UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

August 19, 2021

Mr. Stephen D. Moore
Environmental Fellow
Global Health, Safety, Environment,
and Security
Eastman Chemical Company
P.O. Box 511
Kingsport, Tennessee 37662

Dear Mr. Moore:

This letter is in response to your letter, dated May 18, 2021, to the U.S. Environmental Protection Agency (EPA) Region 4 office requesting a waiver of periodic hydrogen chloride (HCl) performance testing required under Title 40, Code of Federal Regulations (CFR) Part 60, Subpart DDDD (Emissions Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration Units). This request is for seven coal-fired boilers located at the Eastman Chemical Company (ECC) plant in Kingsport, Tennessee. Based upon our review, a waiver of future HCl performance testing for the boilers in question will be acceptable provided that results from a previously approved alternative monitoring procedure (AMP) demonstrate that the HCl concentration in flue gas from each of the seven units does not exceed 43.5 parts per million by volume (ppmv) on a dry basis, corrected to seven percent oxygen. Details regarding your proposal and the basis for our decision are provided in the remainder of this letter.

Below is a summary of information regarding the boilers covered by ECC's test waiver request:

1. The units covered by your request are designated as Boilers 18 – 24, and they consist of two groups. The units in Group 1 (Boilers 18 – 22) are low pressure units with a heat input capacity between 246 million British thermal unit per hour (mmBtu/hr) and 249 mmBtu/hr. The Group 1 boilers are equipped with electrostatic precipitators (ESPs) of the same size, design, and manufacturer. The units in Group 2 (Boilers 23 and 24) are high pressure units with a heat input capacity of 500 mmBtu/hr each, and the two Group 2 boilers have identical ESPs.
2. All the boilers covered by your request can burn biosludge generated at ECC's on-site industrial wastewater treatment system. In addition, the Group 2 boilers are capable of burning various liquid wastes, including liquid hazardous waste.
3. Under provisions in Subpart DDDD, Table 7, Boilers 18 – 24 are subject to a flue gas HCl concentration limit of 58 ppmv on a dry basis, corrected to seven percent oxygen.
4. During the initial performance testing conducted on Boilers 18 – 24, the HCl concentration in the flue gas from the seven units ranged from seven to 16 ppmv (*i.e.,* between 12 percent and 28 percent of the applicable standard). A summary of the results from the initial performance testing is provided in Enclosure 1.

5. On May 2, 2019, you provided information regarding the feedrate and chlorine content of the coal, biosludge, and liquid waste combusted in Boilers 23 and 24 during 2018. This information is summarized in Enclosure 2 and demonstrates that more than 99 percent of the HCl emitted from these units is due to the combustion of coal and biosludge.
6. Under provisions in §60.2710(b), annual HCl performance testing is required for Boilers 18 – 24.
7. Under provisions in §60.2720(a)(3)(i), owners and operators of affected facilities have the option of skipping two annual performance tests if the HCl concentration in the flue gas is less than or equal to 75 percent of the applicable standard. The maximum duration allowed between tests under this provision is 37 months. Based upon the test results summarized in Enclosure 1, all seven boilers covered by ECC's test waiver request qualified for the alternative testing frequency allowed under §60.2720(a)(3)(i).
8. Under provisions in §60.8(b)(4), the Administrator can waive the requirement to conduct performance testing when an owner or operator demonstrates through other means that an affected facility is in compliance with an applicable standard.
9. According to national stack testing guidance issued by the U.S. Environmental Protection Agency (EPA) on April 27, 2009, approving performance testing waivers for identical units that are operated in a similar manner may be appropriate if testing conducted on a representative unit indicates that the margin of compliance is significant and can be maintained on an ongoing basis.
10. Based upon the authority in §60.8(b)(4) and the EPA's national stack testing guidance, Region 4 approved a conditional test waiver for five of the seven boilers on June 13, 2019. This waiver applied to the annual testing scheduled for 2019. Under the terms of the conditional waiver, ECC was allowed to test one Group 1 and one Group 2 boiler, and if the HCl concentration in the flue gas from the tested units was less than 50 percent of the applicable standard, testing was not required for the remaining boilers in the respective groups.
11. Under the terms of the conditional waiver approval granted in 2019, ECC tested Boiler 18 and Boiler 24. Boiler 18 was tested in May 2019, and Boiler 24 was tested in June 2019. The HCl concentration in flue gas from these units during the 2019 testing was 8 ppmv and 6 ppmv, respectively. Since both values are less than 50 percent of the applicable 58 ppmv limit, testing for the other five boilers subject to Subpart DDDD was not required in 2019.
12. The conditional waiver indicated that it only applied to testing scheduled for 2019, and that under provisions in Subpart DDDD, the next round of testing would have to be conducted no later than 37 months after the completion of the 2019 tests. In addition, the conditional waiver indicated that, if ECC decided to pursue a waiver in conjunction with the next round of required HCl testing, a request must be submitted to Region 4 at least six months prior to the testing deadline.
13. Based upon the date of the latest HCl testing conducted on Boilers 18 and 24, the due date for the next round of testing for Boilers 18 – 24 is June 2022.
14. In a letter dated April 11, 2019, Region 4 approved an AMP for monitoring the HCl concentration in the flue gas from Boilers 18 – 24. A copy of this AMP approval (Control Number 1900014) can be found on the EPA's Applicability Determination Index (https://cfpub.epa.gov/adi/). Under this AMP, a material balance is used for calculating the HCl concentrations in the flue gases from all seven boilers.
15. The material balance under the AMP involves measuring the chlorine content of the coal, biosludge, and liquid waste combusted in the boilers. The sampling conducted in order to determine the chlorine content of these streams is based upon a Feedstream Analysis Plan that ECC uses for demonstrating compliance under 40 CFR Part 63, Subpart EEE (National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors).

16. Under the AMP approved for Subpart DDDD, compliance is determined on a 30-day rolling average basis, and the material balance assumes that all of the chlorine contained in the fuel and waste streams combusted in Boilers 18 – 24 is emitted as HCl. This is a conservative assumption because dry sorbent injection systems installed in order to control sulfur dioxide emissions from the boilers will also reduce HCl emissions.

The ECC's letter, dated May 18, 2021, asked that the EPA approve one of the following performance testing waiver options:

1. ECC asked that the requirement to conduct all future HCl performance testing for Boilers 18 – 24 be waived.
2. ECC asked for a repeat approval of the June 2019 waiver under which performance testing is only required for one Group 1 boiler and one Group 2 boiler if the HCl concentration in the flue gas from the boilers tested is less than 50 percent of the applicable standard.

The justification provided for your waiver proposals is ECC's position that manual stack testing for determining compliance with HCl limit in Subpart DDDD is unnecessary because the AMP approved by the EPA in April 2019 allows compliance with the applicable HCl limit to be determined on for all seven boilers on a continuous basis.

Based upon our review, conditional approval of ECC's first waiver proposal (Option 1) would be acceptable to the EPA. Under this conditional approval, granted under provisions in §60.8(b)(4), which allows the Administrator to waive performance testing when a facility owner/operator demonstrates compliance by other means, future HCl performance testing for Boilers 18 – 24 will not be required provided that the results of the monitoring conducted under the AMP approved in April 2019 demonstrate that the HCl concentration in the flue from all seven boilers does not exceed 75 percent of the applicable 58 ppmv standard (*i.e.,* 43.5 ppmv) on a 30-day rolling average basis. In the event the results of the AMP indicate that the HCl concentration in the flue gas from a boiler has exceeded 43.5 ppmv, HCl performance testing for that boiler must be conducted within 60 calendar days after the exceedance occurs.

The basis for approval of a testing waiver (Option 1) under the conditions outlined in this letter is that a demonstration under the previously approved AMP in which the HCl concentration in the flue is shown to be less than 43.5 ppmv on a 30-day rolling average basis provides greater assurance of compliance than periodic annual or triennial testing does. This conclusion is based upon the following factors:

1. Due to the use of dry sorbent injection for sulfur dioxide control, the assumption under the AMP that all of the chlorine contained in the fuel and waste streams combusted in Boilers 18 – 24 is emitted as HCl represents a conservative approach that will tend to overstate emissions.
2. Based upon monitoring conducted under the AMP, the 30-day rolling average HCl concentration in the flue gas from Boilers 18 – 24 during the 16-month period between October 1, 2019, and March 31, 2021, ranged from 7.2 ppmv to 24.9 ppmv (12 to 43 percent of the applicable standard). Details regarding the calculated HCl concentration in the flue gas from all seven boilers over this time period are provided in Enclosure 3.
3. During nine performance tests conducted on Boilers 18 – 24 between April 2018 and June 2019, the HCl concentration in the flue gas ranged from 6 ppmv to 16 ppmv (10 to 28 percent of the applicable standard). The fact that the range of HCl concentrations during performance testing was similar to, but lower than, the range of HCl concentrations during the monitoring conducted

under the AMP between October 2019 and March 2021 tends to support a conclusion that the results under the AMP provide a conservative estimate of HCl emissions from Boilers 18 – 24.

4. Due to the continuous nature of the monitoring conducted on the AMP, it provides information on boiler operation for up to 8,760 hours per year. Since the results of manual performance testing typically represent, at most, six hours of boiler operation, monitoring results under the AMP provide a higher level of compliance assurance than periodic testing does.
5. Based upon the range of HCl concentrations in the flue gas from Boilers 18 – 24 during testing and monitoring conducted between April 2018 and March 2021, it is unlikely that the HCl concentrations will ever exceed 43.5 ppmv during future monitoring conducted under the previously approved AMP.
6. Future results under the AMP indicating that the calculated HCl concentrations in the flue gas from Boilers 18 – 24 have exceeded 43.5 ppmv on a 30-day rolling average basis would most likely indicate a significant increase in the chlorine content of the coal and/or biosludge combusted in the units. Such a change in the chlorine content will trigger the requirement for additional performance testing to determine whether or not there is still a strong correlation between the HCl results under the AMP and from manual stack testing.

We have coordinated this response with the EPA Office of Enforcement and Compliance Assurance (OECA) and the EPA Office of Air Quality Planning and Standards (OAQPS). If you have any questions about the guidance provided in this letter, please contact Mr. David McNeal of my staff at (404) 562-9102 or at mcneal.dave@epa.gov.

Sincerely,

CAROLINE FREEMAN

Digitally signed by CAROLINE FREEMAN
Date: 2021.08.19 14:56:52 -04'00'

Caroline Y. Freeman
Director
Air and Radiation Division

Enclosures

cc: Sara Ayres, OECA
Brian Shrager, OAQPS
Todd Russo, EPA Region 4 ECAD
Michelle Walker Owenby, TN DEC
Travis Blake, TN DEC
Jeryl Stewart, TN DEC
John Webb, TN DEC

Enclosure 1. Summary of Initial HCl Performance Test Results for ECC Kingsport, Tennessee

	Test date	HCl, ppmv at 7 % O_2	Percent of standard
Boiler 18	April 11, 2018	7	12
Boiler 19	April 24, 2018	16	28
Boiler 20	April 26, 2018	11	19
Boiler 21	May 2, 2018	7	12
Boiler 22	May 23, 2018	8	14
Boiler 23	May 9, 2018	9	16
Boiler 24	May 3, 2018	7	12
Boiler 18	May 1, 2019	8	14
Boiler 24	June 4, 2019	6	10

Enclosure 2. Boiler 23 and 24 Combustion Summary for 2018

	Coal	Biosludge	Liquid waste	Total
Quantity, tons	179,041	90,571	260	269,872
Cl content, lb	64,455	21,737	26	86,218
Cl, % of total	74.8	25.2	0.03	100.0
Cl content, lb/ton	0.36	0.24	0.10	0.31

Enclosure 3. Highest 30-Rolling Average HCl Stack Gas Concentration (ppmv)

	October 1, 2019 – March 31, 2020	April 1, 2020 – September 30, 2020	October 1, 2020 – March 31, 2021
Boiler 18	9.6	7.2	10.9
Boiler 19	24.9	8.7	8.7
Boiler 20	14.0	9.3	12.9
Boiler 21	15.8	9.2	10.0
Boiler 22	10.7	12.3	14.8
Boiler 23	12.4	11.4	15.4
Boiler 24	18.1	11.8	15.7