Appendix E- 1-hour SO_2 Compliance Dispersion Modeling report for Resolute FP US INC (2440-0005)

The modeling report submitted by the facility ("Resolute") is attached to this appendix. Associated electronic modeling files are contained in Appendix H.

The modeling analysis submitted by Resolute demonstrates compliance with the 1-hr SO_2 NAAQS. Note that Resolute's analysis used the ADJ_U* option and AERMOD version 15181. Subsequent to that version, bug fixes were made to the ADJ_U* option and were implemented in the current version of the model, AERMOD and AERMET v16216.

The Department's Bureau of Air Quality, Modeling Section reviewed the report and modeling submitted by Resolute. There are 3 minor differences in the DHEC review modeling analysis compared to the modeling analysis submitted by Resolute: 1) the Department used AERMOD and AERMET version 16216, which, as mentioned above, contains bug fixes for the ADJ_U* option (compared to AERMOD/AERMET version 15181 which was used by Resolute); 2) the emissions in the AERMOD hourly emissions file used by the Department are displaced one hour later than those in the emissions file used by Resolute (the hourly emissions were erroneously displaced one hour too early in the analysis by Resolute); and 3) the Department removed a background SO_2 facility (Springs Industries – Leroy Plant, Boiler1 and Boiler2 [model source ID's CHSTR12 and CHSTR13]) from the modeling analysis since the facility has been permanently closed (it was included in the modeling submitted by Resolute, which included all SO_2 background sources within 50 km of Resolute). The result of the Department review model run (maximum model concentration + background) is slightly less than the 181 ug/m^3 result of the modeling analysis submitted by Resolute. The background data used is the design value from the Greenville ESC monitoring station for the 2012-2014 period. This background data has been reviewed by the Department and meets data completeness and validity requirements for use in NAAQS attainment demonstrations.

The Department believes the domain of the Resolute analysis is adequate to determine the maximum concentration of SO_2 expected, because of the following: 1) the large receptor domain (which extended to approximately 12 km from Resolute); 2) the lack of significant terrain in the area; 3) the relative isolation of Resolute; 4) the lack of significant contribution to the expected maximum concentration from background sources (all of which, within 50 km of Resolute, were included in the modeling analysis); and 5) the pattern of modeled concentrations that showed the maximum being located in close proximity to Resolute and general trend of decreasing concentrations with increasing distance from Resolute.

Based on the information submitted by Resolute and the Department's modeling review, the Department concludes that the SO_2 emissions from Resolute will not cause or contribute to a violation of the 1-hr SO_2 NAAQS.