3. PROJECT EMISSIONS ESTIMATES

Potential air pollutant emissions from the proposed facility were evaluated to assess applicability to state and federal regulations and to ensure the project will meet the applicable regulatory limits. Supporting emissions calculations that correspond to each emission unit are provided in this section operating at 8760 hours per year.

3.1 Emissions per Regulated Air Pollutant

3.1.1 Criteria Pollutants

Potential emissions from the facility emission sources were estimated using various calculation methodologies including vendor data, emission factors from USEPA's Compilation of Air Pollutant Emission Factors (AP-42) publication, material balances, and/or engineering calculations. A summary of facility-wide criteria pollutant emissions is provided in Appendix C. Based on the calculated emissions for all emission sources, the project is a NSR minor source and a Title V major source of criteria pollutant emissions.

3.1.2 Hazardous Air Pollutants

HAP emissions resulting from the glass manufacturing process are primarily based on furnace vendor data, and from combustion of natural gas and No. 2 Fuel Oil are based on EPA emission factors. A summary of facility-wide HAP emissions is provided in Appendix C. Based on the calculated emissions for all emission sources, the project and the site are not a major source of HAP.

3.1.3 Greenhouse Gases

Potential Greenhouse Gases (GHG) emissions (i.e., carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O)] were estimated for the sources associated with this project. The emission factors and methodology were obtained from USEPA's Mandatory Greenhouse Gas Reporting Rule in 40 CFR 98. GHG emissions on an individual and CO2 equivalent (CO2e) basis are summarized in Table Appendix C. In 40 CFR 98, USEPA defines CO2e emissions to be equivalent to CO2 emissions plus 25 times the CH4 emissions plus 298 times the N2O emissions, utilizing the applicable Global Warming Potentials (GWP) for CH4 and N2O.

3.2 Emissions per Emission Unit

3.2.1 Batch House

PM have a conservative filter emission rate of 0.044 grains per dry standard cubic foot. Each rail car unloading station; truck unloading station; silo; weighing station; mixing station; cullet hopper-crusher; and transport system is equipped with a filter. The maximum flow rate from each of the filters was quantified to be 1,177 cubic feet per minute. Operation of these emission units is assumed to occur at a rate of 8,760 hours per year. A PM emission rate can be calculated from these values. These air emission calculations are summarized in Appendix C.

3.2.2 Furnace

Emissions from the new furnace for the criteria pollutants, HCl, HF, and some HAP glass manufacturing metal compounds of arsenic, cadmium, chromium, lead, manganese and nickel were calculated using the potential annual glass pull rate. Emission from the furnace for other HAP and GHG were calculated using the natural gas design usage rate.

The source of the controlled emission factors used for the potential to emit for the furnace are provided in Appendix C of this permit application. Criteria pollutants, HAP and GHG emissions were calculated using the following: