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October 14, 2022

Mr. Chris Scieszka
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One Energy Plaza, 410 G.O
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Subject: Semi-Annual Progress Report-Remedy Selection and Design
River Rouge Power Plant Coal Combustion Residual (CCR) Bottom Ash Basin (BAB)

Dear Mr. Scieszka:

On April 17, 2015, the United States Environmental Protection Agency (USEPA) published the final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA), referred to herein as the CCR Rule, as amended. The CCR Rule, which became effective on October 19, 2015 (with amendments in 2018 and 2020), applies to the DTE Electric Company (DTE Electric) River Rouge Power Plant (RRPP) Bottom Ash Basin (BAB). As presented below, a written closure plan was developed, a groundwater monitoring system was installed, groundwater monitoring was performed, an interim groundwater measure was designed and installed (groundwater collection system), and an Assessment of Corrective Measures (ACM) was completed between October 2016 and April 2019 (the ACM was revised October 3, 2022). Removal of CCR in accordance with the written closure plan was completed between June 2020 and November 2020. A final remedy for groundwater has not yet been selected. This October 2022 Semi-Annual Progress Report, prepared as a requirement of §257.97(a) of the CCR Rule, describes DTE Electric's progress toward selecting and designing the final remedy for the RRPP BAB.

## Closure by Removal

On October 17, 2016, in accordance with the schedule defined in §257.102(b)(2) of the CCR Rule, DTE Electric placed an Initial Written Closure Plan for the BAB into the Operating Record; the Closure Plan was updated on July 15, 2020. This updated Closure Plan was implemented from June 2020 to November 2020 and included removal and off-site disposal of CCR source material from the RRPP BAB and decontamination of the unit. A final groundwater remedy has not yet been formally selected.

## Groundwater Monitoring and Assessment of Corrective Measures

In accordance with the schedule defined in 40 CFR §257.90(b)(1), a groundwater monitoring system was installed from June 2016 through June 2017 around the RRPP BAB as required by 40 CFR §257.91, and background groundwater monitoring well sampling was completed between August 2016 and September 2017 as required by 40 CFR §257.93. As documented in the January 31, 2018 Annual Groundwater Monitoring Report for the River Rouge Power Plant,

covering calendar year 2017 activities, DTE Electric noted that boron, fluoride, and pH (Appendix III constituents) were observed within groundwater at one or more downgradient monitoring wells with statistically significant increases (SSIs) above background limits in the September 22, 2017 detection monitoring event. In response, DTE Electric initiated an assessment monitoring program for the RRPP BAB pursuant to §257.95 of the CCR Rule. Groundwater within the groundwater monitoring system was sampled and analyzed for all constituents listed in Appendix IV on April 6, 2018 with the initial semiannual assessment monitoring event being completed on May 30, 2018. In accordance with §257.93 (h), on October 15, 2018, it was determined that arsenic and lithium (Appendix IV constituents) were present at SSIs above their respective groundwater protection standards (GWPSs) at one or more down gradient well locations at the RRPP BAB during the initial assessment monitoring event.

DTE Electric took proactive measures to address the affected groundwater by designing, installing, and operating (since March 2, 2018) an interim measure groundwater collection system to mitigate any potential risk of migration of groundwater away from the BAB. The installed groundwater collection system extraction wells maintain groundwater hydraulic control around the entire perimeter of the RRPP BAB.

While continuing to operate the groundwater collection system, DTE Electric, as required under §257.95(g), placed a Notification of Appendix IV Constituents at Statistically Significant Levels Above the Groundwater Protection Standards in the RRPP BAB operating record on November 14, 2018. An Assessment of Corrective Measures (ACM) was initiated on January 14, 2019 and a notification was placed in RRPP's operating record, per §257.95(g)(3) and §257.105(h)(9), respectively. DTE Electric prepared and placed the initial ACM into the RRPP operating record on April 14, 2019 in accordance with the schedule and notification requirements of §257.96. The preferred alternative in the 2019 ACM was to close the RRPP BAB by CCR removal with offsite CCR disposal and continue to operate the already in place groundwater collection system. CCR removal and offsite disposal was completed from June 2020 to November 2020. Prior to CCR removal, concentrations of arsenic and/or lithium in groundwater above their respective GWPSs were observed in monitoring wells MW-16-01, MW-16-02, MW-17-14, and MW-17-15. Lithium concentrations are trending down since the removal of CCR and have not exceeded the GWPS since 2020. Arsenic at MW-16-01 is the only ongoing exceedance of the GWPS within the monitoring well network. In October 2022, DTE Electric revised the 2019 ACM to include additional innovative technology that was not considered in the initial ACM to address the persistent concentrations of arsenic at MW-16-01.

## Semi-Annual Remedy Selection Progress Report—October 2022

As stated above, DTE Electric proactively managed the potential groundwater migration pathway at RRPP BAB by installing and operating a groundwater extraction system around the perimeter of the RRPP BAB as an interim measure. The preferred alternative in the initial ACM was to close the RRPP BAB by CCR removal with offsite CCR disposal and to address the CCR-affected groundwater by continuing to operate the already in place interim groundwater collection system. However, with the completion of source removal activities in 2020, and ongoing performance monitoring, the final remedy is still being evaluated.

In early 2022, DTE Electric conducted a bench-scale treatability study using site groundwater and soil to evaluate two in-situ treatment options for removing arsenic from groundwater at the former RRPP BAB and to potentially provide a final groundwater remedy for this site. These included: (1) zero-valent iron (ZVI), and (2) a solution of guar gum and ferrous sulfate. Results from this study indicated that ZVI was effective at removing both arsenate and arsenite from site groundwater. In addition, application of ferrous sulfate and guar gum was successful at stimulating anaerobic bacteria and enhanced the reduction of arsenic from groundwater through biological processes.

Beginning in late September 2022, DTE Electric commenced an in-situ pilot scale test to confirm that the findings from the bench scale testing, namely the in-place immobilization of arsenic by injection of specific reagents, can be replicated in the field and subsequently scaled up for full implementation as an alternative to continued operation of the groundwater extraction system. In preparation for the injection work the groundwater extraction system was shut down to allow the groundwater hydraulic and geochemistry conditions to stabilize prior to implementing the pilot test.

Once engineering evaluations for the final groundwater remedy are completed, the final remedy for the affected groundwater will be formally selected per §257.97, including at least 30-days after the public meeting required under §257.96(e) is held. DTE Electric will continue to hold the interim groundwater collection system in reserve until such time that the potential for migration of CCR constituents from the RRPP BAB CCR unit are mitigated and/or other active remediation is implemented, and groundwater monitoring data demonstrates that groundwater concentrations of Appendix IV constituents are below relevant GWPSs for three consecutive years of semiannual groundwater monitoring in accordance with §257.98(c).

DTE Electric will continue semiannual assessment monitoring as specified in §257.95, as well as annual nature and extent monitoring for the RRPP BAB CCR unit per §257.95(g)(1). Groundwater monitoring will be performed in accordance with the existing Quality Assurance Project Plan – DTE Electric Company River Rouge Power Plant Bottom Ash Basin (the QAPP) (TRC, July 2016; revised August 2017) and statistically evaluated per the Groundwater Statistical Evaluation Plan – DTE Electric Company River Rouge Power Plant Coal Combustion Residual Bottom Ash Basin (Stats Plan) (TRC, October 2017).

Sincerely,

TRC

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