

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY Washington, DC 20460

OFFICE OF AIR AND RADIATION

May 14, 2024

Mr. Troy Tweeten, Senior Vice President of Operations Basin Electric Power Cooperative 1717 East Interstate Avenue Bismarck, North Dakota 58503

Re: Petition to Accept the Results of June 2021 Relative Accuracy Test Audits for Units 1 and 2 at the Laramie River Station (Facility ID (ORISPL) 6204)

Dear Mr. Tweeten:

The United States Environmental Protection Agency (EPA) has reviewed the December 22, 2022 petition¹ submitted by Basin Electric Power Cooperative (BEPC) under 40 CFR 75.66 requesting acceptance of the results of the June 2021 relative accuracy test audits (RATAs) of certain continuous emission monitoring systems (CEMS) for units 1 and 2 at the Laramie River Station (Laramie River). EPA approves the petition as discussed below.

Background

BEPC co-owns and operates Laramie River, located in Wheatland, Wyoming. Laramie River units 1 and 2 are coal-fired boilers each serving an electricity generator with a nameplate capacity of 570 megawatts. Each unit is equipped with a wet limestone flue gas desulfurization system (also known as a wet scrubber) and an electrostatic precipitator to control emissions of sulfur dioxide (SO₂) and particulates, respectively. To control emissions of nitrogen oxides (NO_x), unit 1 is equipped with a selective catalytic reduction (SCR) system and unit 2 is equipped with a selective noncatalytic reduction (SNCR) system. According to BEPC, units 1 and 2 are subject to the Acid Rain Program. BEPC is therefore required to continuously monitor and report SO₂ and carbon dioxide (CO₂) mass emissions, NO_x emission rate, and heat input for the units in accordance with 40 CFR part 75. To meet these requirements, BEPC operates and maintains CEMS to monitor SO₂, NO_x, and CO₂ concentrations and stack gas flow rate in the stack for each unit downstream of the emission control systems.

Part 75 requires periodic (semiannual or annual) RATAs of the gas concentration and flow rate monitoring systems for quality assurance purposes. With respect to RATAs of gas concentration

¹ The December 22, 2022, petition replaces a petition dated March 15, 2022.

monitoring systems (gas RATAs), section 6.5.6 of appendix A to part 75 provides several options for determining the location and number of traverse points at which flue gas samples should be taken. In situations where stratification of the flue gas stream is likely to occur, such as downstream of a wet scrubber, one option is to take the samples at three points spaced at specified distances along a "long" measurement line that spans the stack and passes through the centroidal area, as described in section 8.1.3 of Performance Specification 2 in appendix B to 40 CFR part 60. However, section 6.5.6(b)(3) of appendix A to part 75 also provides an option to sample at three points along a "short" measurement line, where the full line similarly spans the stack and passes through the centroidal area but the sampling points are spaced at specified distances along only a portion of the line closer to the stack wall where the sampling probe is inserted. To qualify to use the short measurement line, the 12-point stratification test set forth in section 6.5.6.1 of appendix A to part 75 must be performed prior to the initial gas RATA at that test location and then either the 12-point stratification test or the alternate (abbreviated) stratification test set forth in section 6.5.6.2 of appendix A must be performed prior to each subsequent gas RATA at that test location, and the results of each of these stratification tests must meet the acceptance criteria in section 6.5.6.3(a) of appendix A.

On August 10, 2021, EPA conducted a part 75 CEMS audit of Laramie River, which included reviews of the test reports for gas RATAs for units 1 and 2 that were conducted on June 29, 2021 and June 28, 2021, respectively. Units 1 and 2 both have wet scrubbers, thereby necessitating stratification tests prior to use of the 3-point short measurement line option under section 6.5.6(b)(3) of appendix A. The flue gas samples for the June 2021 RATAs were taken using the 3-point short measurement line option, but BEPC was unable to produce records demonstrating that the required stratification tests had been performed and passed prior to the RATAs. Accordingly, EPA notified BEPC that, based on the information available at the time of the audit, the June 2021 gas RATA results for units 1 and 2 would not be considered valid for quality assurance purposes under part 75 because the qualifying conditions for use of the short measurement line option had not been met.

After the audit, BEPC successfully completed gas RATAs for Laramie River units 1 and 2 on November 30, 2021, and December 1, 2021, respectively, again using the 3-point short measurement line option provided in section 6.5.6(b)(3) of appendix A. As required by the regulations, these RATAs were immediately preceded by 12-point stratification tests for SO₂, NO_x, and CO₂ whose results met the acceptance criteria in section 6.5.6.3(a) of appendix A.

In the December 22, 2022 petition, BEPC requests that EPA consider the results of the RATAs for units 1 and 2 conducted on June 29, 2021 and June 28, 2021, respectively, valid for purposes of quality assurance purposes under part 75. BEPC states that the results of the RATAs and 12-point stratification tests performed in November-December 2021, viewed together with the similarity of the operating conditions under which the June 2021 and November-December 2021 tests were performed, provide sufficient evidence that stratification was not present at the time of the June 2021 RATAs to a degree that would have disqualified BEPC from using the three-point short measurement line option under section 6.5.6(b)(3) of appendix A. BEPC also asserts that neither unit 1 nor unit 2 has a testing port location with an atypical risk of

stratification (notwithstanding the presence of the wet scrubbers). To support its request, BEPC provides data in the petition concerning the operating conditions for units 1 and 2 on each of the 2021 test dates as well as the results of the 12-point stratification tests conducted prior to the annual gas RATAs for units 1 and 2 performed in the years from 2016 through 2020.

EPA's Determination

EPA has reviewed the June 29, 2021 and November 30, 2021 RATA test reports for Laramie River unit 1, the June 28, 2021 and December 1, 2021 RATA test reports for Laramie River unit 2, the operating data for both units during the 2021 testing periods, and the results of the 12-point stratification tests conducted for the units prior to the 2016-2020 RATAs. EPA agrees that the data provided by BEPC indicate that the operating conditions during the two 2021 test periods for each unit were similar in ways that would be relevant to potential stratification. For each unit, the load and heat input levels during the June 2021 tests, the same numbers of fans were operating, and the same post-combustion emission controls were operating (SCR for unit 1, SNCR for unit 2, and ESP and FGD for both units). Further, the results of the 12-point stratification tests performed in November-December 2021 passed the acceptance criteria by comfortable margins. Finally, the units' multi-year history of 12-point stratification tests that have consistently met the acceptance criteria in section 6.5.6.3(a) of appendix A tends to support BEPC's view that these particular units are not subject to an unusual risk of stratification at the units' test port locations, notwithstanding the presence of wet scrubbers.

The Agency finds that the results of the follow-up RATAs and 12-point stratification tests performed for Laramie River units 1 and 2 on November 30, 2021 and December 1, 2021, respectively, combined with the information indicating the similarity of the operating conditions during the June RATAs and the November-December 2021 RATAs and the Information indicating that 12-point stratification test have consistently been performed and passed before the RATAs conducted in other years, provide sufficient evidence that stratification was not present at the time of the June 2021 RATAs to a degree that would have disqualified BEPC from using the three-point short measurement line option under section 6.5.6(b)(3) of Appendix A to part 75 for either unit.

In view of these considerations, EPA approves BEPC's December 22, 2022 petition to accept as valid the results of the RATAs of the SO₂, NO_x, and CO₂ CEMS performed for Laramie River units 1 and 2 on June 29, 2021 and June 2028, 2021, respectively. The data recorded by these CEMS for the period between the June and December 2021 RATAs may therefore be reported as quality-assured, except for out of-control periods, as provided in § 75.24. This approval applies only to the June 2021 RATAs and only for purposes of 40 CFR part 75.

EPA's determination is conditioned and relies on the accuracy and completeness of the information provided by BEPC in the December 22, 2022 petition and is appealable under 40 CFR part 78. If you have any questions regarding this determination, please contact Ron Sobocinski at (202) 343-9722 or by e-mail at sobocinski.ron@epa.gov. Thank you for your continued cooperation.

Sincerely,

Rona Birnbaum, Director Clean Air and Power Division

cc:

Youn Joo Kim, EPA Region VIII Mr. Mark Gagen, Wyoming DEQ / AQD Ron Sobocinski, US EPA – CAPD