Curtis State Office Building
1000 SW Jackson St., Suite 540
Topeka, KS 66612-1367

Kansas

Phone: 785-296-0461
Fax: 785-368-6368
www.kdheks.gov

Susan Mosier, MD, Secretary | Department of Health & Environment | Sam Brownback, Governor

January 10, 2017

Mark Hague, Regional Administrator
USEPA Region 7
11201 Renner Blvd
Lenexa, KS 66219

Dear Mr. Hague:

This letter is being submitted to the Environmental Protection Agency (EPA) to recommend final area designations for the 1-hour National Ambient Air Quality Standard (NAAQS) for sulfur dioxide (SO_2) per the August 21, 2015 final Data Requirements Rule (DRR)[1]. In the EPA's "Round 3" memorandum[2] issued on July 22, 2016, states are required to submit new/updated modeling analyses on the basis of current available information by January 13, 2017, in order to help EPA make its Round 3 designations by December 31, 2017. The KDHE submits the following recommendations per this guidance:

Unclassifiable/Attainment:	Wyandotte County
Unclassifiable/Attainment:	Shawnee County

The designation recommendations are based upon the Kansas Department of Health and Environment (KDHE) Bureau of Air analysis of monitoring data, dispersion modeling results, and proactive actions taken by the affected facilities. Based upon the factors specified in the DRR and related memoranda, the two Kansas facilities in question in the proposed area, Kansas City BPU - Nearman Creek Station and Westar Energy - Tecumseh Energy Center, do not significantly cause or contribute to violations of the Clean Air Act.

Feel free to contact Doug Watson, KDHE Bureau of Air Planning Section, at 785-296-0910 or douglas.watson@ks.gov, if you have any questions regarding these recommendations or the analyses upon which the recommendations are made.

Sincerely,

Susan Mosier, MD, MBA, FACS
Secretary and State Health officer,
Kansas Department of Health and Environment

Attachment:
Technical Support Document and appendices

[1] https://www.gpo.gov/fdsys/pkg/FR-2015-08-21/pdf/2015-20367.pdf
[2] https://www.epa.gov/sites/production/files/2016-07/documents/areadesign.pdf

Kansas Department of Health and Environment
Proposed "Round 3" Area Designations for the Environmental Protection Agency's
2010 Primary Sulfur Dioxide National Ambient Air Quality Standards
Technical Support Document

PURPOSE

The purpose of this document is to present Kansas' proposed recommendations for the State's remaining area designations for the 2010 1-hour sulfur dioxide (SO_2) National Ambient Air Quality Standard (NAAQS). This document deals with two counties: Shawnee County, which surrounds the Westar Energy - Tecumseh Energy Center (TEC); and Wyandotte County, which surrounds the Kansas City BPU - Nearman Creek Station (Nearman). In accordance with the August 21, 2015 final Data Requirements Rule (DRR)[1], the Kansas City BPU has elected to characterize the air quality surrounding Nearman through air dispersion modeling, while Westar Energy has chosen the alternative approach of taking a federally enforceable limit of 2,000 tons of SO_2 per year for TEC.

The Kansas Department of Health and Environment (KDHE) will submit these recommendations to EPA Region 7 staff by January 13, 2017; EPA will make a final decision on designations for these areas by December 31, 2017 in its "Round 3" designations.[2] If EPA staff intend to modify the state's recommendations or needs additional technical justification, they will notify KDHE 120 days prior to finalizing the designations.

SUMMARY OF PROPOSED RECOMMENDATIONS

KDHE is proposing to recommend unclassifiable/attainment status for each of the two counties in which the sources are located, i.e., Wyandotte County (for Nearman) and Shawnee County (for TEC).

BACKGROUND

On June 22, 2010, the EPA established a new 1-hour SO_2 primary NAAQS of 75 parts per billion (ppb), based on the three-year average of the annual 99th percentile of 1-hour daily maximum concentrations (75 FR 35520; June 22, 2010). This new SO_2 standard replaced the previous 24-hour and annual primary SO_2 NAAQS promulgated in 1971 (36 FR 8187; April 30, 1971). Once EPA establishes or revises a NAAQS, the Clean Air Act requires EPA to designate areas as "attainment" (meeting), "nonattainment" (not meeting), or "unclassifiable" (insufficient data).

The EPA has chosen a different approach to determine attainment status for the 1-hour SO_2 NAAQS. Unlike other criteria pollutants, SO_2 is almost exclusively a point source-emitted pollutant. A monitoring network large enough to adequately cover all large sources would be prohibitively expensive and an affordable network would leave large gaps in coverage. Therefore, EPA has decided to use a hybrid monitoring-modeling approach for the implementation of the 1-hour SO_2 standard.

---

[1] https://www.gpo.gov/fdsys/pkg/FR-2015-08-21/pdf/2015-20367.pdf
[2] https://www.epa.gov/sites/production/files/2016-07/documents/areadesign.pdf

EPA is promulgating designations under this standard for areas throughout the nation in multiple phases. In the initial round, EPA designated areas as nonattainment based on 2010–2012 monitoring data from existing monitors showing a violation of the NAAQS. Kansas had no nonattainment areas; however, one of Missouri's two designated nonattainment areas was in a portion of Jackson County, which lies directly east of Wyandotte County, Kansas on the Kansas-Missouri border. The Jackson County SIP and attainment demonstration was submitted to EPA on October 9, 2015, and Missouri's subsequent rulemaking, *Control of Sulfur Dioxide Emissions* (10 CSR 10-6.261), which establishes federally enforceable limits on major SO_2 sources in the Kansas City area, comes into effect January 1, 2017.

As stated in §51.1202 in the DRR, sources that emitted more than 2,000 tons of SO_2 in the most recent, quality assured emission year (2014), excluding sources in previously designated nonattainment areas, must be evaluated under the DRR. The DRR details two characterization options available to sources: modeling or monitoring. Alternatively, a source may elect to adopt federally enforceable emissions limitations to less than 2,000 tons by January 13, 2017 to forego characterization under the DRR.

In September 2015, KDHE submitted a list of three sources affected by the DRR (and March 2014 Sierra Club consent decree[3]) around which to characterize air quality to fulfill the requirement outlined in §51.1203(a). These sources were the two power plants already mentioned (Nearman and TEC), as well as KCP&L - La Cygne (La Cygne). In EPA's June 30, 2016 letter to Kansas Governor Brownback, EPA notified the State that the area surrounding La Cygne (Linn County) was designated unclassifiable/attainment. On the other hand, EPA designated Shawnee and Wyandotte counties unclassifiable, which necessitates a new round (i.e., this round) of designations under the DRR.

The following text outlines the technical analyses for the two facilities still requiring attainment demonstrations. Each facility is considerably different and will be addressed separately.

Kansas City BPU - Nearman

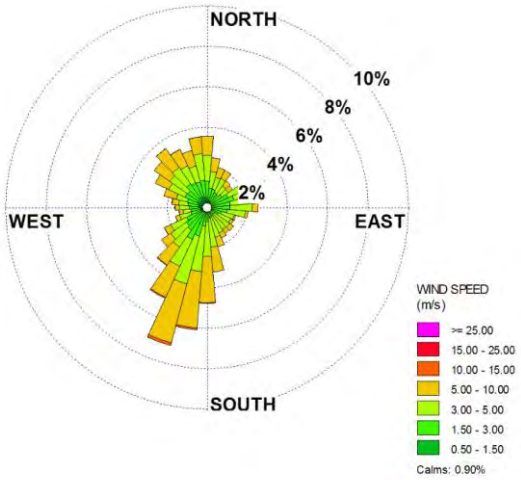
Purpose for designation determination:
Nearman Creek Power Station ("Nearman") was identified by the EPA for emitting 0.58 lb SO_2/MMBtu in 2012, which exceeds the limit of average SO_2 emissions rate 0.45 lb SO_2/MMBtu as specified in the Sierra Club consent decree.

Description of location and surrounding topography:
Nearman is located in Wyandotte County, Kansas, in a relatively unpopulated area directly adjacent to the Missouri River. The topography is very flat as would be expected of a region in a river basin.

---

3 http://content.sierraclub.org/environmentallaw/sites/content.sierraclub.org.environmentallaw/files/SO2%20Consent%20Decree.pdf

Regional meteorology:
The wind rose plot (below) shows the wind frequencies from the closest representative meteorological station, the Downtown Kansas City (Charles Wheeler) Airport for years 2012–2014. Based upon the data it can be concluded that the wind primarily originates from the south-southwest, with a secondary component from the northwest.



Justification for proposed designation:
The Kansas City Board of Public Utilities (BPU) has taken the following steps to reduce SO_2 emissions from the Nearman plant in the recent years.

- Obtained a construction approval to restrict ultra-low diesel fuel oil sulfur content to 15 ppb for the simple cycle turbine at the Nearman facility on July 9, 2015.
- Obtained a construction permit that restricts operation of the Nearman Auxiliary Boiler to a 10% annual capacity factor, through a restriction on total annual amount of fuel oil burned. The compliance period for this restriction began January 31,

2016.

- Under a construction permit issued by KDHE August 5, 2013, and addendum issued September 11, 2015, BPU completed construction on the following emission controls on Nearman Unit 1 in November 2016:
    - Selective catalytic reduction system for NO_x removal;
    - Powdered activated carbon injection system for mercury removal;
    - Circulating dry scrubber for SO_2 and acid gas removal; and
    - Pulse-jet fabric filter for particulate removal.

Trinity Consultants, Inc., was contracted to conduct modeling to characterize the 1-hour SO_2 rates for the facility. The modeling included nearby facilities emitting SO_2 located in Kansas City, Missouri. Missouri DNR is in the final stages of implementing rules to reduce SO_2 emissions from sources in Kansas City, Missouri through a rulemaking developed for a first-round SO_2 nonattainment designation. The most recent update of the Missouri Air Conservation Commission's Rules in Progress for the Missouri Department of Natural Resources (DNR) indicates the SO_2 control rule (10 CSR 10-6.261 Control of Sulfur Dioxide Emission[4]) will take effect on January 1, 2017. Using the allowable rates contained in the MDNR SO_2 control rule for nearby sources on the Missouri side and the actual rates from Nearman Unit 1, the highest concentration of modeled SO_2 results was 129 $\mu g/m^3$ (49 ppb). All modeling protocols and results for this source are provided in Appendix A and Appendix B.

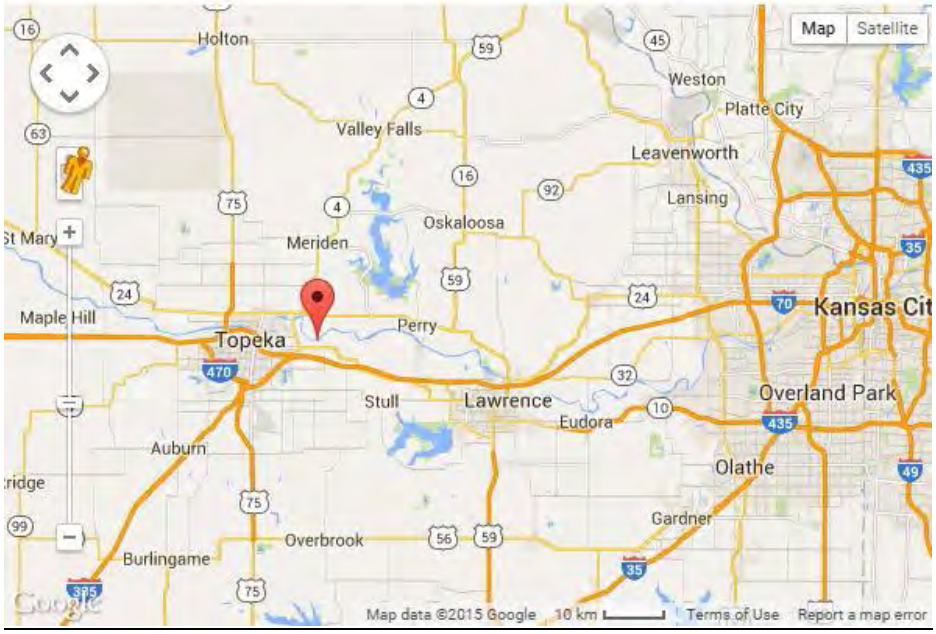
KDHE recommends that Wyandotte County, in which Nearman resides, be designated as unclassifiable/attainment.

Westar Energy - Tecumseh

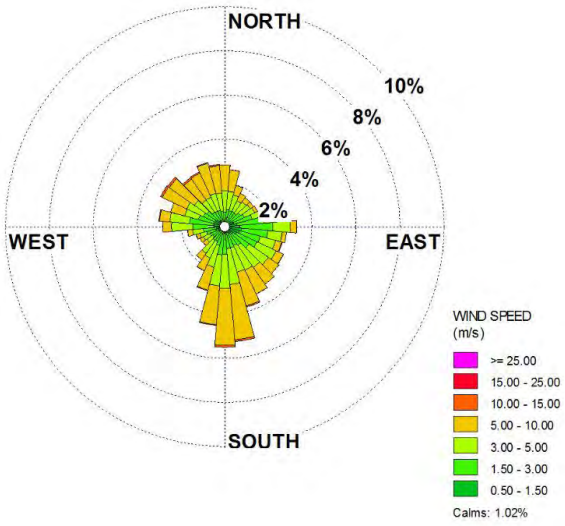
Purpose for designation determination:
Westar Energy's Tecumseh Energy Center (TEC) was identified by the EPA for emitting 0.64 lb SO_2/MMBtu in 2012, which exceeds the limit of average SO_2 emissions rate 0.45 lb SO_2/MMBtu as specified in the consent decree.

Description of location and surrounding topography:
TEC is located east of Topeka, Kansas, in an unincorporated community, Tecumseh. The Tecumseh facility is sited directly south of the Kansas River. The topography is very flat as would be expected of a river basin.

[4] http://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c10-6b.pdf



The wind rose plot shows the wind frequencies from the closest representative meteorological station, the Topeka Municipal Airport, for years 2012–2014. The frequencies in the wind rose represent the direction in which the wind is coming from. Based upon the data it can be concluded that the wind primarily originates from the south, with a secondary maximum from the northwest.



Justification for proposed designation:
Near the close of 2015, Westar Energy management consolidated operations at several of their electric generating facilities, and announced the retirement of three generating units, two of which were coal-fired boilers: the 61 MW Unit 3 at their Lawrence Energy Center in Lawrence, Kansas, and the 176 MW Unit 8/10 at TEC. The retirements were effective December 31, 2015.

The remaining 96 MW Unit 7/9 at TEC has not emitted over 2,000 tons of SO_2 for more than 10 years, with its latest available emission of SO_2 (in 2015) at 1,246 tons. Consequently, Westar Energy has decided to take a federally enforceable 2,000 tons per year limit, based on a 12-month rolling average. A copy of the construction permit, which memorializes this limit and was issued on November 21, 2016, is found in Appendix C.

KDHE recommends that Shawnee County, in which TEC resides, be designated as unclassifiable/attainment.