



GRAND RIVER ENERGY CENTER
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Kendal Stegmann
Air Quality Division
Oklahoma Department of Environmental Quality (DEQ)
707 N. Robinson
Oklahoma City, OK, 73101-1677

February 28, 2022

Subject: Additional Clarifications on
GRDA Four-Factor Analysis Addendum Response

Dear Ms. Stegmann,

I'm writing in response to the Oklahoma Department of Environmental Quality (DEQ) letter dated January 31, 2022, requesting additional clarifications on the Grand River Dam Authority (GRDA) four-factor analysis on control scenarios under the Clean Air Act Regional Haze Program for the Grand River Energy Center (GREC) in Mayes County. GRDA's original Four-factor analysis was submitted to DEQ on September 10, 2020. Please find below written responses to each of the items identified:

1. DEQ's Comment:

The four-factor analysis is based on a forecasted/projected annual capacity factor but the company states that it is not definitive. Please explain if this forecasted capacity factor is based on recent historical operations. If it is not, it may not be appropriate to base the four-factor analysis on this forecasted capacity factor without an enforceable commitment to operate at that capacity factor.

GRDA's Reply:

The forecasted capacity factor was based on recent historical operations of GREC from 2016-2020.

2. DEQ's Comment:

The four-factor analysis is based on a maximum sulfur loading percentage that is based on the exclusive use of Powder River Basin (PRB) coal from Wyoming, which departs from the facility's recent historical practice of mixing the PRB coal with up to 10% Oklahoma coal. Please explain what is driving the switch to use 100% PRB coal, explain whether the switch to use 100% PRB coal is an enforceable requirement and specify how much the maximum sulfur loading percentage changed in light of this switch.

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GRDA's Reply:

The GREC facility is permitted to burn PRB coal, and up to 10% Oklahoma coal. However, for various reasons the facility practice since early 2001 has been to burn 100% PRB coal. The primary drivers in electing to not use Oklahoma coal were that PRB coal has a lower sulfur content, and the Oklahoma coal introduced unnecessary equipment reliability issues. More recently, the closure of Oklahoma coal mines for commercial purposes has entirely removed that option as a consideration for fuel.

3. DEQ's Comment:

The assumption of a shortened remaining useful life in the cost analysis for controls evaluated for Unit 2 appears to be based on "operating projections." As discussed in the August 2019 Guidance, this is not an appropriate approach. The Guidance explains that "In the situation where an enforceable shutdown date does not exist, the remaining useful life of a control under consideration should be full period of useful life of that control as recommended by EPA's Control Cost Manual." (See August 2019 Guidance at 34.)

GRDA's Reply:

The life of control equipment in the EPA Control Cost Manual, for example, provides a range, e.g., 20 to 30 years for the assumed lifetime of a control device. It is arbitrary for EPA to force the use of one particular value within the range. The study was based on the most representative value based on known conditions at the time of the study.

The GREC facility does not have an enforceable shutdown date. The useful life of the controls in consideration were developed based on GRDA's understanding at the time of the unit's remaining useful life.

4. DEQ's Comment:

Some of the control scenarios evaluated in the four-factor analysis include replacing the existing spray dryer absorber (SDA) with a new SDA with higher SO₂ removal efficiency, a circulating dry scrubber (CDS), or wet flue gas desulfurization (WFGD). Taking into account that the existing SDA was recently installed, the company should consider whether the existing SDA would have any salvage value that could offset the cost of the new control equipment. EPA's August 2019 Guidance explains that "In some instances, the installation of a new control may involve the

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removal or discontinuation of existing emission controls. Such situations present special issues and states should consult with their regional offices. For example, it may be appropriate to account for the salvage value of dismantled equipment.” (See August 2019 Guidance at 31.)

GRDA’s Reply:

The scrubber and baghouse casing were commissioned in 1986. GRDA has determined that this equipment has been depreciated and has limited salvage value. As indicated by the submitted documents, the GRDA has contracted with an experienced engineering firm, Black & Veatch Corporation (B&V), to perform the requested four-factor analysis for the GREC facility. B&V has also estimated the GRDA cost to surgically remove the SDA as to not impact the unit’s future operation, including the salvage (or recycled) value of materials, at approximately \$1,920,000. B&V further suggested that leaving the SDA in place until the unit is retired and could be demolished with the remainder of the unit would be more economical. Further, it was noted that the SDA itself, if it could be removed in its current condition for reuse, does not have a market in the US and would cost GRDA significantly more than the aforementioned surgical demolition option.

5. DEQ’s Comment:

Please provide line-item cost calculations and any vendor quotes obtained for all the control options evaluated in the four-factor analysis. This is consistent with the Regional Haze Rule, which requires that in establishing its long-term strategy for regional haze, a state must document the technical basis, including modeling, monitoring, cost, engineering, and emissions information, on which the state is relying to determine the emission reduction measures that are necessary to make reasonable progress in each mandatory Class I Federal area it affects. 40 CFR 51.308(f)(2)(iii).

GRDA’s Reply:

As previously noted, B&V performed the requested four-factor analysis for the GREC facility. In support of the analysis, commercially sensitive information, such as economic criteria and cost calculations are included in the unredacted version of the report. As such information isn't publicly released by GRDA and is classified as confidential by 27A O.S. § 2-5-105(17), we request that the unredacted version of the report be considered as confidential when and if shared with EPA.

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The line-item cost calculations are shown in the appendices of the unredacted version. We consider the values for variables used in the analysis to be valid.

If you have any questions or require additional information, please don't hesitate to contact me at 918-824-7565 or mike.bednar@grda.com

Best regards,

Michael L. Bednar
Manager of Environmental Compliance

Electronic and mail.

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