



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

Kirby Dahlquist
Advanced HES Professional
St. Paul Park Refining Co., LLC
KADahlquist@Marathonpetroleum.com

Re: Alternative Monitoring Request
St. Paul Park Refinery

Dear Mr. Dahlquist:

I am writing in response to a December 4, 2020 alternative monitoring request by St. Paul Park Refining Co., LLC (St. Paul Park) for the company's refinery located in St. Paul Park, Minnesota (St. Paul Park Refinery). The St. Paul Park Refinery is subject to the New Source Performance Standards for Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After May 17, 2007 at 40 C.F.R. Part 60, Subpart Ja (NSPS Subpart Ja).

Specifically, St. Paul Park has requested that EPA approve alternative daily calibration checks and quarterly quality assurance checks for the total reduced sulfur (TRS) monitor on its flare (TREA 13) which is subject to NSPS Subpart Ja. St. Paul Park requests these alternatives to minimize the safety risks to its employees from the handling, transportation, and storage of calibration gas cylinders containing extremely high levels of hydrogen sulfide (H₂S). St. Paul Park provided additional information in support of its request via email on April 22, 2021, and May 5, 2021.

Relevant NSPS Subpart Ja Requirements

NSPS Subpart Ja requires, at 40 C.F.R. § 60.107a(e)(1)(ii):

The owner or operator shall conduct performance evaluations of each total reduced sulfur monitor according to the requirements in §60.13(c) and Performance Specification 5 of appendix B to this part. The owner or operator of each total reduced sulfur monitor shall use EPA Method 15A of appendix A-5 to this part for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981 (incorporated by reference-see §60.17) is an acceptable alternative to EPA Method 15A of appendix A-5 to this part. The alternative relative accuracy procedures described in section 16.0 of Performance Specification 2 of appendix B to this part (cylinder gas audits) may be used for conducting the relative accuracy evaluations, except that it is not necessary to include as much of the sampling probe or sampling line as practical.

According to 40 C.F.R. § 60.13(d)(1), CEMS calibration drift checks must be conducted daily for the zero level (or a low value of 0-20 percent of span value) and span range (50-100 percent of span value). Additionally, the alternative relative accuracy procedures in Section 16.0 of Performance Specification 2 require that quarterly CEMS cylinder gas audits (CGA) or relative accuracy test audits (RA TA) must be conducted that require the analyzer to be challenged at low (20-30 percent of span value) and high (50-60 percent of span value) level concentrations.

St. Paul Park's Request

St. Paul Park utilizes a ThermoFisher Scientific SOLA II analyzer (SOLA II) to monitor the TRS concentration of gas going to its flare. The SOLA II is a dual span analyzer with a low range span value of 5,000 ppmv sulfur and a high range span value of 500,000 ppmv sulfur. St. Paul Park provided data demonstrating the linearity of the SOLA II over this span to within 2% using H₂S calibration gases, which are acceptable in this case because the SOLA II monitor oxidizes the sulfur compounds in the sample stream to sulfur dioxide.

St. Paul Park has requested to conduct daily calibration checks required by 40 C.F.R. § 60.13(d)(1) and Appendix F as follows:

1. Perform a zero span check at 0-20% of SOLA II's low span value (0-1,000 ppmv);
and
2. Perform a span check at 20-30% of SOLA II's low span value (1,000-1,500 ppmv).

Additionally, for quarterly quality assurance checks required by Appendix F, St. Paul Park has requested to:

1. Challenge the SOLA II's low span value at 20-30% (1,000 - 1,500 ppmv);
2. Challenge the SOLA II's low span value at 50-60% (2,500 - 3,000 ppmv); and,
3. Check the photo multiplier tube power supply voltage by toggling the output to Range B (high range) in accordance with manufacturer diagnostics procedures.

As mentioned above, St. Paul Park has requested these alternatives to minimize the safety risks to its employees from the handling, transportation, and storage of calibration gas cylinders containing extremely high levels of H₂S.

EPA's Response

To minimize the safety risks to St. Paul Park's employees, EPA approves the requested alternatives for the daily calibration checks required by 40 C.F.R. § 60.13(d)(1) and the daily and quarterly quality assurance checks required by Appendix F as described above; however, after the implementation of this AMP, St. Paul Park shall check the photo multiplier tube power supply voltage by toggling the output to Range B weekly, instead of quarterly. St. Paul Park must complete a three-month period without failing a check on the power supply before switching to quarterly checks. St. Paul Park will comply with all other monitoring procedures of NSPS Subpart Ja for H₂S and TRS.

Additionally, St. Paul Park shall conduct linearity analysis on the SOLA II once every three years to demonstrate the detector's linearity across the entire range of expected sulfur

concentrations. The analysis must include four test gases in the following nominal ranges: zero, 5-20 percent, 40-60 percent, and 80-100 percent of maximum anticipated sulfur concentration. Target acceptance criteria would be results within 5 percent of span that is based on maximum anticipated sulfur concentration. A report of the linearity analysis shall be submitted to EPA Region 5.

This approval is site-specific for the TREA 13 Flare at the St. Paul Park Refinery when using the SOLA II monitor, and for any temporary or portable flare used in lieu of the TREA 13 Flare if all gases going to the temporary or portable flare are monitored by the SOLA II monitor. If refinery operations change such that the sulfur content or H₂S concentration range of the fuel gas vent stream to the flares change from representations made in your request, then St. Paul Park must document the change(s) and submit a new AMP request.

If you have any questions or concerns about this determination, please contact Natalie Schulz at (312) 886-2776 or schulz.natalie@epa.gov.

Sincerely,

**MICHAEL
HARRIS**

Digitally signed by
MICHAEL HARRIS
Date: 2021.06.29
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Michael D. Harris, Division Director
Enforcement and Compliance Assurance Division

cc: Rachel Studanski, MPCA, rachel.studanski@state.mn.us