



**ENVIRONMENTAL PROTECTION DIVISION**

**Jeffrey W. Cown, Director**

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**NARRATIVE**

TO: Jeng-Hon Su  
FROM: Nada Osman  
DATE: November 1, 2024

Facility Name: **Spectrum Energy Georgia, LLC**  
AIRS No.: 04-13-075-00028  
Location: Adel, GA (Cook County)  
Application #: 29318  
Date of Application: May 30, 2024 and December 30, 2024

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**Background Information**

Spectrum Energy Georgia, LLC (hereinafter “facility”) is a proposed wood pellet manufacturing facility to be located at 801 Cook Street in Adel, Georgia. The facility will be built in Cook County, which is an attainment county for all criteria air pollutants. The facility will be a Title V major source but a minor source with respect to Prevention of Significant Deterioration (PSD) regulations because emissions of particulate matter (PM), volatile organic compounds (VOC), carbon monoxide (CO), and nitrogen oxides (NOx) will be restricted to a maximum of 249 tons per year (tpy), each. Emissions of single and combined hazardous air pollutants (HAP) will be restricted to a maximum of 10 and 25 tpy, respectively, to keep the facility a minor source of HAP emissions with respect to National Emissions Standards for Hazardous Air Pollutants (NESHAPS) and Title V regulations.

At the facility’s request, SIP Permit No. 2499-075-0028-E-01-0 permitted the construction of the facility in two phases. The two phases share some emission units, but all requirements pertaining to Phase I will be replaced by the Phase II requirements. SIP Permit No. 2499-075-0028-E-01-0 was issued on July 8, 2022, but the facility has not been built since that time.

**Purpose of Application**

On May 30, 2024, the facility submitted Application No. 29318 requesting modifications to the emission units in Phase I of the construction project and all associated monitoring, testing, and recordkeeping/reporting requirements. A Public Advisory was issued on June 12, 2024, and expired on July 12, 2024. Comments were received from the Concerned Citizens of Cook County (4C) and the EPA.

Note that the original application submitted by the facility included three potential operating scenarios. A comment received from 4C on July 12, 2024, noted that the application lacked certain crucial details and contained several inconsistencies, and requested that the facility submit an updated application in order to allow the Division to accurately evaluate the facility and to provide greater transparency to the public. Another comment from 4C raised concerns that the Division could potentially amend Phase II behind-the-scenes without explicit request from the application.

On December 30, 2024, the facility submitted a revised application stating that the requested changes will apply only to Phase I of the project and that Phase II would remain entirely untouched, clarifying their chosen operating scenario of a biofilter and regenerative thermal oxidizer, and updating the emission unit list and emission factors. The Division will not amend any emission units of Phase II at this time.

In the modified Phase I, operations will begin with weighing and screening of wood scrap, which will be received by the facility in trucks or created from logs debarked, chipped, and shredded onsite. The wood will then be dried in one of the three dryers (ID Nos. DRY1, DRY2, and DRY3), which will all be heated by a wood-fired energy system (ID No. ES). Despite the dryer changes, the designed annual throughput for Phase I remains at 600,000 tons pellets (final product). Emissions from the dryers will be controlled by one wet electrostatic precipitator (ID No. WESP) and one regenerative thermal oxidizer (ID No. RTO). The dried wood will then be processed in the hammermills (ID Nos. DHM1-DHM8), pelletized in the pellet mills (ID Nos. PM1-PM8) and cooled in the pellet coolers (ID Nos. COOL1 and COOL2). Dried wood from the dryers and hammermills will be stored in bins (ID Nos. DWB1 & DWB2), which will also be controlled by the WESP and RTO. Finished pellets from the pellet coolers will be stored in one of six silos (ID Nos. SILO1 – SILO6).

Emissions from three of the dry hammermills (ID Nos. DHM1-DHM3) will be controlled by three respective cyclones (ID Nos. CYC1-CYC3), three baghouses (Group ID No. BGH), and one energy system (ID No. ES). Emissions from the remaining dry hammermills (ID Nos. DHM4-DHM8) will be controlled by five respective cyclones (ID Nos. CYC4-CYC8), the WESP, and the RTO. The baghouses (Group ID No. BGH) and WESP are the primary particulate matter control devices.

Emissions from the pellet mills will be controlled directly by a biofilter (ID No. BIO) and emissions from the pellet coolers will be controlled by two quad cyclones (ID Nos. QUAD1 and QUAD2) followed by the biofilter (ID No. BIO).

The facility will also operate a 9.9 MMBtu/hr natural gas-fired boiler (ID No. BLR) to condition the pellets during the pelletizing process. Although a natural gas fired boiler could be exempt from permitting, its emissions should be counted toward the facility-wide emissions; therefore, Boiler BLR is included in the proposed permit amendment.

### **Updated Equipment List**

**Table 1: Phase I Equipment List**

Emission Units			Associated Control Devices	
Source Code	Description	Applicable Requirements	Source Code	Description
LOG	Log yard	391-3-1-.02(2)(n)	--	--
BARK1	One (1) debarker	391-3-1-.02(2)(n)	--	--
CHIP	One (1) chipper	391-3-1-.02(2)(n)	--	--
TRUCK1&2	Two (2) truck dumps	391-3-1-.02(2)(n)	--	--
CLAR1&2	Two (2) Clarke bins	391-3-1-.02(2)(n)	--	--
SHRED1-4	Four (4) shredders	391-3-1-.02(2)(n)	--	--
ROAD	Plant road traffic	391-3-1-.02(2)(n)	--	--

Emission Units			Associated Control Devices	
Source Code	Description	Applicable Requirements	Source Code	Description
ES	210 MMBtu/hr wood-fired energy system	391-3-1-.02(2)(b) 391-3-1-.02(2)(g)	WESP RTO	Wet electrostatic precipitator, regenerative thermal oxidizer
DRY1-3	Three (3) wood dryers	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	WESP RTO	Wet electrostatic precipitator, regenerative thermal oxidizer
DHM1-3	Three (3) dry hammermills	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	CYC1-CYC3 BGH ES	Cyclones (respective), baghouses, dryer burners
DHM4-8	Five (5) dry hammermills	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	CYC4-CYC8 WESP RTO	Cyclones (respective), wet electrostatic precipitator, regenerative thermal oxidizer
DWB1 & DWB2	Two (2) dry wood bins	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	WESP RTO	Wet electrostatic precipitator, regenerative thermal oxidizer
PM1-8	Eight (8) pellet mills	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	BIO	Biofilter
COOL1&2	Two (2) pellet coolers	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	QUAD1/QUAD2 BIO	Quad cyclones, biofilter
SILO1-6	Six (6) finished pellet storage silos	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	--	--

### Fuel Burning Equipment

Source Code	Input Heat Capacity (MMBtu/hr)	Description	Installation Date	Construction Date
BLR	9.9	Natural gas-fired boiler	TBD	TBD

### Emissions Summary

All modifications requested by the facility will apply exclusively to Phase I of the project. The emission units in Phase II will not be modified in any way.

Emissions, from all equipment in Phase I and Phase II, of PM, NO<sub>x</sub>, CO, and VOC will all continue to be limited to no more than 249 tpy, each, to keep the facility a minor source under PSD. Facility-wide emissions of single and combined HAPs will continue to be limited to no more than 10 and 25 tpy, respectively, to avoid the requirements of the case-by-case Maximum Achievable Control Technology (MACT) specified in 40 CFR 63 Subpart B.

All emissions were calculated assuming the maximum annual throughput of 600,000 tons and 8,760 hours per year of operation. VOC, acetaldehyde, formaldehyde, and methanol emissions from the dryers (ID Nos. DRY1, DRY2, and DRY3), hammermills (ID Nos. DHM1-DHM8), pellet mills (ID Nos. PM1-PM8), and pellet coolers (ID Nos. COOL1 and COOL2) were calculated using uncontrolled pellet mill emission factors recommended by the Division (see memo dated 1/29/2013). Acrolein, phenol, and propionaldehyde emissions from these processes were calculated using uncontrolled emission factors referenced from the South Carolina Department of Health and Environmental Control. Emissions of HCl were referenced from testing conducted at Hazlehurst Wood Pellets in March of 2021 because both facilities are similar pellet producing facilities and their dryer burners both burn wood.

VOC, acetaldehyde, formaldehyde, and methanol emissions from the dry wood bins (ID Nos. DWB1-DWB2) were calculated using uncontrolled emission factors from the March 2021 Hazelhurst Wood Pellet test results. Emissions of acrolein, phenol, and propionaldehyde from the dry wood bins (ID Nos. DWB1 – DWB2) were assumed to be the same as methanol. Emission factors of acrolein, phenol, and propionaldehyde are generally much lower than the methanol emission factor. The Division would accept these emission factors because they are conservative.

All uncontrolled emission factors for the finished wood pellet silos (ID Nos. SILO1 – SILO6) were referenced from testing conducted at Appling Wood Pellets in January of 2021.

The regenerative thermal oxidizer (ID No. RTO) was assumed to have a 98% destruction efficiency for VOCs and HAPs (with the exception of HCl, which the RTO does not control). The wet ESP (ID No. WESP) was assumed to have a 99% control efficiency for SO<sub>2</sub> because SO<sub>2</sub> tends to adhere to the ash from wood combustion, and removal of the ash plus water spray in the wet ESP would both remove SO<sub>2</sub>. The biofilter (ID No. BIO) was assumed to operate with a 65% control efficiency for VOCs and HAPs.

Conditions 6.3c.ii. and 6.3e.ii. will require the facility to conduct initial VOC and HAP testing on the biofilter (ID No. BIO) to validate the unit-specific after-control VOC and HAP emission factors. The facility is required to use the results from the most recent performance tests to calculate actual emissions. The facility must adjust their actual production rates according to the tested emission factors and comply with the 249-tpy VOC and 10/25-tpy single/combined HAP emission limits.

Facility-wide PM and PM<sub>2.5</sub> emissions were assumed to be equal to the PM<sub>10</sub> emissions. Since the facility is required to use after-control emission factors to track actual VOC and PM/PM<sub>10</sub>/PM<sub>2.5</sub> emissions, they will continue to be required to operate their control devices at all times while their associated emission units are operating. This will also ensure that the facility will comply with Georgia Air Toxics Guidelines. Because both phases will now operate with an RTO, WESP, and biofilter, this requirement will apply to both phases.

**Table 2: Facility-wide Emissions (tpy) in Phase I (After-control)**

Pollutant	Potential Emissions
PM	≤249 (by permit limit) 48.6 (in the application)
PM <sub>10</sub>	≤249 (by permit limit) 48.6 (in the application)
PM <sub>2.5</sub>	≤249 (by permit limit) 46.9 (in the application)
NO <sub>x</sub>	≤249 (by permit limit) 171 (in the application)
SO <sub>2</sub>	0.31
CO	≤249 (by permit limit) 169 tpy (in the application)
VOC	≤249 (by permit limit) 238 (in the application)
Max. Individual HAP	<10 (by permit limit) 1.73 (in the application)

Pollutant	Potential Emissions
Total HAP	<25 (by permit limit) 7.52 (in the application)

### **Regulatory Applicability**

#### 40 CFR 60 Subpart Dc – NSPS for Small Industrial-Commercial-Institutional Steam Generating Units

Per 40 CFR 60.40c(a), because the boiler (ID No. BLR) has a heat input capacity of less than 10 MMBtu/hr, it is not subject to Subpart Dc requirements.

#### 40 CFR 63 Subpart B – Case-by-case MACT

The case-by-case MACT requirement specified in 40 CFR 63 Subpart B is triggered when a facility is major for HAP emissions under Title V, and any major HAP emitting sources at the facility are not subject to any specific MACT rules in 40 CFR 63. Since the facility will be a minor/area source for HAP emissions with the HAP emission limits in Condition 2.2, the facility (pellet mill) will not trigger the case-by-case MACT requirements.

#### 40 CFR 63 Subpart DDDD – NESHAP for Plywood and Composite Wood Products

40 CFR 63 Subpart DDDD potentially applies to facilities that manufacture plywood and composite wood products and that are major sources of HAP emissions. Facility-wide single and combined HAP emissions are restricted to no more than 10 and 25 tpy, respectively, to keep the facility a minor source of HAP emissions. In addition, the facility (pellet mill) does not meet the definition of plywood and composite wood products manufacturing facility in 40 CFR 63.2292. Therefore, the subpart does not apply.

#### 40 CFR 63 Subpart JJJJJ – NESHAP for Industrial, Commercial, and Institutional Boilers for Area Sources

Because the facility is a minor source of HAP emissions, the new boiler (ID No. BLR) could potentially be subject to 40 CFR 63 Subpart JJJJJ. However, per 40 CFR 63.11195, because Boiler BLR combusts only natural gas, it is considered a gas-fired boiler and is therefore not subject to Subpart JJJJJ.

#### Georgia Rule 391-3-1-.02(2)(b), Visible Emissions

GA Rule (b) limits visible emissions from manufacturing processes to no more than 40% opacity. Operation of the wood dryers (ID Nos. DRY1, DRY2, and DRY3) and associated energy system (ID No. ES) will be controlled by the wet ESP (ID No. WESP) and the regenerative thermal oxidizer (ID No. RTO). PM emissions from three of the hammermills (ID Nos. DHM1-DHM3) will be controlled by cyclones (ID Nos. CYC1-CYC3) and three baghouses (ID No. BGH) and emissions from the remaining five (ID Nos. DHM4-DHM8) will be controlled by cyclones (ID Nos. CYC4-CYC8) and the wet electrostatic precipitator (ID No. WESP). The pellet mills (ID Nos. PM1-PM8) will be directly controlled by a biofilter (ID No. BIO), and the pellet coolers (ID Nos. COOL1 and COOL2) will be controlled by quad cyclones (ID Nos. QUAD1-QUAD2) routing to the biofilter. PM emissions from the dry wood bins (ID Nos. DWB1 and DWB2) will be controlled by the wet ESP (ID No. WESP). Debarking, shredding, and chipping operations mainly

produce larger wood scrap that is not expected to become airborne. Therefore, the facility is expected to comply with the limits of Georgia Rule (b).

Georgia Rule 391-3-1-.02(2)(d), Fuel-Burning Equipment

Georgia Rule (d)2.(i) and (d)3. limits the rate of PM emissions and visible emissions from fuel burning equipment with a capacity less than 10 MMBtu/hr. Because the energy system (ID No. ES) provides direct heat to the dryers through the combustion of fuel and does not provide heat via the heating of another medium, it does not qualify as fuel-burning equipment and is therefore not subject to the PM emission limits of Georgia Rule (d). Because the boiler (ID No. BLR) will fire natural gas, whose combustion is not expected to produce significant PM emissions, it is expected to comply with Georgia Rule (d) limits.

Georgia Rule 391-3-1-.02(2)(e), Particulate Emissions from Manufacturing Processes

Georgia Rule (e) limits the emission of PM from all manufacturing processes according to the following equations:

$$E = 4.1 * P^{0.67} \quad \text{for process input weight rate up to and including 30 tons per hour.}$$
$$E = 55 * P^{0.11} - 40 \quad \text{for process input weight rate above 30 tons per hour.}$$

Where E equals the allowable PM emission rate in pounds per hour and P equals the process input weight rate in tons per hour.

As discussed previously, PM emissions from the operation of the wood dryers (ID Nos. DRY1, DRY2, and DRY3), hammermills (ID Nos. DHM1-DHM8), dry wood bins (ID Nos. DWB1 and DWB2), pellet mills (ID Nos. PM1-PM8), and pellet coolers (ID Nos. COOL1 and COOL2) will all be controlled by cyclones, baghouses, a wet ESP, and a biofilter. Debarking, shredding, and chipping operations are not expected to produce significant airborne PM emissions. Therefore, the facility is expected to comply with the Georgia Rule (e) PM emission limits.

Georgia Rule 391-3-1-.02(2)(g), Sulfur Dioxide

Georgia Rule (g) limits fuel-burning sources with a heat input capacity less than 100 MMBtu/hr to burning fuels containing less than 2.5 percent sulfur. The energy system burner (ID No. ES) fires only wood, which has a natural fuel sulfur content of much less than 2.5%. Therefore, compliance with the fuel sulfur limits of Georgia Rule (g) is expected.

The boiler (ID No. BLR) fires exclusively on natural gas, which also contains minimal amount of sulfur. Compliance with the GA Rule (g) sulfur content limit is also expected for BLR.

Georgia Rule 391-3-1-.02(2)(tt), VOC Emissions from Major Sources

Georgia Rule (tt) limits VOC emissions from sources emitting more than 25 tpy VOC. The facility is located in Cook County, which is not one of the named counties subject to the requirements of Georgia Rule (tt). Therefore, it does not apply.

**Permit Conditions**

Modified Condition 2.2 limits the facility-wide emission of single and combined HAP emissions to no more than 10 and 25 tpy, respectively, for avoidance of 40 CFR 63 Subpart B. The referenced rule has been updated.

Modified Condition 2.3 requires the facility to operate the wet ESP's, regenerative thermal oxidizer, and biofilter at all times while their associated emission units are operating. This Condition applies to both Phases. Condition 2.3 was modified to include the RTO as a control device in Phase I.

In addition to the WESP's in Condition 2.3, modified Condition 2.4 requires the facility to operate all baghouses and cyclones at all times while their associated emission units are operating. This Condition applies to both Phases.

The wording in Modified Condition 2.5 has been changed to apply it to the energy system in Phase I and dryer burners in Phase II. Since they all burn wood which contains minimal amount of sulfur, the GA Rule (g) fuel sulfur content limit is subsumed.

The wording in Modified Condition 2.6 has been changed to explicitly apply it to both Phases.

The Division suspects that burning wood will generate some hexavalent chromium [Cr(VI)] while the facility claimed that burning virgin wood would not emit Cr(VI). In order to avoid the modeling requirements for Cr(VI), the facility-wide Cr(VI) emission rates must stay below the associated minimum emission rate (MER). In another wood industry project, the Division learned that wood combustion would not emit Cr(VI) mist; rather, it is just the Cr(VI) in the wood being released in the atmosphere in the form of particulates. Therefore, the correct MER value for Cr(VI) (particulate) has been updated in Condition 2.10.

Condition 2.11 has been modified to include the revised conditions in Sections 5, 6, and 7 of the permit that only apply to the Phase I emission units.

New Condition 2.12 subjects the facility's fuel-burning equipment (ID No. BLR) to Georgia Rule (d) PM emission limit and visible emission limit. This Condition applies to both Phases.

Modified Condition 4.2 requires the facility to maintain the combustion zone temperature of the RTO at or above the minimum temperature set point established in the most recent performance tests. Before the initial performance test is conducted, the temporary minimum temperature set point is set as 1,500°F. 1,500°F is the typical RTO combustion zone temperature set point EPD uses before a performance test is conducted.

Modified Condition 5.2a. requires the facility to install, calibrate, maintain, and operate a VOC CEMS at the biofilter (ID No. BIO) outlet.

Modified Condition 5.2b. requires the facility to install, calibrate, maintain, and operate a temperature indicator at the RTO combustion zone. The temperature monitoring must be continuous.

Existing Conditions 5.3 through 5.7 have been modified to apply to the revised emission units, control devices, and the associated ID numbers.

New Condition 5.17 requires the facility to develop and implement a Preventative Maintenance Program (PMP) for the RTO. This is a Phase I Condition that will become null and void upon startup of Phase II.

Modified Condition 6.3 requires the facility to conduct NO<sub>x</sub>, CO, VOC, Total PM, HAP, arsenic, and hexavalent chromium performance tests on the Phase I emission units in order to validate the application emission factors and update the emission factors that will be used to calculate emissions. Below note the changes in this condition:

- Since the dryers and their heat source, dry wood bins, and dry hammermills will be controlled by the RTO instead of the biofilter, the test for these emission units have been modified to be tested at the RTO outlet.
- Tests for the pellet mills and pellet coolers will remain at the biofilter outlet.

The required tests that do not require repeated tests have been updated with the revised condition numbers in Condition 6.4.

Existing Condition 6.5 has been modified to update the revised emission units, control devices, and their ID numbers. In order to obtain emission factors that would represent the facility's normal operation, Paragraph c. has been modified to require that the facility also monitor the moisture content of the product exiting Dryers DRY1 – DRY3 during the RTO VOC test.

Existing Condition 6.6 has been modified to add the RTO outlet emission factors for NO<sub>x</sub>, CO, VOC, PM, and HAPs. This condition has also been modified to allow the facility to use the most recent performance test results to calculate their actual emissions.

Due to the new policy for all pellet mills, the special language about using the higher tested results and the permit factors when tested results are lower in existing Condition 6.7 has been removed. However, if any results of the initial HAP emission testing are higher than the emission factors in Section 7 (also in Application No. 29318), those would indicate that the actual HAP emission rate in the unit of pound per hour would be greater than those in Application No. 29318. Then the facility must re-access their toxic impacts with the higher hourly emission rates. This has been incorporated into modified Condition 6.7.

Existing Condition 6.8 has been modified to apply to the revised emission units, control devices, and the associated ID numbers.

Although Phase II is expected to remain the same, and the facility specifically requested that all conditions for Phase II remain unchanged, existing Condition 6.13 has been modified to incorporate the new pellet mill emission calculation policy as described in the rationale explaining the changes in Condition 6.7. This just documents the Division's policy change for all pellet mills. This does not indicate any modifications to the emission unit list in Phase II identified in the E-01-0 permit.

Existing Condition 7.5 has been modified to apply to the revised emission units, control devices, and the associated ID numbers for Phase I. In addition, the MER value for Cr(VI) in Condition 7.5b.v. has been updated.

Note that all Phase II Conditions (7.5c.vii. – 7.5c.xii) remain unchanged from the previous permit.



Existing Condition 7.6 has been modified to apply to the revised emission units, control devices, and the associated ID numbers. The requirement to record the monthly amount of natural gas consumption in Boiler BLR is added in Condition 7.6; such records will be used to calculate BLR's emissions.

In case if Boiler BLR is kept in Phase II, its emissions should also be included in the facility-wide actual emissions. A similar change has been made to Condition 7.17.

Existing Condition 7.7 was removed because the facility will no longer have sizing/screening/transport operations or a fuel dust silo.

Existing Conditions 7.8 through 7.14 have been modified for the following reasons:

- To apply to the revised emission units, control devices, and the associated ID numbers.
- To add the boiler (ID No. BLR) emissions to the facility-wide totals. Every equation has been updated with the additional terms to calculate boiler emissions.
- Since the facility requested to test the RTO emission rates at the outlet only, they proposed to multiply outlet VOC and HAP emissions by 50 when the RTO is not properly controlling emissions, which is called RTO downtime. Such RTO downtime would occur when (1) RTO has been bypassed or (2) any 3-hr average RTO combustion zone temperature falls below the minimum temperature set point established during the most recent testing. The rationale for the multiplying factor, 50, is based on a assumed 98-percent VOC DRE that (compared to a lower VOC DRE) will end up with a higher uncontrolled VOC emission factor. Recent pellet mill and RTO test data obtained from U.S. EPA Region IV are mostly 98% VOC DRE and below. Therefore, the Division agrees with the facility that the 50-multiplying factor is a conservative factor and has incorporated it in Conditions 7.10 and 7.12.
- The modified application emission factors have been incorporated in these conditions.
- To incorporate the Division's new policy on all pellet mills. These conditions now require the facility to use the most recent performance test results to calculate their actual emissions. The emission factors in the tables are the application emission factors and are only allowed to be used before the initial performance tests are conducted.

Although Phase II will generally remain the same, and the facility specifically requested that all conditions for Phase II remain unchanged, existing Conditions 7.18 through 7.24 have been modified for the following. There are no modifications to the emission units or the emission unit list in Phase II identified in the E-01-0 permit. To test VOC DRE for the RTO and use it in the VOC and HAP emission calculations also remains the same for Phase II; the facility did not make the same request for Phase I (applying the 50-multiplying factor when RTO is not properly controlling emissions) for Phase II.

- To add the boiler (ID No. BLR) emissions to the facility-wide totals. Every equation has been updated with the additional terms to calculate boiler emissions. This is the change in Phase I.
- To incorporate the Division's new policy on all pellet mills. These conditions now require the facility to use the most recent performance test results to calculate their actual emissions. The emission factors in the tables are the application emission factors and are only allowed to be used before the initial performance tests are conducted.

### **Toxic Impact Assessment**

The facility performed a toxic impact assessment (TIA) in order to demonstrate compliance with the Georgia Air Toxic Guidelines. Potential HAP emissions were compared with their respective minimum emission rates (MER). Potential emissions of acetaldehyde, acrolein, and formaldehyde each exceeded their associated MER, as shown in Table 3.

Note: the Division is concerned that the facility-wide arsenic (As) and Cr(VI) emission rates could be higher than those reported in the application. The associated MER value is very low. The facility claimed burning virgin wood in the energy system in Phase I and dryer burners in Phase II would not emit any As and Cr(VI). In order to ensure that this assumption is correct in the TIA, Conditions 2.9 and 2.10 will continue to limit the facility-wide As and Cr(VI) emissions below the associated MER value. The facility is subject to the one-time tests required in Condition 6.3f.i. for Phase I and Condition 6.9f.i. for Phase II to obtain the actual As and Cr(VI) emission factors that will be used to demonstrate compliance with the emission limits in Conditions 2.9 and 2.10. In the event the facility is not able to cap actual As or Cr(VI) emissions below the associated MER value (limits in Conditions 2.9 and 2.10), the facility must submit an application with a revised TIA demonstrating modeling results for As and/or Cr(VI) would not cause any adverse impact to the nearby residents and businesses.

**Table 3: PTE of Key HAP and Corresponding MER**

<b>Pollutant</b>	<b>Emission Rate (lb/hr)</b>	<b>Emission Rate (lb/yr)</b>	<b>MER (lb/yr)</b>	<b>Modeling Required?</b>
Acetaldehyde	0.23	2,020	1,110	<b>YES</b>
Acrolein	0.40	3,464	4.87	<b>YES</b>
Arsenic	4.57E-7	0.004	0.057	NO
Chromium VI (particulate)	7.31E-6	0.064	24.3	NO
Formaldehyde	0.35	3,037	267	<b>YES</b>
Hydrogen Chloride	0.20	1,770	4,870	NO
Methanol	0.25	2,161	30,100	NO
Phenol	0.039	345	2,200	NO
Propionaldehyde	0.009	79	1,950	NO

A toxic impact analysis of the three HAPs was performed by calculating the maximum ground level concentration (MGLC) of each pollutant using SCREEN3 modeling. Emissions of all pollutants were assumed to emit mainly from the energy system/dryers (ID Nos. ES and DRY1-DRY3), the dry wood storage bins (ID Nos. DWB1-DWB2), the dry hammermills (ID Nos. DHM1-DHM8), and the pellet mills/coolers (ID Nos. PM1-PM8 and COOL1 & COOL2). Emissions were combined and assumed to emit from a single stack. This would result in more conservative modeling results. The stack height was assumed to be 12 meters, with a diameter of 1 meter. Exhaust velocity was assumed to be 11 meters/second, discharged vertically. A summary of the modeling results is shown in Table 4.

**Table 4: Summary of Toxic Impact Analysis**

Pollutant	AAC, µg/m <sup>3</sup>		SCREEN3 Modeling Results/MGCL, µg/m <sup>3</sup>			Acceptability of the Predicted MGCL/Ambient Impact	
	15-Minute	Annual	1-Hour	15-Minute	Annual	15-Minute	Annual Impact
Acetaldehyde	4,500	4.55	2.46	3.24	0.20	Acceptable	Acceptable
Acrolein	23	0.35*	4.28	5.65	0.34	Acceptable	Acceptable
Formaldehyde	245	1.10	3.74	4.94	0.30	Acceptable	Acceptable

\*Use of alternative AAC for acrolein approved by Division. Referenced from EPA's *Residual Risk Assessment for Plywood and Composite Wood Products*.

Based on a unit emission rate of 1 g/s, the unit MGLC was found to be 84.86 micrograms per cubic meter (µg/m<sup>3</sup>), located 240 meters from the stack. The short-term (15-minute) and long-term (annual) MGLC for all three pollutants are each below their respective acceptable ambient concentrations (AAC), and therefore all pollutants comply with the Georgia Air Toxics Guideline. No further modeling is needed.

MER and AAC values for each HAP (except acrolein) were referenced from Appendix A of the Summary of Ambient Impact Assessment of Toxic Air Pollutant Emissions (2018).

### Public Advisory Comments

**A Public Advisory comment from 4C**, received on July 12, 2024, raised concerns that the modifications proposed to Phase I of the Permit would be incompatible with Phase II and requested the revocation of authorization to construct Phase II with the issuance of this Amendment.

#### EPD Response:

The facility has requested to keep their facility-wide production throughput unchanged (600,000 tpy); additionally, all facility-wide emissions of criteria pollutants will remain below 250 tpy, and all facility-wide emissions of single/combined HAP will remain below 10/25 tpy, respectively. No previously permitted limits in Phase I or Phase II will be exceeded as a result of the modifications requested in the application. Conditions in the E-01-0 Permit and the proposed Permit Amendment have been clearly delineated which Conditions apply to Phase I, Phase II, or both. Modified Condition 2.11 identifies all the Phase I conditions and ensures that all Phase I conditions will become null and void upon startup of Phase II of the project, to avoid any inconsistencies or ~~incompatibility~~ ~~incompatibilities~~ ~~Conditions~~ between the Phases. The Division does not expect the two Phases to be incompatible.

**Another comment from 4C** raised concerns about heavy dust resulting from the facility's operation of a logyard, chipper, and debarker near a residential area.

#### EPD Response:

As mentioned in the comment, Condition 3.3 of the original Permit requires the facility to develop a more site-specific dust control plan for fugitive sources that will potentially impact the surrounding community; additionally, Conditions 3.1 and 3.2 of the original Permit contain general requirements for fugitive dust control as required by Georgia Rule (n). Conditions 5.8 (for Phase I) and 5.16 (for Phase II) contains the daily visible emission (VE) check for the logyard, chipper, debarker, and other fugitive PM sources. These are already the most stringent permit requirements that are uncommon to many fugitive PM sources at other

industries. In addition, the Division does not have the authority to deny the application so long as all applicable federal and state rules are being met. The Division will thoroughly review the dust control plan submitted by the facility to ensure that the procedures for limiting fugitive dust are ~~suitably stringent~~ suitable and protect the surrounding community from any adverse effects of the lumber yard operations.

**Another Public Advisory comment from 4C** raised concerns about potential PM<sub>2.5</sub> National Ambient Air Quality Standards (NAAQS) exceedances as the facility transitions from Phase I to Phase II.

EPD Response:

Since this modification does not trigger a Prevention of Significant Deterioration (PSD) review, the Division does not perform a NAAQS analysis which is a part of a PSD review.

Although Table 14 in the comment letter showed that the total PM<sub>2.5</sub> maximum ground level concentration (MGLC) after Phase I would be very close to the associated NAAQS, the Division would like to point out that the background PM<sub>2.5</sub> concentration was already greater than 80 percent of the associated NAAQS. In addition, the facility's consultant has informed the Division that their own NAAQS modeling results after Phase II would also comply with the associated NAAQS. The Division did not receive or review that modeling.

Since both Phase I and Phase II are subject to the PSD synthetic minor emission limits specified in Condition 2.1, no PSD review would be triggered, and no NAAQS assessment would be required. Unless it is clear to the Division that the NAAQS would be exceeded, the proposed modification ~~should will~~ not involve any a NAAQS assessment.

**Another Public Advisory comment from 4C** raised concerns about the inconsistencies among multiple sections of the application.

EPD Response:

In the application dated May 30, 2024, the facility mentioned three different scenarios of control devices and requested that the proposed permit amendment be flexible for these three scenarios. Note that the E-01-0 permit already contains different conditions for each of the two major phases. The Division denied the facility's request to permit multiple scenarios and ~~requested that required~~ the facility to select just one control device ~~option~~ scenario.

The facility selected the RTO and biofilter option and submitted the updated application on December 30, 2024. The Division summarized the list of emission units and associated control devices in the Table 1 of the narrative. The Division also included all the updated application emission factors for Phase I in the tables in Modified Conditions 7.8 through 7.14 of the proposed SIP-E permit amendment. The Division does not have any issues with any inconsistencies in the application.

**The final comment from 4C** requested that the Division account for environmental justice concerns in its application review process and deny the proposed modification accordingly.

EPD Response:

GA EPD takes seriously our responsibility for administering the Clean Air Act and Georgia Air Quality Act and incorporating principles of equity and fair treatment in our actions. We are committed to engaging with stakeholders and ensuring that citizens in overburdened communities have meaningful involvement in our decision-making process. GA EPD published a public advisory related to the facility on June 12, 2024, informing the public that it had received an application for the facility and inviting comments on that

application. That public advisory expired on July 12, 2024. All comments received during the public advisory period are being reviewed and considered when drafting the proposed SIP-E permit amendment. When the draft ~~SIP-E~~ permit amendment is issued, the Division will provide a 30-day public comment period on the draft permit amendment.

GA EPD does not select sites for facilities. When companies choose their proposed locations, they frequently also must obtain local permits or permissions to build and operate their facilities. GA EPD does not have oversight of these local government decisions. Current state and federal air quality requirements do not prohibit the construction of a pellet mill based on the demographic makeup of the surrounding area. However, as discussed above GA EPD strives to provide opportunities for public feedback and as discussed below GA EPD conducted a thorough evaluation of the potential emissions impact on the air quality and the surrounding community.

GA EPD completes an independent analysis of the air emission impacts from proposed revised emission units as well as the rest of the facility specified in the previous application on the ambient air. These impact assessments model projected emissions using the protocols in the Georgia “Guideline for Ambient Impact Assessment of Toxic Air Pollutant Emissions.” Those protocols specifically factor in potential health impacts of those emissions on people living in the surrounding area. When GA EPD performed this analysis for the facility, it indicated that the HAP emissions from the facility, after the modification, would not pose a significant risk to the community.

Currently, Georgia does not have any specific Environmental Justice rules. EPA has not yet promulgated any specific rules associated with Environmental Justice, either.

The Division has been applying the same standard when reviewing this application compared to other applications. Conducting a Toxic Impact Assessment before issuing the permit ensures that the emissions from the facility will not cause an adverse impact on the local community. The decision to recommend issuance of an air permit is based on GA EPD’s review of the application and all technical and other information submitted. That review indicates that the modified greenfield facility, as proposed, will comply with all applicable state and federal air regulations and will not pose a significant risk to the community. The Division will continue to follow our regulations and policies to protect the citizens around the facility.

**A Public Advisory comment from the EPA**, submitted on July 12, 2024, requested clarification on the source of the facility’s choice of Acceptable Ambient Concentrations (AAC) used in its Toxic Impact Assessment.

EPD Response:

All AACs (other than acrolein, which is an alternative AAC referenced from EPA’s *Residual Risk Assessment for Plywood and Composite Wood Products* document) are referenced from Appendix A of the Summary of Ambient Impact Assessment of Toxic Air Pollutant Emissions (2018), which is included in the Georgia Air Toxics Guideline.

**An additional comment from the EPA** requested clarification of the sources of several emission factors used by the facility in their calculations.

EPD Response:

The facility’s updated application (dated December 30, 2024) provides the emission factors and their sources in more detail.



**Summary & Recommendations**

Spectrum Energy Georgia, LLC is a proposed greenfield wood pellet manufacturing facility to be located in Adel, Georgia. The facility will be a major source under ~~Title~~Title V of 1990 CAAA but will be a minor source under PSD regulations because facility-wide emissions of PM, VOC, CO, and NOx will continue to be limited to no more than 249 tpy, each. Single and combined HAP emissions will continue to be limited to no more than 10 and 25 tpy, respectively, for avoidance of the 40 CFR 63 Subpart B case-by-case MACT requirements.

I recommend that Air Quality Permit Amendment No. 2499-075-0028-E-01-1 be issued to Spectrum Energy Georgia, LLC. The Stationary Source Compliance Program (SSCP) will be responsible for inspection and compliance of this facility.

**Addendum to Narrative**

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.