

PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

ADDENDUM SUMMARY SHEET

Permit No.: 0550023

Source Name: Sunflower Electric Power Corporation - Holcomb Unit 2

Source Location: Holcomb Generating Station, S32, T24S, R33W, Holcomb, KS 67851

Area Designation:

K.A.R. 28-19-350, Prevention of Significant Deterioration of air quality, affects new major sources and major modifications to major sources in areas designated as "attainment" or "unclassifiable" under section 107 of the Clean Air Act (CAA). The State of Kansas is classified as attainment for the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants, except lead in Saline County.

The Holcomb area in Finney County, Kansas, where this construction is taking place is designated as unclassifiable/attainment for all the criteria pollutants.

Project Description:

Sunflower Electric Power Corporation was granted authorization on December 16, 2010, to construct and operate one new supercritical 895 megawatt (MW)(8700 mmBtu/hr heat input) pulverized coal fired generating unit and associated equipment, including one steam generator (H2), one companion cooling tower, one auxiliary boiler, one emergency diesel power generator, one replacement diesel fire pump (DFP) to replace an existing emergency diesel fire pump at Holcomb 1, one emergency DFP booster pump and coal, lime, powdered activated carbon (PAC), and waste powder handling equipment, collectively known as the Holcomb Expansion Project (Project) or Holcomb 2, to be located at the site of the existing Holcomb 1 generating unit and associated equipment at Sunflower's Holcomb Generating Station. The Holcomb Unit 2 boiler will fire Powder River Basin (PRB) sub-bituminous coal, low sulfur bituminous coal as primary fuel and natural gas as a backup fuel.

The Kansas Supreme Court reviewed the decision of KDHE to issue the permit upon litigation filed by Sierra Club. On October 4, 2013 the Kansas Supreme Court issued an opinion and remanded the permit back to KDHE for:

1) the application of the federal regulations establishing 1-hour NO₂ and SO₂ National Ambient Air Quality Standards (NAAQS)

2) requiring KDHE to apply new HAPs emission limits to H2 steam generator.

Additional Significant Applicable Air Emission Regulations

40 CFR part 63, Subpart UUUUU – “National Emission Standards for Hazardous Air Pollutants for Coal and Oil-Fired Electric Utility Steam Generating Units”

Additional Best Available Control Technology (BACT)

BACT was properly analyzed in December, 2010 and the determination is still appropriate. No re-evaluation of the BACT is necessary. As stated in 40 CFR §52.21(r)(2), “[a]pproval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval”. If the approval becomes invalid, the source can re-apply going through the analyses required to obtain an approval. Since the Kansas Department of Health and Environment (KDHE) stayed the permit before the 18 month expiration, no new analyses is required.

Items Subject to Supreme Court Remand

NO₂ and SO₂ 1-Hour Standard

The Kansas Supreme Court further stated “[b]ecause the issuance of the Holcomb 2 PSD permit to Sunflower was based on errors of law under the CAA, we remand the permit to the KDHE for application of the new federal regulations setting out 1-hour NO₂ and SO₂ standards”. This addendum to the December 16, 2010 permit added “[t]he owner or operator shall not emit or cause to be emitted NO_x emissions exceeding 1740 lbs/hour on a one hour block average basis, including during startup and shutdown.”, and “[t]he owner or operator shall not emit or cause to be emitted SO₂ emissions exceeding 4089 lbs/hour on a one hour block average basis, including during startup and shutdown.” These are the emission rates used in the modeling to verify the NAAQS was not violated by the new construction. KDHE’s review of EPA requirements and recommendations finds that these have changed since the 2010 modeling was conducted (see Air Quality Impact Analysis Section). As indicated in the Air Quality Impact Analysis below, KDHE concludes that if new modeling was conducted using current EPA requirements and recommendations, the impacts on the ambient air quality would be lower than that already determined acceptable in the 2010 modeling.

Hazardous Air Pollutants

The court also stated “[o]n remand, the KDHE must apply the new HAPs emission limits that are explicitly retroactive to this permit”. Therefore, KDHE included in the Addendum a requirement that “[t]he owner or operator shall comply with all applicable provisions of 40 CFR Part 63 Subpart UUUUU for an EGU as defined per 40 CFR 63.9985. Applicable portions of Emission and Operating Limits, Work Practice Standards, Performance Testing, Continuous Compliance, and Reporting sections from the 40 CFR Part 63 Subpart UUUUU in effect upon startup of H2 shall apply.

Air Quality Impact Analysis

Modeling to determine compliance with the 1-hour NO₂ and 1-hour SO₂ NAAQS was conducted with EPA’s AERMOD model as part of the review process for the December 16, 2010 permit. The model results demonstrated that the proposed Project would not cause or contribute to a NAAQS exceedance. The action levels in the 2010 permit were based on the results of the 2010 modeling. The SO₂ and NO_x limits contained in the Permit Addendum are the same as the action levels and are also based on the 2010 modeling.

While there have been EPA software updates to the AERMOD model since 2010, KDHE has concluded that these would not show that the Project would cause increased air quality impacts. An EPA guidance document, “Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO₂ National Ambient Air Quality Standard” was issued March 1, 2011. The guidance says that including emergency generators when modeling for 1-hour NO₂ and 1-hour SO₂ averaging periods could result in modeled impacts being significantly higher than actual impacts. KDHE concurs. The guidance says that including startup and shutdown for a baseload power plant when modeling for 1-hour NO₂ and 1-hour SO₂ averaging periods could also result in modeled impacts being significantly higher than actual impacts. KDHE concurs. The modeling conducted by Sunflower in 2010 included both emergency generators and startup and shutdown periods for the coal fired boiler (as noted in EPA’s guidance, are not recommended for inclusion in the model), and was therefore conservative. The modeling overstates the modeled impacts of those emissions on receptors.

In evaluating the EPA software updates made to the AERMOD model, the March 1, 2011 guidance document, and the conservative input parameters in the original model, KDHE has determined that a new modeling effort is not warranted. KDHE concludes that if new modeling was conducted using current EPA requirements and recommendations, the impacts on the ambient air quality would be lower than that already determined acceptable in the 2010 modeling.