



December 20, 2022

Ms. Tiffany Myers, District Supervisor
Water Resources Division
Michigan Department of Environment, Great Lakes and Energy (EGLE)
Jackson District Office
301 E. Louis B. Glick Highway - 4th Floor
Jackson, Michigan 49201

Re: Flue Gas Desulfurization Wastewater (FGD) Voluntary Incentive Program (VIP) 2022 Annual
Progress Report
DTE – Monroe Pit
NPDES Permit No. MI0001848 (Permit)

Dear Ms. Myers,

This submittal is the follow-up annual progress report per 40 CFR 423.19(h)(3), and per Permit Section I.A.16.b. The following enclosures provide the updates as required by 40 CFR 423.19(h)(4).

On October 13, 2021, DTE Electric Company (DTE) submitted a Notice of Planned Participation (NOPP) for the Flue Gas Desulfurization Wastewater Voluntary Incentive Program per 40 CFR 423.19(h)(1). The following enclosures provide the information necessary for the annual progress report as required by 40 CFR 423.19(h)(3) and 40 CFR 423.19(h)(4).

On October 13, 2020, the Environmental Protection Agency (EPA) released the final version of the Effluent Limit Guidelines (ELG) Reconsideration Rule (2020 Rule) which updated the 2015 ELG Rule (2015 Rule). This 2020 Rule is the product of the EPA's "Reconsideration" of certain portions of the 2015 Rule, specifically addressing bottom ash transport water (BATW) and flue gas desulfurization wastewater (FGD WW).

The 2020 Rule established Best Available Technology (BAT) standard discharge limits for FGD WW discharges, and further, finalized the Voluntary Incentive Program (VIP) for FGD WW. Under the VIP, companies may choose to meet more stringent effluent limits established by EPA based on the model technology of membrane filtration or zero-liquid discharge. If a company chooses the VIP option, then the applicability date for FGD WW compliance will be December 31, 2028. The extended compliance deadline allows for additional time to design, pilot, procure, and install VIP compliant technologies since they are currently not as common and economically viable compared to physical and chemical plus biological treatment systems.

If you have any questions relative to this submittal, please contact Matthew Goddard at (313) 235-7368 or via e-mail at matthew.goddard@dteenergy.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Twomley". The signature is fluid and cursive, with the first name "Michael" and last name "Twomley" clearly distinguishable.

Michael Twomley
Plant Manager
Monroe Power Plant
Energy Supply - DTE Electric Company
734-384-2203
Enclosures

Cc: Alexandria Seeger - EGLE, Jackson District Office
Elise Ciak - DTE EM&S, Monroe Power Plant
Christopher Paquette - DTE EM&S
Barry Marietta - DTE EM&S
Marcela Orlandea - DTE EM&S
Lisa Lockwood - DTE EM&S

Enclosure 1

Flue Gas Desulfurization Wastewater (FGD) Voluntary Incentive Program (VIP) 2022 Annual Progress Report

Facility Identification

Monroe Power Plant (MONPP) is located at 3500 East Front Street, Monroe, Michigan. MONPP consists of four B&W supercritical wall-fired boilers firing a blend of subbituminous coal, bituminous coal and petroleum coke and is rated for a maximum gross output of 3,280 MW. The units started commercial operation from 1971 to 1974. This flue gas desulfurization wastewater (FGD WW) voluntary incentive program (VIP) NOPP annual progress report applies to all operational units at MONPP.

Technology Projected to be Utilized for VIP Compliance

DTE has evaluated a suite of technologies for FGD WW treatment that would qualify for VIP compliance. These technologies included but were not limited to membrane treatment, thermal reduction (such as crystallization), encapsulation, and spray dryer evaporators.

In 2022, DTE selected to construct spray dryer evaporators as a VIP eligible technology for Monroe Power Plant Unit 1 and Unit 2. A waste heat or bypass spray dryer is another form of an evaporative solution that can process the FGD wastewater and achieve 2020 Rule VIP compliance limits. The bypass spray dryer takes a small portion of the flue gas and routes it around the air preheater to a spray dryer vessel where the FGD WW is injected. The heat from the flue gas evaporates the wastewater leaving behind residual solids and fly ash from the flue gas. These solids are captured in the existing particulate collection device or a small fabric filter and landfilled. All the FGD wastewater is converted into a solid that is landfilled, eliminating any need to discharge FGD WW and achieving 2020 Rule VIP compliance.

In November of 2022, DTE submitted an IRP detailing the retirement of Monroe Power Plant Unit 3 and Unit 4. If the IRP submitted in November of 2022 receives regulatory approval with respect to the future operation of Belle River Power Plant and Monroe Power Plant, DTE will seek to transfer between applicable limitations in a permit under 40 CFR 423.13(o) by submitting a new Notice of Planned Participation for Unit 3 and Unit 4 at Monroe Power Plant on or before December 31, 2023. If the IRP submitted in November 2022 is approved as submitted, Monroe Power Plant Unit 3 and Unit 4 will cease coal combustion activities by December 31, 2028.

DTE expects to proceed with initial design and engineering. All updates will continue to be provided in annual reports as required in 40 CFR 423.19(h)(3) and Permit Section I.A.16.b.

Engineering Dependency Charts

Enclosure 2 includes a schedule that shows the amount of time required for installation of a FGD WW treatment system that is capable of achieving compliance with the revised 2020 Rule for the VIP such as spray dryer evaporators at Monroe Power Plant Unit 1 and Unit 2.

This draft schedule allows appropriate project execution time to implement a thermal evaporative treatment system to meet the VIP limits. DTE must progress through a preliminary design phase to develop an overall cost estimate. Once the preliminary design phase is completed, the development of cost estimates required to establish overall project cost and obtain approvals by DTE leadership to move into the final design phase of project

development can begin. Following final cost estimate, detailed engineering can begin with finalization of the project design basis and overall scope of work.

Updates to Initial NOPP

The information presented in this annual progress report represents the best information available to meet the contents of the annual progress report as specified in 40 CFR 423.19(h)(4). DTE has identified the following factors that could result in modifications of information submitted in this NOPP annual progress report:

1. Integrated Resource Plans – DTE submitted an updated IRP in November of 2022, approximately one year early. If approved, the updated IRP lays out a plan to retire two Monroe Power Plant units in 2028 and the remaining two units in 2035. This is a change from originally retiring all four Monroe Power Plant units in 2039.
2. Other Regulatory Filings – The 2022 IRP that was submitted for regulatory approval provides a plan in which DTE will provide affordable and reliable electricity to its customers. However, many of the projects that will be required to achieve compliance with the 2020 Rule will need to be approved within other future DTE regulatory filings, including electric rate cases. The outcome of future regulatory matters regarding future projects may result in additional modifications to the initial NOPP.
3. Regulatory Changes / Rule Modifications – On August 3, 2021, EPA initiated a new rulemaking to revise the 2020 Rule for certain wastewater discharge limits. The proposed rulemaking or other potential future regulatory changes could impact DTE's ELG compliance strategy including the use of the VIP compliance subcategory and associated NOPP process.
4. Other Factors to Be Determined – Other factors including, but not limited to, legal challenges of EPA's ELG rules or rulemakings conducted by future federal administrations.

DTE will continue to comply with the initial Notice of Planned Participation for Unit 1 and Unit 2 at Monroe Power Plant as submitted on October 13, 2021. DTE has selected a FGD WW treatment system that is capable of achieving compliance with the revised 2020 Rule for the VIP for two of the Monroe Power Plant units ahead of the original planned date of February 2025.

Upon regulatory approval of the 2022 IRP, DTE will determine if Monroe Power Plant Unit 3 and Unit 4 will continue to comply with the NOPP submitted on October 13, 2021 that requires compliance with the revised 2020 Effluent Limitation Guidelines Rule through the voluntary incentive program pathway as described in 40 CFR 423.13(g)(3)(i) or if DTE will decide to transfer to the cessation of coal combustion pathway as described in 40 CFR 423.13(g)(2)(i).

During 2023, DTE will proceed with initial design and engineering activities necessary to obtain a final cost estimate for the spray dryer evaporator technology.

Enclosure 2

VIP Implementation Schedule

The overall schedule follows a traditional general / multiple contractor approach. Following completion of the cost estimate, detailed engineering can begin with finalization of the project design basis and overall scope of work. A site survey and geotechnical report are developed for the project and the design basis is updated with this additional information. Procurement packages are developed for long lead equipment and the major process equipment. Submittal drawings and information are needed from the major process equipment for the balance of the detailed engineering activities to commence. The engineering deliverables involve development of process flow diagrams, piping & instrumentation diagrams, general arrangement drawings, one-line diagrams, lists, 3D models, isometric drawings, cable schedules, control narratives, etc. Procurement packages are developed for other balance of plant commodities. Major procurement activities include development of technical specifications, issuing packages to bid, evaluating bids received, negotiating and awarding contracts, receipt of submittals, review of submittal information, release of manufacturing to fabricate, fabrication of equipment / components, and delivery to site.