REGION 5
CHICAGO, IL 60604

January 13, 2025

ELECTRONIC MAIL
DELIVERY RECEIPT REQUESTED

Mr. Christopher Scieszka
Environmental Management & Safety
DTE Electric Company
One Energy Plaza
410 G.O.
Detroit, MI 48226
christopher.scieszka@dteenergy.com

Re: **Notice of Alleged Violations**
DTE Electric Company – Monroe Power Plant
Monroe, Michigan
Facility ID MID092175074

Dear Mr. Scieszka:

The purpose of this letter is to inform the DTE Electric Company (DTE) Monroe Power Plant (MONPP) that the United States Environmental Protection Agency, Region 5 (EPA) is alleging that DTE is in violation of the requirements of 40 C.F.R. Part 257, Subpart D.

DTE, as the owner and operator of Coal Combustion Residual (CCR) landfill and surface impoundment units at its facility located at 3500 East Front Street, Monroe, Michigan (Facility), is subject to the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6907, et seq., and the regulations promulgated thereunder, 40 C.F.R. Part 257, Subpart D – Standards for the Disposal of CCR in Landfills and Surface Impoundments.

Based on the EPA's review of the information available to it, including but not limited to, information posted by DTE to its publicly accessible internet site entitled Coal Combustion Residual Rule Compliance Data and Information ("federal CCR website"), EPA is alleging that DTE has failed to comply with and is in violation of the requirements of 40 C.F.R. Part 257, Subpart D, as specifically alleged in Attachment 1 for the MONPP.

According to Section 3008(a) of RCRA, EPA may issue an order assessing a civil penalty for any past or current violation, requiring compliance immediately or within a specified time period, or both. Although this letter is not such an order or a request for information under Section 3007 of RCRA,

42 U.S.C. § 6927, we request that you submit a response in writing to us no later than 30 days after receipt of this letter documenting the actions, if any, which you have taken or plan to take to establish compliance with the requirements listed in Attachment 1.

Please submit your response to this letter by electronic mail to:

r5lecab@epa.gov
and
cole.shawn@epa.gov

If you wish to confer with us, you should contact Andrew Futerman, in EPA Region 5's Office of Regional Counsel, within 10 calendar days after you receive this letter. Please be advised that this conference is not a settlement negotiation covered by Federal Rule of Evidence 408 and we may use any information you submit in support of an administrative, civil, or criminal action.

You should direct questions about this letter to Shawn Cole at cole.shawn@epa.gov. Questions from legal counsel can be directed to Andrew Futerman at (312) 353-2325 or Futerman.Andrew@epa.gov.

Sincerely,

MICHAEL HARRIS

Digitally signed by MICHAEL HARRIS
Date: 2025.01.13 09:53:42 -06'00'

Michael D. Harris
Division Director
Enforcement and Compliance Assurance Division

Attachment

cc: Elizabeth Browne, EGLE, brownee@michigan.gov
Alexandra Clark, EGLE, clarka37@michigan.gov

Attachment 1
Notice of Violation
DTE Electric Company – Monroe Power Plant, Bottom Ash Impoundment
Violations of 40 C.F.R. § 257.90 et seq.

I. Introduction

This document lists alleged violations of the federal coal combustion residuals (CCR) requirements for groundwater monitoring, corrective actions, website posting, and closure at the DTE Electric Company's (DTE) Monroe Power Plant (MONPP) Bottom Ash Impoundment (BAI).[1] See 40 C.F.R. §§ 257.90 to 98, 105 and 107. The determinations of alleged violations are based on EPA's review of the information DTE posted on its federal CCR website and information from the Michigan Department of Environment, Great Lakes, and Energy (MI EGLE) MIEnviro Portal.

According to information DTE posted on its federal CCR website, the MONPP is a 3,300-megawatt coal-fired power plant owned and operated by DTE located in Monroe, Michigan. DTE disposes of CCR generated at MONPP in the Fly Ash Basin (FAB) and Vertical Extension Landfill (VEL). MONPP also has an inactive surface impoundment unit known as the Bottom Ash Impoundment (BAI).

II. Bottom Ash Impoundment

The BAI is located directly south of the MONPP. It is bounded on the east by Lake Erie; on the west and south by Plum Creek, and the MONPP's Discharge Channel; and on the north by the MONPP facilities. The perimeter dike is approximately 4 feet high and made primarily of fill material consisting of a variety of interlayered materials including sand, silty sand, lean clay, silty clay, organic silt as topsoil, asphalt, and cobbles,[2] which were all generated during construction of the MONPP.

DTE stopped placing CCR material into the BAI in 2015. DTE ceased the flow of wastewater—consisting of bottom ash transport water, fly ash transport water, coal pile runoff, chemical and nonchemical metal cleaning wastewater, low volume wastewater, treated flue gas desulfurization wastewater, flue gas desulfurization pre-treatment system backwash, dredging dewatering water, and storm water runoff—to the BAI on October 21, 2020. The wastewater was diverted to the South Process Pond, which is separated from the northern section of the BAI by a berm. The berm was constructed in 2015 and is made primarily of fill material consisting of moist to wet, light to dark gray crushed limestone, classified as sandy gravel, with trace amounts of soil.[3]

[1] EPA is in the process of evaluating DTE's compliance with the CCR requirements at DTE's Fly Ash Basin and Vertical Extension Landfill. EPA will inform DTE of the results of that compliance determination at a later date.
[2] 2019 Revision of the History of Construction Report, Inactive Bottom Ash Impoundment, DTE Monroe Power Plant (PDF pg. 5).
[3] 2019 Revision of the History of Construction Report, Inactive Bottom Ash Impoundment, DTE Monroe Power Plant (PDF pg. 5).

In its submittals, DTE considers the South Process Pond to be separate from the BAI and not a CCR unit. DTE created the South Process Pond in 2015 by constructing the berm through the middle of the BAI. Thus, the South Process Pond had the potential to contain CCR material at the time it was constructed. Therefore, EPA considers the South Process Pond to be an inactive CCR unit. For the purposes of this Notice of Violation (Notice), the entire BAI, the northern section of the BAI and the South Process Pond, are being treated as a single unit referred to as the BAI.

According to DTE's Monitoring Well Installation Report,[4] the bedrock at the site is overlain by approximately 40 to 50 feet of unconsolidated glacial deposits, which can be broken into two distinct units. The first unit is 20 to 50 feet of hard glacial till comprised of gray silty to sandy clay with some cobbles and boulders. The second unit overlays the first and is approximately 10 to 30 feet of lacustrine deposits consisting of fine-grained sand and silt with some soft clay. In some areas of this layer there is a thin, discontinuous coarse sand unit at the base of the lacustrine deposits. Under parts of the BAI and the adjacent developed area of the plant, there is a sand layer that is 5 to 20 feet thick and yields groundwater. DTE has designated this sand layer as the uppermost aquifer.[5] Groundwater in the sand unit is under semi-confined conditions ranging between 572.6 and 575.6 feet above mean sea level (msl). Based on cross sections provided by DTE, there are locations in the BAI where the sand layer comes into contact with the CCR material.[6]

DTE operated the BAI from the mid-1970s through 2015, when DTE placed the last CCR material in the unit. DTE is now undergoing closure by removal of part of the northern section of the BAI. DTE is dewatering the CCR material in the northern section of the BAI and relocating it to the FAB and VEL. DTE placed a technical memorandum regarding closure titled "Notice of Intent Inactive Bottom Ash Impoundment" on its Federal CCR Website. DTE amended this memorandum in 2019 and submitted an NOI to MI EGLE on May 10, 2022. According to a letter DTE sent to the MI EGLE on October 2, 2023, DTE began removal of bottom ash from the BAI in spring of 2021.[7] Based on DTE's report to MI EGLE that removal of CCR began in spring of 2021, EPA considers August 30, 2019—the date DTE updated the Technical Memorandum, Notice of Intent Inactive Bottom Ash Impoundment and the Closure Plan for Inactive Bottom Ash Impoundment—to be the date of commencement of closure activities.

A. BAI Groundwater Monitoring Network

In total, there are 18 wells located in various positions in the vicinity of the BAI, 12 of which DTE included in the original groundwater monitoring network (GWMN). These wells are MW-1S,

[4] 2019 Monitoring Well Installation Report, Coal Combustion Residuals (CCR), Inactive Bottom Ash Impoundment, DTE Monroe Plant, Monroe, Michigan (PDF pg. 4).
[5] 2019 Monitoring Well Installation Report, Coal Combustion Residuals (CCR), Inactive Bottom Ash Impoundment, DTE Monroe Plant, Monroe, Michigan (PDF pg. 4).
[6] 2019 Monitoring Well Installation Report, Coal Combustion Residuals (CCR), Inactive Bottom Ash Impoundment, DTE Monroe Plant, Monroe, Michigan (PDF pg. 17).
[7] DTE placed a technical memorandum regarding closure on its Federal CCR Website in 2015, which it further amended in 2019. In the 2022 NOI, DTE declared its intent to close the BAI to MI EGLE.

MW-2S, MW-3S, MW-7S, MW-8S, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, and MW-15. DTE utilized these 12 wells in the 2019 Groundwater Statistical Evaluation Plan in order to decide between an interwell and intrawell system. DTE removed MW-8S from the GWMN in 2020 following an alternative source demonstration (ASD). DTE regularly samples the remaining 11 wells. DTE also installed six wells for use in groundwater potentiometry. These wells are MW-4S, MW-5S, MW-1D, MW-3D, MW-7D, and MW-8D. DTE does not regularly sample these wells but, along with MW-8S, DTE continues to include some of them in the well network maps in the annual groundwater reports. Additionally, DTE continues to include MW-4S in the groundwater contour maps, despite marking it as not sampled every year from 2019 through 2024. Wells MW-8D and MW-8S are outliers to the perimeter well system as they are located across the Discharge Channel near the FAB.

DTE utilizes an intrawell approach for calculating background constituent levels due to its determination that "the sand unit located at the bottom of the lacustrine deposits is limited in extent" and "there is a strong confined hydraulic pressure in the sand unit aquifer."[8]

B. BAI Closure Plan

DTE placed the BAI closure plan into the operating record on April 17, 2018 and posted an updated plan on August 30, 2019. The closure plan consists of two pages and a revision log. The plan outlines that DTE will close the BAI by dewatering it, removing the CCR material, and filling the empty basin with borrow soil for fill. The plan states that the closure is estimated to begin in 2019 and be completed by 2025.

III. Alleged Violations

The following presents information on the violations that the EPA is alleging related to DTE's MONPP BAI. This document is not intended to assess the compliance of the FAB or VEL with federal CCR requirements. Additionally, the EPA recognizes that, based on historical aerial photos, the area north of the current BAI boundary contains a CCR Management unit. This document is not intended to assess the compliance of this CCR Management Unit. Should EPA's review of those units lead EPA to have further concern about the MONPP, it may issue a similar notice regarding those units in the future.

A. Groundwater Monitoring System Performance Standard Compliance Requirements

Regulatory Summary

40 C.F.R. § 257.91(a) establishes the performance standard for CCR groundwater monitoring systems. CCR unit owners and operators must install a groundwater monitoring system that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer that:

- accurately represent the quality of background groundwater that has not been affected by leakage from a CCR unit (40 C.F.R. § 257.91(a)(1)); and

[8] 2023 AGWMR, Section 2.0 (PDF pg. 7).

- accurately represent the quality of groundwater passing the waste boundary of the CCR unit. The downgradient monitoring system must be installed at the waste boundary that ensures detection of groundwater contamination in the uppermost aquifer. All potential contaminant pathways must be monitored (40 C.F.R. § 257.91(a)(2)).

40 C.F.R. § 257.91(b) requires that the number, spacing, and depths of monitoring systems be determined based upon site-specific technical information that must include thorough characterization of:

- aquifer thickness, groundwater flow rate, groundwater flow direction including seasonal and temporal fluctuations in groundwater flow (40 C.F.R. § 257.91(b)(1)); and
- saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer, including, but not limited to, thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities (40 C.F.R. § 257.91(b)(2)).

40 C.F.R. § 257.93(d) requires the owner or operator of the CCR unit to establish background groundwater quality in hydraulically upgradient or background well(s) for each constituent required in the particular groundwater monitoring program that applies to the CCR unit as determined under 40 C.F.R. §§ 257.94(a) or .95(a). Background groundwater quality may be established at wells that are not located hydraulically upgradient from the CCR unit if the conditions of 40 C.F.R. § 257.91(a)(1) are met.

Discussion

40 C.F.R. § 257.91(a)(1) and 40 C.F.R. § 257.93(d)

DTE failed to install wells at appropriate locations to yield groundwater samples from the uppermost aquifer that accurately represent the quality of background groundwater that has not been affected by leakage from a CCR unit, as required by 40 C.F.R. § 257.91(a)(1).

The MONPP was constructed in the early 1970s. The BAI, constructed in the late 1960s, has expanded over the years, and its boundaries have moved from near the middle of the plant to the southern portion of the plant.[9] The BAI's current boundaries, as defined by DTE, encompass roughly 86.4 acres. In response to the 2015 CCR Rule, DTE installed groundwater monitoring wells around the current BAI boundaries to act as both background and downgradient wells using an intrawell approach. DTE stated that the rationale for this approach was the limited sand unit (uppermost aquifer) and confined hydraulic pressure of the sand unit itself.[10] This rationale is not supported by geologic cross-sections and additional investigations at the site, which are available on DTE's federal CCR website. When wells are installed approximately 40 years after CCR has been land disposed in a unit without a liner, it is very difficult to ensure background water quality has been characterized without the influence of contamination.

[9] 2018 History of Construction, Appendix A – Historical Aerial Photography.

[10] August 2019 Groundwater Statical Evaluation, Coal Combustion Residuals (CCR) Rule (PDF pg. 5).

At the BAI, the uppermost aquifer zone lies within the lacustrine deposits that transition into fine-grained sand. The sand unit is consistent throughout the site but appears to thin north of the impoundment to less than 5 feet of thickness.[11] DTE stated that the aquifer unit thins to the west and the north such that there is no aquifer under areas north of the BAI. Consequently, DTE claims there is no representative upgradient or background monitoring position available for the unit. This directly affects the approach to the evaluation of compliance for the monitoring system as noted in the Statistical Methods Certification for this unit.[12] DTE's assertion is not supported in cross-sections DTE provided in the August 2019 Monitoring Well Installation Report, Coal Combustion Residuals (CCR) Report, where there does appear to be a consistent layer of sand comprising the uppermost aquifer across the entire BAI.[13] It is unclear what additional data DTE may be using to support its assertion that the sand unit is not present north of the BAI. In addition, some of the borings utilized in the cross sections are from the 1970s and may not accurately represent current subsurface conditions.

Based on groundwater contour maps provided by DTE in the annual groundwater sampling reports, groundwater flows through the unit from north to south creating an upgradient area north of the BAI for well placement.[14] DTE claims that the limited extent of the sand unit located at the bottom of the lacustrine deposits prevents DTE from establishing a representative upgradient or background monitoring position for the unit.[15] As discussed previously in this section, this is not supported in historic borings displayed in cross section E-E' of the August 2019 Monitoring Well Installation Report, Coal Combustion Residuals (CCR) Report. Although thinner, the sand unit is present in borings that extend north of the BAI. Additionally, DTE has not provided evidence or data demonstrating that other saturated geologic units north of the BAI are confined from hydraulic communication with the sand unit underlying the BAI. As DTE notes, the shallow water-bearing zone is semi-confined.[16]

Although the use of unaffected hydraulically upgradient wells appears to be a possibility at the BAI, DTE chose to use the intrawell approach instead. The wells that DTE has used in its GWMN do not provide an accurate, representative sample of groundwater that has not been affected by CCR material. DTE has failed to install groundwater monitoring wells that accurately

[11] August 2019 Monitoring Well Installation Report, Coal Combustion Residuals (CCR) Report, Appendix A - Figure 2b (PDF pg. 17). Cross-section E-E' shows a progressive thinning of the sand unit considered the uppermost aquifer within the northern boring of the site.
[12] August 2019 Monitoring Well Installation Report, Coal Combustion Residuals (CCR) Report, Section 2.2.2 – Groundwater Flow and Hydraulic Conductivity (PDF pg. 5).
[13] "Additionally, there is nothing in the rule that would prevent the owner or operator from monitoring multiple aquifers in addition to the uppermost significant aquifer. Certain site conditions warrant more extensive monitoring requirements, as discussed in 'Technical Manual Solid Waste Disposal Facility Criteria', EPA530–R–93–017, USEPA, November, 1993, Chapter 5, Subpart E, Ground-Water Monitoring and Corrective Action." 80 F.R. 74 pg. 24100.
[14] 2024 Annual Groundwater Monitoring Report, Section 2.23 – Groundwater Flow Rate and Direction, pg.4 (PDF pg. 8).
[15] 2019 Annual GWM Report. Section 2.1 – Monitoring Well Network, pg. 3 (PDF pg. 7).
[16] 2019 Annual GWM Report Section 1.3 – Geology/Hydrology, pg.2 (PDF pg. 6).

represent the quality of background groundwater that has not been affected by leakage from a CCR unit and thus has violated 40 C.F.R. § 257.91(a)(1). DTE has violated 40 C.F.R. § 257.93(d) by not establishing background groundwater quality in a hydraulically upgradient or background well or establishing wells that are not located hydraulically upgradient from the CCR unit that meet the requirements of 40 C.F.R. § 257.91(a)(1).

40 C.F.R. § 257.91(a)(2)

DTE failed to meet the requirements of 40 C.F.R. § 257.91(a)(2) by utilizing an intrawell approach that does not accurately represent the quality of the groundwater passing the waste boundary. DTE did not place a sufficient number of wells at the waste boundary of the BAI to ensure detection of groundwater contamination in the uppermost aquifer or to monitor all potential contaminant pathways.

DTE installed the GWMN in 2016, over forty years after the BAI was initially constructed and first began receiving CCR material. DTE has chosen to utilize an intrawell approach which compares the calculated background of each well to that specific well's detection samples. Because the BAI is unlined with areas of hydraulic connection between the CCR material and the sand unit comprising the uppermost aquifer,[17] the background wells DTE currently uses cannot be verified to be unaffected by the CCR unit. Therefore, DTE is comparing potentially contaminated samples of detection monitoring to potentially contaminated samples of background. This approach fails to ensure that the downgradient monitoring system will detect releases from the BAI.

Additionally, the boring logs for wells MW-14, MW-5S and MW-4S contain fly ash, indicating they were drilled through CCR material. This suggests that the current boundary of the BAI is larger than what DTE has identified as the BAI boundary. As such, the placement of site monitoring wells does not accurately represent the quality of groundwater passing the waste boundary or ensure detection of groundwater contamination in the uppermost aquifer, as required by 40 C.F.R. § 257.91(a)(2).

40 C.F.R. § 257.91(b)(1)

DTE failed to thoroughly characterize groundwater flow direction, including seasonal and temporal fluctuations, to determine number, spacing and depths of the monitoring system at the BAI as required by 40 C.F.R. § 257.91(b)(1).

DTE's contour maps indicate a potential radial flow west, east and south as groundwater moves from higher elevation to lower elevation within the BAI.[18] DTE has several wells spaced along the western boundary of the BAI, but only includes MW-1S and MW-13 as monitoring wells

[17] 2019 Monitoring Well Installation Report, Coal Combustion Residuals (CCR), Inactive Bottom Ash Impoundment, DTE Monroe Plant, Monroe, Michigan (PDF pg. 17).

[18] 2024 Annual Groundwater Monitoring Report, Section 2.23 – Groundwater Flow Rate and Direction, pg.4 (PDF pg. 8).

along the eastern edge of the BAI.[19] DTE did not mention southeasterly groundwater flow until after the first alternate source demonstration in October 2019, and therefore failed to thoroughly characterize groundwater flow in this direction when determining the number, spacing, and depths of the GWMN.[20] The cross-sections and boring logs of the area indicate a greater thickness of sand on the eastern portion of the BAI, over 15 feet, along with wet sand lens that could be hydrologically connected to the uppermost aquifer requiring greater consideration for not only well placement but also the depth that wells are screened in this area.[21]

DTE's GWMN does not reflect the groundwater flow direction as the number, spacing, and depth of wells is limited on the eastern and southeastern boundary of the site compared to the western and southwestern boundary. Lacking a thorough characterization of groundwater flow, DTE then uses temporal variability as part of its rationale for rejecting statistically significant increases (SSIs) in ASDs from September 2020 and March 2021.[22] In DTE's attempt to rebut the SSI of MW-8S in the October 2019 ASD, DTE revises its GWMN by stating that MW-8S is not hydraulically connected to the groundwater flowing under the BAI and removing it from the GWMN, another indication that DTE failed to thoroughly characterize groundwater flow prior to installing a GWMN. DTE failed to install wells in a monitoring network using a thorough characterization based on technical information that accounts for groundwater flow direction including seasonal and temporal fluctuations in groundwater flow in violation of 40 C.F.R. § 257.91(b)(1).

40 C.F.R. § 257.91(b)(2)

DTE failed to characterize the peat geologic unit that overlays the uppermost aquifer at the site in violation of 40 C.F.R. § 257.91(b)(2).

North of the BAI is a significant amount of peat material overlaying the sand. It is unclear if the peat material is in direct connection with the uppermost aquifer within the boundary of the BAI; however, cross-sections and boring logs indicate that there may be peat material underlaying CCR waste in the BAI. Peat has a wide range of hydraulic conductivity, but DTE did not address this in the GMWN. As DTE did not consider this saturated geologic unit overlying the uppermost aquifer found throughout the site, DTE failed to thoroughly characterize materials comprising the uppermost aquifer in hydraulically upgradient and side gradient areas, in violation of 40 C.F.R. § 257.91(b)(2).

[19] MW-2S may be considered easternly in its placement but is located south of the berm of the South Process Pond and would receive groundwater flow in a south, southeast direction.

[20] August 20198 Monitoring Well Installation Report, Coal Combustion Residuals (CCR) Report Section 2.2.2 – Groundwater Flow and Hydraulic Conductivity. DTE only suggests flow to the south-southwest within this initial report.

[21] Boring log for MW-1S indicates wet silt and sand layer between a depth of 20 to 38 feet bgs, with a wet sand unit between a depth of 10 -12 feet bgs as well. MW-4S indicates a continuous sand layer of 17 feet between a depth of 20 feet bgs and 37 feet bgs.

[22] See Section III(c), below.

B. Groundwater Sampling and Analysis Requirements

Regulatory Summary

40 C.F.R. § 257.93(g)(4) requires the owner or operator of a CCR unit to choose a statistical method under 40 C.F.R. § 257.93(f) and comply with the performance standards, as appropriate, in 40 C.F.R. § 257.93(g)(1)-(4). 40 C.F.R. § 257.93(g)(4) states that if a tolerance interval or a predictional interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be such that this approach is at least as effective as any other approach in this section for evaluating groundwater data. These parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

Discussion

40 C.F.R. § 257.93(g)(4)

DTE states that they will use a parametric or non-parametric prediction interval for detection and assessment monitoring data.[23] Whether a constituent is analyzed using a parametric or nonparametric prediction limit is determined by if that constituent is normally distributed and has less than 50 percent non-detects. DTE references its use of the U.S. Environmental Protection Agency's (EPA's) Unified Statistical Guidance (USEPA 2009) in calculating applicable parametric predication limits. Under 40 C.F.R. § 257.93(g)(4), if prediction intervals are used to evaluate groundwater monitoring data, the confidence level must be established so this approach is at least as effective as any other allowed under the regulations for evaluating groundwater data. DTE does not include a further discussion on how the guidance was applied during analysis, this includes how factors such as the number of samples, data distribution, or range of concentration values for each constituent are considered for when determining the Type I error rate. Without further information available it is unclear how DTE meets 40 C.F.R. § 257.93(g)(4) to demonstrate that the levels of confidence used in a prediction interval are "at least as effective as any other approach in this section for evaluating groundwater data."

Regulatory Summary

40 C.F.R. § 257.93(h) requires the owner or operator of the CCR unit to determine whether or not there is an SSI over background values for each constituent required in the particular groundwater monitoring program that applies to the CCR unit, as determined under 40 C.F.R. §§ 257.94(a) or 257.95(a).

In determining whether a SSI has occurred, the owner or operator must compare the groundwater quality of each constituent at each monitoring well designated pursuant to

[23] August 2019 Groundwater Statical Evaluation, Coal Combustion Residuals (CCR) Rule (PDF pg. 5).

40 C.F.R. §§ 257.91(a)(2) or (d)(1) to the background value of that constituent, according to the statistical procedures and performance standards specified under 40 C.F.R. §§ 257.91(f) and (g). See 40 C.F.R. § 257.93(h)(1).

Discussion

40 C.F.R. § 257.93(h)(1)
DTE was required to determine whether an SSI had occurred by comparing background values according to the statistical procedures and performance standards specified under paragraphs 40 C.F.R. §§ 257.93 (f) and (g) for each constituent from wells designated pursuant to 40 C.F.R. §§ 257.91(a)(2) or (d)(1). DTE did not choose to use a multiunit groundwater monitoring system, and therefore its background wells were required to comply with 40 C.F.R. § 257.91(a)(2). DTE chose to utilize an intrawell approach for the BAI groundwater monitoring system, however, DTE's federal CCR website postings do not provide a sufficient basis for the use of this system as an adequate approach to sampling at the BAI.

DTE's use of the intrawell GWMN limits DTE's ability to properly detect groundwater contamination in the uppermost aquifer. DTE's justification for using an intrawell system is not supported in cross-sections because a consistent sand unit is present across the entire BAI and extended site where the BAI is located.[24] DTE is unable to meet the requirements of 40 C.F.R. § 257.91(a) based on its lack of a hydraulically upgradient monitoring well and the potential of monitoring wells that have been impacted by CCR materials. Reliance on affected background as potentially used at the BAI, particularly when that background is routinely updated with more recent measurements, can skew calculated prediction limits higher and delay identification of a potential release until concentrations increase significantly. In combination with concerns identified with 40 C.F.R. § 257.93(g)(4), EPA is alleging that DTE is unable to properly determine whether or not there is a SSI over background values for each constituent as required by 40 C.F.R. § 257.93(h)(1).

C. Groundwater Monitoring Assessment Monitoring Program and Alternative Source Demonstration

Regulatory Summary

40 C.F.R. § 257.94(e)
If the owner of operator of the CCR unit determines, pursuant to 40 C.F.R. § 257.93(h), that there is an SSI over background levels for one or more of the constituents listed in Appendix III at any monitoring well at the waste boundary specified under 40 C.F.R. § 257.91(a)(2), the owner or operator must:

[24] DTE claimed that the geologic uppermost aquifer unit was not present noth of the BAI limiting the ability of the facility to install an upgradient well.

- Except as provided for 40 C.F.R. § 257.94(e)(2), within 90 days of detecting an SSI over background levels for any constituent, establish an assessment monitoring program meeting the requirements of 40 C.F.R. § 257.95.
- The owner or operator may demonstrate that a source other than the CCR unit caused the SSI over background levels for a constituent or that the SSI resulted from an error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The owner or operator must complete the written demonstration within 90 days of detecting an SSI over background levels to include obtaining a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority verifying the accuracy of the information in the report.

The owner or operator of a CCR unit must prepare a notification stating that an assessment monitoring program has been established. The owner or operator has completed the notification when the notification is placed in the facility's operating record as required by 40 C.F.R. § 257.105(h)(5).

Discussion

40 C.F.R. § 257.94(e)
DTE utilized an intrawell monitoring system using wells that were placed after the surface impoundment was in use. Background data obtained by these wells is potentially not representative of background groundwater that would be unaffected by CCR. This makes comparisons using the calculated backgrounds for the wells less likely to identify SSIs regardless of the actual changes in groundwater concentrations of Appendix III constituents.

Despite the issues EPA is identifying regarding DTE's ability to appropriately detect elevated constituents, it is noteworthy that DTE recorded SSIs every year since initiating the BAI GWMN. DTE completed six ASDs to address SSIs at multiple monitoring wells for the BAI. EPA reviewed each ASD and is providing additional comments below. EPA believes that DTE did not successfully demonstrate an alternative source for any of the noted SSIs and therefore was required to begin assessment monitoring. Further, in many instances, DTE's expressed rationale for rejecting the SSI only furthers the evidence of an inadequate monitoring system that does not meet the requirements of 40 C.F.R. §§ 257.91 and 257.93.

DTE submitted the following ASDs for detections of elevated constituents:

Compound detected	Date Detected	Well	ASD Date
Boron	May 2019	MW-8S	October 2019
Sulfate	April 2020	MW-7S	September 2020
Boron	October 2020	MW-10, MW-11	March 2021
Fluoride	October 2020	MW-3S	March 2021
Sulfate	April 2021	MW-13	August 2021

Fluoride	April 2021	MW-3S, MW-9	August 2022
Sulfate	October 2021	MW-14	February 2022
TDS	April 2022	MW-14	August 2022
Chloride	April 2023	MW-9	August 2023

The October 2019 ASD posits that MW-8S does not have a hydraulic connection with the BAI due to historical site modifications that changed the lithography beneath the drainage channel. This contradicts the certification of the GWMN in April 2019 and the revision in August 2019 which certifies that the downgradient monitoring system has been installed at the waste boundary that ensures detection of groundwater contamination in the uppermost aquifer.

Nevertheless, based on these alleged site modifications, DTE removed MW-8S from the groundwater monitoring network. Yet, in the August 2021 ASD, DTE argues that similarities in the groundwater constituents allow it to use MW-8S as indicative of general background quality of the SSIs of constituents identified during the April 2021 sampling. The use of MW-8S was inappropriate because MW-8S receives groundwater flowing under the FAB and is not upgradient of the BAI. Furthermore, despite removing MW-8S from the BAI GWMN following the October 2019 ASD due to the claim of the well's lack of hydraulic connection to the BAI, DTE included the data for fluoride for MW-8S taken from 2017 to 2021 in the August 2021 ASD. The 2021 ASD claimed that MW-8S could provide insight into the background water quality within the uppermost aquifer. Data gathered for MW-8S for 2020 and 2021 had not been previously presented in a groundwater monitoring report. This data was also not included with the laboratory reports provided with the August 2021 ASD. While MW-8S does appear in the Laboratory Data Quality Reviews performed by TRC for the ASD sampling, MW-8S does not appear on the quality control data from the laboratory (Eurofins). DTE has opted to use an intrawell system and stated in the August 2019 Groundwater Statistical Evaluation Plan that there was no clear upgradient or background condition for comparison to the waste boundary aquifer conditions. If MW-8S is not hydraulically connected to the BAI, as stated in the ASD, MW-8S cannot be utilized as a background well without further justification and any data from MW-8S should not be used to establish background groundwater quality. DTE used similar explanations regarding MW-8S in its February and August 2022 ASDs.

In its 2020, 2021, 2022, 2023 ASDs, DTE cites the following as reasons for SSI exceedances: insufficient background sampling timeline to account for temporal variability and long-term trends; lack of similar increases in other indicator parameters; regional groundwater quality, spatial variability in ground water quality, and upgradient/side gradient groundwater quality. Although DTE is correct that a larger sample size increases the statistical power, in promulgating the CCR Rule, EPA concluded that eight independent samples was sufficient for acceptable estimates of variability and evaluation of trend.[25] At the time of the April 6, 2020 sampling event, DTE had 15 samples at each well for each constituent over three years. Although more samples would improve the power of a statistical analysis, the eight initial samples were found to ensure the scientific accuracy of results, balancing the need for statistical power and the

[25] See 80 Fed. Reg. 21,401 (April 17, 2015).

need to expedite detection and corrective action. As discussed in Section II. A., DTE used an intrawell system for statistical analysis. When using wells installed after CCR has been placed in the unit, intrawell analysis increases the risk of inaccurate background data and can cause upward bias in background levels. DTE failed to provide a sound rationale for dismissing the SSIs using the argument of long-term trends, specifically when the SSIs result from the use of an intrawell system. The absence of additional SSIs identified within the same or other monitoring wells, alone, is insufficient evidence to conclude that there was not a release from the regulated unit.

The CCR rule requires facilities to account for temporal and seasonal variability through proper and thorough groundwater characterization. See 40 C.F.R. § 257.91(b)(1). To further mitigate variabilities in data, facilities must take eight independent samples which allows for acceptable estimates of variability and evaluation of trend and goodness-of-fit. These samples, generally taken over one to two years, account for seasonal changes. Groundwater elevations must also be measured in each well within a period of time short enough to avoid temporal variations.

Temporal and spatial variability are not viable to refute an SSI, rather such variability provides support to EPA's position that DTE has an inadequate groundwater monitoring system and has not provided an accurate characterization of groundwater quality. DTE claims the positioning of MW-14 is hydraulically side gradient to the BAI and therefore incapable of detecting releases from the CCR unit. EPA acknowledges that MW-14 is potentially side gradient to the BAI. However, as groundwater flow has not been adequately characterized at the site, it is unclear whether MW-14 receives easterly groundwater flow from the northern portion of the unit. As DTE has stated, groundwater flows from the north of the unit to the southeast, south, and southwest.[26] Although this flow pattern can be inferred from groundwater flow maps, it also appears that there is the potential for radial flow in east and west directions from the upper portion of the BAI given the prominent northern point of the surface impoundment is located farther north than any of the groundwater monitoring wells. It is unclear whether this radial flow pattern includes MW-14. DTE references potentiometric maps as evidence of the upgradient to side-gradient nature of MW-14, but DTE has inferred the groundwater contour with a radial outward push to the east, south and west from the middle of the BAI. Without additional wells or piezometers to verify the flow from the northern portion of the unit, DTE is unable to sufficiently support this claim. Additional claims regarding groundwater chemistry at MW-8S and regional groundwater quality have been discussed in prior ASDs. In all cases, DTE did not successfully identify an alternate source for the SSIs of appendix III constituents and should have proceeded with assessment monitoring at the next GWMN sampling event.

In the August 2021 ASD, DTE states that at times there is an inward gradient from Lake Erie to the BAI causing the historically higher levels of sulfates in Lake Erie to influence the BAI. This is concerning as it seems DTE is acknowledging a direct hydraulic connection between Lake Erie and the BAI. This would allow for uncontrolled releases from the BAI into Lake Erie just as DTE

[26] 2024 Annual Groundwater Monitoring Report, Section 2.23 – Groundwater Flow Rate and Direction, pg.4 (PDF pg. 8).

claims there is the potential for the higher levels of sulfate to impact the BAI. DTE identifies the inward gradient from Lake Erie as a "potential" influence; however, DTE has not produced sufficient evidence to indicate that Lake Erie is the cause of the sulfate SSIs.

The ASDs that DTE attempted for the BAI do not adequately demonstrate that an alternative source exists, and the BAI remains a plausible source for the identified SSIs. Pursuant to 40 C.F.R. § 257.94(e)(2), if a successful ASD is not completed within 90 days, the owner or operator of the CCR unit must initiate an assessment monitoring program as required under 40 C.F.R. § 257.95. To date, DTE has not initiated an assessment monitoring program at the BAI under 40 C.F.R. § 257.95. Therefore, DTE has violated 40 C.F.R. §§ 257.94 and 257.95.

D. Assessment Monitoring Program

Regulatory Summary

40 C.F.R. § 257.95(a)
Assessment monitoring is required whenever an SSI over background levels has been detected for one or more of the constituents listed in appendix III.

40 C.F.R. § 257.95(b)
Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator of the CCR unit must sample and analyze the groundwater for all constituents listed in Appendix IV. The number of samples collected and analyzed for each well during each sampling event must be consistent with 40 C.F.R. § 257.93(e) and must account for any unique characteristics of the site but must be at least one sample from each well.

Discussion

40 C.F.R. §§ 257.95(a) and (b)
As discussed above, DTE has not met the requirement of 40 C.F.R. § 297.93(d) to justify its decision to use an intrawell comparison approach for identifying SSIs and statistically significant levels (SSLs).[27] DTE's intrawell approach does not meet the standard of 40 C.F.R. § 257.91 because it is incapable of yielding groundwater samples from the uppermost aquifer that accurately represented the quality of the background groundwater that has not been affected by leakage from a CCR unit or that accurately represented the quality of groundwater passing the waste boundary of the BAI, 40 C.F.R. § 257.91(a). DTE has not been able to demonstrate that the wells are in compliance with 40 C.F.R. §§ 257.91(a) or (b). EPA believes there are upgradient and/or background areas of the site on which DTE could have placed wells, which

[27] 40 C.F.R. § 297.93(d) allows the owner or operator to use an approach such as an intrawell approach for determining background groundwater quality, if the owner or operator can show that its alternative approach meets the requirements of 40 C.F.R. § 257.91(a)(1). EPA does not believe that DTE has successfully made such a showing regarding its decision to use an intrawell analysis at the BAI.

would have allowed DTE to use an interwell approach and more accurately detect the releases of constituents.

During the April 6, 2020 sampling event, DTE identified exceedances of sulfate at MW-7S and fluoride at MW-1S. DTE completed a verification sampling on June 10, 2020. Sulfate at MW-7S was confirmed as an SSI and DTE completed an ASD signed September 21, 2020, certifying a successful alternate demonstration for the SSI at MW-7S. This ASD was unsuccessful in demonstrating an alternate source for the sulfate at MW-7S. It should be noted, detection monitoring is not a finding of a release itself, but instead an indication of a potential release from the unit which is further assessed under assessment monitoring. DTE did not go into assessment monitoring as it should have by September 8, 2020, 90 days after the June 10, 2020 SSI confirmation. DTE has delayed assessment monitoring for nearly four years allowing potential releases to continue from the BAI without adequate monitoring. DTE's failure to move into assessment monitoring is a violation of 40 C.F.R. § 257.95 and the proceeding groundwater sections, 40 C.F.R. §§ 257.96 to 257.98, which would have been activated if an SSL had been identified.

E. BAI Closure

Regulatory Discussion

40 C.F.R. § 257.102(a)
Closure of a CCR unit must be completed either by leaving the CCR in place and installing a final cover system or through removal of the CCR and decontamination of the CCR unit.

40 C.F.R. § 257.102(b)(ii)
The owner or operator of a CCR unit that is being closed by removal of CCR material must prepare a written closure plan which includes a description of the procedures to remove CCR and decontaminate the CCR unit.

40 C.F.R. § 257.102(b)(iii)
The owner or operator of a CCR unit that is being closed by leaving CCR material in place must prepare a written closure plan which includes a description of the final cover system and methods and procedures used to install final cover, as well as discuss how the final cover system will achieve performance standards in 40 C.F.R. § 257.102(d).

40 C.F.R. § 257.102(d)(1)(ii)
The owner or operator of a CCR unit must ensure that, at a minimum, the CCR unit is closed in a manner that will preclude the probability of future impoundment of water, sediment, or slurry.

40 C.F.R. § 257.102(b)(1)(vi)
The owner or operator of a CCR unit must prepare a written closure plan that includes, inter alia, a schedule for completing all activities necessary to satisfy the closure criteria of 40 C.F.R. § 257.102, including an estimate of the year in which all closure activities for the CCR unit will

be completed. The schedule should provide sufficient information to describe the sequential steps that will be taken to close the CCR unit, including identification of major milestones such as coordinating with and obtaining necessary approvals and permits from other agencies, the dewatering and stabilization phases of CCR surface impoundment closure, or installation of the final cover system, and the estimated timeframes to complete each step or phase of CCR unit closure.

40 C.F.R. § 257.102(e)(1)(i)
The owner or operator of a CCR unit must commence closure of the unit no later than 30 days after the date on which the CCR unit receives the final receipt of waste, either CCR or non-CCR waste stream.

40 C.F.R. § 257.102(f)(1)(ii)
The owner or operator of an existing CCR surface impoundment must complete closure activities withing five years of commencing closure activities.

40 C.F.R. § 257.104(b)(3)
Following closure of the CCR unit, the owner or operator must conduct post-closure care for the CCR unit, which must consist of maintaining the groundwater monitoring system and monitoring the groundwater in accordance with the requirements of 40 C.F.R. §§ 257.90 through 257.98.

Discussion

40 C.F.R. § 257.102(a)
The current boundaries of the BAI, as defined by DTE, do not completely represent the area where DTE historically deposited CCR materials.[28] In order for closure of the BAI to occur in compliance with 40 C.F.R. § 257.102(a), the additional CCR material not currently included in DTE's closure plan would either need to be removed or have a cover system installed and closed with waste in place, according to the requirements of 40 C.F.R.§ 257.102(d).

40 C.F.R. § 257.102(b)(ii)
The 2019 BAI Closure Plan does not include a description of the procedures to remove CCR and decontaminate the CCR unit.

40 C.F.R. § 257.102(d)(1)(ii)
The 2019 BAI Closure Plan does not address how the BAI will retard infiltration of precipitation into the impoundment after the CCR is removed. It also fails to address how DTE will prevent groundwater flow from impacting and flowing through the bases of the impoundment, which

[28] The MONPP was constructed in the early 1970s. The BAI, constructed in the late 1960s, has expanded over the years, and its boundaries have moved from near the middle of the plant to the southern portion of the plant. The BAI's current boundaries encompass roughly 86.4 acres. See Violation Discussion 40 C.F.R. § 257.91(a)(1) and 40 C.F.R. § 257.93(d).

may be temporarily held within the unit. Therefore, DTE has not complied with this requirement.

40 C.F.R. § 257.102(b)(iii)
The current boundaries of the BAI, as defined by DTE, do not completely represent the area where DTE historically deposited CCR materials. If the BAI is to be closed with waste in place in areas not included in the current closure plan, DTE would need to prepare a closure plan that includes a description of the final cover system and methods and procedures used to install final cover and that discusses how the final cover system will achieve the performance standards in 40 C.F.R. § 257.102(d).

40 C.F.R. § 257.102(b)(1)(vi)
The schedule should provide sufficient information to describe the sequential steps that will be taken to close the CCR unit, including identification of major milestones such as coordinating with and obtaining necessary approvals and permits from other agencies, the dewatering and stabilization phases of CCR surface impoundment closure, or installation of the final cover system, and the estimated timeframes to complete each step or phase of CCR unit closure. While the closure plan does contain these major milestones, it does not contain sufficient information to describe the steps being taken to close the CCR unit.

40 C.F.R. § 257.102(e)(1)(i)
Per DTE's documentation, CCR material was last placed into the BAI in 2015. Yet closure activities did not commence until 2019, over the 30-day limit set by 40 C.F.R. § 257.102(e)(1)(i).

40 C.F.R. § 257.102(f)(1)(ii)
As discussed in Section II, DTE commenced closure activities on August 30, 2019. As such, the five-year deadline to complete closure activities would fall in August of 2024. At the time of this Notice, DTE has not completed closure activities.

40 C.F.R. § 257.104(b)(3)
DTE's plan for closure does not address the post-closure groundwater monitoring.

F. Inspection Requirements for Existing CCR Surface Impoundments

Regulatory Summary

40 C.F.R. § 257.83(b) requires an annual inspection by a qualified professional engineer which includes a visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit and appurtenant structures. Any appearance of an actual of potential structural weakness of the CCR unit must be documented in an inspection report.

Discussion

DTE conducted an inspection of the BAI on August 14, 2023, which it memorialized in the 2023 Annual Inspection Report on September 1, 2023. The report states that no sign of vegetative distress or structural issues were observed during the annual inspection on the embankment crest, exterior slopes of the embankment and discharge structure. The report noted that these structures appeared to be in good condition.

On August 29, 2023, EPA Region 5 performed a Clean Water Act (CWA) inspection at the BAI. During that inspection, EPA Inspectors observed leaks in the containment wall between the BAI and the Discharge Channel. In DTE's response to the subsequent EPA Inspection Report, DTE noted that final repairs to the leaks did not occur until November 27, 2023. During the interim, DTE measured the leak rate at approximately 240 gallons/day.

The 2023 Annual Inspection Report was, therefore, inaccurate in documenting actual or potential weakness of the CCR unit. That report noted that there were no signs of structural issues, but EPA's inspection found and documented the opposite. Therefore, DTE failed to document deficiencies in the unit's structural integrity in its periodic assessment, in violation of 40 C.F.R. § 257.73(d).