit program, only PM_{10} and $PM_{2.5}$ are employed to determine applicability of the Title V operating permit program.[2]

The Federal Air Rules for Reservations ("FARR") limit particulate matter emissions from applicable activities at sawmills. The rules and the rationale for not employing them to determine PTE are as follows: (a) 20 percent opacity limit (40 CFR § 49.124) – lack of a correlation between opacity and particulate matter emissions, (b) requirements for limiting fugitive emissions (40 CFR § 49.126) – lack of a correlation between compliance with requirements and particulate matter emissions, (c) non-combustion stack 0.1 grain per dry standard cubic foot PM emission limit (40 CFR § 49.125) – resultant PTE would be unrealistically high as we assume that an unreasonable amount of wood residue is exhausted to atmosphere rather than recovered for sale or combustion in on-site boiler.

There are no other federal regulations beyond the FARR that limit particulate matter emissions from activities addressed by this memorandum. Under the circumstances, it is appropriate to employ the EFs presented in the attachment to estimate PTE, unless a more representative (e.g. site-specific) EF is available.

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[1] Activities include log bucking and debarking, sawing, lumber drying, mechanical and pneumatic conveyance of wood residue, wind erosion of wood residue piles and traffic along paved and unpaved roads.
[2] October 16, 1995 EPA memorandum entitled, "Definition of Regulated Pollutant for Particulate Matter for Purposes of Title V"

EPA Region 10 Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country, May 2014

EF Reference No.	Emissions Generating Activity[1]	PM[2] EF	PM_{10} % of PM	PM_{10} EF	$PM_{2.5}$ % of PM	$PM_{2.5}$ EF	Units
1, 2, 3, 4	Log Bucking[3]	0.035	50	0.0175	25	0.00875	lb/ton log
1, 2, 3, 5	Log Debarking[3]	0.024	50	0.012	25	0.006	lb/ton log
1, 2, 3, 6	Sawing[3]	0.350	50	0.175	25	0.0875	lb/ton log
1, 3, 7	Lumber Drying - Resinous Softwood Species[4]	0.02	100	0.02	100	0.02	lb/mbf
1, 3, 7	Lumber Drying - Non-Resinous Softwood Species[5]	0.05	100	0.05	100	0.05	lb/mbf
1, 2, 3, 8	"Drop" of "wet" material[5] from one surface to another including, but not limited to, (a) each mechanical conveyance drop between point of generation and storage bin (but not including bin unless open to atmosphere) (b) loadout from storage bin into a truck bed or railcar and (c) drop onto a pile. Apply EF to each "drop."	0.00075	N/A	0.00035	N/A	0.00005	lb/bdt material
1, 2, 3, 8	"Drop" of "dry" material[5] from one surface to another including, but not limited to, (a) each mechanical conveyance drop between point of generation and storage bin (but not including bin unless open to atmosphere) (b) loadout from storage bin into a truck bed or railcar and (c) drop onto a pile. Apply EF to each "drop."	0.0015	N/A	0.0007	N/A	0.0001	lb/bdt material
1, 3, 9	Pneumatically convey material[6] through medium efficiency cyclone to bin	0.5	85	0.425	50	0.25	lb/bdt material
1, 3, 9	Pneumatically convey material[6] through high efficiency cyclone to bin	0.2	95	0.19	80	0.16	lb/bdt material
1, 3, 9	Pneumatically convey material[6] through cyclone to bin. Exhaust routed through baghouse.	0.001	99.5	0.000995	99	0.00099	lb/bdt material
1, 3, 9	Pneumatically convey material[6] into target box	0.1	85	0.085	50	0.05	lb/bdt material
1, 2, 10	Wind Erosion of Pile	0.38	50	0.19	25	0.095	ton/acre-yr
1, 2, 11	Paved Roads	Emission factors based upon site-specific parameters.					lb/VMT
1, 2, 12	Unpaved Roads	Emission factors based upon site-specific parameters.					lb/VMT

Acronyms

bdt: bone dry ton

mbf: 1000 board foot lumber

VMT: vehicle mile traveled

[1] If any activity occurs within a building, reduce the PM, PM_{10} and $PM_{2.5}$ emission factor ("EF") by 100 percent (engineering judgement) as emissions struggle to escape through doorways and other openings. If an activity's by-products are evacuated pneumatically to a target box, cyclone or bag filter system, then only the associated downstream conveyance emissions are counted.

[2] PM refers to the CAA § 111 pollutant generally measured using EPA Reference Method 5 to determine the filterable fraction of particulate matter. "Particulate matter" is a term used to define an air pollutant that consists of a mixture of solid particles and liquid droplets found in the ambient air. PM does not include a condensable fraction.

[3] EF for log bucking, debarking and sawing are expressed in units of "lb/ton log" in the table above. The EF can be expressed in units of "lb/mbf" lumber as follows:

$$\text{lb/mbf} = (\text{lb PM/ton log}) \times (\text{ton/2000 lb}) \times (\text{LD lb/ft}^3) \times (\text{LRF bf lumber/ft}^3 \text{ log}) \times (1000 \text{ bf/mbf})$$

where "LD" stands for log density and "LRF" stands for log recovery factor

• LD values are species-specific and are provided by The Engineering ToolBox and are listed at http://www.engineeringtoolbox.com/weigt-wood-d_821.html

• LRF value of 6.33 bf/ft^3 log is specific to softwood species of the Pacific Coast East. See Section 2 of Appendix D to Forest Products Measurements and Conversion Factors with Special Emphasis on the U.S. Pacific Northwest. College of Forest Resources, University of Washington. 1994. See http://www.ruraltech.org/projects/conversions/briggs_conversions/briggs_append2/appendix02_combined.pdf

[4] Douglas Fir, Engelmann Spruce, Larch, Lodgepole Pine, Ponderosa Pine and Western White Pine

[5] White Fir, Western Hemlock and Western Red Cedar

[6] The "material" in this entry refers to bark, hogged fuel, green chips, dry chips, green sawdust, dry sawdust, shavings and any other woody by-product of lumber production.

No.	EF Reference
1	Although this activity may be subject to the FARR visible emissions limit of 20% opacity (40 CFR § 124(d)), the limit was not further considered in deriving an emission factor due to the lack of a correlation between opacity and particulate matter emissions.
2	Although this activity may be subject to the FARR requirements for limiting fugitive particulate matter emissions (40 CFR §126), those requirements were not further considered in deriving an emission factor due to lack of a correlation between compliance with requirements and particulate matter emissions.
3	Although this activity may be subject to the FARR stack PM emission limit of 0.1 gr/dscf (40 CFR § 125(d)(3)), that limit was not further considered in deriving an emission factor because the resultant PTE would be unrealistically high.
4	For PM, PM_{10}, and $PM_{2.5}$ EF, apply engineering judgement to estimate that log bucking emissions are one-tenth sawing emissions. EPA has stated that log bucking is normally a negligible source of fugitive PM emissions. See page 2-125 of Assessment of Fugitive Particulate Emission Factor for Industrial Processes, EPA-450/3-78-107, September 1978. The document can be downloaded from internet at http://nepis.epa.gov/Simple.html by entering EPA publication number. For sawing emissions details, see Reference No. 3 below.
5	• For PM EF, see Table 2-47 of Assessment of Fugitive Particulate Emission Factor for Industrial Processes, EPA-450/3-78-107, September 1978. See also Table 2-59 of Technical Guidance for Controls of Industrial Process Fugitive Particulate Emissions, EPA-450/3-77-010, March 1977. Both documents can be downloaded from internet at http://nepis.epa.gov/Simple.html by entering EPA publication number. EPA revoked the PM EF from WebFIRE on January 1, 2002. See detailed search results for SCC 3-07-008-01 (include revoked factors) at http://cfpub.epa.gov/webfire/index.cfm?action=fire.detailedSearch • For PM_{10} and $PM_{2.5}$ EF, apply engineering judgement to estimate that (a) PM_{10} emissions are one-half PM emissions and (b) $PM_{2.5}$ emissions are one-half PM_{10} emissions.
6	• Sawing consists of the following cummulative activities: breaking the log into cants and flitches with a smooth edge, breaking cant further down into multiple flitches and/or boards, taking the flitch and trim off all irregular edges to leave four-sided lumber and trimming to square the ends. • For PM EF, see Table 2-47 of Assessment of Fugitive Particulate Emission Factor for Industrial Processes, EPA-450/3-78-107, September 1978. See also Table 2-59 of Technical Guidance for Controls of Industrial Process Fugitive Particulate Emissions, EPA-450/3-77-010, March 1977. Both documents can be downloaded from internet at http://nepis.epa.gov/Simple.html by entering EPA publication number. EPA revoked the PM EF from WebFIRE on January 1, 2002. See detailed search results for SCC 3-07-008-01 (include revoked factors) at http://cfpub.epa.gov/webfire/index.cfm?action=fire.detailedSearch • For PM_{10} and $PM_{2.5}$ EF, apply engineering judgement to estimate that (a) PM_{10} emissions are one-half PM emissions and (b) $PM_{2.5}$ emissions are one-half PM_{10} emissions.
7	• For PM EF, see ODEQ ACDP Application Guidance AQ-EF02 (4/25/00). Douglas fir is a resinous softwood species and western hemlock is a non-resinous softwood species. • For PM_{10} and $PM_{2.5}$ EF, apply engineering judgement to estimate that all PM emitted is organic aerosols and fully PM_{10} and $PM_{2.5}$ emissions.
8	• See Section 13.2.4 of EPA's AP-42, November 2006 at http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s0204.pdf. Apply Equation 1 on page 13.2.4-4 to estimate emissions resulting from material drops as follows: E [lb PM/ton] = (k) X (0.0032) X $(U/5)^{1.3}$ / $(M/2)^{1.4}$

Wet Material Drop

Particulate	k	× 0.0032 × $(U/5)^{1.3}$ / $(M/2)^{1.4}$ =	lb PM / ton
PM	0.74	0.0032 × 6.6693 / 21.0552 =	0.00075
PM_{10}	0.35	0.0032 × 6.6693 / 21.0552 =	0.00035
$PM_{2.5}$	0.053	0.0032 × 6.6693 / 21.0552 =	0.00005

The following conservative assumptions were made in applying Equation 1:

Mean wind speed (U) = 15 miles per hour

$(U/5)^{1.3}$ = 6.66930

Material moisture content (M) = 34 percent. Value based upon observations

$(M/2)^{1.4}$ = 21.05520

Note: • Mean wind speed of 15 mph is a reasonable upper bounder estimate.

• Moisture content of 34 percent for "wet" material is based upon observation that average moisture content (dry basis) of green douglas fir lumber (common to the Pacific Northwest) is 51 percent as recorded prior to lab scale kiln VOC emissions testing conducting by Oregon State University's Mike Milota and organized in Microsoft Excel workbook entitled, "EPA Region 10 HAP and VOC Emission Factors for Lumber Drying, December 2012." 51 percent moisture content (dry basis) is equivalent to 34 percent moisture content (wet basis) as illustrated below:

MCD = MCW / (1-MCW); where

MCD: moisture content dry basis

MCW: moisture content wet basis

0.51 = MCW / (1 - MCW)

0.51 - (0.51)(MCW) = MCW

(1.51)(MCW) = 0.51

MCW = 0.34, or 34 percent

EPA Region 10 HAP and VOC Emission Factors for Lumber Drying, January 2021

This spreadsheet calculates and compiles hazardous air pollutant (HAP) and volatile organic compound (VOC) emission factors (EF) in units of pounds of pollutant per thousand board feet of lumber dried (lb/mbf) that are preferred by EPA Region 10 for estimating emissions from indirect steam-heated batch lumber drying kilns. The EFs are based on actual lab-scale emission test data when available. When no suitable HAP or VOC test data is available for a species of wood (e.g., western red cedar, engelmann spruce, larch and western white pine), EFs for similar species are substituted. When there are more than one similar species, the highest of the EF for the similar species is substituted. When test data is available for some individual HAP but not others (e.g., western true firs and lodgepole pine), data from the species and another similar to it are used to conservatively estimate HAP EF. The calculation of VOC EF follows the methodology presented in EPA's OTM-26 (Interim VOC Measurement Protocol for the Wood Products Industry - July 2007, commonly referred to as "WPP1 VOC"), except that adjustments to the RM25A measurement have been performed beyond formaldehyde and methanol to include as many as five other compounds (acetaldehyde, propionaldehyde, acrolein, acetic acid and ethanol). With the VOC EF calculation factoring in the contribution of individual compounds, no data substitution or estimation of the constituents is performed. To maintain the intergrity of the calculation, only measured (not estimated) values for the constituents are used.

A summary of the EFs for each species of wood is included on this sheet. The sheets that follow present the original test data as well as the calculations for creating each EF. There are two sheets per lumber species: one for HAPs and one for VOCs. The methanol, formaldehyde and VOC EF are temperature dependent best-fit linear equations. The temperature variable reflects the maximum temperature of the heated air entering the lumber.
Because acetaldehyde, propionaldehyde and acrolein emissions across different species are not consistently dependent upon maximum drying temperature, EF are calculated by averaging test results. Whereas HAP EF are derived in the HAP sheets, EF for individual VOC ethanol and acetic acid are derived in the VOC sheets for douglas fir and ponderosa pine (only wood species undergoing testing for these two VOC compounds).

Species	WPP1 VOC[1,2] (lb/mbf)	Methanol[2] (lb/mbf)	Formaldehyde[2] (lb/mbf)	Acetaldehyde (lb/mbf)	Propionaldehyde (lb/mbf)	Acrolein (lb/mbf)
Non-Resinous Softwood Species						
Western True Firs[3]	0.28587	0.0104	-0.00204	0.0550	0.0003	0.0009
Western Hemlock	0.19843	0.0009	-0.000262	0.0677	0.0004	0.0012
Western Red Cedar	0.28587	0.0104	-0.00204	0.0677	0.0004	0.0012
Resinous Softwood Species (Non-Pine Family)						
Douglas Fir	0.5647	0.0215	0.00068	0.0275	0.0003	0.0005
Engelmann Spruce	0.1769	0.00554	0.000191	0.0201	0.0002	0.0005
Larch	0.5647	0.0215	0.00068	0.0275	0.0003	0.0005
Resinous Softwood Species (Pine Family)						
Lodgepole Pine	1.1352	0.0550	0.0030	0.0104	0.0003	0.0008
Ponderosa Pine	2.03251	0.02941	0.001383	0.0340	0.0010	0.0026
Western White Pine	2.03251	0.02941	0.001383	0.0340	0.0010	0.0026

Temperature 160 F

[1] VOC emissions approximated consistent with OTM-26 underestimate emissions when the mass-to-carbon ratio of unidentified VOC exceeds that of propane. Ethanol and acetic acid are examples of compounds that contribute to lumber drying VOC emissions (for some species more than others), and both have mass-to-carbon ratios exceeding that of propane. Contribution of ethanol and acetic acid to VOC emissions has been quantified here when emissions testing data is available.

[2] Because WPP1 VOC, methanol and formaldehyde emissions are dependent upon maximum drying temperature, a best-fit linear equation with dependent variable maximum temperature of heated air entering the lumber has been generated to model emissions, with a couple of exceptions. For engelmann spruce and lodgepole pine, a single VOC EF (based upon high-temperature drying) has been generated due to lack of sufficient test data to build a best-fit linear equation.

[3] Western true firs consist of the following seven species classified in the same Abies genus: bristlecone fir, California red fir, grand fir, noble fir, pacific silver fir, subalpine fir and white fir.

Species	WPP1 VOC[1,2] (lb/mbf)	Methanol[2] (lb/mbf)	Formaldehyde[2] (lb/mbf)	Acetaldehyde (lb/mbf)	Propionaldehyde (lb/mbf)	Acrolein (lb/mbf)
Max Resinous Softwood	2.0325	0.0550	0.0030	0.0340	0.0010	0.0026

Table 1.4-1. EMISSION FACTORS FOR NITROGEN OXIDES (NO_x) AND CARBON MONOXIDE (CO) FROM NATURAL GAS COMBUSTION[a]

Combustor Type (MMBtu/hr Heat Input) [SCC]	NO_x[b]		CO	
	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
Large Wall-Fired Boilers (>100) [1-01-006-01, 1-02-006-01, 1-03-006-01]				
Uncontrolled (Pre-NSPS)[c]	280	A	84	B
Uncontrolled (Post-NSPS)[c]	190	A	84	B
Controlled - Low NO_x burners	140	A	84	B
Controlled - Flue gas recirculation	100	D	84	B
Small Boilers (<100) [1-01-006-02, 1-02-006-02, 1-03-006-02, 1-03-006-03]				
Uncontrolled	100	B	84	B
Controlled - Low NO_x burners	50	D	84	B
Controlled - Low NO_x burners/Flue gas recirculation	32	C	84	B
Tangential-Fired Boilers (All Sizes) [1-01-006-04]				
Uncontrolled	170	A	24	C
Controlled - Flue gas recirculation	76	D	98	D
Residential Furnaces (<0.3) [No SCC]				
Uncontrolled	94	B	40	B

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. Emission factors are based on an average natural gas higher heating value of 1,020 Btu/scf. To convert from $lb/10^6$ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. SCC = Source Classification Code. ND = no data. NA = not applicable.

[b] Expressed as NO_2. For large and small wall fired boilers with SNCR control, apply a 24 percent reduction to the appropriate NO_X emission factor. For tangential-fired boilers with SNCR control, apply a 13 percent reduction to the appropriate NO_X emission factor.

[c] NSPS=New Source Performance Standard as defined in 40 CFR 60 Subparts D and Db. Post-NSPS units are boilers with greater than 250 MMBtu/hr of heat input that commenced construction modification, or reconstruction after August 17, 1971, and units with heat input capacities between 100 and 250 MMBtu/hr that commenced construction modification, or reconstruction after June 19, 1984.

TABLE 1.4-2. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION[a]

Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
CO_2[b]	120,000	A
Lead	0.0005	D
N_2O (Uncontrolled)	2.2	E
N_2O (Controlled-low-NO_X burner)	0.64	E
PM (Total)[c]	7.6	D
PM (Condensable)[c]	5.7	D
PM (Filterable)[c]	1.9	B
SO_2[d]	0.6	A
TOC	11	B
Methane	2.3	B
VOC	5.5	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $lb/10^6$ scf to 1b/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds. VOC = Volatile Organic Compounds.

[b] Based on approximately 100% conversion of fuel carbon to CO_2. $CO_2[lb/10^6 \text{ scf}] = (3.67)(CON)(C)(D)$, where CON = fractional conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.76), and D = density of fuel, 4.2×10^4 $lb/10^6$ scf.

[c] All PM (total, condensible, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate PM_{10}, $PM_{2.5}$ or PM_1 emissions. Total PM is the sum of the filterable PM and condensible PM. Condensible PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Based on 100% conversion of fuel sulfur to SO_2. Assumes sulfur content is natural gas of 2,000 grains/10^6 scf. The SO_2 emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO_2 emission factor by the ratio of the site-specific sulfur content (grains/10^6 scf) to 2,000 grains/10^6 scf.

TABLE 1.4-4. EMISSION FACTORS FOR METALS FROM NATURAL GAS COMBUSTION[a]

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
7440-38-2	Arsenic[b]	2.0E-04	E
7440-39-3	Barium	4.4E-03	D
7440-41-7	Beryllium[b]	<1.2E-05	E
7440-43-9	Cadmium[b]	1.1E-03	D
7440-47-3	Chromium[b]	1.4E-03	D
7440-48-4	Cobalt[b]	8.4E-05	D
7440-50-8	Copper	8.5E-04	C
7439-96-5	Manganese[b]	3.8E-04	D
7439-97-6	Mercury[b]	2.6E-04	D
7439-98-7	Molybdenum	1.1E-03	D
7440-02-0	Nickel[b]	2.1E-03	C
7782-49-2	Selenium[b]	<2.4E-05	E
7440-62-2	Vanadium	2.3E-03	D
7440-66-6	Zinc	2.9E-02	E

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. Emission factors preceeded by a less-than symbol are based on method detection limits. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by l6. To convert from $lb/10^6$ scf to 1b/MMBtu, divide by 1,020.

[b] Hazardous Air Pollutant as defined by Section 112(b) of the Clean Air Act.

Table C-1 to Subpart C of Part 98—Default CO2Emission Factors and High Heat Values for Various Types of Fuel

Default CO2 Emission Factors and High Heat Values for Various Types of Fuel

Fuel type	**Default high heat value**	**Default CO2 emission factor**
Coal and coke	mmBtu/short ton	kg CO2/mmBtu
Anthracite	25.09	103.69
Bituminous	24.93	93.28
Subbituminous	17.25	97.17
Lignite	14.21	97.72
Coal Coke	24.80	113.67
Mixed (Commercial sector)	21.39	94.27
Mixed (Industrial coking)	26.28	93.90
Mixed (Industrial sector)	22.35	94.67
Mixed (Electric Power sector)	19.73	95.52
Natural gas	mmBtu/scf	kg CO2/mmBtu
(Weighted U.S. Average)	1.026 × 10−3	53.06
Petroleum products—liquid	mmBtu/gallon	kg CO2/mmBtu
Distillate Fuel Oil No. 1	0.139	73.25
Distillate Fuel Oil No. 2	0.138	73.96
Distillate Fuel Oil No. 4	0.146	75.04
Residual Fuel Oil No. 5	0.140	72.93
Residual Fuel Oil No. 6	0.150	75.10
Used Oil	0.138	74.00
Kerosene	0.135	75.20
Liquefied petroleum gases (LPG)[1]	0.092	61.71
Propane[1]	0.091	62.87
Propylene[2]	0.091	67.77

Ethane[1]	0.068	59.60
Ethanol	0.084	68.44
Ethylene[2]	0.058	65.96
Isobutane[1]	0.099	64.94
Isobutylene[1]	0.103	68.86
Butane[1]	0.103	64.77
Butylene[1]	0.105	68.72
Naphtha (<401 deg F)	0.125	68.02
Natural Gasoline	0.110	66.88
Other Oil (>401 deg F)	0.139	76.22
Pentanes Plus	0.110	70.02
Petrochemical Feedstocks	0.125	71.02
Special Naphtha	0.125	72.34
Unfinished Oils	0.139	74.54
Heavy Gas Oils	0.148	74.92
Lubricants	0.144	74.27
Motor Gasoline	0.125	70.22
Aviation Gasoline	0.120	69.25
Kerosene-Type Jet Fuel	0.135	72.22
Asphalt and Road Oil	0.158	75.36
Crude Oil	0.138	74.54
Petroleum products—solid	mmBtu/short ton	kg CO2/mmBtu.
Petroleum Coke	30.00	102.41.
Petroleum products—gaseous	mmBtu/scf	kg CO2/mmBtu.
Propane Gas	2.516 × 10−3	61.46.
Other fuels—solid	mmBtu/short ton	kg CO2/mmBtu
Municipal Solid Waste	9.95[3]	90.7

Tires	28.00	85.97
Plastics	38.00	75.00
Other fuels—gaseous	mmBtu/scf	kg CO2/mmBtu
Blast Furnace Gas	0.092 × 10−3	274.32
Coke Oven Gas	0.599 × 10−3	46.85
Fuel Gas[4]	1.388 × 10−3	59.00
Biomass fuels—solid	mmBtu/short ton	kg CO2/mmBtu
Wood and Wood Residuals (dry basis)[5]	17.48	93.80
Agricultural Byproducts	8.25	118.17
Peat	8.00	111.84
Solid Byproducts	10.39	105.51
Biomass fuels—gaseous	mmBtu/scf	kg CO2/mmBtu
Landfill Gas	0.485 × 10−3	52.07
Other Biomass Gases	0.655 × 10−3	52.07
Biomass Fuels—Liquid	mmBtu/gallon	kg CO2/mmBtu
Ethanol	0.084	68.44
Biodiesel (100%)	0.128	73.84
Rendered Animal Fat	0.125	71.06
Vegetable Oil	0.120	81.55

[1]The HHV for components of LPG determined at 60 °F and saturation pressure with the exception of ethylene.

[2]Ethylene HHV determined at 41 °F (5 °C) and saturation pressure.

[3]Use of this default HHV is allowed only for: (a) Units that combust MSW, do not generate steam, and are allowed to use Tier 1; (b) units that derive no more than 10 percent of their annual heat input from MSW and/or tires; and (c) small batch incinerators that combust no more than 1,000 tons of MSW per year.

[4]Reporters subject to subpart X of this part that are complying with §98.243(d) or subpart Y of this part may only use the default HHV and the default CO2 emission factor for fuel gas combustion under the conditions prescribed in §98.243(d)(2)(i) and (d)(2)(ii) and §98.252(a)(1) and (a)(2), respectively. Otherwise, reporters subject to subpart X or subpart Y shall use either Tier 3 (Equation C-5) or Tier 4.

[5]Use the following formula to calculate a wet basis HHV for use in Equation C-1: HHVw = ((100 − M)/100)*HHVdwhere HHVw = wet basis HHV, M = moisture content (percent) and HHVd = dry basis HHV from Table C-1.

[78 FR 71950, Nov. 29, 2013, as amended at 81 FR 89252, Dec. 9, 2016]

Table C-2 to Subpart C of Part 98—Default CH4 and N2O Emission Factors for Various Types of Fuel

Fuel type	**Default CH4 emission factor (kg CH4/mmBtu)**	**Default N2O emission factor (kg N2O/mmBtu)**
Coal and Coke (All fuel types in Table C-1)	1.1 × 10−02	1.6 × 10−03
Natural Gas	1.0 × 10−03	1.0 × 10−04
Petroleum Products (All fuel types in Table C-1)	3.0 × 10−03	6.0 × 10−04
Fuel Gas	3.0 × 10−03	6.0 × 10−04
Other Fuels—Solid	3.2 × 10−02	4.2 × 10−03
Blast Furnace Gas	2.2 × 10−05	1.0 × 10−04
Coke Oven Gas	4.8 × 10−04	1.0 × 10−04
Biomass Fuels—Solid (All fuel types in Table C-1, except wood and wood residuals)	3.2 × 10−02	4.2 × 10−03
Wood and wood residuals	7.2 × 10−03	3.6 × 10−03
Biomass Fuels—Gaseous (All fuel types in Table C-1)	3.2 × 10−03	6.3 × 10−04
Biomass Fuels—Liquid (All fuel types in Table C-1)	1.1 × 10−03	1.1 × 10−04

Note: Those employing this table are assumed to fall under the IPCC definitions of the “Energy Industry” or “Manufacturing Industries and Construction”. In all fuels except for coal the values for these two categories are identical. For coal combustion, those who fall within the IPCC “Energy Industry” category may employ a value of 1g of CH4/mmBtu.

[78 FR 71952, Nov. 29, 2013, as amended at 81 FR 89252, Dec. 9, 2016]

APPENDIX C

MDE Required Forms

AIR QUALITY PERMIT TO CONSTRUCT APPLICATION CHECKLIST

OWNER OF EQUIPMENT/PROCESS	
COMPANY NAME:	Great Southern Wood - MD, Inc.
COMPANY ADDRESS:	1201 Maryland Avenue, Hagerstown, MD 21740
LOCATION OF EQUIPMENT/PROCESS	
PREMISES NAME:	Same
PREMISES ADDRESS:	Same
CONTACT INFORMATION FOR THIS PERMIT APPLICATION	
CONTACT NAME:	Joe Pennock
JOB TITLE:	Regional Operations Manager
PHONE NUMBER:	(301) 791-5518
EMAIL ADDRESS:	jpennock@yellawood.com
DESCRIPTION OF EQUIPMENT OR PROCESS	
Dry kiln for drying of treated lumber	

Application is hereby made to the Department of the Environment for a Permit to Construct for the following equipment or process as required by the State of Maryland Air Quality Regulation, COMAR 26.11.02.09.

Check each item that you have submitted as part of your application package.

☒ Application package cover letter describing the proposed project

☒ Complete application forms (Note the number of forms included or NA if not applicable.)

No. 1 Form 5
No. 1 Form 5T
No. 1 Form 5EP
No. NA Form 6
No. NA Form 10
No. NA Form 11
No. NA Form 41
No. NA Form 42
No. NA Form 44

☒ Vendor/manufacturer specifications/guarantees

☒ Evidence of Workman's Compensation Insurance

☒ Process flow diagrams with emission points

☒ Site plan including the location of the proposed source and property boundary

☒ Material balance data and all emissions calculations

☐ Material Safety Data Sheets (MSDS) or equivalent information for materials processed and manufactured.

☐ Certificate of Public Convenience and Necessity (CPCN) waiver documentation from the Public Service Commission (1)

☒ Documentation that the proposed installation complies with local zoning and land use requirements (2)

(1) Required for emergency and non-emergency generators installed on or after October 1, 2001 and rated at 2001 kW or more.

(2) Required for applications subject to Expanded Public Participation Requirements.

MARYLAND DEPARTMENT OF THE ENVIRONMENT
Air and Radiation Management Administration ▪ Air Quality Permits Program
1800 Washington Blvd ▪ Baltimore, Maryland 21230
(410) 537-3230 ▪ 1-800-633-6101 ▪ www.mde.state.md.us

APPLICATION FOR FUEL BURNING EQUIPMENT

Information Regarding Public Outreach

For Air Quality Permit to Construct applications subject to public review, applicants should consider the following information in the initial stages of preparing a permit application.

If you are not sure at the time you are applying for a permit whether public review of your application is required or for information on steps you can take to engage the surrounding community where your planned project will be located, please contact the Air Quality Permits Program at 410-537-3225 and seek their advice.

Communicating and engaging the local community as early as possible in your planning and development process is an important aspect of your project and should be considered a priority. Environmental Justice or "EJ" is a movement to inform, involve, and engage communities impacted by potential and planned environmental projects by affording citizens opportunities to learn about projects and discuss any concerns regarding impacts.

Although some permit applications are subject to a formal public review process prescribed by statute, the Department strongly encourages you to engage neighboring communities separate from and well ahead of the formal permitting process. Sharing your plans by way of community meetings, informational outreach at local gatherings or through local faith-based organizations can initiate a rewarding and productive dialogue that will reduce anxiety and establish a permanent link with your neighbors in the community.

All parties benefit when there is good communication. The Department can assist applicants in developing an outreach plan that fits the needs of both the company and the public.

MARYLAND DEPARTMENT OF THE ENVIRONMENT

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(410) 537-3230 ▪1-800-633-6101 ▪ www.mde.state.md.us

Air and Radiation Management Administration ▪ Air Quality Permits Program

APPLICATION FOR PROCESSING/MANUFACTURING EQUIPMENT

Permit to Construct X Registration Update ☐ Initial Registration ☐

1A. Owner of Equipment/Company Name
Great Southern Wood - MD, Inc.

Mailing Address
1201 Maryland Avenue
Street Address

Hagerstown | MD | 21740
City | State | Zip

Telephone Number
(301) 791-5518

Signature

Kevin B. Savoy, Vice President
Print Name and Title Date

DO NOT WRITE IN THIS BLOCK
2. REGISTRATION NUMBER

County No. (1-2) Premises No. (3-6)
Registration Class (7) Equipment No. (8-11)
Data Year (12-13) Application Date

1B. Equipment Location and Telephone Number (if different from above)
Same as above
Street Number and Street Name

City/Town | State | Zip | ( ) Telephone Number

Premises Name (if different from above)

3. Status (A= New, B= Modification to Existing Equipment, C= Existing Equipment)

Status	New Construction Begun (MM/YY)	New Construction Completed (MM/YY)	Existing Initial Operation (MM/YY)
A	0125	0125	
15	16-19	20-23	20-23

4. Describe this Equipment: Make, Model, Features, Manufacturer (include Maximum Hourly Input Rate, etc.)

5. Workmen's Compensation Coverage MWC313421-24 (Binder/Policy Number) 04/01/2025 (Expiration Date)

Company Old Republic Insurance Company

NOTE: Before a Permit to Construct may be issued by the Department, the applicant must provide the Department with proof of worker's compensation coverage as required under Section 1-202 of the Worker's Compensation Act.

6A. Number of Pieces of Identical Equipment Units to be Registered/Permitted at this Time 1

6B. Number of Stack/Emission Points Associated with this Equipment 1

7. Person Installing this Equipment (if different from Number 1 on Page 1)

Name To be determined _____ Title _____

Company _____

Mailing Address/Street _____

City/Town _____ State _____ Telephone (_____) _____

8. Major Activity, Product or Service of Company at this Location

Wood preserving with chemical preservatives in a pressure cylinder. Untreated, kiln-dried wood is received by truck or rail and is pressure-treated on site, and then is shipped out by truck to customer locations.

Some treated wood will be re-dried in the proposed natural gas fired batch kiln prior to shipping off site.

9. Control Devices Associated with this Equipment

None	Simple/Multiple Cyclone	Spray/Adsorb Tower	Venturi Scrubber	Carbon Adsorber	Electrostatic Precipitator	Baghouse	Thermal/Catalytic Afterburner	Dry Scrubber	Other
X									
24-0	24-1	24-2	24-3	24-4	24-5	24-6	24-7	24-8	24-9

Other Describe _____

10. Annual Fuel Consumption for this Equipment

OIL-1000 GALLONS	SULFUR %	GRADE	NATURAL GAS-1000 FT^3	LP GAS-100 GALLONS	GRADE
			59,600		
26-31	32-33	34	35-41	42-45	

COAL- TONS	SULFUR %	ASH%	WOOD-TONS	MOISTURE %
46-52	53-55	56-58	59-63	64-65

OTHER FUELS		ANNUAL AMOUNT CONSUMED	OTHER FUEL		ANNUAL AMOUNT CONSUMED
(Specify Type)	66-1	(Specify Units of Measure)	(Specify Type)	66-2	(Specify Units of Measure)

1= Coke 2= COG 3=BFG 4=Other

11. Operating Schedule (for this Equipment)

Continuous Operation	Batch Process	Hours per Batch		Batch per Week	Hours per Day	Days Per Week	Days per Year
	X	4	8 at min	1	2 4	3	1 5 5
67-1	67-2	68-69			70-71	72	73-75

Seasonal Variation in Operation:

No Variation	Winter Percent	Spring Percent	Summer Percent	Fall Percent	(Total Seasons= 100%)
	2 0	2 7	3 0	2 3	
76	77-78	79-80	81-82	83-84	

12. Equivalent Stack Innformation- is Exhaust through Doors, Windows, etc. Only? (Y/N) N (85)

If not, then	Height Avove Ground (FT)	Inside Diameter at Top	Exit Temperature (ºF)	Exit Velocity (FT/SEC)
	22.9 (86-88)	2'x2' for 10 vents (89-91)	160 (92-95)	18.4 per vent for 10 vents (96-98)

NOTE:
Attach a block diagram of process/process line, indicating new equipment as reported on this form and all existing equipment, including control devices and emission points.

13. Input Materials (for this equipment only)
Is any of this data to be considered confidential? N (Y or N)

			INPUT RATE		
NAME	**CAS NO. (IF APPLICABLE)**	**PER HOUR**	**UNITS**	**PER YEAR**	**UNITS**
1. Natural gas	8006-14-2	7	MMBtu	61,320	MMBtu
2. Treated lumber	N/A	2.13	MBf	5,311	MBf
3.					
4.					
5.					
6.					
7.					
8.					
9.					
TOTAL					

14. Output Materials (for this equipment)
Process/Product Stream

			OUTPUT RATE		
NAME	**CAS NO. (IF APPLICABLE)**	**PER HOUR**	**UNITS**	**PER YEAR**	**UNITS**
1. Kiln dried treated lumber	N/A	2.13	MBf	5,311	MBf
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
TOTAL					

15. Waste Streams- Solid and Liquid

			OUTPUT RATE		
NAME	**CAS NO. (IF APPLICABLE)**	**PER HOUR**	**UNITS**	**PER YEAR**	**UNITS**
1. None					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
TOTAL					

16. Total Stack Emissions (for this equipment only) in Pounds Per Operating Day

Particulate Matter	Oxides of Sulfur	Oxides of Nitrogen
2.27	0.10	8.24
99-104	105-110	111-116

Carbon Monoxide	Volatile Organic Compounds	PM-10
13.84	103.80	2.27
177-122	123-128	129-134

17. Total Fugitive Emissions (for this equipment only) in Pounds Per Operating Day

Particulate Matter	Oxides of Sulfur	Oxides of Nitrogen
135-139	140-144	145-149

Carbon Monoxide	Volatile Organic Compounds	PM-10
150-154	155-159	160-164

Method Used to Determine Emissions (1= Estimate 2= Emission Factor 3= Stack Test 4= Other)

TSP	SOX	NOX	CO	VOC	PM10
2	2	2	2	2	2
165	166	167	168	169	170

AIR AND RADIATION MANAGEMENT ADMINISTRATION USE ONLY

18. Date Rec'd. Local _____ **Date Rec'd. State** _____ **Return to Local Jurisdiction** **Date**_____ **By**_____

Reviewed by Local Jurisdiction Date_____ By_____ **Reviewed by State** Date_____ By_____

19. Inventory Date **Month/Year** (171-174) **Equipment Code** (175-177) **SCC Code** (178-185)

20. Annual Operating Rate (186-192) **Maximum Design Hourly Rate** (193-199) **Permit to Operate Month** (200-201) **Transaction Date (MM/DD/YR)** (202-207)

Staff Code (208-210) **VOC Code** (211 212) **SIP Code** (213 214) **Regulation Code** (215-218) **Confidentiality** (219)

Point Description (220-238) **Action** (239) A: Add C: Change

Form Number: 5
Rev. 9/27/2002
TTY Users 1-800-735-2258

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FORM 5T: Toxic Air Pollutant (TAP) Emissions Summary and Compliance Demonstration

Applicant Name: Great Southern Wood - MD, Inc.

Step 1: Quantify premises-wide emissions of Toxic Air Pollutants (TAP) from new and existing installations in accordance with COMAR 26.11.15.04. Attach supporting documentation as necessary.

Toxic Air Pollutant (TAP)	CAS Number	Class I or Class II?	Screening Levels (µg/m^3)			Estimated Premises Wide Emissions of TAP			
						Actual Total Existing TAP Emissions	Projected TAP Emissions from Proposed Installation	Premises Wide Total TAP Emissions	
			1-hour	8-hour	Annual	(lb/hr)	(lb/hr)	(lb/hr)	(lb/yr)
ex. ethanol	*64175*	*II*	*18843*	*3769*	*N/A*	*0.60*	*0.15*	*0.75*	*1500*
ex. benzene	*71432*	*I*	*80*	*16*	*0.13*	*0.5*	*0.75*	*1.00*	*400*
Acetaldehyde	75070	I	450.41	2300.00	5	0	0.07	0.07	180.59
Acrolein	107028	II	2.29	1.80		0	0.006	0.006	13.81
Formaldehyde	50000	I	3.68	1.23	0.91	0	0.006	0.006	15.93
Methanol	67561	II	3276.07	2620.86		0	0.12	0.12	292.13
Phenol	108952	II		192.45		0	0.02	0.02	53.11

(attach additional sheets as necessary.)

Note: Screening levels can be obtained from the Department's website (http://www.mde.maryland.gov) or by calling the Department.

Step 2: Determine which TAPs are exempt from further review. A TAP that meets either of the following Class I or Class II small quantity emitter exemptions is exempt from further TAP compliance demonstration requirements under Step 3 and Step 4.

Class II TAP Small Quantity Emitter Exemption Requirements (COMAR 26.11.15.03B(3)(a))
A Class II TAP is exempt from Step 3 and Step 4 if the Class II TAP meets the following requirements: Premises wide emissions of the TAP shall not exceed 0.5 pounds per hour, and any applicable 1-hour or 8-hour screening level for the TAP must be greater than 200 µg/m^3.

Class I TAP Small Quantity Emitter Exemption Requirements (COMAR 26.11.15.03B(3)(b))
A Class I TAP is exempt from Step 3 and Step 4 if the Class I TAP meets the following requirements: Premises wide emissions of the TAP shall not exceed 0.5 pounds per hour and 350 pounds per year, any applicable 1-hour or 8-hour screening level for the TAP must be greater than 200 µg/m^3, and any applicable annual screening level for the TAP must be greater than 1 µg/m^3.

If a TAP meets either the Class I or Class II TAP Small Quantity Emitter Exemption Requirements, no further review under Step 3 and Step 4 are required for that specific TAP.

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FORM 5T: Toxic Air Pollutant (TAP) Emissions Summary and Compliance Demonstration

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Step 1: Quantify premises-wide emissions of Toxic Air Pollutants (TAP) from new and existing installations in accordance with COMAR 26.11.15.04. Attach supporting documentation as necessary.

Toxic Air Pollutant (TAP)	CAS Number	Class I or Class II?	Screening Levels (µg/m^3)			Estimated Premises Wide Emissions of TAP			
						Actual Total Existing TAP Emissions	Projected TAP Emissions from Proposed Installation	Premises Wide Total TAP Emissions	
			1-hour	8-hour	Annual	(lb/hr)	(lb/hr)	(lb/hr)	(lb/yr)
ex. ethanol	*64175*	*II*	*18843*	*3769*	*N/A*	*0.60*	*0.15*	*0.75*	*1500*
ex. benzene	*71432*	*I*	*80*	*16*	*0.13*	*0.5*	*0.75*	*1.00*	*400*
Propionaldehyde	123386	II		475.26		0	0.002	0.002	5.31

(attach additional sheets as necessary.)

Note: Screening levels can be obtained from the Department's website (http://www.mde.maryland.gov) or by calling the Department.

Step 2: Determine which TAPs are exempt from further review. A TAP that meets either of the following Class I or Class II small quantity emitter exemptions is exempt from further TAP compliance demonstration requirements under Step 3 and Step 4.

Class II TAP Small Quantity Emitter Exemption Requirements (COMAR 26.11.15.03B(3)(a))
A Class II TAP is exempt from Step 3 and Step 4 if the Class II TAP meets the following requirements: Premises wide emissions of the TAP shall not exceed 0.5 pounds per hour, and any applicable 1-hour or 8-hour screening level for the TAP must be greater than 200 µg/m^3.

Class I TAP Small Quantity Emitter Exemption Requirements (COMAR 26.11.15.03B(3)(b))
A Class I TAP is exempt from Step 3 and Step 4 if the Class I TAP meets the following requirements: Premises wide emissions of the TAP shall not exceed 0.5 pounds per hour and 350 pounds per year, any applicable 1-hour or 8-hour screening level for the TAP must be greater than 200 µg/m^3, and any applicable annual screening level for the TAP must be greater than 1 µg/m^3.

If a TAP meets either the Class I or Class II TAP Small Quantity Emitter Exemption Requirements, no further review under Step 3 and Step 4 are required for that specific TAP.

FORM 5T: Toxic Air Pollutant (TAP) Emissions Summary and Compliance Demonstration

Step 3: Best Available Control Technology for Toxics Requirement (T-BACT, COMAR 26.11.15.05)
In the following table, list all TAP emission reduction options considered when determining T-BACT for the proposed installation. The options should be listed in order beginning with the most effective control strategy to the least effective strategy. Attach supporting documentation as necessary.

Target Pollutants	Emission Control Option	% Emission Reduction	Costs		T-BACT Option Selected? (yes/no)
			Capital	Annual Operating	
ex. ethanol and benzene	*Thermal Oxidizer*	*99*	*$50,000*	*$100,000*	*no*
ex. ethanol and benzene	*Low VOC materials*	*80*	*0*	*$100.000*	*yes*
Acetaldehyde	Proper Maint & Operation	N/A			yes
Acrolein	Proper Maint & Operation	N/A			yes
Formaldehyde	Proper Maint & Operation	N/A			yes
Phenol	Proper Maint & Operation	N/A			yes

(attach additional sheets as necessary)

Step 4: Demonstrating Compliance with the Ambient Impact Requirement (COMAR 26.11.15.06)
Each TAP not exempt in Step 2 must be individually evaluated to determine that the emissions of the TAP will not adversely impact public health. The evaluation consists of a series of increasingly non-conservative (and increasingly rigorous) tests. Once a TAP passes a test in the evaluation, no further analysis is required for that TAP. "Demonstrating Compliance with the Ambient Impact Requirement under the Toxic Air Pollutant (TAP) Regulations (COMAR 26.11.15.06)" provides guidance on conducting the evaluation. Summarize your results in the following table. Attach supporting documentation as necessary.

Toxic Air Pollutant (TAP)	CAS Number	Screening Levels ($\mu g/m^3$)			Premises Wide Total TAP Emissions		Allowable Emissions Rate (AER) per COMAR 26.11.16.02A		Off-site Concentrations per Screening Analysis ($\mu g/m^3$)			Compliance Method Used?
		1-hour	8-hour	Annual	(lb/hr)	(lb/yr)	(lb/hr)	(lb/yr)	1-hour	8-hour	Annual	AER or Screen
ex. ethanol	*64175*	*18843*	*3769*	*N/A*	*0.75*	*1500*	*0.89*	*N/A*	*N/A*	*N/A*	*N/A*	*AER*
ex. benzene	*71432*	*80*	*16*	*0.13*	*1.00*	*400*	*0.04*	*36.52*	*1.5*	*1.05*	*0.12*	*Screen*
Acetaldehyde	75070	450.41	2300.00	5	0.07	180.59	1.612	182.5	N/A	N/A	N/A	AER
Acrolein	107028	2.29	1.80	N/A	0.006	13.81	0.006	N/A	3.74	3.37	N/A	
Formaldehyde	50000	3.68	1.23	0.91	0.006	15.93	0.073	29.2	4.32	3.89	0.43	
Phenol	108952	N/A	192.5	N/A	0.02	53.11	0.689	N/A	N/A	12.96	N/A	AER

(attach additional sheets as necessary)

If compliance with the ambient impact requirement cannot be met using the allowable emissions rate method or the screening analysis method, refined dispersion modeling techniques may be required. Please consult with the Department's Air Quality Permit Program prior to conducting dispersion modeling methods to demonstrate compliance.

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FORM 5EP: Emission Point Data

Complete one (1) Form 5EP for EACH emission point (stack or fugitive emissions) related to the proposed installation.

Applicant Name: Great Southern Wood - MD, Inc.

1. Emission Point Identification Name/Number

List the applicant assigned name/number for this emission point and use this value on the attached required plot plan:
Proposed New Kiln (KILN)

2. Emission Point Description

Describe the emission point including all associated equipment and control devices:
Ten 2'x2' roof vents and the kiln door release emissions from drying lumber and from natural gas combustion

3. Emissions Schedule for the Emission Point

Continuous or Intermittent (C/I)?	I	**Seasonal Variation** Check box if none: ☐ Otherwise estimate seasonal variation:	
Minutes per hour:	60	Winter Percent	20
Hours per day:	24	Spring Percent	27
Days per week:	no more than 3	Summer Percent	30
Weeks per year:	52	Fall Percent	23

4. Emission Point Information

Height above ground (ft):	22.9	Length and width dimensions at top of rectangular stack (ft):	Length:	Width:	
Height above structures (ft):	N/A		2	2	
Exit temperature (ºF):	160	Inside diameter at top of round stack (ft):		N/A	
Exit velocity (ft/min):	1106 /vent	Distance from emission point to nearest property line (ft):		25	
Exhaust gas volumetric flow rate (acfm):	4425/vent	Building dimensions if emission point is located on building (ft)	Height: 20	Length: 46	Width: 26

5. Control Devices Associated with the Emission Point

Identify each control device associated with the emission point and indicate the number of devices. ***A Form 6 is also required for each control device***. If none check none:

- ☒ None
- ☐ Baghouse No. _____
- ☐ Cyclone No. _____
- ☐ Elec. Precipitator (ESP) No. _____
- ☐ Dust Suppression System No. _____
- ☐ Venturi Scrubber No. _____
- ☐ Spray Tower/Packed Bed No. _____
- ☐ Carbon Adsorber No. _____
  - ☐ Cartridge/Canister
  - ☐ Regenerative
- ☐ Thermal Oxidizer No. _____
  - ☐ Regenerative
- ☐ Catalytic Oxidizer No. _____
- ☐ Nitrogen Oxides Reduction No. _____
  - ☐ Selective ☐ Non-Selective
  - ☐ Catalytic ☐ Non-Catalytic
- ☐ Other No. _____
  Specify:

FORM 5EP: Emission Point Data

6. Estimated Emissions from the Emission Point

Criteria Pollutants	At Design Capacity (lb/hr)	At Projected Operations		
		(lb/hr)	(lb/day)	(ton/yr)
Particulate Matter (filterable as PM10)	0.03	0.03	0.82	0.08
Particulate Matter (filterable as PM2.5)	0.03	0.03	0.82	0.08
Particulate Matter (condensables)	0.06	0.06	1.45	0.20
Volatile Organic Compounds (VOC)	4.33	4.33	103.80	5.40
Oxides of Sulfur (SOx)	0.004	0.004	0.10	0.02
Oxides of Nitrogen (NOx)	0.34	0.34	8.24	1.50
Carbon Monoxide (CO)	0.58	0.58	13.84	2.52
Lead (Pb)	3.43E-6	3.43E-6	8.24E-5	1.50E-5
Greenhouse Gases (GHG)	**At Design Capacity (lb/hr)**	**At Projected Operations**		
		(lb/hr)	**(lb/day)**	**(ton/yr)**
Carbon Dioxide (CO_2)	1031	1031	24,752	4,517
Methane (CH_4)	0.02	0.02	0.37	0.07
Nitrous Oxide (N_2O)	1.54E-3	1.54E-3	0.04	0.01
Hydrofluorocarbons (HFCs)				
Perfluorocarbons (PFCs)				
Sulfur Hexafluoride (SF6)				
Total GHG (as CO_2e)	1,032	1,032	24,773	4,521
List individual federal Hazardous Air Pollutants (HAP) below:	**At Design Capacity (lb/hr)**	**At Projected Operations**		
		(lb/hr)	**(lb/day)**	**(ton/yr)**
Acetaldehyde	0.072	0.072	1.74	0.09
Acrolein	0.006	0.006	0.13	0.007
Formaldehyde	0.006	0.006	0.15	0.008
Methanol	0.117	0.117	2.81	0.15
Phenol	0.021	0.021	0.51	0.03
Propionaldehyde	0.002	0.002	0.05	0.003
Benzene	1.44E-05	1.44E-05	3.46E-04	6.31E-05
Hexane	0.01	0.01	0.30	0.05
Naphthalene	4.19E-06	4.19E-06	1.00E-04	1.83E-05
Toluene	2.33E-05	2.33E-05	5.60E-04	1.02E-04
Arsenic	1.37E-06	1.37E-06	3.29E-05	6.01E-06
Barium	3.02E-05	3.02E-05	7.25E-04	1.32E-04

(Attach additional sheets as necessary.)

FORM 5EP: Emission Point Data

6. Estimated Emissions from the Emission Point

Criteria Pollutants	At Design Capacity (lb/hr)	At Projected Operations		
		(lb/hr)	(lb/day)	(ton/yr)
Particulate Matter (filterable as PM10)				
Particulate Matter (filterable as PM2.5)				
Particulate Matter (condensables)				
Volatile Organic Compounds (VOC)				
Oxides of Sulfur (SOx)				
Oxides of Nitrogen (NOx)				
Carbon Monoxide (CO)				
Lead (Pb)				

Greenhouse Gases (GHG)	At Design Capacity (lb/hr)	At Projected Operations		
		(lb/hr)	(lb/day)	(ton/yr)
Carbon Dioxide (CO_2)				
Methane (CH_4)				
Nitrous Oxide (N_2O)				
Hydrofluorocarbons (HFCs)				
Perfluorocarbons (PFCs)				
Sulfur Hexafluoride (SF6)				
Total GHG (as CO_2e)				

List individual federal Hazardous Air Pollutants (HAP) below:	At Design Capacity (lb/hr)	At Projected Operations		
		(lb/hr)	(lb/day)	(ton/yr)
Beryllium	8.24E-08	8.24E-08	1.98E-06	3.61E-07
Cadmium	7.55E-06	7.55E-06	1.81E-04	3.31E-05
Chromium	9.61E-06	9.61E-06	2.31E-04	4.21E-05
Cobalt	5.76E-07	5.76E-07	1.38E-05	2.52E-06
Copper	5.83E-06	5.83E-06	1.40E-04	2.56E-05
Manganese	2.61E-06	2.61E-06	6.26E-05	1.14E-05
Mercury	1.78E-06	1.78E-06	4.28E-05	7.82E-06
Molybdenum	7.55E-06	7.55E-06	1.81E-04	3.31E-05
Nickel	1.44E-05	1.44E-05	3.46E-04	6.31E-05
Selenium	1.65E-07	1.65E-07	3.95E-06	7.21E-07

(Attach additional sheets as necessary.)

APPENDIX D

Modeling Report
*Modeling files will be provided by email

Toxic Air Pollutants

Modeling Protocol

Great Southern Wood MD, Inc.

Hagerstown, MD

September 2024

Prepared by:

FC&E ENGINEERING, LLC

FC&E Engineering, LLC

Water ▪ Soils ▪ Air ▪ Compliance

Contents

Tables

Figures

1.0 Overview

1.1 Facility Location

Great Southern Wood MD, Inc. is within the city limits of Hagerstown, Maryland. The location is depicted in Figure 1.

1.2 Process Information

Great Southern Wood MD, Inc. seeks authorization to construct and operate a new natural gas kiln. The site will pressure treat kiln dried lumber brought on site with a fire retardant after which they will dry the lumber again in a natural gas fired batch kiln equipped with a 7 MMBtu/hr burner.

The kilns will exhaust through vents located on the front and the back of the kiln. There will be 5 vents on both sides of the kiln. Fans inside the kiln will direct air flow either towards the front or the back of the kiln. The exhaust will vent through the five vents on one side while air is drawn in through the vents on the opposite side. Figure 1 and Figure 2 depict the location of the vents on the front and back wall. The ventilators on the roof vent the space between the insulation and the roof to prevent condensation and do not exhaust from the kiln.

1.3 Constituents Evaluated

The constituents requiring modeling are acrolein, formaldehyde and phenol. The screening values were determined based on COMAR 26.11.16.03. The exposure limits used to determine the screening levels are summarized in Table 1.

The exposure thresholds were obtained from the “2024 TLVs and BEIs Based on the Documentation of the Threshold limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices” published by ACGIH and the US EPA Integrated Risk Information System database. Where exposure thresholds did not exist for a particular pollutant/averaging period, the 2012 Revised TAP Screening Levels from the MDE website were used. The screening values used are summarized in Table 2.

2.0 Screening Model

The Maryland Department of The Environment (MDE) guidance document “Demonstrating Compliance with the Ambient Impact Requirement under the Toxic Air Pollutant (TAP) Regulations (COMAR 26.11.15.06)” identifies the typical screening models used as SCREEN3, TSCREEN and AERSCREEN.

AERSCREEN is EPA’s recommended screening-level air quality model based on AERMOD. The AERSCREEN model consists of two main components: 1) the MAKEMET program which generates a site-specific matrix of meteorological conditions for input to the AERMOD model; and 2) the AERSCREEN command-prompt interface program. AERSCREEN interfaces with MAKEMET for generating the meteorological matrix, but also interfaces with AERMAP and BPIPPRM to automate the processing of terrain and

building information respectively, and interfaces with the AERMOD model utilizing the SCREEN option to perform the modeling runs.

AERSCREEN was chosen to perform the analysis because it is the US EPA recommended screening model and there is terrain to the east of the facility at or above the kiln release height. AERSCREEN was used to account for the effect of terrain on the predicted impacts.

2.1 Source Inputs

The proposed kiln does not exhaust through a traditional stack. The exhaust alternates between five vents located on the front of the kiln and five vents located on the back of the kiln. Kilns of this type are typically modeled as volume sources and the volume source was used to characterize the release.

2.1.1 Emission Rate

To avoid multiple runs of the model, a nominal emission rate of 1 lb/hr was used in the analysis. The model results are then in terms of $(ug/m^3)/(lb/hr)$. This allows for all of the pollutants to be evaluated by multiplying the modeled results by the emission rate of the respective pollutant.

2.1.2 Release Height

The vents on the front of the kiln are approximately two feet higher than the vents on the back of the kiln. The average height for all the vents of 6.92 meters was used as the volume source release height.

2.1.3 Initial Lateral Dimension

The lateral dimension was determined by the spacing distance of the vents located on the sides of the kiln of 12.19 meters. The initial lateral dimension is calculated by dividing this distance by 4.3, following the US EPA procedures for obtaining initial dimension. The resulting initial lateral dimension used was 2.84 meters.

2.1.4 Initial Vertical Dimension

The initial vertical dimension was determined by the height of the kiln. The release is on or adjacent to the building. Following the US EPA procedures for obtaining initial dimension, the kiln height of 8.32 meters was divided by 2.15 resulting in an initial vertical dimension of 3.87 meters.

2.1.5 Downwash

The model does not account for building downwash for volume sources. The downwash is accounted for in the procedure for determining the initial vertical dimension of the plume.

2.2 Meteorology

The worst-case meteorology is developed in the AERSCREEN model by using MAKEMET. The meteorology was developed using the default values for minimum temperature, maximum temperature and minimum wind speed, an anemometer height of 10 meters, AERMET seasonal tables with a dominant land use surface characteristic of urban, average moisture conditions, and adjusting the surface friction velocity u*.

2.3 Terrain

Terrain was accounted for in the model using AERMAP. The 1/3 arc second National Elevation Database (NED) file was downloaded and used in the model. The probe distance used was 5,000 meters. The distance to ambient air used was 8.3 meters and discrete receptor were placed at 9, 10, 11, 12, 13, 14, 16, 18, 20 and 22 meters. The source elevation from AERMAP was used in the analysis.

2.4 Urban/Rural Classification

The 2021 land use data was downloaded from the Multi-Resolution Land Characteristics (MRLC) Consortium. The land use was evaluated within 3 km of the proposed source and is summarized in Table 3 and depicted in Figure 3.

The land use classifications of Developed-Medium Intensity, Developed-High Intensity and Barren Land was assumed to be equivalent to the Auer urban land use classifications. These classifications comprise 41.7% of the area within 3 km of the source. The area surrounding the facility was determined to be rural and rural dispersion coefficients were used in the analysis.

3.0 Scaling Factors

Since the kiln is the only source being evaluated, a nominal emission rate was used such that the total emissions from the kiln equaled 1 lb/hr. The resulting impacts are $(ug/m^3)/(lb/hr)$. The emission rate for each individual pollutant in lb/hr was then multiplied by the maximum modeled impacts.

4.0 Modeling Results

The modeling results are summarized in Table 4. The maximum impacts from the kiln were found to be above the screening level for the acrolein and formaldehyde 1-hr and 8-hr averaging periods. The impacts are predicted to disperse below the screening levels within 55 feet of the fence line. The distance for each pollutant/averaging period where impacts reach the screening level is depicted in Figure 4.

As can be seen in the figure, the impacts above the screening level are limited to an area located within the rail yard adjacent to the Great Southern Wood facility. The impacts at the fence line are in the same order of magnitude as the screening levels and exposure to the general public is not likely to occur in this area. The impacts at the fence line are two orders of magnitude below the threshold limit values (TLVs) which are designed to set at levels that nearly all workers may be repeatedly exposed without adverse health effects.

5.0 Electronic Information

The files created by AERSCREEN are named by the program. These files are included with the submittal. The files not automatically named by the program which have been included are:

- Demlist.txt – contains the pathway to the NED terrain file
- Discrete.txt - contains the list of discrete receptor distances used.
- Maryland.inp – AERSCREEN input file
- Maryland.out – AERSCREEN output file
- Maryland.log – AERSCREEN run log
- Great Southern Wood MD.kmz – Facility map and distances to impacts at the screening level in kml format.

TABLES

TABLE 1 - EXPOSURE THRESHOLDS

Exposure Threshold	Averaging Period	Acrolein	Formaldehyde	Phenol
TLV-TWA	8-hour	-	0.1 ppm	5 ppm
TLV-STEL	1-hr	0.1 ppm	0.3 ppm	-
IUR	Annual		1.1×10^{-5} per µg/m^3	-

TABLE 2 - SCREENING LEVEL

Averaging Period	Screening Level (ug/m^3)		
	Acrolein	Formaldehyde	Phenol
1-hr	2.29	3.68	-
8-hour	1.80	1.23	192.45
Annual	-	0.91	-

TABLE 3 - LAND USE WITHING 3 KM.

Class\ Value	Classification Description	Percent Area
11	**Open Water**- areas of open water, generally with less than 25% cover of vegetation or soil.	**0.5%**
12	**Perennial Ice/Snow**- areas characterized by a perennial cover of ice and/or snow, generally greater than 25% of total cover.	
21	**Developed, Open Space**- areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.	**10.3%**
22	**Developed, Low Intensity**- areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20% to 49% percent of total cover. These areas most commonly include single-family housing units.	**25.7%**
23	**Developed, Medium Intensity** -areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50% to 79% of the total cover. These areas most commonly include single-family housing units.	**26.2%**
24	**Developed High Intensity**-highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80% to 100% of the total cover.	**15.3%**
31	**Barren Land (Rock/Sand/Clay)** - areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.	**0.0%**
41	**Deciduous Forest**- areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.	**4.4%**
42	**Evergreen Forest**- areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.	**0.1%**
43	**Mixed Forest**- areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.	**5.3%**
71	**Grassland/Herbaceous**- areas dominated by gramanoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.	**0.5%**
81	**Pasture/Hay**-areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation.	**5.8%**
82	**Cultivated Crops** -areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20% of total vegetation. This class also includes all land being actively tilled.	**5.4%**
90	**Woody Wetlands**- areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.	**0.4%**
95	**Emergent Herbaceous Wetlands**- Areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.	**0.1%**

TABLE 4 - MODELED IMPACTS

Pollutant	Acrolein		Formaldehyde			Phenol
Emission Rate lb/hr	0.0055		0.006384			0.02128
Screening ug/m3	2.29	1.80	3.68	1.23	0.91	192.5
Distance (m)	Maximum 1-hr (ug/m3)	Maximum 8-hr (ug/m3)	Maximum 1-hr (ug/m3)	Maximum 8-hr (ug/m3)	Maximum Annual (ug/m3)	Maximum 8-hr (ug/m3)
8.3	3.74	3.37	4.32	3.89	0.43	12.96
9	3.45	3.10	3.98	3.58	0.40	11.94
10	3.09	2.78	3.57	3.21	0.36	10.71
11	2.77	2.49	3.19	2.88	0.32	9.58
12	2.50	2.25	2.89	2.60	0.29	8.66
13	2.28	2.05	2.63	2.36	0.26	7.88
14	2.09	1.88	2.41	2.17	0.24	7.23
16	1.79	1.61	2.06	1.86	0.21	6.18
18	1.53	1.38	1.76	1.59	0.18	5.29
20	1.37	1.23	1.58	1.42	0.16	4.74
22	1.25	1.12	1.44	1.30	0.14	4.32
25	1.10	0.99	1.26	1.14	0.13	3.79

FIGURES

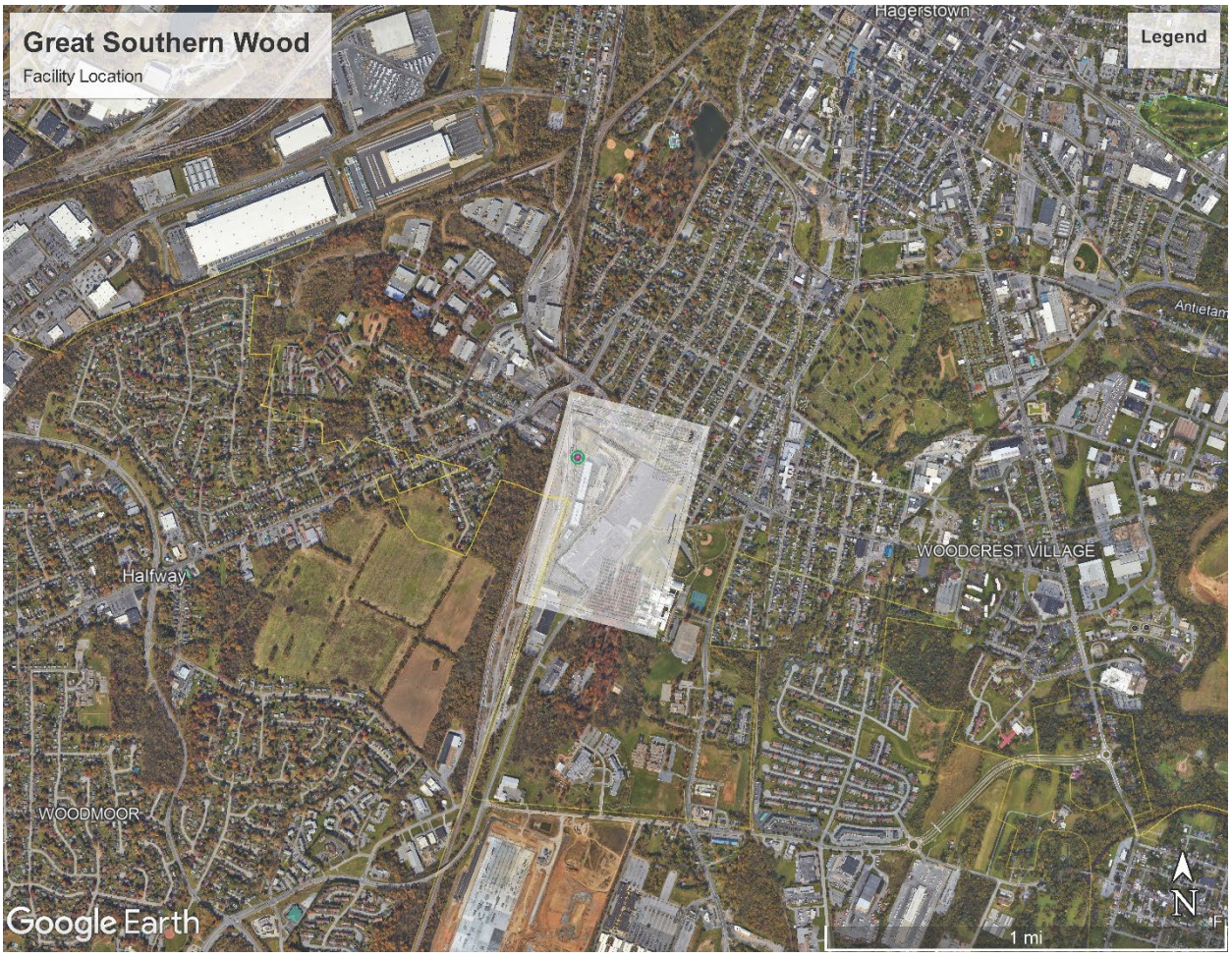


FIGURE 1 - FACILITY LOCATION

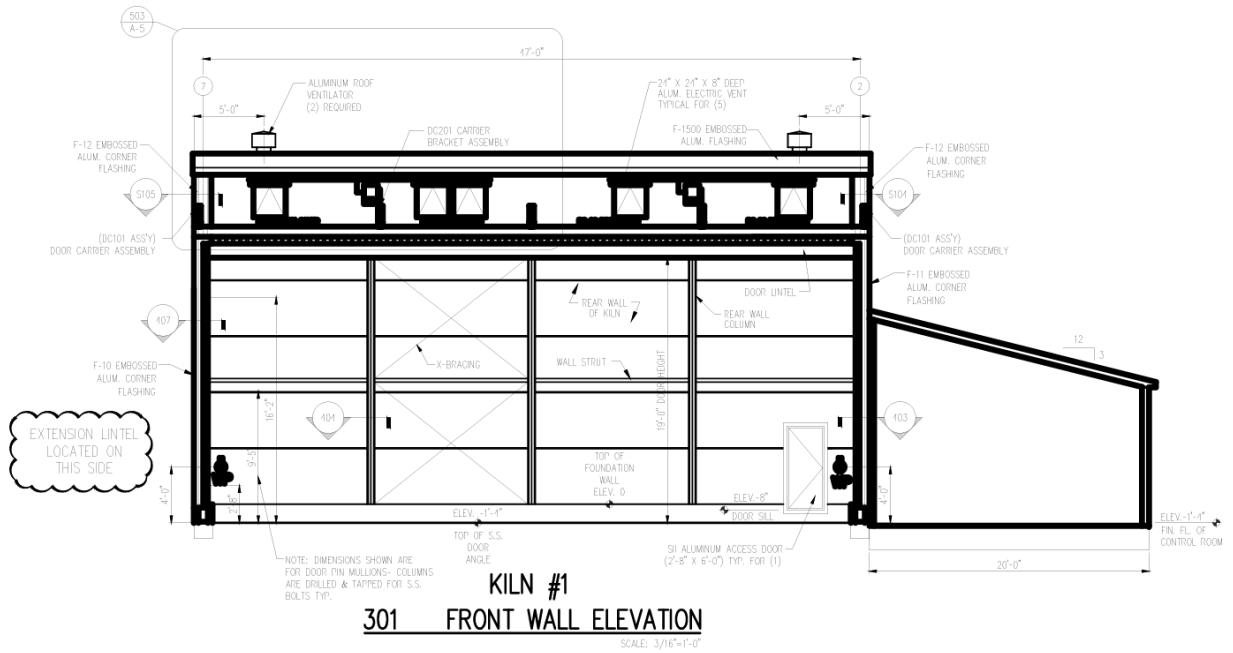


FIGURE 2 - FRONT WALL

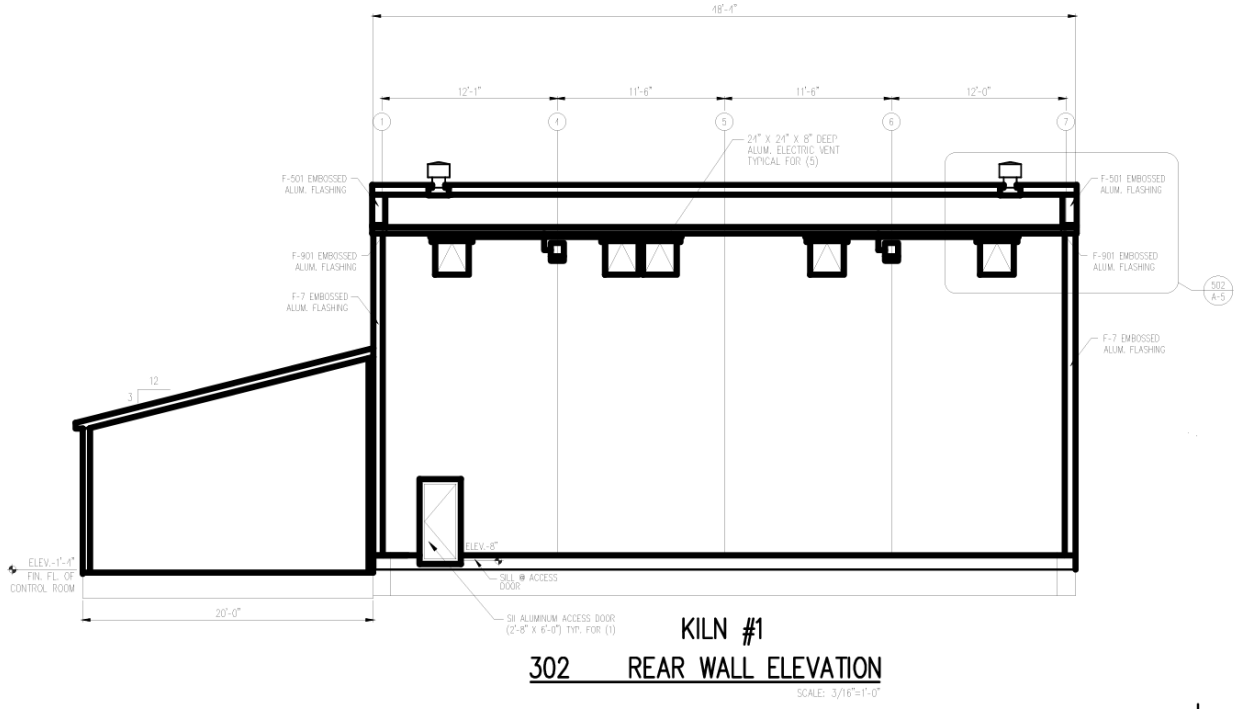


FIGURE 3 - BACK WALL

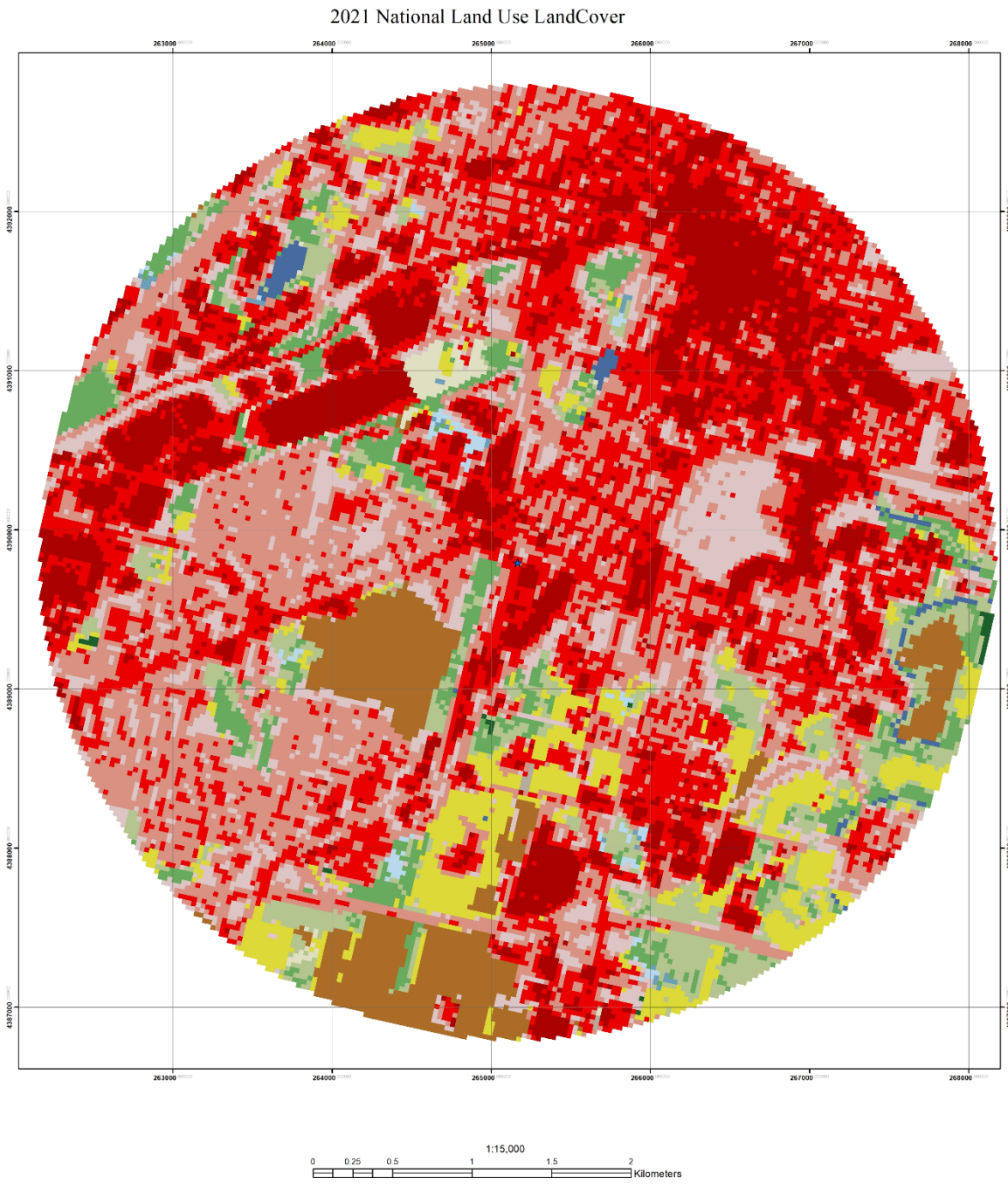


FIGURE 4 - LAND USE

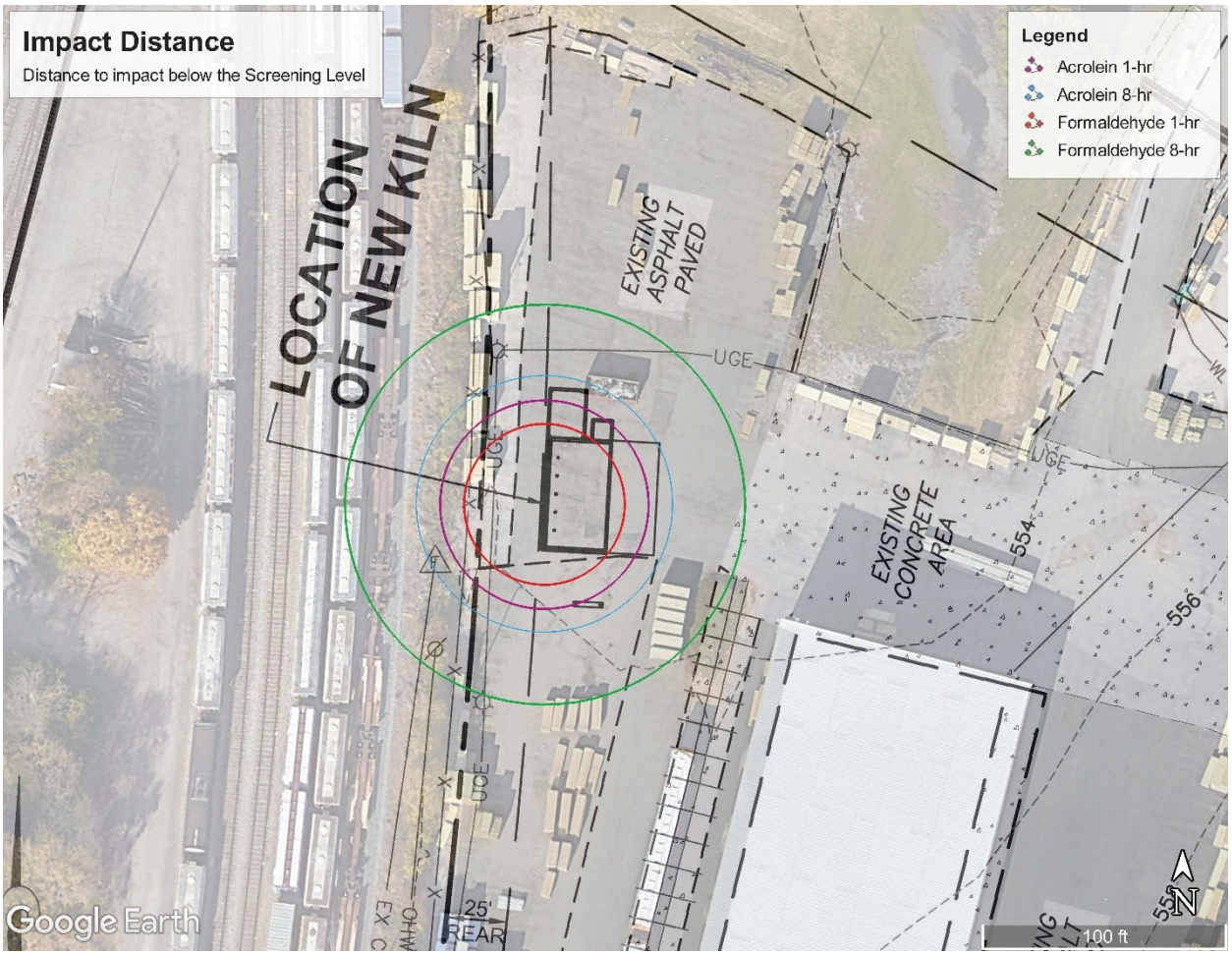


FIGURE 5 - IMPACT DISTANCE

APPENDIX E

Environmental Justice Screening Report

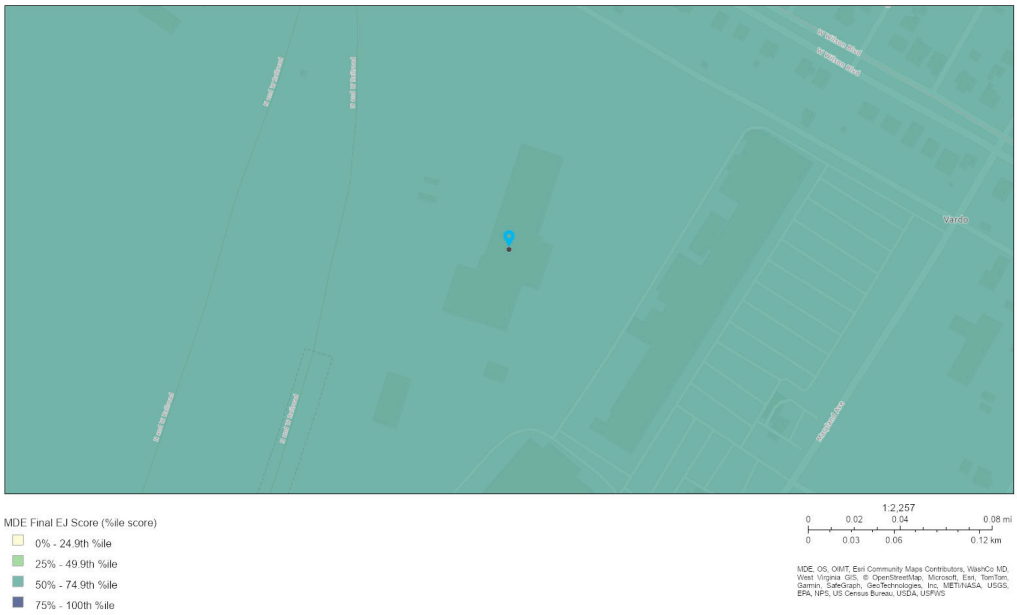
MDE Screening Report

Area of Interest (AOI) Information

Area : 3.14 mi²

Sep 27 2024 12:18:53 Central Daylight Time

Tabloid ANSI B Landscape



Summary

Name	Count	Area(mi²)	Length(mi)
MDE Final EJ Score (%ile score)	5	3.13	N/A
Overburdened Communities Combined Score	5	3.13	N/A
Overburdened Pollution Environmental Score (%ile score)	5	3.13	N/A
Overburdened Exposure Score (%ile score)	5	3.13	N/A
Overburdened Sensitive Population (%ile score)	5	3.13	N/A
Socioeconomic/Demographic Score 2020 (Percentile score) (Underserved Community)	5	3.13	N/A
Air Emissions Facilities	3	N/A	N/A
Sulfur Dioxide (2010)	0	0	N/A
Ozone (2015)	1	3.14	N/A
Fine Particles (2012)	1	3.14	N/A
Biosolids FY 2020 and Current Permit Details	0	N/A	N/A
Biosolids FY2010 - 2014 Permit Details	0	N/A	N/A
Biosolids FY2009 Expired Permit Details	0	N/A	N/A
Biosolids FY 2020 and Current Permits Distribution By Acreage	1	3.14	N/A
Biosolids FY2015 - 2019 Permits Distribution By Acreage	1	3.14	N/A
Biosolids FY2010 - 2014 Permits Distribution By Acreage	1	3.14	N/A
Biosolids FY2009 Permits Expired Distribution By Acreage	1	3.14	N/A
Biosolids FY 2020 and Current Permit Distribution By Percent Coverage	1	3.14	N/A
Biosolids FY2015 - 2019 Permit Distribution By Percent Coverage	1	3.14	N/A
Biosolids FY2010 - 2014 Permit Distribution By Percent Coverage	1	3.14	N/A
Biosolids FY2009 Expired Permit Distribution By Percent Coverage	1	3.14	N/A
Concentrated Animal Feeding Operations (CAFOs)	0	N/A	N/A
Composting Facilities	0	N/A	N/A
Food Scrap Acceptors	0	N/A	N/A
Landfills	0	N/A	N/A
Correctional Facilities	0	N/A	N/A
Industrial Food Suppliers	0	N/A	N/A
Residential Colleges	0	N/A	N/A
Non-Residential Colleges	0	N/A	N/A
Hospitals	0	N/A	N/A
High Schools	2	N/A	N/A
Grocery Stores	3	N/A	N/A
10 Miles from Landfill	2	6.28	N/A
10 Miles from Composting Facility	1	3.14	N/A
General Composting Facilities Tier 2 (MD)	0	N/A	N/A
Commercial Anaerobic Digester (MD)	0	N/A	N/A
Out of State Facilities	0	N/A	N/A
30 mile buffer (Maryland)	1	3.14	N/A
30 Mile Buffer (Out of State)	1	3.14	N/A
Land Restoration Facilities	7	N/A	N/A
Determinations (points)	1	N/A	N/A
Determinations (areas)	3	0.21	N/A
Entities	7	N/A	N/A
Active Coal Mine Sites	0	N/A	N/A
Historic Mine Facilities	0	N/A	N/A

All Permitted Solid Waste Acceptance Facilities	0	N/A	N/A
Municipal Solid Waste Acceptance Facilities	0	N/A	N/A
Maryland Dam Locations	1	N/A	N/A
Maryland Pond Locations	20	N/A	N/A
Surface Water Intakes	0	N/A	N/A
Wastewater Discharge Facilities	3	N/A	N/A
Drinking Water	0	N/A	N/A
Clean Water	0	N/A	N/A

MDE Final EJ Score (%ile score)

#	Census tract identifier	Geographic Area Name	Total Population	Final EJ Score Percent (for this tract)	Final EJ Score Percentile (Distribution across Maryland)	Area(mi²)
1	24043001001	Census Tract 10.01, Washington County, Maryland	4792	30.41	55.16	1.66
2	24043000602	Census Tract 6.02, Washington County, Maryland	2984	25.61	26.45	0.47
3	24043000800	Census Tract 8, Washington County, Maryland	3428	32.04	64.73	0.37
4	24043000900	Census Tract 9, Washington County, Maryland	3717	31.10	58.85	0.33
5	24043000700	Census Tract 7, Washington County, Maryland	3250	37.43	86.19	0.29

Overburdened Communities Combined Score

#	GEOID20	Geographic_Area_Name	TotalPop	Overburd_Exposure_Percent	Overburd_Exposure_Percentile	Overburd_Poll_Enviro_Percent	Overburd_Poll_Enviro_Percentile	Sensitive_Population_Percent
1	24043001001	Census Tract 10.01, Washington County, Maryland	4,792	49.19	77.51	12.55	74.50	53.10
2	24043000602	Census Tract 6.02, Washington County, Maryland	2,984	49.43	79.02	12.29	73.62	36.32
3	24043000800	Census Tract 8, Washington County, Maryland	3,428	46.04	45.73	17.15	87.29	42.81
4	24043000900	Census Tract 9, Washington County, Maryland	3,717	49.88	81.27	15.36	83.53	39.73
5	24043000700	Census Tract 7, Washington County, Maryland	3,250	46.44	49.83	17.16	87.35	49.99

#	Sensitive_Population_Percentile	OverburdenedAllPercent	OverburdenedAllPercentile	Area(mi²)
1	34.59	63.84	76.28	1.66
2	8.48	26.86	41.08	0.47
3	15.38	59.40	66.03	0.37
4	11.21	39.51	84.89	0.33
5	27.68	75.39	87.63	0.29

Overburdened Pollution Environmental Score (%ile score)

#	GEOID20	Geographic_Area_Name	RentalsOccupiedPre79Percent	Percentile	PercentRMP	PercentRMPEJ	PercentHazWaste	PercentHazWasteEJ
1	24043001001	Census Tract 10.01, Washington County, Maryland	37.37	92.28	18.41	29.63	13.19	28.87
2	24043000602	Census Tract 6.02, Washington County, Maryland	14.09	55.98	17.92	26.75	16.34	27.65
3	24043000800	Census Tract 8, Washington County, Maryland	64.76	98.29	10.52	35.51	16.56	43.63
4	24043000900	Census Tract 9, Washington County, Maryland	41.48	82.43	16.38	46.04	11.03	44.86
5	24043000700	Census Tract 7, Washington County, Maryland	56.78	91.59	10.46	49.42	18.59	61.41

#	PercentSuperFundNPL	PercentSuperFundNPLEJ	PercentHazWW	PercentHazWWEJ	BrownFPercent	Percentile_1	PercentPowerPlants	Percentile_12
1	16.25	33.56	27.77	35.71	0.00	0.00	0.00	0.00
2	18.58	31.02	43.64	48.60	0.00	0.00	0.00	0.00
3	26.85	51.14	35.71	57.53	0.00	0.00	0.00	0.00
4	37.00	58.42	29.76	55.54	0.42	93.44	0.00	0.00
5	29.89	71.93	38.68	72.41	0.00	0.00	0.00	0.00

#	PercentCAFOS	Percentile_12_13	PercentActiveMines	Percentile_12_13_14	PollutionEnvironmentalPercent	PollnEnvironmentalPercentile	Area(mi²)
1	0.00	0.00	0.00	0.00	12.55	74.50	1.66
2	0.00	0.00	0.00	0.00	12.29	73.62	0.47
3	0.00	0.00	0.00	0.00	17.15	87.29	0.37
4	0.00	0.00	0.00	0.00	15.36	83.53	0.33
5	0.00	0.00	0.00	0.00	17.16	87.35	0.29

Overburdened Exposure Score (%ile score)

#	GEOID20	Geographic_Area_Name	Total_Pop	PercentNATA_Cancer	Percentile_NATA_Cancer	PercentNATA_Resp_HI	Percentile_NATA_Resp_HI	PercentNATA_Diesel
1	24043001001	Census Tract 10.01, Washington County, Maryland	4,792.00	60.00	30.13	80.00	33.61	53.78
2	24043000602	Census Tract 6.02, Washington County, Maryland	2,984.00	60.00	27.54	80.00	30.71	43.16
3	24043000800	Census Tract 8, Washington County, Maryland	3,428.00	60.00	43.45	80.00	48.46	43.91
4	24043000900	Census Tract 9, Washington County, Maryland	3,717.00	60.00	48.59	80.00	54.19	53.97
5	24043000700	Census Tract 7, Washington County, Maryland	3,250.00	60.00	60.46	80.00	67.44	41.92

#	Percentile_NATA_Diesel	PercentNATA_PM25	PercentileNATA_PM25	PercentOzone	PercentileOzone	PercentTraffic	PercentileTraffic	PercentTRI
1	34.60	93.54	24.00	87.32	14.90	3.11	19.57	15.79
2	28.81	93.38	21.93	87.65	13.98	4.89	21.93	26.32
3	46.01	93.60	34.60	87.42	21.49	3.39	29.28	0.00
4	55.78	93.74	39.71	87.08	23.38	8.44	45.83	15.79
5	62.48	93.46	48.15	87.51	29.90	3.32	40.74	5.26

#	PercentileTRI	PercentHazWasteLF	Percentile_HazWasteLF	PollutionExposurePercent	PollutionExposurePercentile	Area(mi²)
1	94.87	0.00	0.00	49.19	77.51	1.66
2	98.22	0.00	0.00	49.43	79.02	0.47
3	0.00	0.00	0.00	46.04	45.73	0.37
4	94.87	0.00	0.00	49.88	81.27	0.33
5	80.18	0.00	0.00	46.44	49.83	0.29

Overburdened Sensitive Population (%ile score)

#	GEOID20	Geographic_Area_Name	PerAstma	PercentileAst	PerMyo	PercentileMyo	PerLow	PercentileLow
1	24043001001	Census Tract 10.01, Washington County, Maryland	38.30	51.13	40.40	51.26	56.30	71.77
2	24043000602	Census Tract 6.02, Washington County, Maryland	27.20	23.10	27.70	25.36	11.60	9.91
3	24043000800	Census Tract 8, Washington County, Maryland	31.60	31.10	33.20	33.63	42.50	41.15
4	24043000900	Census Tract 9, Washington County, Maryland	19.60	21.39	19.80	23.03	38.20	39.64
5	24043000700	Census Tract 7, Washington County, Maryland	24.40	22.76	24.50	24.81	88.90	75.32

#	PercentBroad	PercentileBroad	PercentSens	PercentileSens	Area(mi²)
1	22.58	96.10	39.40	67.57	1.66
2	19.79	87.08	21.57	36.36	0.47
3	35.30	98.56	35.65	51.11	0.37
4	18.66	74.50	24.07	39.64	0.33
5	37.83	96.79	43.91	54.92	0.29

Socioeconomic/Demographic Score 2020 (Percentile score) (Underserved Community)

#	Census tract identifier	Geographic Area Name	Total Population	Percent Poverty	Percent Minority	Percent Limited English Proficiency	Demographic Score (Percent for this tract)	Demographic Score (Percentile Distribution acoss Maryland)	Area(mi²)
1	24043001001	Census Tract 10.01, Washington County, Maryland	4,792	40.03	20.99	0.46	20.49	45.44	1.66
2	24043000602	Census Tract 6.02, Washington County, Maryland	2,984	31.87	23.89	1.75	19.17	42.97	0.47
3	24043000800	Census Tract 8, Washington County, Maryland	3,428	58.05	29.93	0.00	29.33	61.62	0.37
4	24043000900	Census Tract 9, Washington County, Maryland	3,717	43.88	54.51	6.85	35.08	72.86	0.33
5	24043000700	Census Tract 7, Washington County, Maryland	3,250	70.71	51.72	4.20	42.21	86.02	0.29

Air Emissions Facilities

#	Agency Interest ID	Facilty Name	Agency Interest Alt Name	Premises ID	Emission Year	Air Code	NAIC Code	NAIC Description
1	5181	Great Southern Wood - MD, Inc	Great Southern Wood - MD, Inc-5181	043-0190	2021	SOP	321,114	Wood Preservation
2	19206	Daniel G. Schuster Concrete/Hagerstown Ready Mix Concrete Plant	Daniel G. Schuster Concrete/Hagerstown Ready Mix Concrete Plant-19206	043-0450	2021	SOP	327,320	Ready-Mix Concrete Manufacturing
3	29510	Hagerstown Crematory	Hagerstown Crematory-29510	043-0200	2021	SOP	812,220	Cemeteries and Crematories

#	Physical Address	Physical City	Physical State	Physical Zip Code	County	Carbon Monoxide (CO)	Nitrous Oxide	Particulate Matter (PT)
1	1201 Maryland Ave	Hagerstown	MD	21,740	Washington	0.00	0.00	0.00
2	1000 Sherman Ave	Hagerstown	MD	21,740	Washington	0.00	0.00	0.00
3	415 Wilson Blvd, East	Hagerstown	MD	21,740	Washington	0.08	0.10	0.02

#	Particulate Matter (10 Filterable)	Particulate Matter (2.5 Filterable)	PM Condensables	Volatile Organic Compounds (VOC)	Sulphur Dioxide (SOx)	Carbon Dioxide	Mercury	Methane
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.02	0.00	0.00	0.05	0.03	50.87	0.00	0.00

#	Billable Criteria Pollutants (BCRI)	Billiable Hazardous Pollutants (BHAP)	Total Billable and Non-Bilable Hazardous Air Pollutant Emissions (HAPS)	Count
1	0.00	0.00	0.00	1
2	0.00	0.00	0.00	1
3	0.21	0.00	0.00	1

Ozone (2015)

#	STATEFP10	COUNTYFP10	COUNTYNS10	GEOID10	NAME10	Ozone NAA Area	8-Hr Ozone (2015) Designation	8-HR Ozone (2015) Classification	8-Hr Ozone (2015) Status	Area(mi²)
1	24	043	01714220	24043	Washington	*No Data*	Attainment/Unclassifiable	*No Data*	*No Data*	3.14

Fine Particles (2012)

#	STATEFP10	COUNTYFP10	COUNTYNS10	GEOID10	NAME10	PM2.5 (2012) Status	Area(mi²)
1	24	043	01714220	24043	Washington	Attainment/Unclassifiable	3.14

Biosolids FY 2020 and Current Permits Distribution By Acreage

#	County Name	FY2020andAfter	Area(mi²)
1	Washington	158.10	3.14

Biosolids FY2015 - 2019 Permits Distribution By Acreage

#	County Name	FY2015to2019	Area(mi²)
1	Washington	97.30	3.14

Biosolids FY2010 - 2014 Permits Distribution By Acreage

#	County Name	FY2010to2014	Area(mi²)
1	Washington	289.10	3.14

Biosolids FY2009 Permits Expired Distribution By Acreage

#	County Name	FY2009	Area(mi²)
1	Washington	*No Data*	3.14

Biosolids FY 2020 and Current Permit Distribution By Percent Coverage

#	County Name	FY2020andAfter	Area(mi²)
1	Washington	158.10	3.14

Biosolids FY2015 - 2019 Permit Distribution By Percent Coverage

#	County Name	FY2015to2019	Area(mi²)
1	Washington	97.30	3.14

Biosolids FY2010 - 2014 Permit Distribution By Percent Coverage

#	County Name	FY2010to2014	Area(mi²)
1	Washington	289.10	3.14

Biosolids FY2009 Expired Permit Distribution By Percent Coverage

#	County Name	FY2009	Area(mi²)
1	Washington	*No Data*	3.14

High Schools

#	City	State	Zip	County	Food_Scrap	Total_Enro	Count
1	Hagerstown	MD	21740	Washington	48233	1276	1
2	Hagerstown	MD	21740	Washington	3402	90	1

Grocery Stores

#	County	Name	Address	City	State	Zip	Source	Accpt_SNAP	Count
1	Washington	Locust Point Market	360 S Potomac St	Hagerstown	MD	21,740.00	SNAP	Yes	1
2	Washington	Save A Lot	1111 Maryland Ave	Hagerstown	MD	21,740.00	TRF	*No Data*	1
3	Washington	Save-A-Lot 7	1161 Maryland Ave	Hagerstown	MD	21,740.00	SNAP	Yes	1

10 Miles from Landfill

#	County	Type	Facility_N	ADDRESS	FILL	SITE__ACRE	AI_No_	Owner_Type
1	WASHINGTON	WMF	Forty West MunicipalLandfill	12630 Earth Care Rd, Hagerstown MD 21722.	189	425.00	23,243.00	CTY
2	WASHINGTON	WRF	Washington Co. RubbleLandfill	11112 Kemps Mill Rd, Williamsport MD 21740.	75	100.00	23,096.00	CTY

#	MD_GRID__E	PERMITNUMB	EXPIRATION	Area(mi²)
1	575 /673	2014-WMF-0266A	10/27/2019, 7:00 PM	3.14
2	568 /652	2014-WRF-0270	10/27/2019, 7:00 PM	3.14

10 Miles from Composting Facility

#	County	Facility	Address	Accepts_Fo	Location_o	Area(mi²)
1	*No Data*	40 West Landfill	12630 Earth Care Rd, Hagerstown, MD 21740	No	12630 Earth Care Rd, Hagerstown, MD 21740	3.14

30 mile buffer (Maryland)

#	Facility_Name_1	Facility_Contact_1	Contact_Phone	Contact_Email_1	Contact_2	Contact_2_Phone	Contact_2_Email	URL	Area(mi²)
1	Key City Compost at Utica Bridge Farm	Phil Westcott	(240) 608-0283	info@keycompost.com	*No Data*	*No Data*	*No Data*	https://www.keycompost.com/	3.14

30 Mile Buffer (Out of State)

#	FacilityName	Contact	Area(mi²)
1	Wilson College	https://files.dep.state.pa.us/Waste/Bureau%20of%20Waste%20Management/WasteMgtPortalFiles/PA_Permitted_Food_Waste_Composting_Facilities.pdf	3.14

Land Restoration Facilities

#	Brownfields Master Inventory Number (BMI #). BMI #s are formatted MD####.	Site Name	Other names the site may be known by	Location of Site	City of Site	State of Site	County of Site	Zip code of site	ShapeArea	Count
1	MD0194	Hagerstown American Light and Heat Co.	MD0247; Hagerstown Light and Heat - Washington Street; 441 S. Potomac Street	Sycamore Street and Smith Street	Hagerstown	Maryland	Washington	21740	2.46	1
2	MD1548	Waggoner Property	Waggoner Drum Dump	18124 Oak Ridge Road	Hagerstown	Maryland	Washington	21740	1.32	1
3	MD1632	Orkin Pest Control Facility	6 East Linwood Road, Halfway, MD	17827 Virginia Avenue	Hagerstown	Maryland	Washington	21740	0.50	1
4	MD0637	Pottorf's/Keefauver Cleaners	*No Data*	1096 South Potomac Street	Hagerstown	Maryland	Washington	21740	0.00	1
5	MD1767	GTS-Welco Property	Praxair	400 West Memorial Boulevard	Hagerstown	Maryland	Washington	21740	2.63	1
6	MD1537	Central Chemical Warehouse	*No Data*	Summit Avenue between Memorial Boulevard and Sycamore Street	Hagerstown	Maryland	Washington	21740	0.00	1
7	MD2138	Hagertown Multi-Use Sports Facility	Herald Mail Co,Baltimore Street Station Car Wash, D&P Coin Op Laundry, Antietam Paper Co, The Owls Club, Washington County Comm	80 Summit Avenue	Hagerstown	Maryland	Washington	21740	0.00	1

Determinations (points)

#	Site Name	Entity receiving the determination from the LRP.	Issue Date	Type of determination issued: NFA (No Further Action), NFRD (No Further Requirements Determination), or COC (Certificate of Completion)	Last inspection date	Indicates whether the determination includes an environmental covenant (EC)	Property has Unrestricted residential use	Property has Restricted residential use	Count
1	Hagerstown American Light and Heat Co.	Columbia Gas of Maryland, INc.	1/1/2024, 6:00 PM	EC Only	*No Data*	No	No	No	1

Determinations (areas)

#	Site Name	Entity receiving the determination from the LRP.	Issue Date	Type of determination issued: NFA (No Further Action), NFRD (No Further Requirements Determination), or COC (Certificate of Completion)	Last inspection date	Indicates whether the determination includes an environmental covenant (EC)	Property has Unrestricted residential use	Property has Restricted residential use	Area(mi²)
1	Hagerstown American Light and Heat Co.	Columbia Gas of Maryland, INc.	1/1/2024, 6:00 PM	EC Only	*No Data*	No	No	No	< 0.01
2	Former Koppers Company	RDC Projects, LLC	12/20/2009, 6:00 PM	COC	11/14/2017, 6:00 PM	Yes	No	No	0.10
3	Former Koppers Company	NP Hagerstown Industrial, LLC	9/19/2022, 7:00 PM	NFRD	*No Data*	Yes	No	No	0.11

Entities

#	Brownfields Master Inventory Number (BMI #). This is the site ID number LRP uses to identify sites. BMI #s are formatted MD####.	Site Name	Other names the site may be known by.	Location of Site	City of Site	State of Site	County of Site	Zip code of site
1	MD0194	Hagerstown American Light and Heat Co.	MD0247; Hagerstown Light and Heat - Washington Street; 441 S. Potomac Street	Sycamore Street and Smith Street	Hagerstown	Maryland	Washington	21740
2	MD1548	Waggoner Property	Waggoner Drum Dump	18124 Oak Ridge Road	Hagerstown	Maryland	Washington	21740
3	MD1632	Orkin Pest Control Facility	6 East Linwood Road, Halfway, MD	17827 Virginia Avenue	Hagerstown	Maryland	Washington	21740
4	MD0637	Pottorf's/Keefauver Cleaners	*No Data*	1096 South Potomac Street	Hagerstown	Maryland	Washington	21740
5	MD1767	GTS-Welco Property	Praxair	400 West Memorial Boulevard	Hagerstown	Maryland	Washington	21740
6	MD1537	Central Chemical Warehouse	*No Data*	Summit Avenue between Memorial Boulevard and Sycamore Street	Hagerstown	Maryland	Washington	21740
7	MD2138	Hagertown Multi-Use Sports Facility	Herald Mail Co,Baltimore Street Station Car Wash, D&P Coin Op Laundry, Antietam Paper Co, The Owls Club, Washington County Comm	80 Summit Avenue	Hagerstown	Maryland	Washington	21740

#	Area of site in acres	File Available Electronically. Please note that a PIA request must be completed to review LRP files. In addition, only a portion of a file may be available electroncally.	Provides a link to the fact sheet for the property.	Count
1	2.46	Yes	https://mde.maryland.gov/programs/land/MarylandBrownfieldVCP/SiteAssets/Pages/errp_factsheets/Hagerstown%20Light%20and%20Heat%20Jan%202022.pdf	1
2	1.32	No	Fact Sheet Not Available.	1
3	0.50	Yes	Fact Sheet Not Available.	1
4	0.00	No	https://mde.maryland.gov/programs/land/MarylandBrownfieldVCP/Documents/Keefauver%20Dry%20Cleaners.pdf	1
5	2.63	No	Fact Sheet Not Available.	1
6	0.00	No	Fact Sheet Not Available.	1
7	0.00	No	Fact Sheet Not Available.	1

Maryland Dam Locations

#	State ID	National ID	Dam Name	Other Dam Names	Lake Name	Hazard Classification	County	Latitude
1	289.00	MD00266	Hagerstown City Park Lake (Key Street)	Hagerstown City Park Lake	*No Data*	LOW	Washington	39.64

#	Longitude	River or Stream	Dam Type	Purpose	Dam designer	Year Completed	Year Dam Modified	Dam Height
1	-77.73	Antietam Creek-TR	Earth	Recreation	*No Data*	1920	1920	10.00

#	Normal Pool Depth	Dam Length	Surface Area	Normal Storage	Drainage Area	Maximum Storage	Owner Name	Operator	Count
1	3.00	450.00	5.20	50.00	1.60		City of Hagerstown Parks and Recreation	City of Hagerstown	1

Maryland Pond Locations

#	Facility Type	DAM HEIGHT	County	HAZARD CLASS	6 DIGIT WATERSHED	8 DIGIT WATERSHED	Count

Wastewater Discharge Facilities

#	AID	FAC_NAME	Comments	ValidateCo	GIS_Action	GIS_Comments	Corrective	ZipCodeCom
1	0	SHERMAN AVE PLANT	*No Data*	Data Verified Accurate Based Upon Follow Up Research By MDE	*No Data*	*No Data*	*No Data*	*No Data*
2	19,206	Daniel Schuster Construction	*No Data*	Data Verified Accurate Against MD 8 Digit Watershed	*No Data*	*No Data*	*No Data*	*No Data*
3	19,206	Daniel Schuster Construction	*No Data*	Data Verified Accurate Against MD 8 Digit Watershed	*No Data*	*No Data*	*No Data*	*No Data*

#	CBSEG_92	BAY_TRIB	MD12DIG	County	MDMajorTrib	HUC	Tier2Catchments_yn	Tier2Catchments
1	POTTF_MD	02140503	021405030185	22	1	020700041104	0	*No Data*
2	POTTF_MD	02140503	021405030185	22	1	020700041104	0	*No Data*
3	POTTF_MD	02140503	021405030185	22	1	020700041104	0	*No Data*

#	Tier3Catchments_yn	Tier3Catchments	SSPRA_yn	SSPRA	Impaired_yn	Impaired	WQA_yn	WQA
1	0	*No Data*	0	*No Data*	1	Habitat, Nutrients(Phosphorous), Sediments, Stream Modification, Bacteria, Ions, (DO)	1	Nutrients
2	0	*No Data*	0	*No Data*	1	Sediments, Ions, Habitat, Stream Modification, Bacteria, Nutrients(Phosphorous), (DO)	1	Nutrients
3	0	*No Data*	0	*No Data*	1	Bacteria, Ions, Nutrients(Phosphorous), Habitat, Sediments, Stream Modification, (DO)	1	Nutrients

#	T3038Dig_yn	T3038Dig	TMDL8Dig_yn	TMDL8Dig	MHTArcheo_yn	MHTArcheo	Facility_Type	State_Num
1	1	Ions	1	Nutrients(Phosphorous), Sediments, Bacteria, (DO)	0	*No Data*	*No Data*	*No Data*
2	1	Ions	1	Sediments, Bacteria, Nutrients(Phosphorous), (DO)	0	*No Data*	*No Data*	*No Data*
3	1	Ions	1	Bacteria, Nutrients(Phosphorous), Sediments, (DO)	0	*No Data*	*No Data*	*No Data*

#	WatershedYear	WatershedQuarter	WatershedCode	WatershedName	SimplePermittingAction	PermitAge	CycleYear	PreDraftComplete
1	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*
2	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*
3	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*

#	DatePreDraftComplete	DraftPermitCompleteBy	IssueBy	AppFee	Bill	Amount	DSCHG_RATE	SW_AUTH_ROD
1	*No Data*	*No Data*	*No Data*	*No Data*	0	0.00	0.00	0
2	*No Data*	*No Data*	*No Data*	*No Data*	0	0.00	0.00	0
3	*No Data*	*No Data*	*No Data*	*No Data*	0	0.00	0.00	0

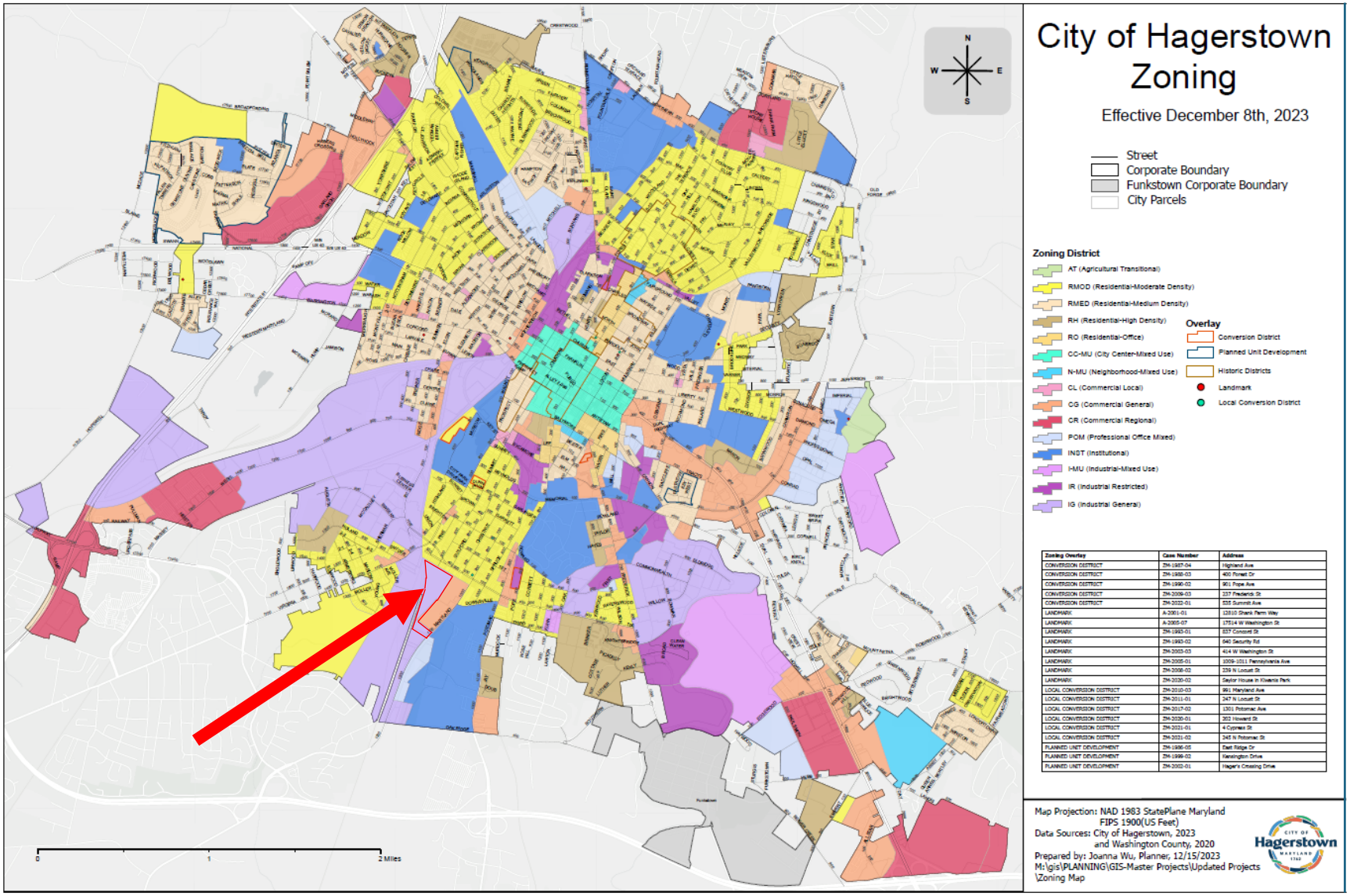
#	P2_OR_C_Bay_2000	District	SurWellName	SurWellSource	SurWellDist	CommWellName	CommWellSource	CommWellDist
1	0	2B	*No Data*	*No Data*	-99.00	*No Data*	*No Data*	-99.00
2	0	2B	*No Data*	*No Data*	-99.00	*No Data*	*No Data*	-99.00
3	0	2B	*No Data*	*No Data*	-99.00	*No Data*	*No Data*	-99.00

#	CommWellProtect	Active	Include	ManualActive	Count
1	0	0	1	0	1
2	0	1	1	1	1
3	0	1	1	1	1

APPENDIX F

Documentation of Zoning/Land Use Compliance

ZONING MAP



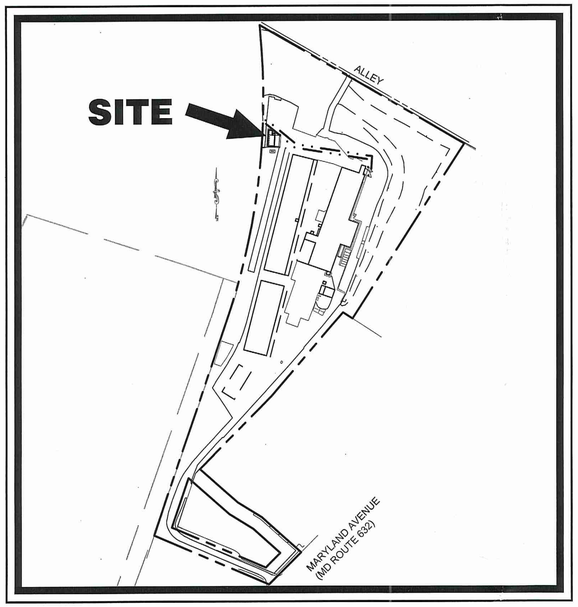
The Subject Property is zone IG – Industrial General

Geo-Source, Inc.

GREAT SOUTHERN WOOD MD., INC.

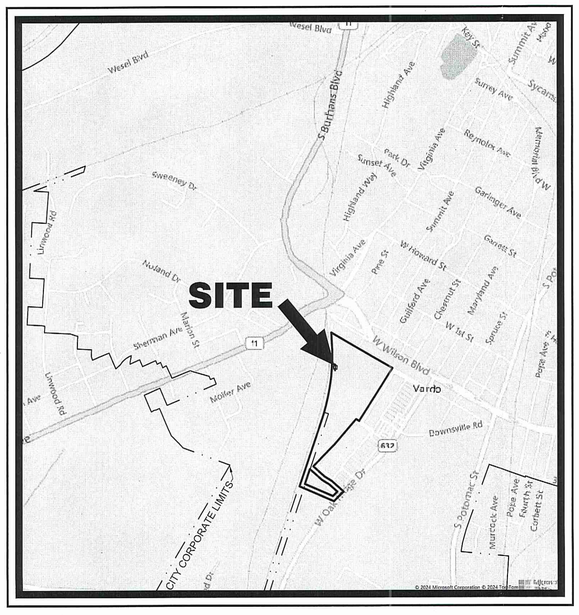
CITY OF HAGERSTOWN UNIQUE I.D. NO: 019-01-007

LOCATION MAP:



SCALE: 1" = 300'

VICINITY MAP:



ADC MAP No: 21
GRID: B8
SCALE: 1" = 1,000'

SITE DATA:

TYPE OF USAGE:	MANUFACTURING
ACREAGE PER DEED:	23.83 ACRES±
ZONING:	IG - INDUSTRIAL GENERAL DISTRICT
PHYSICAL ADDRESS:	1201 MARYLAND AVENUE HAGERSTOWN, MD 21740
CITY UNIQUE I.D. NUMBER	019-01-007
PURPOSE OF PLAN:	KILN ADDTION

PROJECT CONTACTS:

OWNER / DEVELOPER ADDRESS-	GREAT SOUTHERN WOOD PO BOX 610 ABBEVILLE, AL. 36310
PHONE NUMBER- CONTACT-	334-585-2253 ext. 4772 LEE DURDEN

CONSTRUCTION OCCURRING ON THIS SITE SHALL COMPLY WITH N.F.P.A. 241 *STANDARD FOR SAFEGUARDING CONSTRUCTION, ALTERATION AND DEMOLITION OPERATIONS,* AND CHAPTER 16 OF N.F.P.A. 1, *FIRE CODE.*

- NO OPEN AIR BURNING IS PERMITTED.
- A PERMIT IS REQUIRED FROM THE HAGERSTOWN FIRE MARSHAL TO PERFORM BLASTING OPERATIONS.
- FIRE DEPARTMENT ACCESS SHALL BE MAINTAINED TO ANY BUILDING.

CERTIFICATIONS:

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 34688, EXPIRATION DATE: 7-09-25 .

SIGNATURE — DATE: 07-17-2024

UTILITY NOTIFICATION
THE SOIL CONSERVATION DISTRICT MAKES NO REPRESENTATION AS TO THE EXISTENCE OR NONEXISTENCE OF ANY UTILITIES AT THE CONSTRUCTION SITE. SHOWN ON THESE CONSTRUCTION DRAWINGS ARE THOSE UTILITIES WHICH HAVE BEEN IDENTIFIED. IT IS THE RESPONSIBILITY OF THE LANDOWNERS OR OPERATORS AND CONTRACTORS TO ASSURE THEMSELVES THAT NO HAZARD EXISTS OR DAMAGE WILL OCCUR TO UTILITIES. IT IS SUGGESTED THAT MISS UTILITY BE CONTACTED AT: PHONE NO. **1-800-257-7777**

Commitment to Build in Accordance with Approved Plans

This site plan is approved for the improvements and proposed use or uses shown on the plan presented to and approved by the Hagerstown Planning Commission on _____. These plans are approved plans of development. Deviation from this plan is a violation of the Land Management Code, which may result in a stop work order being placed on the development, issuance of notices of violation and civil citations, a request for injunctive relief in the courts, or any combination thereof. Any desired deviation from this approved plan must be discussed with the City Planning Staff before implementing the change(s). Minor deviations may be administratively approved by the Planning Staff, but significant changes may require Planning Commission review and approval.

This commitment is binding upon grantees, assigns, successors and heirs.

8/5/2024 — Date — Owner/Developer

THIS PROJECT IS EXEMPT FROM STORMWATER MANAGEMENT REQUIREMENTS DUE TO TOTAL DISTURBED AREA OF LESS THAN 5,000 SQ. FT.

APPROVED BY
CITY OF HAGERSTOWN

1/7/25 — **DATE** — **CITY PLANNER**

CITY OF HAGERSTOWN ENGINEERING DEPARTMENT

THIS SITE PLAN IS APPROVED BY THE CITY ENGINEERING DEPARTMENT FOR A PERIOD OF TWO YEARS FROM DATE SHOWN.

CITY ENGINEER — 1/2/25 DATE

DISTURBED AREA QUANTITIES
THE TOTAL AREA TO BE DISTURBED SHOWN ON THESE PLANS HAS BEEN DETERMINED TO BE APPROXIMATELY 0.09 AC. AND THE TOTAL AMOUNT OF EXCAVATION AND FILL AS SHOWN ON THESE PLANS HAS BEEN COMPUTED TO BE APPROXIMATELY 40 C.Y. OF EXCAVATION AND 40 C.Y. OF FILL.

NOTE: THE QUANTITIES SHOWN ARE APPROXIMATE AND SHOULD NOT BE USED BY THE CONTRACTOR FOR BIDDING PURPOSES.

SHEET INDEX:

PROJECT NOTES:

1. NO SUBSURFACE INVESTIGATION HAS BEEN PERFORMED BY TRIAD ENGINEERING, INC. TO DETERMINE THE EXISTENCE OR LOCATION OF GROUND WATER, ROCK, OR OTHER NATURAL OR MAN-MADE FEATURES. EXCEPT AS SPECIFICALLY INDICATED. NO ENVIRONMENTAL STUDIES HAVE BEEN CONDUCTED BY OUR FIRM.
2. EXISTING UTILITY INFORMATION SHOWN HEREON IS FROM NUMEROUS SOURCES INCLUDING, BUT NOT LIMITED TO PROPERTY OWNER, UTILITY OWNER, PAST SITE PLANS AND DRAWINGS AND LOCATION OF SURFACE FEATURES. EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD BEFORE BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AND ANY OTHER UTILITY AND SUBSURFACE INVESTIGATIVE SERVICES AT (1-800-257-7777) A MINIMUM OF 48 HOURS BEFORE BEGINNING ANY WORK SHOWN ON THESE DRAWINGS.ANY DAMAGE TO UTILITIES BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE AND TO THE SATISFACTION OF THE UTILITY OWNER. HAND PIT EXCAVATION SHALL BE PROVIDED AS NEEDED BY CONTRACTOR TO LOCATE EXISTING UNDERGROUND UTILITIES.
3. THE CONTRACTOR SHALL NOTIFY THE APPLICABLE MUNICIPAL, COUNTY AND/OR STATE AUTHORITIES AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK WITHIN PUBLIC RIGHT (S) OF WAY.
4. THE CONTRACTOR SHALL VERIFY ALL SURFACE AND SUBSURFACE CONDITIONS (LOCATIONS AND ELEVATIONS) PRIOR TO BIDDING AND START OF CONSTRUCTION. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER BEFORE PROCEEDING IF THEY AFFECT THE DESIGN FEASIBILITY OF THIS PROJECT. ANY DAMAGE TO FACILITIES, STRUCTURES, PAVEMENT OR OTHER MAN-MADE ITEMS ON OR ADJACENT TO THE SITE OR NOT SPECIFICALLY INDICATED FOR DEMOLITION SHALL BE REPAIRED OR REPLACED AT CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE OWNER.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR COMPLYING WITH ALL APPLICABLE LEGAL AND REGULATORY REQUIREMENTS. CONTRACTOR SHALL OBTAIN ANY BONDS REQUIRED BY COUNTY/ STATE FOR WORK WITHIN COUNTY/ STATE RIGHT-OF-WAYS.
6. TEMPORARY EROSION CONTROL MEASURES WILL BE USED TO CORRECT CONDITIONS THAT DEVELOP DURING CONSTRUCTION THAT ARE UNFORESEEN DURING THE DESIGN STAGE OR THAT ARE NEEDED TO TEMPORARILY CONTROL EROSION THAT DEVELOPS DURING NORMAL CONSTRUCTION PRACTICES.
7. TRIAD ENGINEERING, INC. WILL NOT BE RESPONSIBLE FOR ANYTHING TO DO WITH CONSTRUCTION UNLESS CONTRACTED BY THE OWNER OR CONTRACTOR TO PERFORM A SPECIFIC SERVICE.
8. JOB SITE SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
9. NO TITLE REPORT HAS BEEN CONDUCTED BY THIS COMPANY OR FURNISHED TO US BY OTHERS. PROPERTY LINE INFORMATION HAS BEEN TAKEN FROM DEED (S) OF RECORD AND NOT FIELD VERIFIED.
10. IT SHALL BE THE SOLE RESPONSIBILITY OF THE OWNER AND/OR DEVELOPER TO OBTAIN ALL NECESSARY EASEMENTS AND/OR RIGHT OF WAYS NECESSARY IN ORDER TO COMPLETE THE PROJECT SHOWN ON THESE PLANS. TRIAD ENGINEERING, INC. WILL ASSUME NO RESPONSIBILITY OR LIABILITY ASSOCIATED WITH THE ACQUIRING OF OFFSITE EASEMENTS AND RIGHT OF WAYS.
11. SITE CONTRACTOR MAY HAVE TO MODIFY FINISH GRADES SHOWN NEXT TO BUILDINGS DUE TO TYPE OF WALL CONSTRUCTION PROVIDED. GENERALLY A MINIMUM FINISH GRADE 6 INCHES BELOW FINISH FLOOR FOR MASONRY CONSTRUCTION AND 12 INCHES BELOW FINISH FLOOR FOR WOOD/SIDING CONSTRUCTION SHOULD BE MAINTAINED. CONTRACTOR MUST PROVIDE POSITIVE SURFACE DRAINAGE AWAY FROM ALL UNITS.
12. ALL SPECIFICATIONS SHOWN HEREIN SHALL BE USED AND LOCAL, STATE AND FEDERAL SPECIFICATIONS SHALL BE MINIMUM STANDARD.

RECEIVED
JAN 02 2025
BY:

CITY REFERENCE NO. SA-2024-05

TRIAD ENGINEERING, INC.
1075-D SHERMAN AVENUE
HAGERSTOWN, MD 21740
PH: 301.797.6400 FAX: 301.797.2424
OFFICE LOCATIONS
MARYLAND ○ PENNSYLVANIA ○ VIRGINIA ○ WEST VIRGINIA

REV. #	DATE	DESCRIPTION	BY
1	07-31-2024	REVISED PER CITY PLANNING DEPT. COMMENTS	

CADD FILE: 03-23-0922 | DRAWN BY: STAFF | CHECKED BY: BJS | SCALE: AS SHOWN | DATE: 06-19-2024

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 34688 EXPIRATION DATE: 07-09-25

STATE OF MARYLAND — BILLIE JOE SMALLEY — No. 34688 — REGISTERED PROFESSIONAL ENGINEER

07-17-2024

MINOR SITE PLAN FOR GREAT SOUTHERN WOOD MD., INC
1201 MARYLAND AVENUE
HAGERSTOWN, MD. 21740

COVER SHEET

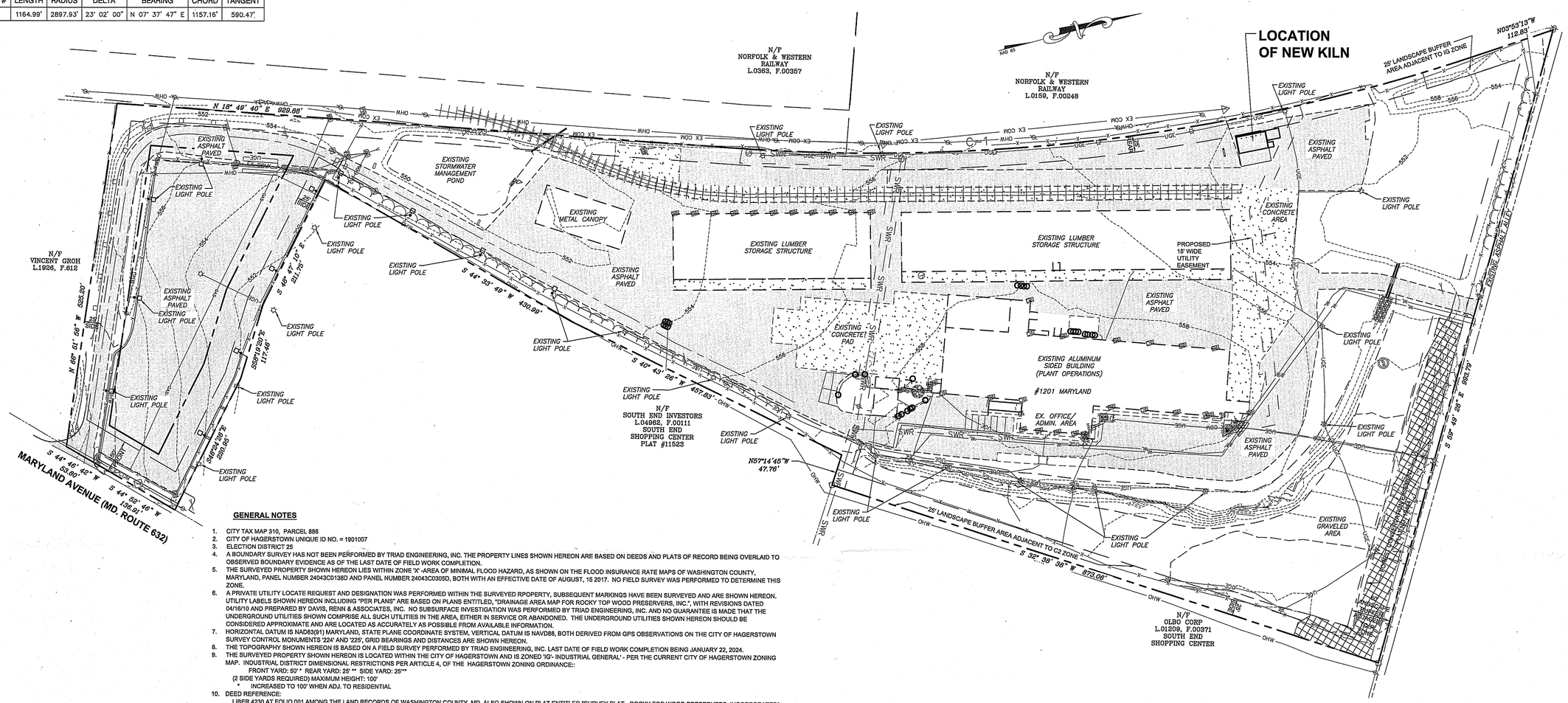
ZONING: IG | WATERSHED CODE: | PARCEL: 0886 | ELEC. DIST.: 03
TAX MAP: 0310 | GRID: 0000

TRIAD ENGINEERING, INC.
www.triadeng.com

SHEET NUMBER:
SHEET 1 OF 3
C.1.0
JOB NO.: 03-23-0922

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	BEARING	CHORD	TANGENT
C-1	1164.99'	2897.93'	23° 02' 00"	N 07° 37' 47" E	1157.16'	590.47'



GENERAL NOTES

1. CITY TAX MAP 310, PARCEL 886
2. CITY OF HAGERSTOWN UNIQUE ID NO. = 1901007
3. ELECTION DISTRICT 25
4. A BOUNDARY SURVEY HAS NOT BEEN PERFORMED BY TRIAD ENGINEERING, INC. THE PROPERTY LINES SHOWN HEREON ARE BASED ON DEEDS AND PLATS OF RECORD BEING OVERLAID TO OBSERVED BOUNDARY EVIDENCE AS OF THE LAST DATE OF FIELD WORK COMPLETION.
5. THE SURVEYED PROPERTY SHOWN HEREON LIES WITHIN ZONE 'X' -AREA OF MINIMAL FLOOD HAZARD, AS SHOWN ON THE FLOOD INSURANCE RATE MAPS OF WASHINGTON COUNTY, MARYLAND, PANEL NUMBER 24043C0138D AND PANEL NUMBER 24043C0305D, BOTH WITH AN EFFECTIVE DATE OF AUGUST, 15 2017. NO FIELD SURVEY WAS PERFORMED TO DETERMINE THIS ZONE.
6. A PRIVATE UTILITY LOCATE REQUEST AND DESIGNATION WAS PERFORMED WITHIN THE SURVEYED RPOPERTY, SUBSEQUENT MARKINGS HAVE BEEN SURVEYED AND ARE SHOWN HEREON. UTILITY LABELS SHOWN HEREON INCLUDING "PER PLANS" ARE BASED ON PLANS ENTITLED, "DRAINAGE AREA MAP FOR ROCKY TOP WOOD PRESERVERS, INC.", WITH REVISIONS DATED 04/16/10 AND PREPARED BY DAVIS, RENN & ASSOCIATES, INC. NO SUBSURFACE INVESTIGATION WAS PERFORMED BY TRIAD ENGINEERING, INC. AND NO GUARANTEE IS MADE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE UNDERGROUND UTILITIES SHOWN HEREON SHOULD BE CONSIDERED APPROXIMATE AND ARE LOCATED AS ACCURATELY AS POSSIBLE FROM AVAILABLE INFORMATION.
7. HORIZONTAL DATUM IS NAD83(91) MARYLAND, STATE PLANE COORDINATE SYSTEM, VERTICAL DATUM IS NAVD88, BOTH DERIVED FROM GPS OBSERVATIONS ON THE CITY OF HAGERSTOWN SURVEY CONTROL MONUMENTS '224' AND '225', GRID BEARINGS AND DISTANCES ARE SHOWN HEREON.
8. THE TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD SURVEY PERFORMED BY TRIAD ENGINEERING, INC. LAST DATE OF FIELD WORK COMPLETION BEING JANUARY 22, 2024.
9. THE SURVEYED PROPERTY SHOWN HEREON IS LOCATED WITHIN THE CITY OF HAGERSTOWN AND IS ZONED 'IG'- INDUSTRIAL GENERAL' - PER THE CURRENT CITY OF HAGERSTOWN ZONING MAP. INDUSTRIAL DISTRICT DIMENSIONAL RESTRICTIONS PER ARTICLE 4, OF THE HAGERSTOWN ZONING ORDINANCE::
   FRONT YARD: 50' * REAR YARD: 25' ** SIDE YARD: 25***
   (2 SIDE YARDS REQUIRED) MAXIMUM HEIGHT: 100'
   * INCREASED TO 100' WHEN ADJ. TO RESIDENTIAL
10. DEED REFERENCE:
    LIBER 4230 AT FOLIO 001 AMONG THE LAND RECORDS OF WASHINGTON COUNTY, MD. ALSO SHOWN ON PLAT ENTITLED "SURVEY PLAT - ROCKY TOP WOOD PRESERVERS, INCORPORATED" AT PLAT NO. 2435. ALSO, BEING ALSO PARCEL A, DEED BOOK 6385, PAGE 488 AT PLAT NO. 11145-11146.
    TOTAL AREA OF SITE = 23.8 Ac. PER DEEDS.
11. THE PURPOSE FOR THIS PLAN IS FOR PLACEMENT OF A LARGE SCALE KILN FOR DRYING LUMBER AS PART OF THE TREATMENT PROCESS. THE PROPOSED KILN IS PERMITTED BY RIGHT.
12. SITE IS SERVED BY PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS PROVIDED BY THE CITY OF HAGERSTOWN, MARYLAND. NO ADDITIONAL ALLOCATIONS ARE REQUIRED.
13. RELATED PLANNING FILES INCLUDE: ZS-2010-03, ZS-2004-17, ZS-98-04,ZS-2017-06, AND FC-2005-03. PER ZONING APPEALS BOARD, A VARIANCE WAS APPROVED REDUCING THE REQUIRED 200 FOOT BUILDING SETBACK FROM A RESIDENTIAL ZONING DISTRICT TO 35 FEET. REFERENCE CASE NO. Z-2024-07.
14. TRASH COLLECTION: PROVIDED BY EXISTING ON SITE DUMPSTER. NO RECYCLING OR DISPOSAL OF HAZARDOUS CHEMICALS OTHER THAN AS PERMITTED THROUGH MDE AND USEPA.
15. THERE ARE NO WETLANDS ON THE SITE PER THE ONLINE SERVICE MAPPING PROVIDED BY THE US FISH AND WILDLIFE SERVICE NATIONAL WETLANDS INVENTORY.
16. THERE ARE NO HABITATS OF THREATENED OR ENDANGERED SPECIES IDENTIFIED BY THE U.S. FISH AND WILDLIFE SERVICE PER USFWS ARCGIS ONLINE.
17. THERE ARE NO INTERMITTENT STREAMS CROSSING THIS SITE AS SHOWN ON SHEET NUMBER 25 OF 56 OF THE SOIL SURVEY OF WASHINGTON COUNTY, MARYLAND.
18. THERE ARE NO AREAS OF STEEP SLOPES ON THE LANDS SHOWN HEREON.
19. THIS SITE IS NOT WITHIN THE LIMITS OF THE APPALACHIAN TRAIL CORRIDOR OR THE WATERSHEDS OF THE EDGEMONT-SMITHSBURG RESERVOIR OR THE UPPER BEAVER CREEK DRAINAGE BASIN.
20. THERE IS NO PHYSICAL OR ANECDOTAL EVIDENCE OF HUMAN BURIAL SITES ON THE SITE PROPERTY.
21. ALL WORK SHALL BE COMPLETED IN A PROFESSIONAL AND WORKMANLIKE MANNER.
22. TARPS, CANVAS AND SIMILAR PLIABLE MATERIAL SHALL NOT BE USED AS ENCLOSURES FOR OR BUILDING MATERIALS OF BUILDINGS OR STRUCTURES. THIS PROVISION SHALL NOT APPLY TO BONA FIDE AWNINGS DESIGNED AND CONSTRUCTED AS MUCH OF MATERIAL INTENDED FOR USE IN AWNINGS, OR CANVAS OR OTHER PLIABLE MATERIALS ENGINEERED OR PROFESSIONALLY DESIGNED FOR SUCH PURPOSES.
23. NO LIGHTING IS PROPOSED FOR PROJECT SITE. EXISTING OVERHEAD LIGHTING PROVIDED AS SHOWN PER PLAN.
24. PER THE SUBDIVISION AND LAND DEVELOPMENT ORDINANCE - ARTICLE 5 SECTION I.14 (CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN PRINCIPLES), THE DESIGN STRATEGIES ARE AS FOLLOWS:
    A. WITH NO EXISTING TREES WITHIN THE LIMITS OF DISTURBANCE ON PROJECT SITE, ONE KILN PROPOSED AND AN EXISTING 6 FOOT HIGH CHAIN LINK SECURITY FENCE ALONG THE PERIMETER OF SITE PROJECT, THEREFORE MAINTAINING OPEN SPACE, THIS ALLOWS FOR NATURAL OBSERVATION FROM PUBLIC AND NEIGHBORING AREAS.
    B. AS SHOWN ON PLAN, THE EXISTING LOT - PROJECT SITE IS WELL LIT WITH EXISTING OVERHEAD LIGHTING.
    C. NOT APPLICABLE FOR NO BLIND CORNERS SINCE NO PATHWAYS/ SIDEWALKS PROPOSED. NO PROPOSED BLIND CORNERS AND HIDDEN RECESSES FOR KILN.
    D. PLACEMENT OF LARGE TREES, GARAGES, UTILITY STRUCTURES, FENCES, AND GUTTERS NEXT TO SECOND STORY WINDOWS OR BALCONIES ARE AVOIDED BECAUSE PROPOSED KILN IS EQUIPMENT.
    E. NOT APPLICABLE SINCE, THERE ARE NO EXISTING TREES IN IMMEDIATE AREA TO LIMB UP. EXISTING LANDSCAPE IS PLACED IN SUCH A MANNER AS TO ALLOW VISIBILITY AROUND PROPOSED KILN AND NO NEW LANDSCAPE PROPOSED WHICH ALLOWS VISIBILITY INTO SITE FROM PUBLIC AREAS.
    F. NOT APPLICABLE SINCE, NO PARKING LOT IS PROPOSED. PROPOSED SURVEILLANCE SECURITY CAMERA IS RECOMMENDED.
25. PLANT OPERATIONS:
    TOTAL NUMBER EMPLOYEES = 35-45 VARIES WITH PEAK SEASON
    2 SHIFTS 4AM -12PM DURING PEAK SEASON
26. PARKING:
    EXISTING PARKING SPACES 48 (INCLUDING 2 ADA PER 2018 SITE PLAN)
    KILN DOES NOT GENERATE ANY ADDITIONAL PARKING AS IT IS A PIECE OF EQUIPMENT NOT A FUNCTIONAL BUILDING.
27. LANDSCAPE PROVIDED ON PREVIOUS SITE PLAN. NO ADDITIONAL LANDSCAPE REQUIRED FOR THIS EQUIPMENT.
28. PER SECTION 4.12 OF ZONING ORDINANCE:
    a. IF ANY AIR POLLUTION OCCURS IT WILL MEET THE MARYLAND AIR POLLUTION CONTROL STANDARDS. (ALL MDE AIR QUALITY PERMITS WILL BE APPLIED FOR WITH THIS PROJECT.)
    b. THERE WILL BE NO HEAT OR GLARE ADVERSELY AFFECTING ADJOINING PROPERTIES.
    c. THERE WILL BE NO VIBRATIONS AFFECTING ADJOINING PROPERTIES.
    d. THE EMISSION OF RADIOACTIVITY OR ELECTRICAL DISTURBANCES WILL COMPLY WITH STATE AND FEDERAL CODES.
    e. NO OUTSIDE SOURCES OF POWER WILL BE USED ONSITE OTHER THAN PUBLIC UTILITY.
    f. NO SPECIAL SEWER WASTE WILL BE GENERATED ON SITE.
    g. THERE WILL BE NO OUTSIDE STORAGE OF MATERIALS.
29. THIS SITE PLAN SHALL BE VOID IF THE REQUIRED PERMITS ARE NOT SECURED AND SUBSTANTIAL CONSTRUCTION ACCOMPLISHED WITHIN THREE YEARS OF THE DATE THE SITE PLAN IS APPROVED. THE APPROVAL OF THIS SITE PLAN SHALL EXPIRE IN THREE YEARS, UNLESS RE-APPROVED BY THE PLANNING COMMISSION AND RELEVANT AGENCIES.
30. THE PURPOSE OF A SITE IS TO SET THE FINAL APPROVED DEVELOPMENT OF THE SITE UNTIL SUCH LATER TIME THAT NEW OR REVISED PLANS ARE SUBMITTED FOR ADDITIONS OR REDEVELOPMENT OF A SITE. ALL IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO CONDITIONS OF APPROVAL, SITE CONFIGURATION, PARKING SPACE, AND LANDSCAPING REQUIRED IN ACCORDANCE WITH CITY ORDINANCES SHALL BE MAINTAINED ON AN ONGOING BASIS. FAILURE TO MAINTAIN FEATURES AMID IMPROVEMENTS SHOWN ON AN APPROVED SITE PLAN CONSTITUTES A VIOLATION OF THE LAND MANAGEMENT CODE. A ZONING CERTIFICATE (INCLUDING ZONING APPROVAL OF A BUILDING PERMIT) MAY BE REVOKED BY THE ZONING ADMINISTRATOR IF THE RECIPIENT OF THE CERTIFICATE FAILS TO DEVELOP OR MAINTAIN THE PROPERTY IN ACCORDANCE WITH THE PLANS SUBMITTED, THE REQUIREMENTS OF THIS CHAPTER, THE LIST OF PERMITTED USES AS FOUND IN ARTICLE 4, SECTION Z, AN APPROVED SITE PLAN, OR ANY OTHER REQUIREMENT LAWFULLY IMPOSED IN CONNECTION WITH THE ISSUANCE OF THE ZONING CERTIFICATE OR ZONING APPROVAL OF THE BUILDING PERMIT.

SYMBOLS LEGEND

BM	BENCHMARK, AS NOTED	M.B.S.L.	MINIMUM BUILDING SETBACK LINE
	BOLLARD	MBX	MAILBOX
CATV	CABLE TV PEDESTAL	MW	MONITORING WELL
	CENTERLINE	OHW	OVERHEAD UTILITY WIRES
COM	COMMUNICATIONS MANHOLE	W	PAINT MARKING – BLUE (WATER)
DS	DOWN SPOUT	SWR	PAINT MARKING – GREEN (SEWER)
X	FENCE LINE	EX COM	PAINT MARKING – ORANGE (COMMUNICATION)
	FIBER OPTIC MARKER	UGE	PAINT MARKING – RED (ELECTRIC)
EM	ELECTRIC METER	GAS	PAINT MARKING – YELLOW (GAS)
E	ELECTRIC MANHOLE	PB	PANEL BOX
FDC	FIRE CONNECTION		RAILROAD SWITCH
	FIRE HYDRANT	S	SANITARY SEWER MANHOLE
GV	GAS VALVE		SIGN (SINGLE POST)
KEY	GATE KEY PAD	T	TELEPHONE PEDESTAL
	GUY (ANCHOR) WIRE		UTILITY POLE (AS NOTED)
HVAC	HVAC UNIT	W	WATER MANHOLE
	LIGHT POLE	WV	WATER VALVE

GRAPHIC SCALE

60 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

APPLICANT:
GREAT SOUTHERN WOOD-MD, INC.
1201 MARYLAND AVENUE
HAGERSTOWN, MD 21740

TRIAD ENGINEERING, INC.
1075-D SHERMAN AVENUE
HAGERSTOWN, MD 21740
PH: 301.797.6400 FAX: 301.797.2424
OFFICE LOCATIONS
MARYLAND ○ PENNSYLVANIA ○ VIRGINIA ○ WEST VIRGINIA

REV.#	DATE	DESCRIPTION	BY
2	09-12-2024	REVISED PER ZONING APPEALS	
1	07-31-2024	REVISED PER CITY PLANNING DEPT. COMMENTS	

CADD FILE: 03-23-0922
DRAWN BY: STAFF
CHECKED BY: BJS
SCALE: 1"=80'
DATE: 06-19-2024

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 34688 EXPIRATION DATE: 07-09-25

STATE OF MARYLAND — BILLIE JON SNYDER — 34688 — REGISTERED PROFESSIONAL ENGINEER

07-17-2024

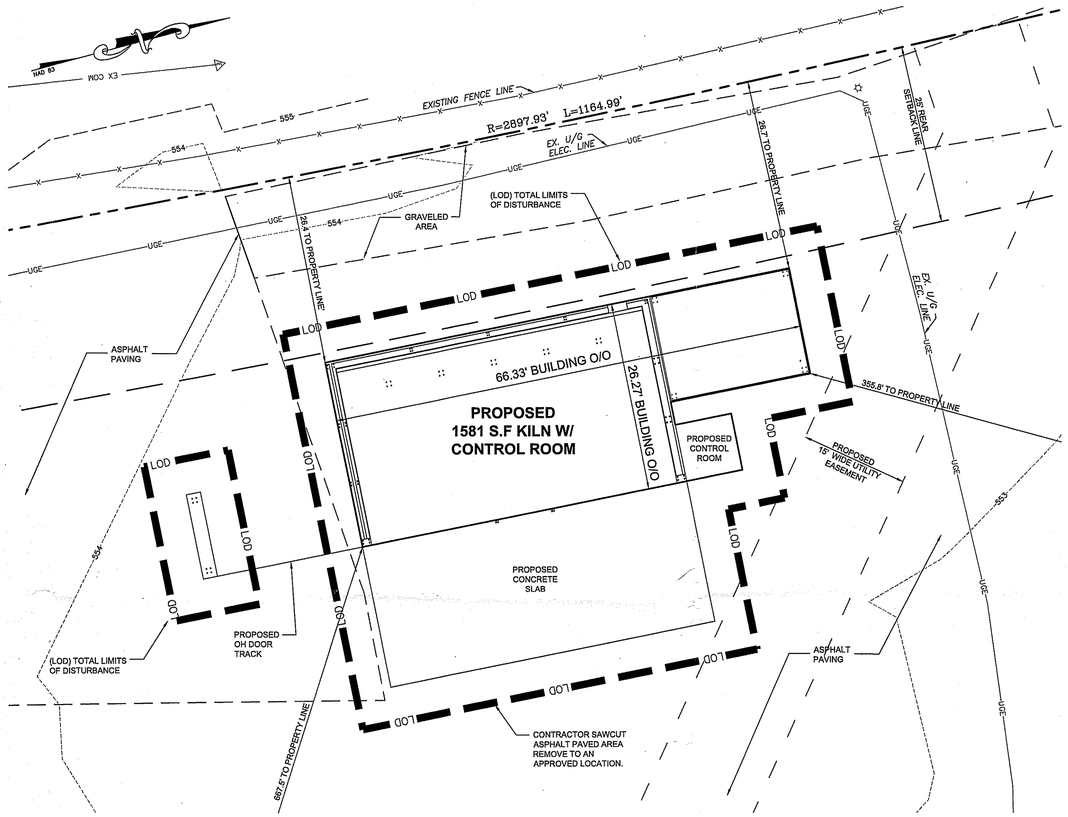
MINOR SITE PLAN FOR GREAT SOUTHERN WOOD MD., INC
1201 MARYLAND AVENUE
HAGERSTOWN, MD. 21740

OVERALL SITE

ZONING: IG
TAX MAP: 0310
WATERSHED CODE:
GRID: 0000
PARCEL: 0886
ELEC. DIST.: 03

TRIAD ENGINEERING, INC.
www.triadeng.com

SHEET NUMBER:
SHEET 2 OF 3
C.2.0
JOB NO.: 03-23-0922



GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

TRIAD ENGINEERING, INC.
1075-D SHERMAN AVENUE
HAGERSTOWN, MD 21740
PH: 301.797.6400 FAX: 301.797.2424
OFFICE LOCATIONS
MARYLAND ◇ PENNSYLVANIA ◇ VIRGINIA ◇ WEST VIRGINIA

REV. #	DATE	DESCRIPTION	BY

CADD FILE: 03-23-0922
DRAWN BY: STAFF
CHECKED BY: BJS
DATE: 07-17-2024
SCALE: 1"=10'

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 34988 EXPIRATION DATE: 07-09-25

STATE OF MARYLAND — BRIAN JOSEPH SHULTZ — 34988 — REGISTERED PROFESSIONAL ENGINEER

07-17-2024

MINOR SITE PLAN FOR GREAT SOUTHERN WOOD MD., INC
1201 MARYLAND AVENUE
HAGERSTOWN, MD. 21740

SITE PLAN

ZONING: IG | WATERSHED CODE: | ELEC. DIST.: 03
TAX MAP: 0310 | GRID: 0000 | PARCEL: 0886

TRIAD ENGINEERING, INC.
www.triadeng.com

SHEET NUMBER:
SHEET 3 OF 3
C.3.0
JOB NO.: 03-23-0922

APPENDIX G

Evidence of Workman's Compensation Insurance

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 05/29/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
McGriff Insurance Services, LLC
3400 Overton Park Drive SE
Suite 300
Atlanta, GA 30339

CONTACT NAME: Melissa Smith
PHONE (A/C, No, Ext): 404 497-7500 **FAX (A/C, No):**
E-MAIL ADDRESS: mpsmith@mcgriff.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Old Republic Insurance Company	24147
INSURER B : National Fire & Marine Insurance Company	20079
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
Great Southern Wood Preserving, Inc.
P.O. Box 610
140 U. S. Highway 431 North
Abbeville, AL 36310

COVERAGES **CERTIFICATE NUMBER:** 2VJGZL9R **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
A	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY [ ] PRO-JECT [ ] LOC OTHER:			MWZY-313422-24	04/01/2024	04/01/2025	EACH OCCURRENCE	$	2,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$	2,000,000
							MED EXP (Any one person)	$	N/A
							PERSONAL & ADV INJURY	$	1,000,000
							GENERAL AGGREGATE	$	2,000,000
							PRODUCTS - COMP/OP AGG	$	2,000,000
								$	
	AUTOMOBILE LIABILITY ANY AUTO OWNED AUTOS ONLY SCHEDULED AUTOS HIRED AUTOS ONLY NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (Ea accident)	$	
							BODILY INJURY (Per person)	$	
							BODILY INJURY (Per accident)	$	
							PROPERTY DAMAGE (Per accident)	$	
								$	
B	X **UMBRELLA LIAB** [X] OCCUR **EXCESS LIAB** [ ] CLAIMS-MADE DED [X] RETENTION $25,000			42-UMO-310570-05	04/01/2024	04/01/2025	EACH OCCURRENCE	$	5,000,000
							AGGREGATE	$	5,000,000
							Products/Completed Ops	$	5,000,000
A	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		MWC-313421-24	04/01/2024	04/01/2025	X PER STATUTE [ ] OTH-ER		
							E.L. EACH ACCIDENT	$	1,000,000
							E.L. DISEASE - EA EMPLOYEE	$	1,000,000
							E.L. DISEASE - POLICY LIMIT	$	1,000,000
								$ $ $ $ $	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

FOR EVIDENCE ONLY

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

MARYLAND DEPARTMENT OF THE ENVIRONMENT

AIR AND RADIATION ADMINISTRATION
APPLICATION FOR A PERMIT TO CONSTRUCT

SUPPLEMENT TO
DOCKET #01-25

COMPANY: Great Southern Wood Preserving, Inc.

LOCATION: 1201 Maryland Ave
Hagerstown Ave 21740

APPLICATION: Installation of one (1) direct-fired batch lumber drying kiln equipped with a 7 MMBtu/hr natural gas burner.

ITEM	DESCRIPTION
1	Notice of Tentative Determination, Opportunity to Request a Public Hearing, and Opportunity to Submit Written Comments
2	Fact Sheet and Tentative Determination
3	Draft Permit to Construct and Conditions
4	Supplemental Information References
5	Privilege Log – Not Applicable

MARYLAND DEPARTMENT OF THE ENVIRONMENT
AIR AND RADIATION ADMINISTRATION

NOTICE OF TENTATIVE DETERMINATION, OPPORTUNITY TO REQUEST A PUBLIC HEARING, AND OPPORTUNITY TO SUBMIT WRITTEN COMMENTS

FIRST NOTICE

The Department of the Environment, Air and Radiation Administration (ARA) has completed its review of an application for a Permit to Construct submitted by Great Southern Wood Preserving, Inc. on November 12th, 2024, for the installation of one (1) direct-fired batch lumber drying kiln equipped with a 7 MMBtu/hr natural gas burner. The proposed installation will be located at 1201 Maryland Ave, Hagerstown, MD 21740.

Pursuant to Section 1-604, of the Environment Article, Annotated Code of Maryland, the Department has made a tentative determination that the Permit to Construct can be issued and is now ready to receive public comment on the application. Copies of the Department's tentative determination, the application, the draft permit to construct with conditions, and other supporting documents are available for public inspection on the Department's website. Look for Docket #01-25 at the following link:

https://mde.maryland.gov/programs/Permits/AirManagementPermits/Pages/index.aspx

In accordance with HB 1200/Ch. 588 of 2022, the applicant provided an environmental justice (EJ) Score for the census tract in which the project is located using the MDE EJ Screening Tool. The EJ Score, expressed as a statewide percentile, was shown to be 55, which the Department has verified. This score considers three demographic indicators, minority population above 50%, poverty rate above 25% and limited English proficiency above 15%, to identify underserved communities, and multiple environmental health indicators to identify overburdened communities. The Department's review of the environmental and socioeconomic indicators contributing to that EJ score is included in the tentative determination that is available for public inspection.

Interested persons may request a public hearing and/or submit written comments on the tentative determination. Requests for a public hearing must be submitted in writing and must be received by the Department no later than 20 days from the date of this notice. A requested public hearing will be held virtually using teleconference or internet-based conferencing technology unless a specific request for an in-person public hearing is received. Written comments must be received by the Department no later than 30 days from the date of this notice.

Interested persons may request an extension to the public comment period. The extension request must be submitted in writing and must be received by the Department no later than 30 days from the date of this notice or within 5 days after the hearing (if a hearing is requested), whichever is later. The public comment period may only be extended one time for a 60-day period.

All requests for a public hearing, requests for an extension to the public comment period, and all written comments should be directed to the attention of Ms. Shannon Heafey, Air Quality Permits Program by email to shannon.heafey@maryland.gov or by mail to the Air and Radiation Administration, 1800 Washington Boulevard, Baltimore, Maryland 21230.

Further information may be obtained by calling Ms. Shannon Heafey at 410-537-4433.

Christopher R. Hoagland, Director
Air and Radiation Administration

MARYLAND DEPARTMENT OF ENVIRONMENT
AIR AND RADIATION ADMINISTRATION

FACT SHEET AND TENTATIVE DETERMINATION
GREAT SOUTHERN WOOD – MD, INC.

PROPOSED INSTALLATION OF A BATCH LUMBER DRYING KILN

I. INTRODUCTION

The Maryland Department of the Environment (the "Department") received an application from Great Southern Wood – MD, Inc on November 12, 2025 for a Permit to Construct for the installation of one (1) direct-fired batch lumber drying kiln with a 7 MMBtu/hr natural gas burner. The proposed installation will be located at 1201 Maryland Ave, Hagerstown, MD 21740.

A notice was placed in The Herald-Mail on February 24th, 2025 and March 3rd, 2025 announcing an opportunity to request an informational meeting to discuss the application for a Permit to Construct. An informational meeting was not requested.

As required by law, all public notices were also provided to elected officials in all State, county, and municipality legislative districts located within a one mile radius of the facility's property boundary.

The Department has reviewed the application and has made a tentative determination that the proposed installation is expected to comply with all applicable air quality regulations. A notice will be published to provide the public with opportunities to request a public hearing and to comment on the application, the Department's tentative determination, the draft permit conditions, and other supporting documents. The Department will not schedule a public hearing unless a legitimate request is received.

If the Department does not receive any comments that are adverse to the tentative determination, the tentative determination will automatically become a final determination. If adverse comments are received, the Department will review the comments, and will then make a final determination with regard to issuance or denial of the permit. A notice of final determination will be published in a newspaper of general circulation in the affected area. The final determination may be subject to judicial review pursuant to Section 1-601 of the Environment Article, Annotated Code of Maryland.

II. CURRENT STATUS AND PROPOSED INSTALLATION

A. Current Status

Great Southern Wood – MD, Inc. has operated a chromate copper arsenate wood treating process since 1988. This facility produces treated wood by two (2) different chemical compositions: chromated copper arsenate (CCA) treated wood and dispersed copper (DC) treated wood are produced at this facility. The majority of board foot produced at this facility is treated with DC. Tanker trucks deliver the chemicals used in the treatment process and the solutions are transferred to separate inside holding tanks. Additional tanks contain wax Wolman-extra, which is used as a water repellent; and a mold inhibitor, which may be mixed into the CCA and DC solution during treatment.

B. Proposed Installation

On November 12, 2024, the Department received an application for the installation of one (1) direct-fired batch lumber drying kiln with a 7 MMBtu/hr natural gas burner. The kiln will be used to reduce the moisture from the treated wood to meet customer specifications.

III. APPLICABLE REGULATIONS

A. This source is subject to all applicable federally enforceable State requirements, including but not limited to the following regulations:

1. COMAR 26.11.02.19C & D, which require that the Permittee submit to the Department annual certifications of emissions, and that the Permittee maintain sufficient records to support the emissions information presented in the submittals.

2. COMAR 26.11.06.02C(1), which prohibits the discharge of emissions from any installation or building, other than water in an uncombined form, which is greater than 20 percent opacity.

3. COMAR 26.11.06.03B(1), which limits particulate matter emissions from any installation constructed on or after January 17, 1972 to no more than 0.05 gr/SCFD.

4. COMAR 26.11.06.05B, which limits sulfur compound emissions from installations other than fuel-burning equipment to no more than 500 ppm of sulfur dioxide.

5. COMAR 26.11.06.08 and 26.11.06.09, which generally prohibit the discharge of emissions beyond the property line in such a manner that a nuisance or air pollution is created.

6. COMAR 26.11.15.05, which requires that the Permittee implement "Best Available Control Technology for Toxics" (T – BACT) to control emissions of toxic air pollutants.

7. COMAR 26.11.15.06, which prohibits the discharge of toxic air pollutants to the extent that such emissions will unreasonably endanger human health.

IV. GENERAL AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has established primary and secondary National Ambient Air Quality Standards (NAAQS) for six (6) criteria pollutants, i.e., sulfur dioxide, particulate matter, carbon monoxide, nitrogen dioxide, ozone, and lead. The primary standards were established to protect public health, and the secondary standards were developed to protect against non-health effects such as damage to property and vegetation.

The Department utilizes a statewide air monitoring network, operated in accordance with EPA guidelines, to measure the concentrations of criteria pollutants in Maryland's ambient air. The measurements are used to project statewide ambient air quality, and currently indicate that Washington County complies with the NAAQS for Particulate Matter (PM10 & PM2.5), Nitrogen Oxides (NOx), Sulfur Oxides (SOx), Carbon Monoxide (CO), and Ozone (O_3).

With regard to toxic air pollutants (TAPs), screening levels (i.e., acceptable ambient concentrations for toxic air pollutants) are generally established at 1/100 of allowed worker exposure levels (TLVs)[1]. The Department has also developed additional screening levels for carcinogenic compounds. The additional screening levels are established such that continuous exposure to the subject TAP at the screening level for a period of 70 years is expected to cause an increase in lifetime cancer risk of no more than 1 in 100,000.

V. ENVIRONMENTAL JUSTICE ANALYSIS

The concept behind the term environmental justice (EJ) is that regardless of race, color, national origin, or income, all Maryland residents and communities should have an equal opportunity to enjoy an enhanced quality of life. How to assess whether equal protection is being applied is the challenge.

[1] TLVs are threshold limit values (exposure limits) established for toxic materials by the American Conference of Governmental Industrial Hygienists (ACGIH). Some TLVs are established for short-term exposure (TLV – STEL), and some are established for longer-term exposure (TLV – TWA), where TWA is an acronym for time-weight average.

Communities surrounded by a disproportionate number of polluting facilities puts residents at a higher risk for health problems from environmental exposures. It is important that residents who may be adversely affected by a proposed source be aware of the current environmental issues in their community in order to have meaningful involvement in the permitting process. Resources may be available from government and private entities to ensure that community health is not negatively impacted by a new source located in the community.

Extensive research has documented that health disparities exist between demographic groups in the United States, such as differences in mortality and morbidity associated with factors that include race/ethnicity, income, and educational attainment.

The Maryland General Assembly passed HB 1200, effective October 1, 2022, that adds to MDE's work incorporating diversity, equity and inclusion into our mission to help overburdened and underserved communities with environmental issues. In accordance with HB 1200/Ch. 588 of 2022, the applicant provided an environmental justice (EJ) Score for the census tract in which the proposed source is located using the Maryland EJ Screening Tool. The EJ Score, expressed as a statewide percentile, was shown to be 55 which the Department has verified. This score considers three demographic indicators, minority population above 50%, poverty rate above 25% and limited English proficiency above 15%, to identify underserved communities, and multiple environmental health indicators to identify overburdened communities.

To account for other sources of pollution surrounding the proposed source, the Department conducted an additional EJ Score analysis to evaluate the impact of other sources located within 1 mile of the proposed source. The 1-mile radius EJ Score, expressed as a statewide percentile, was shown to be 55.

An EJ Score of 55 indicates that the proposed installation is located in an area that is not disproportionately impacted by sources of pollution or at a higher risk of health problems from environmental exposures than other areas in Maryland. The Department has reviewed the air quality impacts from this proposed installation and has determined that the proposed installation will meet all applicable air quality standards.

VI. COMPLIANCE DEMONSTRATION AND ANALYSIS

The proposed installation must comply with all State imposed emissions limitations and screening levels, as well as the NAAQS. The Department has conducted an engineering and air quality review of the application. The emissions were projected based on the EPA emission factors in AP-42 Table 1.4-1, AP-42 Table 1.4-2, and EPA Region 10 HAP and VOC Emission Factors for Lumber Drying. The conservative U.S. EPA's SCREEN3 model was used to project the maximum ground level concentrations from the proposed facility, which were then compared to the screening levels and the NAAQS.

A. Estimated Emissions - The maximum emissions of air pollutants of concern from the proposed installation are listed in Table I.

B. Compliance with National Ambient Air Quality Standards - The maximum ground level concentrations for Nitrogen Dioxide (NO_2), Carbon Monoxide (CO), Sulfur Dioxide (SO_2) and Particulate Matter (PM_{10}) based on the emissions from the proposed installation are listed in column 2 of Table II. The combined impact of the projected contribution from the proposed installation and the ambient background concentration for each pollutant shown in column 3 of Table II is less than the NAAQS for each pollutant shown in column 4.

C. Compliance with Air Toxics Regulations – The toxic air pollutants of concern that would be emitted from this installation are listed in column 1 of Table III. The predicted maximum off-site ambient concentrations of these toxic air pollutants are shown in column 4 of Table III, and in each case the maximum concentration is less than the corresponding screening level for the toxic air pollutant shown in column 2.

VII. TENTATIVE DETERMINATION

Based on the above information, the Department has concluded that the proposed installation will comply with all applicable Federal and State air quality control requirements. In accordance with the Administrative Procedure Act, Department has made a tentative determination to issue the Permit to Construct.

Enclosed with the tentative determination is a copy of the draft Permit to Construct.

TABLE I
PROJECTED MAXIMUM EMISSIONS FROM THE PROPOSED INSTALLATION

POLLUTANT	PROJECTED MAXIMUM EMISSIONS FROM PROPOSED INSTALLATION	
	(lbs/day)	(tons/year)
Nitrogen Dioxide (NO_2)	8.16	1.49
Sulfur Dioxide (SO_2)	0.10	0.02
Carbon Monoxide (CO)	13.92	2.54
Volatile Organic Compounds (VOC)	5.40	0.99
Particulate Matter (PM_{10})	2.16	0.39

TABLE II
PROJECTED IMPACT OF EMISSIONS OF CRITERIA POLLUTANTS FROM THE PROPOSED INSTALLATION ON AMBIENT AIR QUALITY

POLLUTANTS	**MAXIMUM OFF-SITE GROUND LEVEL CONCENTRATIONS CAUSED BY EMISSIONS FROM PROPOSED PROCESS ($\mu g/m^3$)**	**BACKGROUND AMBIENT AIR CONCENTRATIONS ($\mu g/m^3$)***	**NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) ($\mu g/m^3$)**
Nitrogen Dioxide (NO_2)	annual avg.→ 6.24	annual avg.→ 6.38	annual avg.→ 100
Carbon Monoxide (CO)	8-hour max→ 93.19 1-hour max → 133.13	8-hr max.→ 0.9 1-hr max.→ 1.3	8-hr max.→ 10,000 1-hr max.→ 40,000
Sulfur Dioxide (SO_2)	annual avg. → 0.08	annual avg.→ 0.06	annual avg.→ 30
Particulate Matter (PM_{10})	24-hr max → 8.26	24-hr max.→ 22	24-hr max.→ 150

*Background concentrations were obtained from Maryland air monitoring stations as follows:

NO_2, CO, PM_{10} and SO_2 → HU-Beltsville Monitoring Station in Prince George's County

TABLE III
PREDICTED MAXIMUM OFF-SITE AMBIENT CONCENTRATIONS FOR TOXIC AIR POLLUTANTS EMITTED FROM THE PROPOSED INSTALLATION

TOXIC AIR POLLUTANTS	SCREENING LEVELS ($\mu g/m^3$)	PROJECTED WORST-CASE FACILITY-WIDE EMISSIONS (lbs/hr)	PREDICTED MAXIMUM OFF-SITE GROUND LEVEL CONCENTRATIONS ($\mu g/m^3$)
Acetaldehyde	1-hour→ 450.41 8-hour→ 2300 Annual→ 5	0.072	1-hour→ 16.62 8-hour→ 11.64 Annual→ 1.33
Acrolein	1-hour→ 2.29 8-hour→ 1.8 Annual→ None	0.0055	1-hour→ 1.27 8-hour→ 0.89 Annual→ None
Formaldehyde	1-hour→ None 8-hour→ 20.3 Annual→ 0.8	0.0064	1-hour→ None 8-hour→ 1.03 Annual→ 0.12
Methanol	1-hour→ 3276.07 8-hour→ 2620.86 Annual→ None	0.12	1-hour→ 26.89 8-hour→ 18.82 Annual→ None
Phenol	1-hour→ None 8-hour→ 192.45 Annual→ None	0.021	1-hour→ None 8-hour→ 3.42 Annual→ None
Propionaldehyde	1-hour→ None 8-hour→475.26 Annual→ None	0.0021	1-hour→ None 8-hour→ 0.34 Annual→ None

The values represent maximum facility-wide emissions of toxic air pollutants during any 1-hour period of facility operation.

The values are based on worst-case emissions from the proposed facility and were predicted by EPA's SCREEN3 model, which provides conservative estimations concerning the impact of pollutants on ambient air quality.

DRAFT PERMIT

Wes Moore Serena McIlwain

Air and Radiation Administration

1800 Washington Boulevard, Suite 720
Baltimore, MD 21230

☒ Construction Permit ☐ Operating Permit

PERMIT NO.
As listed on Page 2

DATE ISSUED:

PERMIT FEE:
1500.00 (PAID)

EXPIRATION DATE:
In accordance with
COMAR 26.11.02.04B

LEGAL OWNER & ADDRESS
Great Southern Wood Preserving, Inc.
1201 Maryland Avenue
Hagerstown, MD 21740
Attention: Kevin B Savoy

SITE
Great Southern Wood Preserving, Inc.
1201 Maryland Avenue
Hagerstown, MD 21740
AI # 5181

SOURCE DESCRIPTION

Wood preservation facility. This permit authorizes the installation of one (1) direct-fired batch lumber drying kiln with a 7 MMBtu/hr natural gas burner

This source is subject to the conditions described on the attached pages.

Program Manager

Director, Air and Radiation Administration

GREAT SOUTHERN WOOD – MD, INC.
PERMIT-TO-CONSTRUCT CONDITIONS
PREMISES No. 043-0190

INDEX

This premises-wide permit-to-construct incorporates requirements for the following registered installations:

ARA Registration Number	Description	Date of Installation
043-0190-6-0143	One (1) 6.5 by 88 ft. cylindrical pressure vessel for the chromated copper arsenate (CCA) and dispersed copper (DC) wood treating process and miscellaneous process holding tanks.	December 1988
043-0190-6-0582	One (1) 6.5 by 88 ft. cylindrical pressure vessel for dispersed copper (DC) based wood treating process and miscellaneous process holding tanks.	September 2002
043-0190-9-0252	One (1) 6.5 by 52 ft. cylindrical pressure vessel for chromated copper arsenate (CCA) based wood treating process and miscellaneous process holding tanks.	2023
043-0190-6-0780	One (1) direct-fired batch lumber drying kiln with a 7 MMBtu/hr natural gas burner.	2025

Part A – General Provisions

(1) The following Air and Radiation Administration (ARA) permit-to-construct applications and supplemental information are incorporated into this permit by reference:

(a) All valid applications for Processing or Manufacturing Equipment (Form 5) received prior to the issuance of this permit, including the Form 5 received on November 12th, 2024 for the one (1) new direct-fired batch lumber drying kiln and associated equipment.

(b) Supplemental Information which includes site maps, process flow charts, and safety data sheets related to the installation of one (1) new direct-fired batch lumber drying kiln and associated equipment received on November 12th, 2024.

If there are any conflicts between representations in this permit and representations in the applications, the representations in the permit shall govern. Estimates of dimensions, volumes, emissions rates, operating rates, feed rates and hours of operation included in the applications do not constitute enforceable numeric limits beyond the extent necessary for compliance with applicable requirements.

(2) Upon presentation of credentials, representatives of the Maryland Department of the Environment ("MDE" or the "Department") and the Washington County Health Department shall at any reasonable time be granted, without delay and without prior notification, access to the Permittee's property and permitted to:

(a) inspect any construction authorized by this permit;

(b) sample, as necessary to determine compliance with requirements of this permit, any materials stored or processed on-site, any waste materials, and any discharge into the environment;

(c) inspect any monitoring equipment required by this permit;

(d) review and copy any records, including all documents required to be maintained by this permit, relevant to a determination of compliance with requirements of this permit; and

(e) obtain any photographic documentation or evidence necessary to determine compliance with the requirements of this permit.

(3) The Permittee shall notify the Department prior to increasing quantities and/or changing the types of any materials referenced in the application or limited by this permit. If the Department determines that such increases or changes constitute a modification, the Permittee shall obtain a permit-to-construct prior to implementing the modification.

(4) Nothing in this permit authorizes the violation of any rule or regulation or the creation of a nuisance or air pollution.

(5) If any provision of this permit is declared by proper authority to be invalid, the remaining provisions of the permit shall remain in effect.

(6) This permit supersedes all previous permits-to-construct issued to ARA Premises No. 043-0190.

(7) Subsequent to issuance of this permit, the Department may impose additional and modified requirements that are incorporated into a State permit-to-operate issued pursuant to COMAR 26.11.02.13.

Part B – Applicable Regulations

(1) This source is subject to all applicable federal air pollution control requirements including, but not limited to, the following regulations:

All applicable terms, provisions, emissions standards, testing, monitoring, record keeping, and reporting requirements included in federal New Source Performance Standards (NSPS) promulgated under 40 CFR 63, Subparts A and QQQQQQ for Wood Preserving Area Sources.

All notifications required under 40 CFR 63, Subparts A and QQQQQQ shall be submitted to both of the following:

The Administrator
Compliance Program
Maryland Department of the Environment
Air and Radiation Administration
1800 Washington Boulevard, STE 715
Baltimore MD 21230

and

United States Environmental Protection Agency
Region III, Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch (3ED21)
Four Penn Center
1600 John F. Kennedy Boulevard
Philadelphia, PA 19103-2852

(2) This source is subject to all applicable federally enforceable State air pollution control requirements including, but not limited to, the following regulations:

(a) COMAR 26.11.01.07C, Report of Excess Emissions.
(1) "In the case of any occurrence of excess emissions, expected to last or actually lasting for 1 hour or more, from any installation required by COMAR 26.11.02.13 to obtain a State permit to operate, the owner or operator shall report the onset and shall report the termination of the occurrence to the Department by telephone.

(2) Telephone reports of excess emissions shall include the following information:
   (a) The identity of the installation and the person reporting;
   (b) The nature or characteristics of the emissions (for example, hydrocarbons, fluorides);
   (c) The time of occurrence of the onset of the excess emissions and the actual or expected duration of the occurrence; and
   (d) The actual or probable cause of the excess emissions."

(b) COMAR 26.11.02.04B, Permits to Construct and Approvals. "A permit to construct or an approval expires if, as determined by the Department:

(1) Substantial construction or modification is not commenced within 18 months after the date of issuance of the permit or approval, unless the Department specifies a longer period in the permit or approval;

(2) Construction or modification is substantially discontinued for a period of 18 months after the construction or modification has commenced; or

(3) The source for which the permit or approval was issued is not completed within a reasonable period after the date of issuance of the permit or approval."

(c) COMAR 26.11.02.09A, Sources Subject to Permits to Construct and Approvals. "A person may not construct or modify or cause to be constructed or modified any of the following sources without first obtaining, and having in current effect, the specified permits to construct and approvals: (6) All sources, including installations and air pollution control equipment, except as listed in Regulation .10 of this chapter—permit to construct required."

Conditions (d) through (f) apply to the lumber kiln (ARA Registration No. 043-0190-6-0780) only.

(d) COMAR 26.11.06.02C(1), Visible Emission Standards. "In Areas I, II, V, and VI a person may not cause or permit the discharge of emissions from any installation or building, other than water in an uncombined form, which is greater than 20 percent opacity."

(e) COMAR 26.11.06.03B(1), Particulate Matter from Confined Sources. "Areas I, II, IV, and VI. (a) Installations Constructed On or After January 17, 1972. A person may not cause or permit particulate matter to be discharged from any installation constructed on or after January 17, 1972 in excess of 0.05 gr/SCFD."

(f) COMAR 26.11.06.05B, Sulfur Compounds from Other than Fuel-Burning Equipment. "In Areas I, II, V and VI. A person may not cause or permit the discharge into the atmosphere from installations other than fuel-burning equipment of gases containing more than 500 ppm of sulfur dioxide."

(3) This source is subject to all applicable State-only enforceable air pollution control requirements including, but not limited to, the following regulations:

(a) COMAR 26.11.02.13A, Sources Subject to State Permits to Operate. "Except for a source that is covered by a Part 70 permit, a person may not operate or cause to be operated any of the following sources without first obtaining, and having in current effect, a State permit to operate as required by this regulation: (57), Installations used to treat wood with creosote or chrome copper arsenate (CCA) by impregnation in a pressurized vessel."

(b) COMAR 26.11.02.14D, Procedures for Obtaining State Permits to Operate and Permits to Construct Certain Sources and Permits to Construct Control Equipment on Existing Sources. "An application for a permit to construct may be submitted at any time. A complete application for an initial State permit to operate shall be submitted not later than 60 days before the source is to commence operating. A complete application for the renewal of a State permit to operate shall be submitted not later than 60 days before the expiration date in a State permit to operate. If a timely application for a renewal has been submitted, the current State permit to operate remains in effect until the Department makes a final decision to issue or deny the permit."

(c) COMAR 26.11.02.19C, Information Required to be Maintained by a Source.
   (1) "Beginning January 1, 1994, the owner or operator of a source for which a permit to operate is required shall maintain records necessary to support the emission certification, including the following information:
      (a) The total amount of actual emissions of each regulated pollutant and the total of all regulated pollutants;

(b) An explanation of the methods used to quantify the emissions and the operating schedules and production data that were used to determine emissions, including significant assumptions made;
(c) Amounts, types, and analyses of all fuels used;
(d) Emission data from continuous emission monitors that are required by this subtitle or EPA regulations, including monitor calibration and malfunction information;
(e) Identification, description, and use records of all air pollution control equipment and compliance monitoring equipment, including significant maintenance performed, malfunctions and downtime, and episodes of reduced efficiency of this equipment;
(f) Limitations on source operation or any work practice standards that significantly affect emissions; and
(g) Other relevant information as required by the Department."

(2) The logs and other records of information required by §C(1) of this regulation shall be retained for a period of 5 years and made available to the Department upon request.
(3) If the owner or operator of a source for which a permit to operate is required fails to maintain or provide the data required by this section, which the Department requests in order to verify the emissions during the previous calendar year, the annual emission-based fee for that source shall be based on the estimated allowable emissions, as defined in COMAR 26.11.01.01B(4), of that source, as determined by the Department."

(d) COMAR 26.11.02.19D, Emission Certification.
(1) "Beginning January 1, 1994, the responsible official designated by the owner or operator of a source for which a permit to operate is required shall certify, as provided at Regulation .02F of this chapter, the actual emissions of regulated air pollutants from all installations at the plant or facility.
(2) Certification shall be on a form obtained from the Department and shall be submitted to the Department not later than April 1 of the year following the year for which certification is required.

(e) COMAR 26.11.06.08, Nuisance. "An installation or premises may not be operated or maintained in such a manner that a nuisance or air pollution is created. Nothing in this regulation relating to the control of emissions may in any manner be construed as authorizing or

permitting the creation of, or maintenance of, nuisance or air pollution."

(f) COMAR 26.11.06.09, Odors. "A person may not cause or permit the discharge into the atmosphere of gases, vapors, or odors beyond the property line in such a manner that a nuisance or air pollution is created."

(g) COMAR 26.11.15.05A, Control Technology Requirements. "New or Reconstructed Installations. A person may not construct, reconstruct, operate, or cause to be constructed, reconstructed, or operated, any new installation or source that will discharge a toxic air pollutant to the atmosphere without installing and operating T-BACT."

(h) COMAR 26.11.15.06A, Ambient Impact Requirement. Requirements for New Installations, Sources, or Premises.
   (1) "Except as provided in §A(2) of this regulation, a person may not construct, modify, or operate, or cause to be constructed, modified, or operated, any new installation or source without first demonstrating to the satisfaction of the Department using procedures established in this chapter that total allowable emissions from the premises of each toxic air pollutant discharged by the new installation or source will not unreasonably endanger human health.
   (2) If a new installation or source will discharge a TAP that is not listed in COMAR 26.11.16.07 and will be part of an existing premises, then emissions of that TAP from existing sources or existing installations on the premises may be omitted from a screening analysis unless the TAP is added to COMAR 26.11.16.07."

(i) COMAR 26.11.15.07A, General Requirements for Compliance Demonstrations. "To demonstrate that a premises discharging a Class I TAP is in compliance with Regulation .06 of this chapter, a person shall demonstrate that allowable emissions will not unreasonably endanger human health both because of potential carcinogenic effects and because of other potential toxic effects. Demonstrations for Class II TAPs are required only for potential toxic effects other than cancer."

(j) COMAR 26.11.15.07B, General Requirements for Compliance Demonstrations. "To demonstrate compliance with Regulation .06 of this chapter a person may:
   (1) Use a screening analysis or second tier analysis, as explained in COMAR 26.11.16.02A and B;

(2) Request a special permit under COMAR 26.11.16.05; or
(3) Use other options provided by law."

Part C – Construction Conditions

Except as otherwise provided in this part, the one (1) direct-fired batch lumber drying kiln with a 7 MMBtu/hr natural gas burner shall be constructed in accordance with specifications included in the incorporated applications.

Part D – Operating Conditions

(1) The Permittee shall maintain and operate all installations and associated air pollution control equipment so as to assure full and continuous compliance with all applicable air pollution control regulations and permit conditions.

(2) The Permittee shall properly maintain, calibrate, and operate all control panel instrumentation and all devices employed to monitor performance of the facility's air pollution control devices.

(3) The Permittee shall burn only natural gas as fuel in the direct-fired batch lumber drying kiln unless the Permittee obtains an approval from the Department to burn alternate fuels.

(4) To meet T-BACT requirements, the Permittee shall operate and maintain the direct-fired batch lumber drying kiln in accordance with manufacturer/vendor specifications.

(5) The Permittee must apply the preservative to the wood product inside a retort or similarly enclosed vessel when using a pressure treatment process. **[Reference: 40 CFR §63.11430(a)]**

Note: *Pressure treatment process* – means a wood treatment process involving an enclosed vessel, usually a retort, and the application of pneumatic or hydrostatic pressure to expedite the movement of preservative liquid into the wood.

(6) The Permittee must prepare and operate according to a management practice plan to minimize air emissions from the preservative treatment of wood. The Permittee may use their standard operating procedures to meet the requirements for a management practice plan if it includes the minimum activities required for a management practice plan. The management practice plan must include, but is not limited to, the following activities:

(a) Minimize preservative usage;

(b) Maintain records on the type of treatment process and types and amounts of wood preservatives used at the facility;

(c) Maintain charge records identifying pressure reading(s) inside the retorts (or similarly enclosed vessel);

(d) Store treated wood product on drip pads or in a primary containment area to convey preservative drippage to a collection system until drippage has ceased;

(e) Fully drain the retort to the extent practicable, prior to opening the retort door;

(f) Promptly collect any spills; and

(g) Perform relevant correct actions or preventative measures in the event of a malfunction before resuming operations.
[Reference: 40 CFR §63.11430(c)]

(7) The pressure treating vessel and other additional equipment installed under Permit to Construct No. 043-0190-6-0143 (formerly identified as 21-6-0143 N) issued by the Department on November 22, 1988, shall be used for wood treating with chromated copper arsenate and dispersed copper, unless prior written approval is received from the Department.

(8) The pressure treating vessel and other additional equipment installed under Permit to Construct No. 043-0190-6-0582 (formerly identified as 043-6-0582 N) issued by the Department on August 8, 2002, shall be used for wood treating with dispersed copper solution only, unless prior written approval is received from the Department.

(9) The one (1) 6.5 by 52 ft. cylindrical pressure vessel for chromated copper arsenate (CCA) based wood treating process and miscellaneous process holding tanks (ARA Registration No. 043-0190-9-0252), shall be used for wood treating with chromated copper arsenate only, unless prior written approval is received from the Department.

(10) The Permittee shall comply with the following operating limits unless they can demonstrate, to the satisfaction of the Department, that compliance with COMAR 26.11.15.06 can be achieved at other operating conditions:

(a) A maximum of 7200 hours per year; and
(b) A maximum of 45 batches per each consecutive 24-hour period.

Part E – Record Keeping and Reporting Requirements

(1) The Permittee shall maintain a log of all maintenance performed on the direct-fired batch lumber drying kiln including the dates and actions taken.

(2) The Permittee shall record on a daily basis, the hours of operation of each pressure treating vessel and the production throughputs, including the number of charges processed per day in each pressure vessel and the composition of preservative used. The records shall be maintained at the facility for at least five (5) years and shall be made available to the Department upon request.

(3) The Permittee shall comply with 40 CFR 63, Subpart QQQQQQ record keeping and reporting requirements. The records shall be maintained at the facility for at least five (5) years and shall be made available to the Department upon request. The records shall:

(a) Include copies of notifications submitted to EPA and records of any corrective or preventive measures;

(b) Maintain charge records identifying pressure readings inside the retorts; and

(c) Report any deviation from the requirements of 40 CFR 63, Subpart QQQQQQ within 30 days of the deviation.

(4) The Permittee shall maintain at the facility for at least five (5) years records necessary to support annual certifications of emissions and demonstrations of compliance for toxic air pollutants. Such records shall include, if applicable, the following:

(a) Mass emissions rates for each regulated pollutant, and the total mass emissions rate for all regulated pollutants for each registered source of emissions;

(b) Accounts of the methods and assumptions used to quantify emissions;

(c) All operating data, including operating schedules and production data, that were used in determinations of emissions;

(d) Amounts, types, and analyses of all fuels used;

(e) Any records, the maintenance of which is required by this permit or by State or federal regulations, that pertain to the operation and maintenance of continuous emissions monitors, including:
  (i) All emissions data generated by such monitors;
  (ii) All monitor calibration data;
  (iii) Information regarding the percentage of time each monitor was available for proper service; and
  (iv) Information concerning any equipment malfunctions.

(f) Information concerning operation, maintenance, and performance of air pollution control equipment and compliance monitoring equipment, including:
  (i) Identifications and descriptions of all such equipment;
  (ii) Operating schedules for each item of such equipment;
  (iii) Accounts of any significant maintenance performed;
  (iv) Accounts of all malfunctions and outages; and
  (v) Accounts of any episodes of reduced efficiency.

(g) Limitations on source operation or any work practice standards that significantly affect emissions; and

(h) Other relevant information as required by the Department.

(5) The Permittee shall submit to the Department by April 1 of each year during the term of this permit a certification of emissions for the previous calendar year. The certifications shall be prepared in accordance with requirements, as applicable, adopted under COMAR 26.11.02.19D.

(a) Certifications of emissions shall be submitted on forms obtained from the Department.

(b) A certification of emissions shall include mass emissions rates for each regulated pollutant, and the total mass emissions rate for all regulated pollutants for each of the Permittee's registered sources of emissions.

(c) The person responsible for a certification of emissions shall certify the submittal to the Department in the following manner:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted

is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

(6) The Permittee shall submit to the Department, by April 1 of each year during the term of this permit, a written certification of the results of an analysis of emissions of toxic air pollutants from the Permittee's facility during the previous calendar year. Such analysis shall include either:

(a) a statement that previously submitted compliance demonstrations for emissions of toxic air pollutants remain valid; or

(b) a revised compliance demonstration, developed in accordance with requirements included under COMAR 26.11.15 & 16, that accounts for changes in operations, analytical methods, emissions determinations, or other factors that have invalidated previous demonstrations.

(7) The Permittee shall report, in accordance with requirements under COMAR 26.11.01.07, occurrences of excess emissions to the Compliance Program of the Air and Radiation Administration.

MARYLAND DEPARTMENT OF THE ENVIRONMENT

MARYLAND DEPARTMENT OF THE ENVIRONMENT

AIR AND RADIATION ADMINISTRATION

SUPPLEMENTAL INFORMATION REFERENCES

The Code of Maryland Regulations (COMAR) is searchable by COMAR citation at the following Division of State Documents website:
https://dsd.maryland.gov/Pages/default.aspx

The Code of Federal Regulations (CFR), including New Source Performance Standards (NSPS) at 40 CFR, Part 60 and National Emission Standards for Hazardous Air Pollutants (NESHAP) at 40 CFR, Parts 61 and 63, is searchable by CFR citation at the following U.S. Government Publishing Office website:
http://www.ecfr.gov

Information on National Ambient Air Quality Standards (NAAQS) is located at the following U.S. Environmental Protection Agency (EPA) website:
https://www.epa.gov/criteria-air-pollutants/naaqs-table

Information on Maryland's Ambient Air Monitoring Program is located at the following Maryland Department of the Environment website:
http://mde.maryland.gov/programs/Air/AirQualityMonitoring/Pages/index.aspx

Information on the U.S. EPA's Screen3 computer model and other EPA-approved air dispersion models is located at the following U.S. EPA website:
https://www.epa.gov/scram/air-quality-dispersion-modeling-screening-models

Information on the U.S. EPA TANKS Emission Estimation Software is located at the following U.S. EPA website:
https://www.epa.gov/air-emissions-factors-and-quantification/tanks-emissions-estimation-software-version-5

Information on the U.S. EPA Emission Factors and AP-42 is located at the following U.S. EPA website:
https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors