



NARRATIVE

TO: Jeng-Hon Su
FROM: S. Ganapathy
DATE: February 3, 2022

Facility Name: **Spectrum Energy Georgia, LLC**
AIRS No.: 075-00028
Location: Adel, GA (Cook County)
Application #: 28143
Date of Application: October 6, 2021

Background Information

On October 6, 2021, Spectrum Energy Georgia, LLC's (hereinafter "facility") consultant, Mr. Todd Cloud, submitted a SIP permit application (assigned Application No. 28143) to EPD for the construction and operation of a greenfield wood pellet manufacturing facility located at 801 Cook Street, Adel, Georgia 31620 (Cook County). Based on potential emissions, the proposed facility will be a "major" source with respect to the Title V operating permit program and an "area" source with respect to the National Emission Standards for Hazardous air Pollutants (NESHAP) program. According to the application, the potential-to-emit (PTE) for nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and particulate matter (PM/PM₁₀/PM_{2.5}) will be greater than 100 tons per year (tpy), each. Application No. 28143 is submitted for a E permit, which is a SIP permit that allows the construction and operation of the facility and will require the submittal of a Title V operation permit application.

In order to avoid triggering a PSD review, the facility requested in Application No. 28143 that facility-wide emissions for each of NO_x, CO, VOC, and Total PM be capped below 250 tpy. In order to be an area source for hazardous air pollutant (HAP) emissions and avoid being subject to any maximum available control technology (MACT) requirements, the facility also proposed to cap the facility-wide single and combined HAP emissions below 10 tpy and 25 tpy, respectively.

A Toxic Impact Assessment was done for the proposed pellet mill except for arsenic (As) and hexavalent chromium (Cr VI). A public advisory was issued for this permit application on October 20, 2021. The Permittee has proposed two phases for the project; the two phases will share some emission units, but will include different burners and dryers. Phase II also has more process equipment than Phase I.

The initial phase (Phase I) ends/sunsets at the start of the next phase (Phase II) of the project. The applicant requested both phases permitted at once.

Equipment List

Plant operations will comprise the following seven (7) general process areas and will be constructed in two (2) phases: Fiber Handling/Storage, Drying, Dry Wood Silos, Hammermills, Pellet Mills/Coolers, Pellet Handling/Storage, Miscellaneous Dust Collection. The emission unit list below generally follows the order of the process flow.

| Phase 1 (First Phase) | | | | | |
|------------------------------|---|--|--------------------------------------|--------------------|-----------------|
| Emission Units | | Applicable Requirements/Standards | Air Pollution Control Devices | | Stack ID |
| ID No. | Description | | ID No. | Description | |
| SHRED | Shredder | 391-3-1-.02(2)(n) | N/A | N/A | N/A |
| BUR1&2 | Dryer 1&2 Burner | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) 391-3-1-.02(2)(g)2. | WESP1-4 | Wet ESP 1-4 | S1 |
| | Fuel Type: Wood Capacity: 30 MMBtu/hr Each | | BIO | Biofilter | |
| BUR3&4 | Dryer 3&4 Burner | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) 391-3-1-.02(2)(g)2. | WESP1-4 | Wet ESP 1-4 | S1 |
| | Fuel Type: Wood Capacity: 45 MMBtu/hr Each | | BIO | Biofilter | |
| DRY1-4 | Dryers 1-4 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | WESP1-4 | Wet ESP 1-4 | S1 |
| DWS1&2 | Dry Wood Silos 1&2 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH1 | Baghouse 1 | S1 |
| | | | BIO | Biofilter | |
| DHM1&2 | Dry Hammermills 1&2 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH1 | Baghouse 1 | S1 |
| | | | BIO | Biofilter | |
| PM1-8 | Pellet Mills 1-8 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH2 | Baghouse 2 | S1 |
| | | | BIO | Biofilter | |
| PM9-16 | Pellet Mills 9-16 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH3 | Baghouse 3 | S1 |
| | | | BIO | Biofilter | |
| COOL1 | Pellet Cooler 1 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH2 | Baghouse 2 | S1 |
| | | | BIO | Biofilter | |
| COOL2 | Pellet Cooler 2 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH3 | Baghouse 3 | S1 |
| | | | BIO | Biofilter | |
| SILO1-8 | Finished Pellet Silos 1-8 | 391-3-1-.02(2)(n) | N/A | N/A | N/A |
| SST1 | Sizing/Screening/Transport 1 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH4 | Baghouse 4 | S3 |
| SST2 | Sizing/Screening/Transport 2 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH5 | Baghouse 5 | S4 |
| N/A | Fuel Dust Silo | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | CYC | Cyclone | S5 |

| Phase 2 | | | | | |
|-----------------------|--|--|--------------------------------------|--|-----------------|
| Emission Units | | Applicable Requirements/Standards | Air Pollution Control Devices | | Stack ID |
| ID No. | Description | | ID No. | Description | |
| DBRK1&2 | Debarkers 1&2 | 391-3-1-.02(2)(n) | N/A | N/A | N/A |
| CHIP1&2 | Chippers 1&2 | 391-3-1-.02(2)(n) | N/A | N/A | N/A |
| SHRED | Shredder | 391-3-1-.02(2)(n) | N/A | N/A | N/A |
| BUR5&6 | Dryer 5&6 Burner Fuel Type: Wood Capacity: 140 MMBtu/hr Each | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) 391-3-1-.02(2)(g)2. | WESP5&6 RTO | Wet ESP 5&6 Regenerative Thermal Oxidizer | S1 |
| DRY5&6 | Dryers 5&6 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | WESP5&6 RTO | Wet ESP 5&6 Regenerative Thermal Oxidizer | S1 |
| DWS1 | Dry Wood Silo 1 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH1 BIO | Baghouse 1 Biofilter | S2 |
| DWS2 | Dry Wood Silo 2 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH2 BIO | Baghouse 2 Biofilter | S2 |
| DHM1-6 | Dry Hammermills 1-6 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH1&2 BIO | Baghouse 1&2 Biofilter | S2 |
| PM1-8 | Pellet Mills 1-8 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH3 BIO | Baghouse 3 Biofilter | S2 |
| PM9-16 | Pellet Mills 9-16 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH4 BIO | Baghouse 4 Biofilter | S2 |
| PM17-24 | Pellet Mills 17-24 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH5 BIO | Baghouse 5 Biofilter | S2 |
| PM25-32 | Pellet Mills 25-32 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH6 BIO | Baghouse 6 Biofilter | S2 |
| COOL1 | Pellet Cooler 1 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH3 BIO | Baghouse 3 Biofilter | S2 |
| COOL2 | Pellet Cooler 2 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH4 BIO | Baghouse 4 Biofilter | S2 |
| COOL3 | Pellet Cooler 3 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH5 BIO | Baghouse 5 Biofilter | S2 |
| COOL4 | Pellet Cooler 4 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH6 BIO | Baghouse 6 Biofilter | S2 |
| SILO1-16 | Finished Pellet Silos 1-16 | 391-3-1-.02(2)(n) | N/A | N/A | N/A |
| SST1 | Sizing/Screening/Transport 1 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH7 | Baghouse 7 | S4 |
| SST2 | Sizing/Screening/Transport 2 | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | BGH8 | Baghouse 8 | S5 |
| N/A | Fuel Dust Silo | 391-3-1-.02(2)(b)1. 391-3-1-.02(2)(e)1.(i) | CYC | Cyclone | S6 |

Emissions Summary

The facility-wide PTE's for NO_x, CO, and sulfur dioxide (SO₂) were calculated using vendor estimated uncontrolled emission factors in the unit of pound per million Btu (lb/MMBtu), the design heat input capacities of the burners (ID Nos. BUR1 – BUR6), and year-round (8,760 hrs/yr) of operation.

One of the comments from Environmental Integrity Project (EIP) is that the facility does not include any CO emission estimates for the finished pellet silos (ID Nos. SILO1 – SILO16). Without any combustion process, the Division does not suspect that the silos would emit any CO emissions. In addition, these silos do not have any stacks according to the application; if they have any emissions, the emission would be fugitive. Unless this application triggers a PSD review, no fugitive criteria pollutant emission need to be included toward the facility-wide PTE calculations. Therefore, the Division does not investigate any possible CO emissions from the storage/silos.

The facility's PTE's for PM, PM₁₀, and PM_{2.5} were calculated using the estimated grain loading of the wet ESP (ID No. WESP), baghouses (ID Nos. BGH1 – BGH8), and cyclone (ID No. CYC), design flowrate of each control device, and year-round (8,760 hrs/yr) of operation.

The facility-wide PTE's for VOC and HAP were calculated based on the designed annual throughput of 600,000 oven dried tons (ODT) for Phase I and 1,320,000 ODT for Phase II. The biofilter (ID No. BIO) in Phase I has an assumed control efficiency of 92 percent, while BIO in Phase II has an assumed control efficiency of 93 percent. The only exception is that BIO only has 70% control efficiency on hydrogen chloride (HCl). The regenerative thermal oxidizer has an assumed control efficiency of 98%. The after-control emission factors were used to calculate facility-wide VOC and HAP PTE's.

For the dryers (ID Nos. DRY1 – DRY6) and pellet mills/pellet coolers (ID Nos. PM1 – PM32 and COOL1 – COOL4) in both phases, acrolein, phenol, HCl and propionaldehyde emission factors from the August 2021 Jasper pellet mill (in North Carolina) source test were used. For VOC, acetaldehyde, formaldehyde, and methanol emission calculation, Georgia EPD recommended uncontrolled emission factors were used.

For the drywood silos (ID Nos. DWS1 and DWS2), VOC, acetaldehyde, formaldehyde and methanol emission factors from the July 2021 Hazlehurst Wood Pellets silo testing were used. The acrolein, phenol, and propionaldehyde emission factors were assumed to equal the methanol emission factor.

For the dry hammermills (ID Nos. DHM1 – DHM6), Georgia EPD recommended emission factors were used for VOC, acetaldehyde, formaldehyde, and methanol. Acrolein, phenol, HCl and propionaldehyde emission factors from the August 2021 Jasper pellet mill source test were used.

The Appling County pellet silo testing emission factors for VOC, acetaldehyde, formaldehyde, and methanol were used in the emission estimates for the finished pellet silos in both phases (ID Nos. SILO1 – SILO16).

Facility-Wide Emissions Phase I (First Phase)
(in tons per year)

| Pollutant | Potential Emissions (tpy) |
|--|----------------------------------|
| PM/PM ₁₀ /PM _{2.5} | 142 |
| NO _x | 127 |
| SO ₂ | 16.4 |
| CO | 127 |
| VOC | 234 |
| Max. Individual HAP (Formaldehyde) | 3.62 |
| Total HAP | 16 |

Facility-Wide Emissions Phase II (Last Phase)
(in tons per year)

| Pollutant | Potential Emissions (tpy) |
|--|----------------------------------|
| PM/PM ₁₀ /PM _{2.5} | 247 |
| NO _x | 238 |
| SO ₂ | 30.7 |
| CO | 238 |
| VOC | 240 |
| Max. Individual HAP (Formaldehyde) | 2.35 |
| Total HAP | 12.4 |

Regulatory Applicability

As discussed previously, the facility proposed the PSD synthetic minor (SM) emission limits for NO_x, CO, VOC, and PM/PM₁₀/PM_{2.5}. The facility also proposed the 10/25 tpy SM (as opposed to Title V major) limits for single and combined HAPs. These emission caps are included in Conditions 2.1 and 2.2.

Since the facility is required to use after-control emission factors to track actual VOC, PM, PM₁₀, and PM_{2.5} emissions, the requirement to operate all control devices while the associated emission units are in operation are included in the permit as part of the PSD avoidance limits. These are included in Conditions 2.3 and 2.4.

The burners (ID Nos. BUR1 – BUR6) fires exclusively on wood. U.S. EPA AP-42 Chapter 1.6 “Wood Residue Combustion in Boilers” contains emission factors for arsenic and hexavalent chromium. However, A toxic impact assessment (TIA) for these two HAPs was not performed by the facility based on the ascertainment that burning virgin wood in the burners would not emit any As and Cr VI. In order to ensure that the facility would comply with the Georgia Air Toxics Guidelines, the Division has imposed the minimum emission rates (MERs) for As and Cr VI, under which no TIA would be needed, as the annual emission caps in the permit (Conditions 2.9 and 2.10).

Note that, depending on the raw material type, operating conditions, different pellet mills would generate different levels of emissions. There are also comments from Environmental Integrity Project (EIP) and WWALS Watershed Coalition, Inc. that questioned the use of the emission factors in the application for various reasons, such as high control efficiency without detailed information for the control devices, use of after-control tested data as uncontrol emission factors, and so on. In reality, there is limited credible information available for pellet mill emission factors. Available data shows widely varying emission factors; therefore, the Division has determined that the permit will require that the facility conduct performance testing to validate all the emission factors provided in the application. These testing requirements are included in Section 6 of the permit.

Georgia Rule (b) applies to various operations/processes that emit through stacks at the proposed facility and limits visible emissions to 40% opacity.

Particulate matter (PM) emissions from various production operations/processes at the proposed facility are subject to Georgia Rule (e).

Georgia Rule (g) applies to the wood burned in the dryer burners and the natural gas fired in the RTO burners. This rule limits the sulfur content of the fuel burned in the dryers and the RTO. The wood burned in the dryer burners have low sulfur content and should easily comply with the fuel sulfur limit of Rule (g). Natural gas has insignificant amounts of sulfur in it.

Fugitive emissions from the facility operations are subject to Georgia Rule (n) and are limited to less than 20%.

Permit Conditions

Condition 2.1 includes the PSD avoidance limits (synthetic minor limit of 249 tpy) for NO_x, CO, Total PM, and VOC.

Please note that the Division replaced PM/PM₁₀/PM_{2.5} with Total PM to simplify the requirements, especially testing requirements. The Division define Total PM as filterable PM and condensable PM; Total PM can be determined with Test Method 5 in combination with Test Method 202. Since the Total PM include both filterable and condensable PM, the amount of Total PM will include the amount of PM₁₀ and PM_{2.5}. When the facility-wide Total PM is capped below 250 tpy, the facility-wide PM₁₀ and PM_{2.5} emissions will also stay below 250 tpy. The benefit of this is to reduce the need to separately test PM₁₀ and PM_{2.5} emissions.

Condition 2.2 includes the single/combined HAP emission limits of 10/25 tpy in order to maintain the facility’s HAP area source status and therefore avoid all major source MACT requirements.

Condition 2.3 requires operation of all control devices such as the wet ESP, Biofilter and RTO (in Phase II) whenever the associated sources are in operation.

Condition 2.4 requires operation of all baghouses and cyclones in both phases whenever the associated sources are in operation.

As discussed previously, the facility used many after-control emission factors to calculate facility-wide PTE and will be required to use these after-control emission factors to track actual emissions. Therefore, operating the control devices at all times when the associated emission units are in operation, as specified in Conditions 2.3 and 2.4, are part of the PSD avoidance limits.

Condition 2.5 allows firing of wood only in the dryer burners in both phases.

Condition 2.6 allows firing of natural gas only in the RTO burners.

Condition 2.7 contains the GA Rule (b) visible emission limit.

Condition 2.8 contains the GA Rule (e) PM emission limits.

As discussed previously, the facility claimed that burning virgin wood in the dryer burners would not emit any arsenic and hexavalent chromium and refused to conduct a TIA to demonstrate compliance with the GA Air Toxics Guidelines for these two metal HAPs. The only way to avoid a toxic modeling for these HAPs is when facility-wide PTE for the two HAPs, in pounds per year (lbs/yr), is each below the associated minimum emission rate (MER) specified in the guidelines. Therefore, the Division includes the As and Cr VI MER's in Conditions 2.9 and 2.10 as their annual emission caps.

Condition 2.11 states that all permit conditions that apply to Phase I of the project would become null and void after the initial startup of Phase II. All of the conditions in Section 5 (monitoring), Section 6 (Testing), and Section 7 (record keeping and reporting) are divided into two groups, Phase I and Phase II. Condition 2.11 specifies the condition numbers for the Phase I group that will be revoked once Phase II comes online.

Condition 3.2 limit fugitive emission opacity to 20% or less per Georgia Rule (n)2.

Condition 4.2 requires RTO to maintain combustion zone temperature of the RTO to 1500 °F after startup of Phase II of the project until source tests. After the performance tests, the RTO needs to be operated at or above the minimum temperature established during the tests.

The following are the monitoring requirements for Phase I:

- Condition 5.2 requires that the facility use a VOC continuous emission monitoring system (CEMS) to continuously monitor VOC emissions from the biofilter.
- Condition 5.3 contains the periodic operating parameter monitoring for all PM control devices.
- Condition 5.4 includes an equation for tracking/calculating the secondary power for each field of the wet electrostatic precipitators.
- Condition 5.5 includes the daily visible emission check (VE check) requirements for each stack (from a control device).

- Condition 5.6 requires a Preventive Maintenance Program (PMP) for each of the baghouses.
- Condition 5.7 contains the operation and maintenance checks for the cyclone.
- Condition 5.8 contains the daily VE Check requirements for fugitive sources.

The following are the monitoring requirements for Phase II:

- Condition 5.9a. requires that the facility use a VOC CEMS to continuous monitor VOC emissions from the biofilter.
- Condition 5.9b. requires that the facility continuously monitor the RTO combustion zone temperature.
- Condition 5.10 contains the periodic operating parameter monitoring for all PM control devices.
- Condition 5.11 includes an equation for tracking/calculating the secondary power for each field of the wet electrostatic precipitators.
- Condition 5.12 includes the daily visible emission check (VE check) requirements for each stack (from a control device).
- Condition 5.13 requires a Preventive Maintenance Program (PMP) for each of the baghouses.
- Condition 5.14 contains the operation and maintenance checks for the cyclone.
- Condition 5.15 requires a Preventive Maintenance Program (PMP) for the RTO.
- Condition 5.16 contains the daily VE Check requirements for fugitive sources.

Condition 6.2 specifies test methods to be used for the performance tests required by the permit.

The following are the testing requirements for Phase I:

- Condition 6.3 contains all the initial performance tests in order to validate the uncontrolled NO_x and CO emission factors and after-control VOC, Total PM, and HAP emission factors. Condition 6.3 also includes the initial performance test to validate the 0 lb/ton As, and Cr VI emission factors.
- Note that VOC emissions from the biofilter are monitored with the VOC CEMS, so repeated VOC testing for the biofilter stack is not needed.
- The initial performance tests for As and Cr VI is needed to prove the facility's claim that burning virgin wood would not emit any As and Cr VI. No repeated test is needed if the initial test results are zero.

If the initial tests detect As and/or Cr VI, the facility will be required to submit an application that will either update the As or Cr VI emission factor in Section 7 or remove the MER caps by submitting a TIA. Whether repeated tests is needed will be determined during the review of that application.

- Condition 6.4 requires repeated testing for those in Condition 6.3. As explained above, no repeated biofilter VOC testing and As/Cr VI testing is required.
- Condition 6.5 includes some additional requirements for the above testing, and requires that the facility keep records of some operating parameters during the tests.
- The recorded control device operating parameters will be used to establish the set points specified in Condition 6.8.
- Condition 6.6 requires that the facility record the tested results/emission factors from the testing required by Conditions 6.3 and 6.4.
- Condition 6.7 requires that the facility, in the event if any tested results are higher than the associated emission factors used in the application and included in Conditions 7.8 – 7.14, use the higher tested emission rate to track actual emissions and submit an application for updating the higher emission rates. The facility is also allowed to demonstrate that the emission factors derived are not representative of normal emissions in the application.

The following are the testing requirements for Phase II:

- Condition 6.9 contains all the initial performance tests in order to validate the uncontrolled NO_x and CO emission factors and after-control VOC, Total PM, and HAP emission factors. Condition 6.9 also includes the initial performance test to validate the 0 lb/ton As, and Cr VI emission factors. Note that the facility did not claim any CO control efficiency by the RTO.
- Note that VOC emissions from the biofilter are monitored with the VOC CEMS, so repeated VOC testing for the biofilter stack is not needed.
- The initial performance tests for As and Cr VI is needed to prove the facility's claim that burning virgin wood would not emit any As and Cr VI. No repeated test is needed if the initial test results are zero.

If the initial tests detect As and/or Cr VI, the facility will be required to submit an application that will either update the As or Cr VI emission factor in Section 7 or remove the MER caps by submitting a TIA. Whether repeated tests is needed will be determined during the review of that application.

- Condition 6.10 requires repeated testing for those in Condition 6.3. As explained above, no repeated biofilter VOC testing and As/Cr VI testing is required.
- Condition 6.11 includes some additional requirements for the above testing, and requires that the facility keep records of some operating parameters during the tests.
- The recorded control device operating parameters will be used to establish the set points specified in Condition 6.14.
- Condition 6.12 requires that the facility record the tested results/emission factors from the testing required by Conditions 6.9 and 6.10.

- Condition 6.13 requires that the facility, in the event if any tested results are higher than the associated emission factors used in the application and included in Conditions 7.18 – 7.24, use the higher tested emission rate to track actual emissions and submit an application for updating the higher emission rates. The facility is also allowed to demonstrate that the emission factors derived are not representative of normal emissions in the application.

Condition 7.1 requires the Permittee to submit a startup notification with 15 days after the startup of each phase of the project to EPD's compliance program.

Condition 7.2 contains the generic record keeping requirements that are included in many permits.

Condition 7.3 requires the Permittee to report all deviations in writing within 7 days.

Condition 7.4 requires submission of excess emission, exceedance and excursion reports to EPD semiannually.

Condition 7.5 specifies the following excess emission, exceedance and excursion that needs to be reported semiannually per Condition 7.4.

- Subparagraph b.i. defines an exceedance as any consecutive twelve month total of any NO_x, CO, VOC, or Total PM emissions from the entire facility, determined and recorded in accordance with Conditions 7.15a. through d. or 7.25a. through d., in excess of 249 tons.
- Subparagraph b.ii. defines an exceedance as any consecutive twelve month total of any individual Hazardous Air Pollutant (HAP) emissions from the entire facility, determined and recorded in accordance with Conditions 7.15e. or 7.25e. equal to or in excess of 10 tons.
- Subparagraph b.iii. defines an exceedance as any consecutive twelve month total of any combined HAP emissions from the entire facility, determined and recorded in accordance with Conditions 7.15f. or 7.25f., equal to or in excess of 25 tons.
- Subparagraph b.iv. defines an exceedance as any consecutive twelve month total of arsenic emissions from the entire facility, determined and recorded in accordance with Conditions 7.15g. or 7.25g., equal to or in excess of 0.0567 pounds.
- Subparagraph b.v. defines an exceedance as any consecutive twelve month total of hexavalent chromium emissions from the entire facility, determined and recorded in accordance with Conditions 7.15h. or 7.25h., equal to or in excess of 0.0567 pounds.
- Subparagraph b.vi. defines an exceedance as any 30-day rolling average VOC emission rate of the biofilter (ID No. BIO) in **Phase I** exceeds the VOC emission factor listed in Condition 7.10.
- Subparagraph b.vii. defines an exceedance as any 30-day rolling average VOC emission rate of the biofilter (ID No. BIO) in **Phase II** exceeds the VOC emission factor listed in Condition 7.20.
- Subparagraph b.viii. defines an exceedance as any period in which any fuel other than wood is burned in any dryer burners.

- Subparagraph b.ix. defines an exceedance as any period in which any fuel other than natural gas is burned in the RTO burners.
- Subparagraph c.i. defines an excursion as any adverse condition regarding fugitive dust emissions as required per Conditions 3.1 and 3.2
- Subparagraph c.ii. defines an excursion in Phase I as any two consecutive day during which visible emissions are observed per Condition 5.5.
- Subparagraph c.iii. defines an excursion in Phase I as any two consecutive day during which fugitive visible emissions are observed per Condition 5.8.
- Subparagraph c.iv. defines an excursion in Phase I as any failure to perform the daily VE check per Condition 5.5 and/or Condition 5.8.
- Subparagraph c.v. defines an excursion in Phase I as any three-hour average total secondary power for the wet electrostatic precipitators measured and recorded per Conditions 5.3a., 5.3b., and 5.4 that is less than 80 percent of the value established in accordance with Condition 6.8a. Prior to any performance testing, the Permittee shall follow the manufacturer recommended total secondary power range.
- Subparagraph c.vi. defines an excursion in Phase I as any weekly pressure drop readings recorded in accordance with Condition 5.3c. is below the associated minimum pressure drop established in accordance with Conditions 6.8b. and 6.8c. Prior to any performance testing, the Permittee shall follow the manufacturer recommended pressure drop range.
- Subparagraph c.vii. defines an excursion in Phase II as any two consecutive day during which visible emissions are observed per Condition 5.12.
- Subparagraph c.viii. defines an excursion in Phase II as any two consecutive day during which fugitive visible emissions are observed per Condition 5.16.
- Subparagraph c.ix. defines an excursion in Phase II as any failure to perform the daily VE check per Condition 5.12 and/or Condition 5.16.
- Subparagraph c.x. defines an excursion in Phase II as any three-hour average total secondary power for the wet electrostatic precipitators measured and recorded per Conditions 5.10a., 5.10b., and 5.11 that is less than 80 percent of the value established in accordance with Condition 6.14a. Prior to any performance testing, the Permittee shall follow the manufacturer recommended total secondary power range.
- Subparagraph c.xi. defines an excursion in Phase II as any three-hour average RTO combustion zone temperature measured and recorded per Condition 5.9b. that is below the minimum combustion zone temperature established in accordance with Condition 6.14b. The minimum three-hour average RTO combustion zone temperature before the initial performance testing is 1,500°F.

- Subparagraph c.xii. defines an excursion in Phase II as any weekly pressure drop readings recorded in accordance with Condition 5.10c. is below the associated minimum pressure drop established in accordance with Conditions 6.14c. and 6.14d. Prior to any performance testing, the Permittee shall follow the manufacturer recommended pressure drop range.

The following are the record keeping and reporting requirements for Phase I:

- Condition 7.6 requires that the facility maintain records of throughput data, which will be used to track actual emissions with emission factors in the unit of lb/ton. Condition 7.6 also requires that the facility tracking the amount of wet wood and dry wood burned in the burners, combined, which will be used to track actual emissions with emission factors in the unit of lb/MMBtu.
- Condition 7.7 requires that the facility maintain records of operating hours for the emission units with Total PM emission factors in the unit of lb/hr.
- Condition 7.8 includes the NO_x emission tracking equation. Note that the dryer burners are the only combustion source and are therefore the only source of NO_x emissions. Below shows how the NO_x emission factor is calculated using the application data.

| Stack | Emission Unit | Application E.F. (lb/MMBtu) |
|-------|---------------|--------------------------------|
| S1 | BUR1-BUR4 | 0.194 |

- Condition 7.9 includes the CO emission tracking equation. Note that the dryer burners are the only combustion source and are therefore the only source of CO emissions. Below shows how the CO emission factor is calculated using the application data.

| Stack | Emission Unit | Application E.F. (lb/MMBtu) |
|-------|---------------|--------------------------------|
| S1 | BUR1-BUR4 | 0.194 |

- Condition 7.10 includes the VOC emission tracking equation. All the processes that duct to Stack S1 (burners/dryers, dry wood silos, dry hammermills, pellet mills, and pellet coolers) are the only point source of VOC emissions. Below shows how the VOC emission factor is calculated using the application data.

| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
|-------|-----------------------------|-----------|-------------------------|-----------------------------------|
| S1 | BUR1-BUR4 DRY1 – DRY 4 | 144 | 600,000 | 0.745 |
| | DWS1 & DWS2 | 7.56 | | |
| | DHM1 & DHM2 | 60.0 | | |
| | PM1 – PM16 COOL1 & COOL2 | 12.0 | | |

- Condition 7.11 includes the Total PM emission tracking equation. Stacks S1, S3, S4, and S5 are all sources of Total PM emissions. Below shows how the Total PM emission factors are calculated using the application data.

| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. |
|-------|--------------------------------|-----------|-------------------------|-------------------|
| S1 | BUR1-BUR4 DRY1 – DRY 4 | 51.1 | 600,000 | 0.367 lb/ton wood |
| | DWS1 & DWS2 | 14.4 | | |
| | DHM1 & DHM2 | 6.38 | | |
| | PM1 – PM16 COOL1 & COOL2 | 38.3 | | |
| S3 | SST1 | | | 2.91 lbs/hr |
| S4 | SST2 | | | 2.91 lbs/hr |
| S5 | Fuel Dust Silo | | | 1.09 lbs/hr |

- Condition 7.12 includes the HAP emission tracking equation. All the processes that duct to Stack S1 (burners/dryers, dry wood silos, dry hammermills, pellet mills, and pellet coolers) are the only point source of HAP emissions. Please note that fugitive sources of HAP emissions need to be included; therefore, HAP emissions from Finished Pellet Silos SILO1 – SILO8 should be included. Below shows how the HAP emission factors are calculated using the application data.

| Acetaldehyde Emission Factor | | | | |
|------------------------------|--------------------------------|-----------|-------------------------|--------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR1-BUR4 DRY1 – DRY 4 | 2.64 | 600,000 | 0.00925 |
| | DWS1 & DWS2 | 0.0142 | | |
| | DHM1 & DHM2 | 0.096 | | |
| | PM1 – PM16 COOL1 & COOL2 | 0.024 | | |
| N/A | SILO1 – SILO8 | 0.0146 | 600,000 | 0.0000485 |

| Acrolein Emission Factor | | | | |
|--------------------------|--------------------------------|-----------|-------------------------|--------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR1-BUR4 DRY1 – DRY 4 | 0.154 | 600,000 | 0.00149 |
| | DWS1 & DWS2 | 0.0637 | | |
| | DHM1 & DHM2 | 0.0432 | | |
| | PM1 – PM16 COOL1 & COOL2 | 0.186 | | |
| N/A | SILO1 – SILO8 | 0 | 600,000 | 0 |

| Formaldehyde Emission Factor | | | | |
|------------------------------|--------------------------------|-----------|-------------------------|--------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR1-BUR4 DRY1 – DRY 4 | 3.36 | 600,000 | 0.0120 |
| | DWS1 & DWS2 | 0.00212 | | |
| | DHM1 & DHM2 | 0.192 | | |
| | PM1 – PM16 COOL1 & COOL2 | 0.0480 | | |
| N/A | SILO1 – SILO8 | 0.0146 | 600,000 | 0.0000485 |

| Hydrogen Chloride Emission Factor | | | | |
|-----------------------------------|--------------------------------|-----------|-------------------------|--------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR1-BUR4 DRY1 – DRY 4 | 1.12 | 600,000 | 0.00373 |
| | DWS1 & DWS2 | 0 | | |
| | DHM1 & DHM2 | 0 | | |
| | PM1 – PM16 COOL1 & COOL2 | 0 | | |
| N/A | SILO1 – SILO8 | 0 | 600,000 | 0 |

| Methanol Emission Factor | | | | |
|--------------------------|--------------------------------|-----------|-------------------------|--------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR1-BUR4 DRY1 – DRY 4 | 2.64 | 600,000 | 0.00941 |
| | DWS1 & DWS2 | 0.0637 | | |
| | DHM1 & DHM2 | 0.0960 | | |
| | PM1 – PM16 COOL1 & COOL2 | 0.0240 | | |
| N/A | SILO1 – SILO8 | 0.0728 | 600,000 | 0.000243 |

| Phenol Emission Factor | | | | |
|------------------------|--------------------------------|-----------|-------------------------|--------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR1-BUR4 DRY1 – DRY 4 | 0.203 | 600,000 | 0.00139 |
| | DWS1 & DWS2 | 0.0637 | | |
| | DHM1 & DHM2 | 0.0792 | | |
| | PM1 – PM16 COOL1 & COOL2 | 0.0713 | | |
| N/A | SILO1 – SILO8 | 0 | 600,000 | 0 |

| Propionaldehyde Emission Factor | | | | |
|---------------------------------|--------------------------------|-----------|-------------------------|--------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR1-BUR4 DRY1 – DRY 4 | 0.0494 | 600,000 | 0.000455 |
| | DWS1 & DWS2 | 0.0637 | | |
| | DHM1 & DHM2 | 0.00864 | | |
| | PM1 – PM16 COOL1 & COOL2 | 0.0149 | | |
| N/A | SILO1 – SILO8 | 0 | 600,000 | 0 |

| Other HAP Emission Factor (from Wood Combustion) | | | | |
|--|--------------------------------|-----------|-------------------------|--------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR1-BUR4 DRY1 – DRY 4 | 4.56 | 600,000 | 0.0152 |
| | DWS1 & DWS2 | 0 | | |
| | DHM1 & DHM2 | 0 | | |
| | PM1 – PM16 COOL1 & COOL2 | 0 | | |
| N/A | SILO1 – SILO8 | 0 | 600,000 | 0 |

| Combined HAP Emission Factor (Sum of All of the Above HAP E.F.) | | | | |
|---|--------------------------------|-----------|-------------------------|--------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR1-BUR4 DRY1 – DRY 4 | | | 0.0529 |
| | DWS1 & DWS2 | | | |
| | DHM1 & DHM2 | | | |
| | PM1 – PM16 COOL1 & COOL2 | | | |
| N/A | SILO1 – SILO8 | | | 0.000340 |

- Condition 7.13 includes the arsenic emission tracking equation. According to U.S. EPA AP-42 Chapter 1.6, the Division suspects that combustion of wood in the burners would generate arsenic emissions. The facility's zero arsenic emission factor claim is yet to be demonstrated in the initial performance test. Thus, the Division included the arsenic tracking equation with the pre-test emission factor of 0 lb/ton.
- Similarly, Condition 7.14 includes the hexavalent chromium emission tracking equation with a pre-test emission factor of 0 lb/ton.
- Finally, Condition 7.15 requires that the facility calculate the 12 month rolling totals using the monthly emissions obtained in accordance with Conditions 7.8 through 7.14.

The following are the record keeping and reporting requirements for Phase II:

- Condition 7.16 requires that the facility maintain records of throughput data, which will be used to track actual emissions with emission factors in the unit of lb/ton. Condition 7.16 also requires that the facility tracking the amount of wet wood and dry wood burned in the burners, combined, which will be used to track actual emissions with emission factors in the unit of lb/MMBtu.
- Condition 7.17 requires that the facility maintain records of operating hours for the emission units with Total PM emission factors in the unit of lb/hr. Operating hours of Dryers DRY5 and DRY6, operating hours of RTO when three-hour rolling average RTO combustion zone temperature falls below the minimum combustion zone temperature set point, and RTO bypass event (hours) are needed to determine the percentage of monthly operating time that the RTO has no control efficiency over VOC and HAP emissions (percent down time or %DT).
- Condition 7.18 includes the NO_x emission tracking equation. Note that the dryer burners are the only combustion source and are therefore the only source of NO_x emissions. Below shows how the NO_x emission factor is calculated using the application data.

| Stack | Emission Unit | Application E.F. (lb/MMBtu) |
|-------|---------------|--------------------------------|
| S1 | BUR5 & BUR6 | 0.194 |

- Condition 7.19 includes the CO emission tracking equation. Note that the dryer burners are the only combustion source and are therefore the only source of CO emissions. Below shows how the CO emission factor is calculated using the application data. The facility did not claim any control efficiency over CO emissions by the RTO.

| Stack | Emission Unit | Application E.F. (lb/MMBtu) |
|-------|---------------|--------------------------------|
| S1 | BUR5 & BUR6 | 0.194 |

- Condition 7.20 includes the VOC emission tracking equation. All the processes that duct to Stack S1 (burners/dryers) and Stack S2 (dry wood silos, dry hammermills, pellet mills, and pellet coolers) are the only point sources of VOC emissions. Below shows how the VOC emission factor is calculated using the application data. A 98% control efficiency for the RTO is used initially; for any 3-hour period that the combustion zone temperature falling below the set point, and any RTO bypass event, the control efficiency is not considered during that period. Any malfunction of the biofilter will be noticed by the VOC CEMS; therefore, after-control VOC emission factor for Stack S1 is used.

| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
|-------|-----------------------------|-----------|-------------------------|-----------------------------------|
| S1 | BUR5 & BUR6 DRY5 & DRY6 | | | 6 (Uncontrolled) 98% DRE |
| S2 | DWS1 & DWS2 | 14.6 | 1,320,000 | 0.233 |
| | DHM1 – DHM6 | 116 | | |
| | PM1 – PM32 COOL1 – COOL4 | 23.1 | | |

- Condition 7.21 includes the Total PM emission tracking equation. Stacks S1, S2, S4, S5, and S6 are all sources of Total PM emissions. Below shows how the Total PM emission factors are calculated using the application data.

| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. |
|-------|-----------------------------|-----------|-------------------------|-------------------|
| S1 | BUR5 & BUR6 DRY5 & DRY6 | 108 | 1,320,000 | 0.164 lb/ton wood |
| S2 | DWS1 & DWS2 | 9.57 | 1,320,000 | 0.160 lb/ton wood |
| | DHM1 – DHM6 | 19.1 | | |
| | PM1 – PM32 COOL1 – COOL4 | 76.6 | | |
| S4 | SST1 | | | 2.91 lbs/hr |
| S5 | SST2 | | | 2.91 lbs/hr |
| S6 | Fuel Dust Silo | | | 1.09 lbs/hr |

- Condition 7.22 includes the HAP emission tracking equation. All the processes that duct to Stack S1 (burners/dryers) and Stack S2 (dry wood silos, dry hammermills, pellet mills, and pellet coolers) are the only point sources of HAP emissions. Please note that fugitive sources of HAP emissions need to be included; therefore, HAP emissions from Finished Pellet Silos SILO1 – SILO16 should be included. Below shows how the HAP emission factors are calculated using the application data. The emission factors shown for Stack S1 are uncontrolled emission factors, with the RTO DRE noted. The RTO DRE does not apply when any 3-hour rolling average RTO combustion zone temperature is below the set point and when RTO is bypassed.

| Acetaldehyde Emission Factor | | | | |
|------------------------------|-----------------------------|-----------|-------------------------|--------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR5 & BUR6 DRY5 & DRY6 | | | 0.11 lb/ton (Unc.) 98% DRE |
| S2 | DWS1 & DWS2 | 0.0273 | 1,320,000 | 0.000392 |
| | DHM1 – DHM6 | 0.185 | | |
| | PM1 – PM32 COOL1 – COOL4 | 0.0462 | | |
| N/A | SILO1 – SILO16 | 0.0320 | 1,320,000 | 0.0000485 |

| Acrolein Emission Factor | | | | |
|--------------------------|-----------------------------|-----------|-------------------------|----------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR5 & BUR6 DRY5 & DRY6 | | | 0.00641 lb/ton (Unc.) 98% DRE |
| S2 | DWS1 & DWS2 | 0.123 | 1,320,000 | 0.000856 |
| | DHM1 – DHM6 | 0.0832 | | |
| | PM1 – PM32 COOL1 – COOL4 | 0.359 | | |
| N/A | SILO1 – SILO16 | 0 | 1,320,000 | 0 |

| Formaldehyde Emission Factor | | | | |
|------------------------------|-----------------------------|-----------|-------------------------|--------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR5 & BUR6 DRY5 & DRY6 | | | 0.140 lb/ton (Unc.) 98% DRE |
| S2 | DWS1 & DWS2 | 0.00409 | 1,320,000 | 0.000707 |
| | DHM1 – DHM6 | 0.370 | | |
| | PM1 – PM32 COOL1 – COOL4 | 0.0924 | | |
| N/A | SILO1 – SILO16 | 0.0320 | 1,320,000 | 0.0000485 |

| Hydrogen Chloride Emission Factor | | | | |
|-----------------------------------|-----------------------------|-----------|-------------------------|---------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR5 & BUR6 DRY5 & DRY6 | | | 0.0120 lb/ton (Unc.) 70% DRE |
| S2 | DWS1 & DWS2 | 0 | 1,320,000 | 0 |
| | DHM1 – DHM6 | 0 | | |
| | PM1 – PM32 COOL1 – COOL4 | 0 | | |
| N/A | SILO1 – SILO16 | 0 | 1,320,000 | 0 |

| Methanol Emission Factor | | | | |
|--------------------------|-----------------------------|-----------|-------------------------|--------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR5 & BUR6 DRY5 & DRY6 | | | 0.110 lb/ton (Unc.) 98% DRE |
| S2 | DWS1 & DWS2 | 0.123 | 1,320,000 | 0.000537 |
| | DHM1 – DHM6 | 0.185 | | |
| | PM1 – PM32 COOL1 – COOL4 | 0.0462 | | |
| N/A | SILO1 – SILO16 | 0.160 | 1,320,000 | 0.000243 |

| Phenol Emission Factor | | | | |
|------------------------|-----------------------------|-----------|-------------------------|----------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR5 & BUR6 DRY5 & DRY6 | | | 0.00847 lb/ton (Unc.) 98% DRE |
| S2 | DWS1 & DWS2 | 0.123 | 1,320,000 | 0.000624 |
| | DHM1 – DHM6 | 0.152 | | |
| | PM1 – PM32 COOL1 – COOL4 | 0.137 | | |
| N/A | SILO1 – SILO16 | 0 | 1,320,000 | 0 |

| Propionaldehyde Emission Factor | | | | |
|---------------------------------|-----------------------------|-----------|-------------------------|----------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR5 & BUR6 DRY5 & DRY6 | | | 0.00206 lb/ton (Unc.) 98% DRE |
| S2 | DWS1 & DWS2 | 0.123 | 1,320,000 | 0.000255 |
| | DHM1 – DHM6 | 0.0166 | | |
| | PM1 – PM32 COOL1 – COOL4 | 0.0286 | | |
| N/A | SILO1 – SILO16 | 0 | 1,320,000 | 0 |

| Other HAP Emission Factor | | | | |
|---------------------------|-----------------------------|-----------|-------------------------|--------------------------------|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR5 & BUR6 DRY5 & DRY6 | | | 0.19 lb/ton (Unc.) 98% DRE |
| S2 | DWS1 & DWS2 | 0 | 1,320,000 | 0 |
| | DHM1 – DHM6 | 0 | | |
| | PM1 – PM32 COOL1 – COOL4 | 0 | | |
| N/A | SILO1 – SILO16 | 0 | 1,320,000 | 0 |

| Combined HAP Emission Factor | | | | |
|------------------------------|-----------------------------|-----------|-------------------------|--|
| Stack | Emission Unit | PTE (tpy) | Annual Throughput (tpy) | Application E.F. (lb/ton wood) |
| S1 | BUR5 & BUR6 DRY5 & DRY6 | | | 0.579 lb/ton (Unc.) 0.0149 lb/ton (After-C) |
| S2 | DWS1 & DWS2 | | | 0.00337 |
| | DHM1 – DHM6 | | | |
| | PM1 – PM32 COOL1 – COOL4 | | | |
| N/A | SILO1 – SILO16 | | | 0.000340 |

- Condition 7.23 includes the arsenic emission tracking equation. According to U.S. EPA AP-42 Chapter 1.6, the Division suspects that combustion of wood in the burners would generate arsenic emissions. The facility's zero arsenic emission factor claim is yet to be demonstrated in the initial performance test. Thus, the Division included the arsenic tracking equation with the pre-test emission factor of 0 lb/ton.
- Similarly, Condition 7.24 includes the hexavalent chromium emission tracking equation with a pre-test emission factor of 0 lb/ton.
- Finally, Condition 7.25 requires that the facility calculate the 12 month rolling totals using the monthly emissions obtained in accordance with Conditions 7.18 through 7.24.

Condition 8.2 requires the Permittee to pay the annual Permit fees to the Division.

Condition 8.3 requires the Permittee to submit a Title V permit application electronically using GEOS within 12 months after the initial startup of the facility (in Phase I).

Toxic Impact Assessment

The applicant conducted a Toxic Impact Assessment for both phases of the project.

Phase I TIA. The applicant compared the sitewide PTE to MERs for Acetaldehyde, Acrolein, Formaldehyde, HCl, Methanol, Phenol, and Propionaldehyde and found that PTEs for Acetaldehyde, Acrolein, and Formaldehyde exceed their MER values. The applicant did not evaluate the impact of Arsenic and Chromium VI emissions in its TIA.

| HAP | CAS | PTE (tpy) | PTE (lb/yr) | MER (lb/yr) | Model? |
|-----------------|-----------|-----------|-------------|-------------|--------|
| Acetaldehyde | 75-07-0 | 2.79 | 5,577 | 1,110 | Yes |
| Acrolein | 107-02-8 | 0.45 | 894 | 4.87 | Yes |
| Formaldehyde | 50-00-0 | 3.62 | 7,233 | 267 | Yes |
| HCl | 7647-01-0 | 1.12 | 2,240 | 4,870 | No |
| Methanol | 67-56-1 | 2.90 | 5,793 | 30,100 | No |
| Phenol | 108-95-2 | 0.42 | 835 | 2,200 | No |
| Propionaldehyde | 123-38-6 | 0.14 | 273 | 1,950 | No |

The Permittee then modeled emissions of Acetaldehyde, Formaldehyde and Methanol and looked at the short term (15-minutes) and long-term (annual) impacts of emission of these three pollutants and compared them against the AACs for these three HAPs for the 15-minute and Annual time period. In its modeling the Permittee modeled emissions from the biofilter stack (point source) and the HAP emissions from the pellet storage silos (Area sources). From the modeled results the short term and the long term MGLC's were lower than the respective AACs.

EPD confirmed the modeling results. EPD's findings are listed below.

| TAP | Averaging Period | AAC ($\mu\text{g}/\text{m}^3$) | Max. Modeled Conc. ($\mu\text{g}/\text{m}^3$) |
|--------------|------------------|----------------------------------|---|
| Acetaldehyde | 15-min | 4,500 | 1.54 |
| | Annual | 4.55 | 0.027 |
| Acrolein | 15-min | 23 | 0.25 |
| | Annual | 0.35* | 0.004 |
| Formaldehyde | 15-min | 245 | 1.91 |
| | Annual | 1.1 | 0.034 |

* SSPP approved applicant's case-by-case request to use a revised annual AAC of $0.35 \mu\text{g}/\text{m}^3$ for acrolein.

TIA Phase II

The applicant did the same analysis for Phase II. The comparison of the sitewide PTE vs the MERs in Phase II are listed in Table below:

| Air Toxic | CAS | PTE (tpy) | PTE (lb/yr) | MER (lb/yr) | Model? |
|-----------------|-----------|-----------|-------------|-------------|--------|
| Acetaldehyde | 75070 | 1.74 | 3,485 | 1,110 | Yes |
| Acrolein | 107028 | 0.65 | 1,299 | 4.87 | Yes |
| Formaldehyde | 50000 | 2.35 | 4,692 | 267 | Yes |
| HCl | 7647-01-0 | 2.46 | 4,927 | 4,870 | Yes |
| Methanol | 67-56-1 | 1.97 | 3,932 | 30,100 | No |
| Phenol | 108-95-2 | 0.52 | 1,048 | 2,200 | No |
| Propionaldehyde | 123-38-6 | 0.20 | 390 | 1,950 | No |

In Phase II, the applicant did not evaluate the impact of Arsenic and Chromium VI emissions in its TIA, either. The applicant found Acetaldehyde, Formaldehyde, Methanol, and HCl PTE's exceeded the MERs for these HAPs and modeled the short-term and long-term impacts of these HAP emissions and compared them with the AACs for these HAPs. In Phase II, the Permittee modeled the RTO stack, the biofilter stack and the pellet silos. The RTO stack and the biofilter stack was modeled as point sources and the pellet silos were modeled as area sources. The model results confirmed that both short term and long term impacts of these HAP emissions were less than their respective AACs.

EPD confirmed the modeling results which are listed below:

| TAP | Averaging Period | AAC ($\mu\text{g}/\text{m}^3$) | Max. Modeled Conc. ($\mu\text{g}/\text{m}^3$) |
|--------------|------------------|----------------------------------|---|
| Acetaldehyde | 15-min | 4,500 | 1.44 |
| | Annual | 4.35 | 0.036 |
| Acrolein | 15-min | 23 | 0.31 |
| | Annual | 0.35* | 0.005 |
| Formaldehyde | 15-min | 245 | 1.82 |
| | Annual | 1.1 | 0.045 |
| HCl | 15-min | 700 | 2.43 |
| | Annual | 20 | 0.053 |

* SSPP approved applicant's case-by-case request to use a revised annual AAC of $0.35 \mu\text{g}/\text{m}^3$ for acrolein

Summary & Recommendations

I recommend that Air Quality Permit No. 2499-075-0028-E-01-0 be issued to Spectrum Energy Georgia, LLC for construction and operation of pellet mill. When the Phase II starts, Phase I sunsets and terms and conditions pertaining to Phase I becomes null and void and are no longer effective.

A public advisory was issued for this permit application on October 20, 2021; comments are due by November 19, 2021. Comments were received from Environmental Integrity Project (EIP) and WWALS Watershed Coalition, Inc. Many of the comments are that the application does not include detailed information of the emission units and control devices, and the emission factors are questionable. As discussed previously, there is not much credible information available for pellet mill emission factors. And available data shows widely varying emission factors. The Division would accept all the emission factors provided by the applicant on one condition, that the facility must validate these emission factors in initial performance tests and subsequent testing. All the testing requirements are included in Section 6 of the permit.

Another major comment is that the PSD SM limits are set close to the PSD major source thresholds. This is a common practice for all industries requesting for SM limits. In order to ensure that these limits are not exceeded, the permit contains many record keeping requirements that the facility must closely track their actual emissions. In order to ensure the accuracy of the emission factors used in the tracking equations, the facility must either use a VOC CEMS or conduct periodic testing.

EPD's stationary source compliance program will be responsible for facility inspections and overall compliance oversight.