NORTH CAROLINA DIVISION OF
AIR QUALITY

Application Review

Issue Date:

Region: Mooresville Regional Office
County: Cleveland
NC Facility ID: 2300407
Inspector's Name: NA
Date of Last Inspection: NA
Compliance Code: NA

Facility Data

Applicant (Facility's Name): Lawndale Recycling

Facility Address:
Lawndale Recycling
101 West Main Street
Lawndale, NC 28090

SIC: / 5093
NAICS: / 423930

Facility Classification: Before: Permit/Registration Pending After: Title V
Fee Classification: Before: N/A After: Title V

Permit Applicability (this application only)

SIP: 02D .0503, .0504, .0516. 0521, .0524, .1100, .1111, .1806
NSPS: Subpart Dc
NESHAP: GACT JJJJJJ
PSD: No
PSD Avoidance: NA
NC Toxics: No pursuant to G.S. 143-215.107(a)(5)b
112(r): NO
Other: 40 CFR Part 241

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Mark Romano President (704) 995-3690 119 North Main Street, Suite 202 Mooresville, NC 28115	Mark Romano President (704) 995-3690 119 North Main Street, Suite 202 Mooresville, NC 28115	Tim Owens Owner/Principal (843) 796-1504 1876 Raoul Wallenberg Boulevard Charleston, SC 29407

Application Data

Application Number: 2300407.23A
Date Received: 10/16/2023
Application Type: Greenfield Facility
Application Schedule: State
Existing Permit Data
Existing Permit Number: N/A
Existing Permit Issue Date: N/A
Existing Permit Expiration Date: N/A

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP

<No Inventory>

Review Engineer: Joseph Voelker

Review Engineer's Signature: Date:

Comments / Recommendations:

Issue 10822/R00
Permit Issue Date:
Permit Expiration Date:

I. Purpose of Application

Lawndale Recycling (Lawndale) is planning to construct a facility that will recycle post-industrial cellulosic and plastic materials. To provide power for recycling process operations, resinated wood, construction and demolition (C&D) wood and untreated wood pallets will be combusted in two boilers. No plastic material will be combusted.

This application is being submitted as part one of a two-step significant modification pursuant to 15A NCAC 02Q .0501(b)(2) and 02Q .0504.

II. Chronology

Date	Description
October 16, 2023	An application was received and assigned application no. 2300407.23A
October 19, 2023	An acknowledgement letter was sent via email stating: This application submittal did contain all the required elements (except your ePayment) and has been accepted for processing.
October 20, 2023	Application fee of $11,452 received via ePay. Application CLOCK start for processing.
December 18, 2023	A completely revised application was received. Its contents completely supplant the application received on October 16, 2023.
January 17, 2024	ADD INFO email sent stating: 1. The modeling folks are getting ready to start looking at things. I spot checked the formaldehyde and benzene numbers on forms D1 and D3 and they seem inconsistent, perhaps there are typos, units issues. For example, formaldehyde on form D had an hourly rate of 1.48 lb/hr but the model request is for 0.337 lb/hr. I also noticed that some tpy numbers are equivalent to lb/hr numbers. Benzene also appears to have a similar trend. I suspect there may be a systematic error here. I suspect you want to model PTE, but the forms suggest otherwise. Please review and advise. 2. You state emission factors are AP-42 on Form D3. Did you use our DAQ spreadsheets to do the calculations? (It appears so). (Our spreadsheets are based on AP-42 but may have a few tweaks)
January 18, 2024	Revised D1 form received via email.
February 22, 2024	Add INFO email 1 sent requesting the representative NAICS code for the facility?
February 22, 2024	Add INFO email 2sent requesting clarification on site specific monitoring plan required pursuant NSPS subpart Dc and GACT JJJJJJ
February 22, 2024	Add INFO email 3 sent requesting clarification on which pages of the application the PE seal covers.
February 27, 2024	Response to Add INFO email 1 sent on 02/22/2024 was received via email. "NAICS code for Lawndale Recycling - 423930
March 5, 2024	Response to Add INFO email 3 sent on 02/22/2024 was received via email.
March 20, 2024	Revised application package with updated forms and additional fuels submitted via email. It also includes a response to the Add INFO email 2 sent on 02/22/2024.
April 1 2024	Draft Permit sent to Lawndale via email for comments.

Date	Description
April 2, 2024	An email from Lawndale was received stating: "Filter area is 8859 ft2 per baghouse vendor."
April 4, 2024	Email from Lawndale stating: "We have reviewed the draft air permit and have no further comments"
April 11, 2024	Final application package submitted to the DAQ.
April 15, 2024	An email was sent to Lawndale requesting clarification of the PE Certification on Form D5 with respect to the pages of the application certified.
April 18, 2024	Email from Lawndale was received stating: Pages and respective forms shown below for D5. On the latest D5, I see that I forgot to list form C-1 which was the original one John had included. I've added page number 56 to the list on D5 and the updated form D5 is attached. Sorry for the confusion. Form B for ES-01 - pages 48, 49, 50 Form B1 for ES-01 page 51 Form B for ES-02 - pages 52, 53, 54 Form B1 for ES-02 page 55 Form C1 - page 56 Form E2 - page 65 Form E3 - page 66 *Note that all page references above are based on the scanned record copy of the application (on file in Laserfiche) which is a PDF document with 68 pages
MM DD YYYY	*The public notice was published on the DAQ website and allowed for a public comment period beginning on MM DD YYYY and ending on MM DD YYYY*
MM DD YYYY	*Public comment period ended. Comments are addressed in Section IX below.*

III. Proposed Facility Discussion

The following narrative is from Section 1 of the application and provides an excellent overview of the proposed operations. Assumptions and statements made are those of Lawndale and will be discussed/disputed/verified elsewhere in this review document.

Executive Summary

Lawndale Recycling is planning to construct a facility that will recycle post-industrial cellulosic and plastic materials. In addition to re-packaging the plastic materials, some may be shredded to a 2" minimum size in a designated shredder located indoors. The wood-based materials will be shredded, also to a 2" minimum size, in two additional shredders located indoors.

To provide power for recycling process operations, wood will be combusted in two boilers, specifically resinated wood, construction and demolition (C&D) wood, and chemically untreated wood pallets. No plastic material will be combusted. Natural gas will also be combusted for start-up purposes.

The facility will be located on the former Cleveland Mills property at 101 West Main Street in Lawndale, in Cleveland County, north of Shelby, NC. The site location is provided in the application as Figure 1 and the Site Plan is shown in Figure 2. A site survey plat is shown in the application in Figure 3.

Resinated wood (RW) is not considered solid waste when used as fuel in a combustion unit (40 CFR 241.4(a)(2)). Lawndale Recycling will accept resinated wood directly and only from wood products manufacturers and will keep records identifying the manufacturers providing this material and the quantities

provided. Suppliers must be manufacturers of resinated wood products, such as wood panel and/or furniture manufacturers.

Construction and demolition (C&D) wood is not considered solid waste when used as fuel in a combustion unit if it is processed in accordance with best management practices as described in 40 CFR 241.4 (a)(5). Lawndale Recycling will only accept C&D wood from providers that have processed the material, and provided the required documentation, prior to shipping material to Lawndale's facility. Lawndale will keep these records onsite for each source of C&D wood.

Untreated wood pallets that have not been discarded are listed in the clean cellulosic biomass definition in 40 CFR 241.2 which states these materials are not secondary materials or solid wastes unless discarded. Lawndale Recycling will only accept chemically untreated, unmarked, wood pallets directly and only from industrial facilities that have not been discarded.

Combusting these three materials only will allow the facility to avoid Commercial and Institutional Solid Waste Incinerators (CISWI) regulations under Section 129 of the Clean Air Act. Instead, the facility would like to be permitted under Boiler MACT regulations under Section 112 of the Clean Air Act, specifically, the Area Source Boiler MACT regulations, as facility HAP emissions will be less than major source thresholds.

These materials will be combusted at a rate of up to 115 tons per day in two parallel boilers to generate steam to drive a turbine generator set and produce electrical power (approximately 3 MW). One boiler is rated at 30,000 pounds per hour (pph) steam and the other boiler will produce 20,000 pph steam, both at 350 psig and 500 F. The combined heat release from combusting the cellulosic material in these boilers is 76.64 MMBtu per hour. A process flow diagram (PFD) is shown in Figure 4 of the application.

Emission calculations for criteria air pollutants from combustion of cellulosic-based material are based on EPA AP-42 emission factors for residual wood combustion (dry) as provided in Section 1.6 of the AP-42 document. Toxic air emissions from combusting the cellulosic material are also calculated from emission factors in EPA AP-42, Section 1.6. Emission calculations for criteria air pollutants and HAP and TAP emissions from combustion of natural gas are also based on EPA AP-42 emission factors for natural gas combustion as provided in Section 1.6 of the AP-42 document.

The emissions include several toxic air pollutants (TAP) listed in 15A NCAC 02D .1100 and some of these exceed the toxic pollutant emission rates (TPER) specified in 15A NCAC 02Q. 0711. Lawndale Recycling has requested DEQ provide screening modeling to determine if additional refined modeling is necessary.

Process And Equipment Description

Lawndale Recycling is planning to construct a facility that will recycle post-industrial cellulosic and plastic materials. To provide power for recycling process operations, wood will be combusted in two steam boilers that will drive a single turbine-generator set with one exhaust stack. No plastic materials will be combusted. The types of wood that will be used as fuel include resinated wood, construction and demolition (C&D) wood, and untreated wood pallets that have not been discarded.

Up to 115 tons per day of some combination of these two materials will be combusted in boilers designed to combust solid fuels.

Prior to combusting these materials, they will be shredded to approximately 2" diameter pieces in two of the three shredders located indoors. The boiler feed systems require this minimum size. A separate shredder will be used for non-halogenated plastics. All inbound shipments of these materials will be stored inside prior to processing. The three indoor shredders will have a capacity of 80 tons per hour each and have magnetic removal for any ferrous metals and eddy current removal of non-ferrous metals that may be present in wood pallet construction or processed C&D wood. To minimize fugitive dust from the shredding process, a water misting bar will be mounted directly over the shredder mechanism to suppress any fugitive dust.

Hurst Boiler No. 1 is rated at 45. 98 MM Btu/hour and will produce 30,000 pounds per hour (pph) steam. Hurst Boiler No. 2 is rated at 30.65 MMBtu/hour and will produce 20,000 pph steam. The steam from both boilers will be generated at 350 psig and 500 °F. The combined heat release from combusting the cellulosic material in these boilers is 76.64 MMBtu per hour. The steam will drive a turbine-generator set to produce electrical power (approximately 3 MW).

Boiler emissions will be ducted to a main exhaust where the total exhaust flow of 34,877 ACFM will be routed through a baghouse provided by Ducan Environmental.

The sources will appear in the permit as follows:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-01	Untreated wood pallets/resinated wood/construction and demolition wood/natural gas-fired boiler (45.98 million Btu per hour maximum heat input)	CD-01	Fabric filter (8,859 square feet of filter area)
ES-02	Untreated wood pallets/resinated wood/construction and demolition wood/natural gas-fired boiler (30.65 million Btu per hour maximum heat input)		

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
IES-01 and IES-02	Two untreated wood pallets/resinated wood/construction and demolition wood shredders located indoors (80 tons per hour maximum capacity each)	NA	NA
IES-03	One plastics shredder located indoors (80 tons per hour maximum capacity)	NA	NA

Facility Emissions
The Permittee supplied detailed emission estimates in Appendix C the application.

Boiler emissions have been calculated using factors for Wood Residuals Combustion in Section 1.6 of AP-42. The boilers' exhausts will be merged to form a main exhaust leading to a baghouse (CD-01). Following the baghouse, the emissions will be exhausted through a single stack (EP-01). The facility plans to operate 24 hours per day for 365 days per year.

Emissions from the shredding operation inside the building are not controlled other than being indoors. Shredder emissions are calculated using the NC DAQ Woodworking Worksheet (Rev. July 2007). For shredders that must create a 2" diameter piece of wood, dust emissions are expected to be minimal. Further, given the shredders will be located inside the building, any dust generated would likely settle inside the building. To minimize fugitive dust from the shredding process, a water misting bar will be mounted directly over the shredder to suppress any fugitive dust. Note that the shredders will also be used to shred plastic materials, but these materials are not for combustion.

Pollutant emissions from the boilers include criteria pollutants, volatile organic compounds (VOC) and hazardous (and NC air toxic) compounds. The following table is from the application:

Table III.
Facility-wide Potential Emissions

Pollutant	Uncontrolled Emissions, tons per year	Controlled Emissions, tons per year
PM	1.35E+02	2.26E+01
PM-10	1.22E+02	1.21E+01
PM-2.5	1.04E+02	1.15E+01
SO2	8.39E+00	8.39E+00
NOx	1.64E+02	1.64E+02
CO	2.01E+02	2.01E+02
VOC	5.71E+00	5.71E+00
Lead	4.46E-02	4.46E-02
GHG*	0	0
HAP single (HCl)	6.38	6.38
HAP combined	13.0	13.0

The GHG emissions estimate above is clarified and corrected below. For PSD purposes pursuant to 40 CFR 51.166 (b)(48)(ii), the term CO2 equivalent (CO2e) emissions is relevant. The rule provides how to calculate such emissions. The mass of each of the six greenhouse gases (three of which are relevant here) are multiplied by global warming potential value. This sum is considered GHG for PSD purposes.

		CO2e
GREENHOUSE GAS	**short tons/yr**	**short tons/yr, CO2e**
CARBON DIOXIDE (CO2) -	69,413.43	69,413.43
METHANE (CH4)	5.33E+00	1.33E+02
NITROUS OXIDE (N2O)	2.66E+00	7.94E+02
	69,421.42	70,340.52

TAP emissions are presented and discussed in context of 15A NCAC 02D .1100 in Section V below.

IV. Regulatory Review

A. Two boilers (ID Nos. ES-01 and ES-02) controlled by one fabric filter (ID No. CD-01)

As discussed in Section III above, the boiler exhausts will be commingled and routed to a single stack with a single baghouse.

15A NCAC 02D .0503: PARTICULATES FROM FUEL BURNING INDIRECT HEAT EXCHANGERS

This regulation applies to particulate matter emissions from the combustion of fuel in indirect heat exchangers, such as boilers, that are discharged from any stack or chimney into the atmosphere.

The allowable emissions of particulate matter shall be calculated by the equation E= 1.090*Q-0.2594. "E" equals the allowable emission limit for particulate matter in lb/million Btu. "Q" equals the maximum heat input in million Btu/hour.

However, pursuant to 02D .0503(d):

(d) This Rule applies to installations in which fuel is burned for the purpose of producing heat or power by indirect heat transfer. For the purpose of this Rule, the term "fuels" includes all fuels that generate particulate matter emissions from indirect heat exchangers excluding wood and refuse not burned as a fuel. When any refuse, products, or by-products of a manufacturing process are burned as a fuel rather than refuse, or in conjunction with any fuel, this allowable emission limit shall apply.

The Permittee intends on burning exclusively resinated wood, construction and demolition (C&D) wood and untreated wood pallets except during periods of startup, when it will burn only natural gas (NG). Thus, PM emissions from the combustion of resinated wood, construction and demolition (C&D) wood and untreated wood pallets will be addressed with respect to 02D .0504 below.

The Permittee estimates its PM emissions from the combustion of NG by using the AP-42 (Table 1.4-2) emission factor of 7.6 lb/106Scf. Assuming the heating value of NG as 1,020 Btu/scf, this is equivalent to 0.007 lb/MMBtu.

For conservatism assume both boilers start up at 100% heat input or 76.63 MMBtu/hr. Using the equation above the allowable PM emissions when combusting NG are 0.35 lb/MMBtu. Thus compliance with 02D .0503 is expected by a wide margin. The Permittee estimates that it will do one startup per quarter, requiring approximately 3 hours per boiler. Thus operation when burning NG will occur infrequently.

Given the expected margin of compliance and consistent with current DAQ permitting policy, no monitoring, recordkeeping or reporting is required for PM emissions from the firing of natural gas in these boilers.

15A NCAC 02D .0504: PARTICULATES FROM WOOD BURNING INDIRECT HEAT EXCHANGERS

02D .0504(a) states:

a) This Rule applies to fuel burning equipment that burns 100 percent wood. All other fuel burning equipment that burns both wood and other fuels in combination shall be subject to 15A NCAC 02D .0503.

Thus, as discussed under 02D .0503 above this rule applies to these boilers when firing resinated wood, construction and demolition (C&D) wood and untreated wood pallets. For purposes here resinated wood, construction and demolition (C&D) wood and untreated wood pallets are considered to be “wood.”

This regulation applies to particulate matter emissions from the combustion of wood in indirect heat exchangers, such as boilers, that are discharged from any stack or chimney into the atmosphere. “Wood” burning indirect heat exchangers (WBIHE) are limited to particulate matter emissions under this rule by the following equation:

$E = 1.1698 * Q^{(-0.2230)}$

Where:
E = allowable emission limit for particulate matter in lb/million Btu.
Q = maximum heat input in million Btu/hour.

The emission limitation for a given source is determined as a function of the total heat input to all such sources on site at the time the particular source was permitted. Also, once a limit has been established for a source, it shall not be changed upon the permitting of additional sources. In this case the total heat input from all WBIHE on site will be 76.64 MMBtu/hr thus the allowable emission limit for particulate matter is 0.44 lb/million Btu.

Note that these boilers will be subject to a PM filterable only standard of 0.030 lb/MMBtu under NSPS Dc and GACT JJJJJJ (discussed elsewhere). However, 02D .0504 addresses PM total via 02D .2609 which includes the PM condensable fraction of PM. The Permittee estimates using an uncontrolled PM emission factor from AP-42 of 0.4 lb/MMBtu with bagfilter control of 99.5% the after-control PM emissions will be 2E-04 lb/MMBtu, well below the allowable emission rate under this rule. To verify compliance an initial and subsequent performance test will be included in the permit as follows:

Testing [15A NCAC 02Q .0308(a)]

b. The following testing requirements apply:
   i. If emissions testing is required, the testing shall be performed in accordance with General Condition 17.
   ii. Under the provisions of NCGS 143-215.108, the Permittee shall demonstrate compliance with the emission limit(s) above by testing these sources for particulate matter. Details of the emissions testing and reporting requirements can be found in General Condition 17. Testing shall be completed and the results submitted within 180 days of beginning operation of each source unless an alternate date is approved by the DAQ.
   ii. Under the provisions of NCGS 143-215.108, the Permittee shall demonstrate compliance with the PM emission limit in Section 2.1 A.2.a above by following the GACT JJJJJJ testing provisions listed in Section 2.1 A.6.g.iii and iv below.

Note that subsequent testing is streamlined to the testing frequency required under GACT JJJJJJ (discussed elsewhere). GACT JJJJJJ requires PM filterable testing every three or five years after the initial test depending on the margin of compliance. Thus, the Permittee will simply conduct a total PM test (i.e., include PM condensable testing) concurrently at those times.

To comply with GACT Subpart JJJJJJ and NSPS Subpart Dc, the Permittee intends on using the monitoring option under those rules that require the use of bagfilter leak detection systems. Thus, the permit will be streamlined to require the monitoring recordkeeping and reporting under NSPS Dc requirements to be used under this rule. Note there are subtle differences under GACT JJJJJJ and NSPS Dc that will be discussed elsewhere.

The monitoring recordkeeping and reporting will appear in the permit as follows:

Monitoring [15A NCAC 02Q .0308(a)(1)]

c. Particulate matter emissions from these sources shall be controlled by the bagfilter. To ensure compliance, the Permittee shall meet the NSPS Subpart Dc monitoring requirements at Section 2.1 A.5.f below.

Recordkeeping [15A NCAC 02Q .0308(a)(1)]

d. The Permittee shall meet the NSPS Subpart Dc recordkeeping requirements at Section 2.1 A.5.g below.

Reporting [15A NCAC 02Q .0308(a)(1)]

e. The Permittee shall meet the NSPS Subpart Dc reporting requirements at Section 2.1 A.5.h below.

15A NCAC 02D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

This regulation applies to any combustion source that emits sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances Emissions of sulfur dioxide from these sources shall not exceed 2.3 pounds per million Btu heat input. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard.

The Permittee claims the emissions of SO2 (as with all other pollutants) can be approximated by assuming they are comparable to wood combustion emission factors found in AP-42. For SO2, this emission factor is 0.025 lb/MMBtu, two orders of magnitude less than this rule allows, implying a large margin of compliance. It is unclear to what degree the supply of resinated wood, construction and demolition (C&D) wood and untreated wood pallets can be contaminated by sulfur. Initial and subsequent testing requirements will be included in the permit as follows given the uncertainty associated with the source of the fuels.

Testing [15A NCAC 02Q .0308(a)(1)]

b. The following testing requirements apply:
   i. If emissions testing is required, the testing shall be performed in accordance with General Condition 17.
   ii. Under the provisions of NCGS 143-215.108, the Permittee shall demonstrate compliance with the emission limit in Section 2.1 A.3.a above when firing resinated wood, construction and demolition (C&D) wood and untreated wood pallets. Details of the emissions testing and reporting requirements can be found in General Condition 17. Testing shall be completed and the results submitted within 180 days of beginning operation of each source unless an alternate date is approved by the DAQ.

iii. Under the provisions of NCGS 143-215.108, the Permittee shall demonstrate compliance with the emission limit in Section 2.1 A.3.a above according to GACT JJJJJJ testing frequency listed in Section 2.1 A.6.g.iii and iv below.

Thus, after the initial testing, subsequent testing will be required based on the margin of compliance of the PM testing with respect to GACT JJJJJJ. In other words, SO2 testing will be conducted at least once every 5 years.

The following monitoring, recordkeeping, and reporting requirements will apply:

Monitoring/Recordkeeping [15A NCAC 02Q .0308(a)(1)]

c. The following monitoring and recordkeeping requirements apply:
   i. No monitoring or recordkeeping is required for sulfur dioxide emissions from the firing of natural gas in these sources.
   ii. The Permittee shall meet the GACT JJJJJJ fuel monitoring requirements at Section 2.1 A.6.j.v below.

Reporting [15A NCAC 02Q .0308(a)(1)]

c. The following reporting requirements apply:
   i. No reporting is required for sulfur dioxide emissions from the firing of natural gas in these sources.
   ii. The Permittee shall meet the GACT JJJJJJ fuel reporting requirements at Section 2.1 A.6.k.iv below.

Consistent with DAQ permitting policy no monitoring, recordkeeping or reporting is required for firing natural gas only. GACT JJJJJJ however requires:

- records of monthly fuel use by each boiler, including the type(s) of fuel and amount(s) used. [40 CFR 63.11225(c)(2)(iv)]
- annual reporting of the total fuel use by each affected boiler for each calendar month within the reporting period, including, but not limited to, a description of the fuel, whether the fuel has received a non-waste determination through a petition process to be a non-waste under 40 CFR 241.3(c), whether the fuel(s) were processed from discarded non-hazardous secondary materials within the meaning of 40 CFR 241.3, and the total fuel usage amount with units of measure. [40 CFR 63.11225(b)]

Although these GACT JJJJJJ fuel recordkeeping and reporting requirements do not explicitly provide for fuel bound sulfur content monitoring, given the nature of these fuels (that is, they are not unadulterated biomass) it seems reasonable to ensure that the fuels combusted are at least tracked with SO2 emissions in consideration.

15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS

This regulation applies to fuel burning operations and industrial processes where visible emissions can be reasonably expected to occur. Each boiler's emissions are routed to a single stack and hence a single emissions point. Each boiler is subject to this rule. As the boilers were "manufactured" after July 1, 1971, the visible emissions from the boilers shall not be more than 20 percent opacity when averaged over a six-minute period except for the following exceptions:

Six-minute averaging periods may exceed 20 percent opacity if:
(1) no six-minute period exceeds 87 percent opacity;
(2) no more than one six-minute period exceeds 20 percent opacity in any hour; and
(3) no more than four six-minute periods exceed 20 percent opacity in any 24-hour period.

02D .0521(b) states:

> b) Scope. This Rule shall apply to all fuel burning sources and to other industrial processes having a visible emission. Sources subject to a specific visible emission standard in 15A NCAC 02D .0506, .0508, .0524, .1110, .1111, .1206, or .1210 shall meet that standard instead of the standard contained in this Rule. ***

It will be shown below that these boilers are subject to an opacity standard under 02D .0524 when firing wood but not with NG. When firing NG the boilers are subject to this rule.

However, the combustion of NG is not expected to result in visible emissions approaching 20% opacity. As such and consistent with current DAQ permitting policy, no monitoring, recordkeeping or reporting is required for visible emissions from these sources when combusting NG only.

15A NCAC 02D .0524: NEW SOURCE PERFORMANCE STANDARDS
(Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units)

As each of these boilers is:

- a "steam generating unit" as defined under NSPS Subpart Dc;
- will commence construction, modification, or reconstruction after June 9, 1989;
- has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h)

they are subject to this rule.

The fuel these boilers will combust is either natural gas or the non-traditional biomass-based fuels consisting of resinated wood, construction and demolition (C&D) wood and untreated wood pallets. These biomass-based fuels are discussed under 40 CFR 241 elsewhere in this review. These biomass-based fuels appear to meet the definition of "wood" as defined under this rule at 40 CFR 60.41c which reads as follows:

> Wood means wood, wood residue, bark, or any derivative fuel or residue thereof, in any form, including but not limited to sawdust, sanderdust, wood chips, scraps, slabs, millings, shavings, and processed pellets made from wood or other forest residues.

As such these boilers are subject to following PM and opacity emission standards.

PM
60.43c(e)(1)

> (1) On and after the date on which the initial performance test is completed or is required to be completed under §<<60>>.8, whichever date comes first, no owner or operator of an affected facility that **commences construction, reconstruction, or modification after February 28, 2005**, and that combusts coal, oil, wood, a mixture of these fuels, or a mixture of these fuels with any other fuels and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of 13 ng/J (**0.030 lb/MMBtu**) heat input, except as provided in paragraphs (e)(2), (e)(3), and (e)(4) of this section.

Opacity
60.43c(e)(1)

> On and after the date on which the initial performance test is completed or required to be completed under §<<60>>.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, wood, or oil and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that exhibit greater than 20 percent ***opacity*** (6-minute average), except for one 6-minute period per hour of not more than 27 percent ***opacity***.

Note they are not subject to any SO2 emission standard under this rule. When firing only NG no PM or opacity standards apply.

NSPS require initial performance testing to comply with these emission standards within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup. [40 CFR 60.8(a)] Note that NSPS testing requires EPA Method 5, which only captures PM filterable.

Note GACT JJJJJJ also requires PM filterable testing initially and subsequently on an every three- or five-year basis depending on the margin of compliance. As allowed pursuant to 40 CFR 60.45c(a), compliance with the NSPS PM filterable limit will be required on the same frequency as that required under GACT JJJJJJ.

Since Lawndale has chosen to utilize a bagfilter leak detection system, it meets the exemption at 60.47c(f) and is not required to operate COMs. Lawndale must operate a bag leak detection system to monitor the performance of the fabric filters according to the requirements 40 CFR 60.48Da (i.e., NSPS Subpart Da). These requirements include:

The Permittee shall operate a bag leak detection system to monitor the performance of the fabric filter according to the requirements in 40 CFR 60.48Da as follows:

(A) The bag leak detection system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 1 milligram per actual cubic meter (0.00044 grains per actual cubic foot) or less.

(B) The bag leak detection system sensor must provide output of relative PM loadings. The owner or operator must continuously record the output from the bag leak detection system using electronic or other means (e.g., using a strip chart recorder or a data logger.)

(C) The bag leak detection system must be equipped with an alarm system that will react when the system detects an increase in relative particulate loading over the alarm set point established according to (D) below, and the alarm must be located such that it can be noticed by the appropriate plant personnel.

(D) In the initial adjustment of the bag leak detection system, the Permittee shall establish, at a minimum, the baseline output by adjusting the sensitivity (range) and the averaging period of the device, the alarm set points, and the alarm delay time.

(E) Following initial adjustment, the Permittee shall not adjust the averaging period, alarm set point, or alarm delay time without approval from the DAQ.

(F) Once per quarter, the Permittee shall adjust the sensitivity of the bag leak detection system to account for seasonal effects, including temperature and humidity, according to the procedures identified in the site-specific monitoring plan required by ii below

(G) The Permittee shall install the bag leak detection sensor downstream of the fabric filter and upstream of any wet scrubber.

(H) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

[40 CFR 60.47c(f), 60.48Da(o)(4)(i)]

ii. The Permittee shall develop and submit to DAQ for approval a site-specific monitoring plan for each bag leak detection system. The Permittee shall operate and maintain the bag leak detection system according to the site-specific monitoring plan at all times. Each monitoring plan must describe the items in (A) through (F) below.

(A) Installation of the bag leak detection system;

(B) Initial and periodic adjustment of the bag leak detection system, including how the alarm set-point will be established;

(C) Operation of the bag leak detection system, including quality assurance procedures;

(D) How the bag leak detection system will be maintained, including a routine maintenance schedule and spare parts inventory list;

(E) How the bag leak detection system output will be recorded and stored; and

(F) Corrective action procedures as specified in iii below. In approving the site-specific monitoring plan, the permitting authority may allow owners and operators more than 3 hours to alleviate a specific condition that causes an alarm if the owner or operator identifies in the monitoring plan this specific condition as one that could lead to an alarm, adequately explains why it is not feasible to alleviate this condition within 3 hours of the time the alarm occurs, and demonstrates that the requested time will ensure alleviation of this condition as expeditiously as practicable.

[40 CFR 60.47c(f), 60.48Da(o)(4)(ii)]

iii. For each bag leak detection system, the Permittee shall initiate procedures to determine the cause of every alarm within 1 hour of the alarm. Except as provided in (F) below, the Permittee shall alleviate the cause of the alarm within 3 hours of the alarm by taking whatever corrective action(s) are necessary. Corrective actions may include, but are not limited to the following:

(A) Inspecting the fabric filter for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in particulate emissions;

(B) Sealing off defective bags or filter media;

(C) Replacing defective bags or filter media or otherwise repairing the control device;

(D) Sealing off a defective fabric filter compartment;

(E) Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system; or
(F) Shutting down the process producing the particulate emissions.
[40 CFR 60.47c(f), 60.48Da(o)(4)(iii)]

iv. The Permittee shall maintain records of the information specified in (A) through (C) below for each bag leak detection system.
(A) Records of the bag leak detection system output;
(B) Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and
(C) The date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, if procedures were initiated within 1 hour of the alarm, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and if the alarm was alleviated within 3 hours of the alarm.
[40 CFR 60.47c(f), 60.48Da(o)(4)(iv)]

v. If after any period composed of 30 boiler operating days during which the alarm rate exceeds 5 percent of the process operating time (excluding control device or process startup, shutdown, and malfunction), then the Permittee shall conduct a new PM performance test according to Section 2.1 A.5.e above. This new performance test must be conducted within 60 calendar days of the date that the alarm rate was first determined to exceed 5 percent limit unless a waiver is granted by the DAQ.
[40 CFR 60.47c(f), 60.48Da(o)(4)(v)]

An initial review of the submitted site specific monitoring plan submitted with the amended application received on March 20, 2024, suggests Lawndale will meet the requirements at 60.48Da.

Although not required to operate a COMs, Lawndale is required to perform opacity monitoring by performing EPA Method 9 performance tests at a frequency determined by the most recent performance test results.

Typical recordkeeping will also be required.

Semiannual reporting of the monitoring and recordkeeping activities will be required. Notifications of the commencement of construction of the boilers and of initial startup of the boilers will be required.

Compliance with this rule is expected.

State Enforceable Only
15A NCAC 02D .1100: CONTROL OF TOXIC AIR POLLUTANTS
See discussion in SECTION V below.

15A NCAC 02D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY
40 CFR 63 Subpart JJJJJJ "National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers"

As seen in Table III in Section III above, the proposed facility has potential controlled emissions of total HAP of 13.0 tons per year and 6.38 tpy of HCL, the single TAP with the greatest emissions. Thus, the facility is an area source of TAPS. See discussion under the 02D .1100 regulatory discussion below for a testing requirement to verify this assumption.

As these boilers will be constructed after June 4, 2010, these boilers meet the applicability requirements for this rule at 63.11194(a)(2).

The definition of boiler under the rule at 63.11237 is:

> *Boiler* means an enclosed device using controlled flame combustion in which water is heated to recover thermal energy in the form of steam and/or hot water. Controlled flame combustion refers

> to a steady-state, or near steady-state, process wherein fuel and/or oxidizer feed rates are controlled. A device combusting solid waste, as defined in §241.3 of this chapter, is not a boiler unless the device is exempt from the definition of a solid waste incineration unit as provided in section 129(g)(1) of the Clean Air Act. Waste heat boilers, process heaters, and autoclaves are excluded from the definition of *Boiler.*

As discussed elsewhere in this review, the resinated wood, construction and demolition (C&D) wood and untreated wood pallets are not "solid waste."

The definition of biomass under the rule at 63.11237 is:

> *Biomass* means any biomass-based solid fuel that is not a solid waste. This includes, but is not limited to, wood residue and wood products (e.g., trees, tree stumps, tree limbs, bark, lumber, sawdust, sander dust, chips, scraps, slabs, millings, and shavings); animal manure, including litter and other bedding materials; vegetative agricultural and silvicultural materials, such as logging residues (slash), nut and grain hulls and chaff (*e.g.,* almond, walnut, peanut, rice, and wheat), bagasse, orchard prunings, corn stalks, coffee bean hulls and grounds. This definition of biomass is not intended to suggest that these materials are or are not solid waste.

Hence, resinated wood, construction and demolition (C&D) wood and untreated wood pallets meet the definition of "biomass" at 63.11237.

Biomass subcategory is defined at 63.1127 as "includes any boiler that burns any biomass and is not in the coal subcategory." Thus, these boilers are in the "biomass" subcategory listed at 63.11200.

As new biomass-fired boilers with heat input capacity of 30 MMBtu/hr or greater that do not meet the definition of seasonal boiler or limited-use boiler they are subject to a filterable PM emission limit of 3.0E-02 lb MMBtu of heat input (Table 1 to GACT JJJJJJ). Lawndale will use a fabric filter system to meet this emission standard. Per Table 3 to GACT JJJJJJ, the following operating limits apply:

- Maintain opacity to less than or equal to 10 percent opacity (daily block average); OR
- Install and operate a bag leak detection system according to §63.11224 and operate the fabric filter such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during each 6-month period.

Similar to the NSPS Subpart Dc discussion elsewhere, Lawndale has chosen to install and operate a bag leak detection system according to §63.11224 which requires:

i. The Permittee shall develop a site-specific monitoring plan according to the requirements in 40 CFR 63.11224(c). [40 CFR 63.11205(c), 63.11224(c)]
ii. The Permittee shall monitor and collect data according to 40 CFR 63.11221 and the site-specific monitoring plan. [40 CFR 63.11221]
iii. The Permittee shall install, calibrate, maintain, and continuously operate a bag leak detection system(s) as specified below:
   (A) The Permittee shall install and operate a bag leak detection system for each exhaust stack of the fabric filter.
   (B) Each bag leak detection system must be installed, operated, calibrated, and maintained in a manner consistent with the manufacturer's written specifications and recommendations and in accordance with EPA-454/R-98-015 (incorporated by reference, see 40 CFR 63.14).
   (C) The bag leak detection system must be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations of 10 milligrams per actual cubic meter or less.
   (D) The bag leak detection system sensor must provide output of relative or absolute particulate matter loadings.
   (E) The bag leak detection system must be equipped with a device to continuously record the output signal from the sensor.

(F) The bag leak detection system must be equipped with an audible or visual alarm system that will activate automatically when an increase in relative particulate matter emissions over a preset level is detected. The alarm must be located where it is easily heard or seen by plant operating personnel.
(G) For positive pressure fabric filter systems that do not duct all compartments or cells to a common stack, a bag leak detection system must be installed in each baghouse compartment or cell.
(H) Where multiple bag leak detectors are required, the system's instrumentation and alarm may be shared among detectors.
[40 CFR 63.11224(f)]

iv. The operating limit for boilers with fabric filters that demonstrate continuous compliance through bag leak detection systems is that a bag leak detection system be installed according to iii above (i.e., 40 CFR 63.11224), and that each fabric filter must be operated such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during a 6-month period. [40 CFR 63.11201(c), 63.11211(b)(4), Table 3 and Table 7 to GACT JJJJJJ]

v. In order to demonstrate continuous compliance using a bag leak detection system:
(A) The Permittee shall initiate corrective action within 1 hour of a bag leak detection system alarm and operate and maintain the fabric filter system such that the alarm does not sound more than 5 percent of the operating time during a 6-month period.
(B) The Permittee shall also keep records of the date, time, and duration of each alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken.
(C) The Permittee shall also record the percent of the operating time during each 6-month period that the alarm sounds. In calculating this operating time percentage, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted.
(D) If corrective action is required, each alarm is counted as a minimum of 1 hour. If it takes longer than 1 hour to initiate corrective action, the alarm time is counted as the actual amount of time taken to initiate corrective action.
[40 CFR 63.11222(a)(4)]

The requirements for the bag leak detection system are similar, but <u>not the same</u>, as those for NSPS Subpart Dc.

Note that under this rule (GACT JJJJJJ), the Permittee shall initiate corrective action within 1 hour of a bag leak detection system alarm and operate and maintain the fabric filter system such that the alarm does not sound more than 5 percent of the operating time during a 6-month period. Whereas under NSPS Dc, the requirement is:

> If after any period composed of 30 boiler operating days during which the alarm rate exceeds 5 percent of the process operating time (excluding control device or process startup, shutdown, and malfunction), then the Permittee shall conduct a new PM performance test according to Section 2.1 A.5.e above. This new performance test must be conducted within 60 calendar days of the date that the alarm rate was first determined to exceed 5 percent limit unless a waiver is granted by the DAQ.

As such, both sets of requirements will be included in the permit under the associated regulation. Other than the difference explicitly presented above regarding what happens in the event of an alarm, it is expected that meeting the bag leak detection requirements under subpart Dc as presented in the site-specific monitoring plan will also meet the requirements under this rule (GACT JJJJJJ)

Lawndale will be required to conduct an initial performance test within 180 days after startup of each boiler. [40 CFR 63.11196(c), 63.11210(d)] subsequent performance tests are required on a three or five year basis depending on the margin of compliance. Lawndale will have an operating load operating limit based on the operating load of the most recent performance test.

Tune ups for the boilers are also required every two years.

Typical recordkeeping and reporting requirements will also be required. This recordkeeping includes the following:

- for operating units that combust non-hazardous secondary materials as fuel per 40 CFR 241.4, keep records documenting that the material is a listed non-waste under 40 CFR 241.4(a). [40 CFR 63.11225(c)(2)(ii)]

This requirement is driven by 40 CFR PART 241. See discussion elsewhere this review document.

GACT JJJJJJ recordkeeping requirements also include:

- keep records of monthly fuel use by each boiler, including the type(s) of fuel and amount(s) used. [40 CFR 63.11225(c)(2)(iv)]

Thus, the Lawndale should be able to demonstrate at all times that the fuels combusted meet the requirements of 40 CFR 241 and how much of those fuels were combusted over any given month.

Given the use of bagfilter system with a bag leak detection system as controls for filterable PM, compliance with the PM emission limit in the rule is expected. Compliance with the other requirements of this rule are also expected.

State Enforceable Only
15A NCAC 02D .1806: CONTROL AND PROHIBITION OF ODOROUS EMISSIONS
See discussion in SECTION V below.

40 CFR PART 241 - SOLID WASTES USED AS FUELS OR INGREDIENTS IN COMBUSTION UNITS
As stated in 241.1:

> This part identifies the requirements and procedures for the identification of solid wastes used as fuels or ingredients in combustion units under section 1004 of the Resource Conservation and Recovery Act and section 129 of the Clean Air Act.

Lawndale is requesting to combust materials, resinated wood, construction and demolition (C&D) wood and untreated wood pallets, that are not considered traditional fuels. Given the typical origin of these fuels as being the result of "discard," it is necessary to utilize Part 241 to determine if these materials should be considered solid wase when used as a fuel. If the materials are determined to be solid waste, the boilers would be regulated as incinerators 40 CFR 60 Subpart CCCC "Standards of Performance for Commercial and Industrial Solid Waste Incineration Units." If these materials are determined not to be solid waste when used as a fuel in the boilers, than the boilers would be regulated under 40 CFR 63 Subpart JJJJJJ(6J) "National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers." 40 CFR 241.4,"Non-Waste Determinations for Specific Non-Hazardous Secondary Materials When Used as a Fuel," states the following:

> (a) The following non-hazardous secondary materials are not solid wastes when used as a fuel in a combustion unit:
> (1) ***
> (2) Resinated wood.
> (3) ***
> (4) ***
> (5) Construction and demolition (C&D) wood processed from C&D debris according to best management practices.

C&D wood and resinated wood are both listed under 241.4(a) and therefore, they are not considered to be solid waste. The EPA on its website provides a guide that provide assistance on how to make a non-waste determination for fuels under the non-hazardous secondary material regulations. It is designed to help the generators and combustors of NHSM apply these self-implementing regulations to their processes. The guide goes through each step of the non-waste determination process, including applying the legitimacy criteria and processing requirements. The guide also explains the two petition processes under NHSM, the role of the states and the recordkeeping requirements under the Clean Air Act.
Non-Hazardous Secondary Material (NHSM) Guide for Waste/Non-Waste Determinations | US EPA

In this guide the following statement are made:

> The NHSM Rule is definitional in nature; it does not contain recordkeeping, monitoring, or other implementation requirements. Those requirements are contained within the applicable CAA rules: Commercial and Industrial Solid Waste Incineration Units (CISWI), and National Emission Standards for Hazardous Air Pollutants (NESHAP) for major and area source boilers. As a result, state and local air programs can play an integral role in ensuring that sources combusting NHSMs have identified whether those materials are wastes or non-wastes consistent with the 40 CFR part 241 standards through facility inspection, air permitting, and review of the required applicability and combustion records. If states have taken delegation of these CAA rules, they have authority to take enforcement actions against facilities that improperly designate or improperly keep records on whether their fuel is solid waste or not. While states can verify NHSM waste/non-waste self-determinations, states do not have the authority to provide NHSM waste/non-waste determinations because the air regulations rely on the federal definition of solid waste (RO 14896). We recommend that state air programs coordinate with EPA regional solid waste contacts for NHSM waste/non-waste determinations.

Per 241 and consistent with the EPA guidance, these boilers, since they do not intend to combust solid waste and are expected to be area sources for HAP will be regulated under GACT JJJJJJ (See regulatory review for 02D .1111 above).

C&D wood is defined as follows at 241.2:

> means wood that is generated from the processing of debris from construction and demolition activities for the purposes of recovering wood. C&D wood from construction activities results from wood generated during any installation activity or from purchasing more wood than a project ultimately requires. C&D wood from demolition activities results from dismantling buildings and other structures, removing materials during renovation, or from natural disasters.

241.4 requires the following for Lawndale:

> Combustors of C&D wood must obtain a written certification from C&D processing facilities that the C&D wood has been processed by trained operators in accordance with best management practices. Best management practices for purposes of this categorical listing must include sorting by trained operators that excludes or removes the following materials from the final product fuel: non-wood materials (e.g., polyvinyl chloride and other plastics, drywall, concrete, aggregates, dirt, and asbestos), and wood treated with creosote, pentachlorophenol, chromated copper arsenate, or other copper, chromium, or arsenical preservatives. In addition:
>
> (i) Positive sorting. C&D processing facilities that use positive sorting - where operators pick out desirable wood from co-mingled debris - or that receive and process positive sorted C&D wood must either:
>
> (A) Exclude all painted wood (to the extent that only de minimis quantities inherent to processing limitations may remain) from the final product fuel,
>
> (B) Use X-ray Fluorescence to ensure that painted wood included in the final product fuel does not contain lead-based paint, or
>
> (C) Require documentation that a building has been tested for and does not include lead-based paint before accepting demolition debris from that building.
>
> (ii) Negative sorting. C&D processing facilities that use negative sorting - where operators remove contaminated or otherwise undesirable materials from co-mingled debris - must remove fines (i.e., small-sized particles that may contain relatively high concentrations of lead and other contaminants) and either:
>
> (A) Remove all painted wood (to the extent that only de minimis quantities inherent to processing limitations may remain),
>
> (B) Use X-ray Fluorescence to detect and remove lead-painted wood, or
>
> (C) Require documentation that a building has been tested for and does not include lead-based paint before accepting demolition debris from that building.

> (iii) Training. Processors must train operators to exclude or remove the materials as listed in paragraph (a)(5) of this section from the final product fuel. Records of training must include date of training held and must be maintained on-site for a period of three years.
> (iv) Written certification. A written certification must be obtained by the combustor for every new or modified contract, purchase agreement, or other legally binding document, from each final processor of C&D wood and must include the statement: the processed C&D wood has been sorted by trained operators in accordance with best management practices.

Thus, for C&D wood, Part 241 requires specific recordkeeping requirements on behalf of the "processors", the suppliers of the materials, and the "combustors," or Lawndale.

Lawndale states in the application:

> "Lawndale Recycling will only accept C&D wood from providers that have processed the material, and provided the required documentation, prior to shipping material to Lawndale's facility. Lawndale will keep these records onsite for each source of C&D wood."

Resinated wood is defined as follows at 241.2:

> Resinated wood means wood products (containing binders and adhesives) produced by primary and secondary wood products manufacturing. Resinated wood includes residues from the manufacture and use of resinated wood, including materials such as board trim, sander dust, panel trim, and off-specification resinated wood products that do not meet a manufacturing quality or standard.

For resinated wood, Part 241 does not provide for any specific recordkeeping requirements. Lawndale states in the application:

> Lawndale Recycling will accept resinated wood directly and only from wood products manufacturers and will keep records identifying the manufacturers providing this material and the quantities provided. Suppliers must be manufacturers of resinated wood products, such as wood panel and/or furniture manufacturers.

Untreated wood pallets that have not been discarded are listed in the clean cellulosic biomass definition in 40 CFR 241.2 which states these materials are not secondary materials or solid wastes unless discarded. Lawndale Recycling will only accept chemically untreated, unmarked, wood pallets directly and only from industrial facilities that have not been discarded. Lawndale states in the application:

> Manufacturers that receive materials and equipment on pallets often have to determine what to do with the pallets after the goods are removed. Lawndale Recycling will be receiving plastic materials for recycling in cardboard Gaylord boxes on wood pallets. The cardboard will be recycled or reused, but not combusted. The wood pallets will be combusted for energy recovery in the two boilers instead of disposing of them in a landfill.
>
> Lawndale may also identify manufacturers with a similar need, i.e., what to do with wood pallets that were part of received goods after the goods have been removed from the pallets. These facilities may wish to have the pallets serve another purpose in lieu of disposing of them in a landfill.
>
> Wood pallets that have been chemically treated for international shipping will have markings indicating the country where manufactured, the type of chemical treatment it received and other markings. Domestically manufactured pallets are not chemically treated and have no markings. Wooden pallets manufactured in the US undergo a pest control treatment called heat treating which involves heating the pallet to a minimum core temperature of 56°C for softwoods and 60°C for hardwoods for a minimum of 30 minutes in a kiln. These unmarked pallets are not harmful to human health and contain no toxic chemicals.

Pallets with markings or signs of spillage will not be accepted. Only untreated, unmarked wood pallets that have not been discarded will be accepted by Lawndale Recycling as fuel for the solid fuel boilers. These untreated, unmarked wood pallets will be obtained directly from industrial facilities.

A material acceptance plan is provided in Appendix E to clarify what materials will be accepted by Lawndale Recycling as fuel for its boilers. A material acceptance form (also in Appendix E) will be required to be submitted to Lawndale Recycling prior to shipping material to the site.

As discussed in the 02D .1111 (GACT JJJJJJ) discussion above, and consistent with the EPA guidance document above, the following recordkeeping is required under GACT JJJJJJ and will be included in the permit.

- for operating units that combust non-hazardous secondary materials as fuel per 40 CFR 241.4, keep records documenting that the material is a listed non-waste under 40 CFR 241.4(a). [40 CFR 63.11225(c)(2)(ii)]

Lawndale has provided adequate information that the materials represented to be C&D wood and resinated wood will likely meet the requirements of 40 CFR 241.4 and that the C&D wood, resinated wood and untreated wood pallets meet their respective definition at 40 CFR 241.2. The permit will contain a permit condition for 40 CFR Part 241 and will reference the recordkeeping requirements under GACT JJJJJJ. Additional recordkeeping will be included as follows to add clarity for the content of the recordkeeping requirements referenced under GACT JJJJJJ. The condition will read as follows:

40 CFR 241: Solid Wastes Used as Fuels or Ingredients in Combustion Units

a. Pursuant to 40 CFR 241.2, untreated wood pallets are considered clean cellulosic biomass and are not secondary materials or solid wastes unless discarded.
b. Pursuant to 40 CFR 241.4(a), the following materials as defined at 40 CFR 241.2 are not solid wastes when combusted as a fuel in the boilers.
    i. Resinated wood.
    ii. Construction and demolition (C&D) wood processed from C&D debris according to best management practices.

Monitoring Requirements [15A NCAC 02Q .0308(a)(1)]

c. The following monitoring and recordkeeping requirements apply:
    i. The Permittee shall meet the GACT JJJJJJ recordkeeping requirements at Section 2.1 A.6.j.iv.
    ii. The records kept shall be sufficient to determine if each fuel combusted listed in Section 2.1 A.7.a and b above meets its respective definition in 40 CFR 241.2.
    iii. For the C&D wood, the Permittee shall meet all monitoring and recordkeeping requirements at 40 CFR 241.4(a)(5).

V. Facility-wide Regulatory Considerations

15A NCAC 02D .0614: COMPLIANCE ASSURANCE MONITORING (CAM)

02D .0614 implements the federal rule "Compliance Assurance Monitoring" (CAM) at 40 CFR Part 64. The CAM rule requires owners and operators at a facility with a Title V permit to conduct monitoring to provide a reasonable assurance of compliance with applicable requirements. Monitoring focuses on emissions units that rely on pollution control device equipment to achieve compliance with applicable standards.

CAM applicability will be addressed when Lawndale submits the initial TV permit application.

15A NCAC 02D .0900 VOLATILE ORGANIC COMPOUNDS (VOCs)
15A NCAC 02D .0902 APPLICABILITY

The 02D .0900 Section of rules applies to sources that emit greater than or equal to 15 pounds of volatile organic compounds per day unless specified otherwise in this Section.

The facility is located in Cleveland County. Cleveland County is considered in attainment for all pollutants and is not a maintenance area for any pollutants.

Pursuant to 02Q .0902(e) the following rules apply statewide:

- 15A NCAC 02D .0925, Petroleum Liquid Storage in Fixed Roof Tanks, for fixed roof tanks at gasoline bulk plants and gasoline bulk terminals
- 15A NCAC 02D .0927, Bulk Gasoline Terminals
- 15A NCAC 02D .0928, Gasoline Service Stations Stage I
- 15A NCAC 02D .0932, Gasoline Cargo Tanks and Vapor Collection Systems
- 15A NCAC 02D .0933, Petroleum Liquid Storage in External Floating Roof Tanks, for external floating roof tanks at bulk gasoline plants and bulk gasoline terminals
- 15A NCAC 02D .0948 VOC Emissions from Transfer Operations
- 15A NCAC 02D .0949, Storage of Miscellaneous Volatile Organic Compounds

None of these rules are applicable to Lawndale.

Pursuant to 02D .0902(f), (g), and (h), all 02D .0900 rules potentially apply to facilities in the following counties if they meet other certain criteria relating to the facility's status as being located in a moderate nonattainment or maintenance area for the 1997 8-hour ambient air quality standard for ozone and in one of the following areas.

- Cabarrus County
- Gaston County
- Lincoln County
- Mecklenburg County
- Rowan County
- Union County
- Davidson Township and Coddle Creek Township in Iredell County.

As Cleveland County is not on this list, rule applicability pursuant to 02D .0902(f), (g) and (h) does not apply. In summary, no 02D .0900 rules apply.

State enforceable only
15A NCAC 02Q .0700: TOXIC AIR POLLUTANT PROCEDURES
15A NCAC 02D .1100: CONTROL OF TOXIC AIR POLLUTANTS
The regulations at 15A NCAC 02Q .0700 require, with some exceptions, a permit to emit any toxic air pollutant (TAP) at levels greater than the toxic air pollutant permitting emission rate (TPER) specified in 15A NCAC 02Q .0711. These regulations include the procedural rules used to comply with the TAP control requirements found at 15A NCAC 02D .1100. 15A NCAC 02D .1104 contains Acceptable Ambient Levels (AALs) for each TAP. Generally, a facility must conduct a dispersion modeling analysis to demonstrate that each TAP emitted above its respective TPER will not result in the respective AAL being exceeded beyond the facility's premises. Collectively, these "toxics" rules are state-enforceable only and are not subject to the TV requirements found at 15A NCAC 02Q .0500.

The Permittee supplied a facility-wide potential emissions estimate for all TAPs with the application. The calculations however were revised during the review process and are presented below. These values were determined using the DAQ emission calculation spreadsheet entitled "Woodwaste Combustion Emissions Calculator, Revision L, 09/03/2019" or Natural Gas Combustion Emissions Calculator, Revision N, 01/05/2017." All the TAP emissions from the facility will be generated by the two boilers. On a lb/MMBtu basis, the emission of each TAP is greater when firing biomass than when firing NG with the exception of ammonia and hexane. The following were assumed in the calculation of all TAP emission rates:

Maximum heat input of boilers = 76.64 MMBtu/hr (equal to maximum permitted heat input capacity)
24 hours per day/365 days per year of operation

As can be seen in the table below eight TAPS exceeded their respective TPER and hence were included in the modeling demonstration.

Table V.

Pollutant	CAS	TPER lb/yr	TPER lb/day	TPER lb/hr	TPER lb/hr	emission rates lb/yr	emission rates lb/day	emission rates lb/hr	emission rates lb/hr	greater than TPER ? lb/yr	greater than TPER ? lb/day	greater than TPER ? lb/hr	greater than TPER ? lb/hr
Acetaldehyde (TH)	75070	-	-	-	28.43	557.21	1.53E+00	6.36E-02	6.36E-02	NA	NA	NA	NO
Acrolein (TH)	107028	-	-	-	0.08	2685.33	7.36E+00	3.07E-01	3.07E-01	NA	NA	NA	YES
Arsenic Unlisted Compounds (component of ASC) (TH)	ASC-other	0.194	-	-	-	14.77	4.05E-02	1.69E-03	1.69E-03	YES	NA	NA	NA
Benzene (TH)	71432	11.069	-	-	-	2819.59	7.72E+00	3.22E-01	3.22E-01	YES	NA	NA	NA
Benzo(a)pyrene (T)	50328	3.044	-	-	-	1.75	4.78E-03	1.99E-04	1.99E-04	NO	NA	NA	NA
Beryllium Metal (unreacted) (component of BEC) (T/H)	7440417	0.378	-	-	-	0.74	2.02E-03	8.43E-05	8.43E-05	YES	NA	NA	NA
Cadmium Metal (unreacted) (component of CDC) (T/H)	7440439	0.507	-	-	-	2.75	7.54E-03	3.14E-04	3.14E-04	YES	NA	NA	NA
Carbon tetrachloride (TH)	56235	618.006	-	-	-	30.21	8.28E-02	3.45E-03	3.45E-03	NO	NA	NA	NA
Chlorine (TH)	7782505	-	1.6	-	0.95	530.35	1.45E+00	6.05E-02	6.05E-02	NA	NO	NA	NO
Chlorobenzene (TH)	108907	-	92.7	-	-	22.15	6.07E-02	2.53E-03	2.53E-03	NA	NO	NA	NA
Chloroform (TH)	67663	396.631	-	-	-	18.80	5.15E-02	2.15E-03	2.15E-03	NO	NA	NA	NA
Di(2-ethylhexyl)phthalate (DEHP) (TH)	117817	-	1.3	-	-	0.03	8.64E-05	3.60E-06	3.60E-06	NA	NO	NA	NA
Ethylene dichloride (1,2-dichloroethane) (TH)	107062	350.511	-	-	-	19.47	5.33E-02	2.22E-03	2.22E-03	NO	NA	NA	NA
Soluble Chromate Cmpds, as Chrome (VI) (TH)	SOLCR6	-	2.60E-02	-	-	2.35	6.44E-03	2.68E-04	2.68E-04	NA	NO	NA	NA
Formaldehyde (TH)	50000	-	-	-	0.16	2953.86	8.09E+00	3.37E-01	3.37E-01	NA	NA	NA	YES
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH)	57653857	0.007	-	-	-	1.20E-05	3.29E-08	1.37E-09	1.37E-09	NO	NA	NA	NA
Hydrogen chloride (hydrochloric acid) (TH)	7647010	-	-	-	0.74	12755.30	3.49E+01	1.46E+00	1.46E+00	NA	NA	NA	YES
Manganese Unlisted Compounds (component of MNC) (TH)	MNC-other	-	1.3	-	-	1074.13	2.94E+00	1.23E-01	1.23E-01	NA	YES	NA	NA
Mercury, vapor (component of HGC)(T/H)	7439976	-	2.50E-02	-	-	2.35	6.44E-03	2.68E-04	2.68E-04	NA	NO	NA	NA
Methyl chloroform (TH) (1,1,1 trichloroethane)	71556	-	505.4	-	257.98	20.81	5.70E-02	2.38E-03	2.38E-03	NA	NO	NA	NO
Methyl ethyl ketone (T)	78933	-	155.8	-	93.19	3.63	9.93E-03	4.14E-04	4.14E-04	NA	NO	NA	NO
Methylene chloride (TH) (dichloromethane)	75092	2213.752	-	1.79	-	194.69	5.33E-01	2.22E-02	2.22E-02	NO	NA	NO	NA
Nickel metal (Component of 373024/NIC) (T/H)	7440020	-	0.3	-	-	22.15	6.07E-02	2.53E-03	2.53E-03	NA	NO	NA	NA
Pentachlorophenol (TH)	87865	-	0.1	0.03	-	0.03	9.38E-05	3.91E-06	3.91E-06	NA	NO	NO	NA
Perchloroethylene (tetrachloroethylene) (TH)	127184	17525.534	-	-	-	25.51	6.99E-02	2.91E-03	2.91E-03	NO	NA	NA	NA
Phenol (TH)	108952	-	-	1	-	34.24	9.38E-02	3.91E-03	3.91E-03	NA	NA	NO	NA
Polychlorinated biphenyls (TH)	1336363	7.656	-	-	-	0.01	1.50E-05	6.25E-07	6.25E-07	NO	NA	NA	NA
Styrene (TH)	100425	-	-	11.16	-	1275.53	3.49E+00	1.46E-01	1.46E-01	NA	NA	NO	NA
Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH)	1746016	2.77E-04	-	-	-	5.77E-06	1.58E-08	6.59E-10	6.59E-10	NO	NA	NA	NA
Toluene (TH)	108883	-	197.96	-	58.97	617.62	1.69E+00	7.05E-02	7.05E-02	NA	NO	NA	NO
Trichloroethylene (TH)	79016	5442.14	-	-	-	20.14	5.52E-02	2.30E-03	2.30E-03	NO	NA	NA	NA
Vinyl chloride (TH)	75014	35.051	-	-	-	12.08	3.31E-02	1.38E-03	1.38E-03	NO	NA	NA	NA
Xylene (TH)	1330207	-	113.7	-	68.44	16.78	4.60E-02	1.92E-03	1.92E-03	NA	NO	NA	NO
Ammonia (T)	7664417	-	-	-	2.84	2.11E+03	5.77E+00	2.40E-01	2.40E-01	NA	NA	NA	NO
Hexane, n- (TH)	110543	-	46.3	-	-	1.18E+03	3.25E+00	1.35E-01	1.35E-01	NA	NO	NA	NA

The modeling was conducted by the Air Quality Analysis Branch (AQAB) at the request of the Permittee. The AQAB issued a memo dated March 14, 2024, stating the following:

> The modeling is meant to ensure TAP emissions do not exceed acceptable ambient levels (AALs) listed in 15A NCAC 02D .1104. The modeling adequately demonstrates compliance, on a source-by-source basis, for all toxics modeled.

The table below shows the maximum impacts as a percentage of the AAL.

Lawndale Recycling, LLC, Lawndale, Cleveland County, North Carolina

Pollutant	Averaging Period	Max. Conc. ($\mu g/m^3$)	AAL ($\mu g/m^3$)	% of AAL
Acrolein	1-hour	1.08	80	1.4%
Arsenic	Annual	0.00015	0.0021	7.1%
Benzene	Annual	0.03	0.12	25%
Beryllium	Annual	0.00001	0.0041	0.2%
Cadmium	Annual	0.00003	0.0055	0.5%
Formaldehyde	1-hour	1.18	150	0.8%
Hydrogen chloride	1-hour	5.13	700	0.7%
Manganese	24-hour	0.14	3.1	4.5%

The two boilers are subject to a GACT standard (i.e., GACT JJJJJJ) and therefore meet the toxics permitting exemption at 15A NCAC 02Q .0702(a)(27). However, pursuant to 15 A NCAC 02Q .0704(c), sources meeting the exemption set forth in 15A NCAC 02Q .0702(a)(27) shall be reviewed by the Division pursuant to G.S. 143-215.107(a)(5)b. Thus, a determination needs to be made, if the operation of the boilers pose an "unacceptable risk to human health." As shown above, all TAPs expected to be emitted from the facility are expected to be emitted below their respective TPERs or were included in a modeling demonstration and the maximum emissions will not result in the respective AAL being exceeded beyond the facility's premises.

Assuming that the emissions profile of the permitted fuels are essentially the same as those provided that are based on primarily AP-42 emission factors, this engineer concurs that the boilers would not pose an "unacceptable risk to human health" pursuant to G.S. 143-215.107(a)(5)b and therefore meet the toxics permitting exemption at 15A NCAC 02Q .0702(a)(27). It is unclear however if this assumption is reasonable.

In addition, the conclusion that the facility is an area source and is therefore not subject to the major HAP source rule 40 CFR Part 63 Subpart DDDDD, "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters") is also based on these AP-42 emission factors that may or may not be representative.

Therefore, a testing requirement will be placed into the permit for the 8 TAPs modeled and chlorine which was approximately 90% of its TPER. These TAPs are also HAPs and (again assuming the AP-42 emission factors are reasonable) make up approximately 88% of the total mass of HAP expected to be emitted. Thus, the testing requirement will determine:

- if the conclusion of an "unacceptable risk to human health" is valid
- if the assumption that the facility is an area source for HAP is valid

The testing requirement will read as follows:

15A NCAC 02Q .0308(a)(1) Testing Requirement

a. In order to verify that the facility is an area source of HAP and therefore not subject to 40 CFR Part 63 Subpart DDDDD "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters" and to verify that the operation of the boilers do not pose an unacceptable risk to human health pursuant to NCG.S. 143-215.107(a)(5)b, under the provisions of NCGS 143-215.108, the Permittee shall conduct a source test on the boilers for the pollutants listed below in accordance with a testing protocol approved by the DAQ.
b. Testing shall be conducted when combusting materials that are expected to represent worst case emissions. Details of the emissions testing and reporting requirements can be found in General Condition 17.
c. Consistent with 15A NCAC 02D .2602(b), the test protocol shall be submitted to the DAQ at least 45 days before conducting the test and request the DAQ review the testing protocol for pre-approval prior to testing.
d. Testing shall be completed and the results submitted within 180 days of beginning operation unless an alternate date is approved by the DAQ.

Pollutant	CAS No.
Benzene	71-43-2
Arsenic Unlisted Compounds (component of ASC)	ASC-other
Cadmium Metal (unreacted) (component of CDC)	7440-43-9
Acrolein	107-02-8
Manganese Unlisted Compounds (component of MNC)	MNC-other
Formaldehyde	50-00-0
Hydrogen chloride (hydrochloric acid)	7647-01-0
Beryllium Metal (unreacted) (component of BEC)	7440-41-7
Chlorine	7782-50-5

State Enforceable Only

15A NCAC 02D .1806: CONTROL AND PROHIBITION OF ODOROUS EMISSIONS

This rule requires that the Permittee shall not operate the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary.

As the facility has not been constructed the facility has no history with respect to odors. The proposed facility is not expected to cause or contribute to objectionable odors beyond the facility's boundary. However, the Permittee shall be prepared to implement measures to comply with this regulation should the DAQ make such a determination.

VI. NSPS, NESHAPS, PSD, Attainment Status, 112(r), CAM and Toxics

NSPS
See discussion in Section IV above.

NESHAPS/MACT
Lawndale is considered an area source of HAP. See discussion in in Section IV and V above.

PSD/Attainment Status
The facility is located in Cleveland County. Cleveland County is considered in attainment for all pollutants and is not a maintenance area for the 1997 8-hour NAAQS for ozone.

For major stationary sources located in areas designated as attainment with respect to a specific regulated criteria pollutant, the requirements of the PSD program (40 CFR Part 51.166, as incorporated into 15A NCAC 02D .0530) apply. Major stationary sources are those sources with the potential to emit (as defined at 40 CFR 51.166(b)(4)) of 250 tons per year or more of a regulated New Source Review (NSR) pollutant. For sources in the specific categories listed in 40 CFR 51.166(b)(1)(i), the potential to emit threshold is 100 tons per year. Lawndale is not one of the listed categories and is therefore in the 250 tpy category.

As seen in Table 3 in section III above, all regulated NSR pollutants are emitted well below the 250 tpy threshold except for GHG which has an estimated PTE of 927 tpy. However, pursuant to 40 CFR 51.166(b)(48)(v):

> (v) Beginning July 1, 2011, in addition to the provisions in paragraph (b)(48)(iv) of this section, the pollutant GHGs shall also be subject to regulation:
> (a) At a new stationary source that will emit or have the potential to emit 100,000 tpy CO2e;
> * * *

Thus, Lawndale is a PSD minor facility and is not subject to PSD.

Cleveland County has not triggered the PSD Minor Source Baseline dates as follows:

Cleveland	PM_{10}	04/30/1979	PPG
	SO_2	02/10/1978	PPG
	NO_X	04/21/2008	Cleveland Co. Generating Facility
	$PM_{2.5}$	08/01/2014	Kings Mountain Energy Center

For increment tracking purposes, based on the emission values in Table III in Section III above and assuming 8760 hours of operation, the hourly emission rates are as follows:
PM2.5 = 2.6 lb/hr
PM10 = 2.8 lb/hr
SO2 = 1.9 lb/hr
NOx = 37.4 lb/hr

112r - Risk Management Program (RMP) (15A NCAC 2D .2100)
The Permittee is not subject to Section 112(r) of the Clean Air Act requirements because it does handle any of the regulated substances in quantities above the thresholds in 40 CFR 68.130.

CAM
See discussion in Facility-wide Regulatory Considerations in Section V above.

Toxics
See discussion in Facility-wide Regulatory Considerations in Section V above.

VII. Compliance History
The facility has not been constructed. It has no compliance history.

VIII. Changes Implemented in Revised Permit
This is the first air permit. This section is not applicable.

IX. Public Notice/EPA and Affected State(s) Review
This application is being processed at the Permittee's request pursuant to the "two step" significant modification procedures at 15A NCAC 02Q .0501(b)(2) and 02Q .0504. This application, "step one", is being processed pursuant to 15A NCAC 02Q .0504(a), under the "state only" permitting rules at 15A NCAC 02Q .0300. As such, no public notice or EPA review procedures pursuant to 02Q .0500 apply at this time.

However, this application has met the criteria for enhanced public outreach under the DEQ's Public Participation Plan (PPP) (See the following link: Environmental Justice | NC DEQ). Pursuant to 15A NCAC 02Q .0306(a)(1) "Permits Requiring Public Participation," the Director shall provide public notice for comments with an opportunity for the public to request a public hearing on draft permits for any source that may be designated by the Director based on public interest relevant to air quality.

Therefore, the draft permit for this facility will subject to the public participation procedures at 15A NCAC 02Q .0307 "Public Participation Procedures." Public notice shall be given by publication in a newspaper of general circulation in the area where the facility is located and shall be mailed to persons who are on the Division's mailing list for air quality permit notices and to the EPA. Consistent with the PPP, this list will be expanded to include the specific addresses of those entities identified in the PPP. The public notice shall include the information required at 15A NCAC 02Q .0307(b). The notice shall allow at least 30 days for public and EPA comments.

X. PE Seal
Pursuant to 15A NCAC 02Q .0112 "Application requiring a Professional Engineering Seal," specifically 02Q .0112(a), a professional engineer's seal (PE Seal) is required to seal technical portions of air permit applications for new sources and modifications of existing sources as defined in 15A NCAC 02Q .0103 that involve:

(1) design;
(2) determination of applicability and appropriateness; or
(3) determination and interpretation of performance of air pollution capture and control systems.

A Form D5 (Technical Analysis to Support Permit Application) was submitted with the application sealed by John J. Sudnick, PE, license no.027178. According to the NCBELS (North Carolina Board of Examiners for Engineers and Surveyors) website, Mr. Sudnick's license appears to be current.

XI. Zoning
A zoning consistency determination is required pursuant to 15A NCAC 02Q .0304(b) if the air permit application involves a new facility or the expansion of an existing facility. A determination dated October 17, 2023, was received signed by Chris Martin, Planning Director of Cleveland County stating that the "proposed operation is consistent with applicable zoning ordinances."

XII. Recommendations
To be determined upon review of any comments received during the public participation process.