

Attachment B

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT'S EVALUATION OF SUNFLOWER ELECTRIC POWER CORPORATION, HOLCOMB GENERATING STATION UNIT 1 PROPOSED BEST AVAILABLE CONTROL TECHNOLOGY (BACT) OPTIONS

Sunflower Electric Power Corporation (Sunflower) evaluated the BACT analysis to control emissions from the Emission Reduction Project. The only significant emission increase from this project is Carbon Monoxide (CO).

CO BACT for the Emission Reduction Project

CO controls consist of good combustion practices or oxidation catalyst. Overfire air can provide an element of CO control as it allows further burn-out of the pollutant. Otherwise, the best identified method to control CO emission from a coal-fired boiler is through the use of appropriate combustion control techniques.

The PSD regulations require BACT, which requires the source to evaluate the control options for technical feasibility. Regenerative Thermal Oxidation (RTO) and catalytic oxidation were examined as possible CO control options. Both RTO and catalytic oxidation were found to be infeasible as a CO control method for the steam generator due to critical technical problems.

No instances of a thermal oxidation system being used to control emission from a gas stream similar in makeup to the H1 coal-fired stream generator have been identified. As such, thermal oxidation has been determined to be technically infeasible. Installing an oxidation catalyst to control CO emission was deemed technically infeasible because, in addition to oxidizing CO, an oxidation catalyst will also oxidize a significant portion of SO₂ to SO₃ in the gas stream. SO₃ in the presence of water forms sulfuric acid mist which is highly corrosive to equipment downstream of the catalyst. Also, due to the high amount of PM present in the flue gas stream, the ash acts as a scouring mechanism, plugging and eroding the catalyst after a very brief period of operation, resulting in extremely high operational and maintenance costs to effect more frequent catalysts replacement.

Based on the technical constraints, the use of good combustion practices to meet CO emission levels of 0.25 lb/mmBTU is proposed by Sunflower as BACT. KDHE agrees with this analysis.