

Appendix B - 1-hour SO₂ Compliance Dispersion Modeling report for Santee Cooper Cross Generating Station (Permit Number 0420-0030)

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

The modeling analysis submitted by Cross demonstrates compliance with the 1-hr SO₂ NAAQS. A notable aspect of the analysis is that it used season-hour SO₂ monitor background values that differ slightly from the season-hour background values computed by the Department (both sets of background values are based on Jenkins monitor data from 2012-14).

The Department's Bureau of Air Quality, Modeling Section reviewed the report and modeling submitted by Cross. A difference in the Department review model run compared to the modeling analysis submitted by Cross is that the Department used a background design value, which is more conservative than season-hour background values as used in the modeling submitted by Cross. The background values used by the Department and Cross are both based on Jenkins monitor data from 2012-14. This background data has been reviewed by the Department and meets data completeness and validity requirements for use in NAAQS attainment demonstrations. The result of the review model run (maximum model concentration + background) is 107 ug/m³. This result is greater than the result of the modeling analysis submitted by Cross of 82 ug/m³, but is well below the 1-hr SO₂ NAAQS.

The Department believes the domain of the Cross analysis is adequate to determine the maximum concentration of SO₂ expected because of the following: 1) the large receptor domain (which extended to approximately 10 km from Cross); 2) the lack of significant terrain in the area; 3) the relative isolation of Cross; 4) the lack of significant contribution to the expected maximum concentration from background sources (which were screened out of being included in the modeling analysis, as described in detail in the Cross modeling report); and 5) the pattern of modeled concentrations that showed the maximum being located in close proximity to Cross and general trend of decreasing concentrations with increasing distance from Cross.

Based on the information submitted by Cross and the Department modeling review, the Department concludes that SO₂ emissions from Santee Cooper Cross will not cause or contribute to a violation of the 1-hr SO₂ NAAQS.