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

Pollutant	Emission Rate (lb/hr)	Emission Rate (lb/yr)	MER (lb/yr)	Modeling Required?
Acetaldehyde	0.23	2,020	1,110	**YES**
Acrolein	0.40	3,464	4.87	**YES**
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	**YES**
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.