2025 ANNUAL CCR RULE GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

COAL COMBUSTION BYPRODUCT LANDFILL

Harrison Power Station
Harrison County, West Virginia

Prepared for:

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Tetra Tech Project No. 212C-SW-00069

January 2026

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1.0 INTRODUCTION

This 2025 Annual Coal Combustion Residuals (CCR) Groundwater Monitoring and Corrective Action Report was prepared by Tetra Tech, Inc. (Tetra Tech) on behalf of FirstEnergy (FE), for the Coal Combustion Byproduct Landfill ("CCBL", "CCR unit", or "site") at the Harrison Power Station (hereinafter referred to as the "Station"). The CCR unit and Station are located in Harrison County, West Virginia. This report was developed to comply with the requirements of § 257.90(e) of the federal CCR Rule (40 CFR, Part 257, Subpart D). In accordance with § 257.90(e)(6), an overview of the current status of the CCR groundwater program at the site is provided in the table below, and discussed in Sections 2.0 through 5.0 of this report:

Status Summary for Reporting Period (January 1 to December 31, 2024)	
Groundwater Monitoring Program in Effect as of January 1, 2025 - 257.90(e)(6)(i)	Assessment Monitoring (Sampling Event AM-14)
Groundwater Monitoring Program in Effect as of December 31, 2025 - 257.90(e)(6)(ii)	Assessment Monitoring (Sampling Event AM-16)
Appendix III SSI's during Reporting Period - 257.90(e)(6)(iii)	n/a – Site in Assessment Monitoring
Appendix IV SSL's during Reporting Period - 257.90(e)(6)(iv)	Arsenic in MW-20 (Inferred – Well had insufficient water for sampling throughout 2025, but this parameter had exhibited SSLs since Sampling Event AM-1) Lithium in MW-20 (Potential SSL; Inferred – Well had insufficient water for sampling throughout 2025 but this parameter had exhibited SSLs since Sampling Event AM-9)
Assessment of Corrective Measures - 257.90(e)(6)(iv)	Initiated April 2019 Completed October 2019
Assessment of Corrective Measures Public Meeting - 257.90(e)(6)(iv)	n/a – Selection of Remedy Ongoing
Selection of Remedy - 257.90(e)(6)(v)	On-going, with Semi-Annual Progress Reports prepared for 2025
Corrective Action - 257.90(e)(6)(vi)	n/a - Selection of Remedy Ongoing

1.1 BACKGROUND AND SITE CHARACTERISTICS

CCRs produced at the Station are placed in the facility's captive CCBL, which is located approximately 1.5 miles north of the Station. The landfill is an existing CCR unit that is regulated under West Virginia Department of Environmental Protection (WVDEP) Solid Waste/National Pollutant Discharge Elimination System (NPDES) Water Pollution Control Permit No. WV0075795 and also under the CCR Rule. A WVDEP groundwater monitoring program for the landfill has been in effect since 1993 and a separate CCR Rule groundwater monitoring program was established in 2017. West Virginia State Legislative Rule 33 CSR-1B, which adopts the federal CCR Rule at 40 CFR Part 257, was promulgated on March 1, 2022. The WVDEP subsequently issued a draft renewal of Permit No. WV0075795 for FE and public review/comment on March 27, 2024, that recognized the groundwater monitoring network established for the CCBL under the CCR Rule as the sole groundwater monitoring program for the site. A revised draft permit renewal was issued by WVDEP on December 20, 2024, for FE and public review/comment, with the final permit being issued by WVDEP on February 19, 2025 and having an expiration date of February 18, 2030.

The permitted CCBL facility consists of three adjacent disposal areas; the Main Area (MA - approximately 150 acres), the Lower Area (LA - approximately 126 acres), and the Upper Area (UA - approximately 120 acres). Of this total combined area, approximately 310 acres are currently permitted for landfill operations. Historically, most landfilling operations were performed in the MA and LA disposal areas, with the UA disposal area more recently developed for use. The MA disposal area, which has both unlined and lined portions, received CCRs from the Station when the first generating units began operating in 1972, and was closed from 1979 (when disposal operations shifted over to the LA) until being reactivated in 2005. The LA disposal area is still active and also has both unlined (pre-1994) and lined portions, with the liner system consisting of a 24-inch thick engineered compacted clay liner underlain by a leachate detection zone and overlain with a leachate collection system. The MA and UA have been used for CCR disposal since 2005 and 2011, respectively, with MA disposal being an overlay of the materials originally placed there, and UA disposal being in new, lined areas that utilize one of three different liner systems. Pre-CCR Rule areas in the UA have a liner consisting of either 24-inches of compacted clay or a layer of "enhanced" FGD by-product (amended with excess lime) that are underlain by a leachate detection zone and overlain with a leachate collection system. Starting in 2018, post-CCR Rule areas in the UA have a composite liner system comprised of a geomembrane and geosynthetic clay liner underlain by a leachate detection zone and overlain by a leachate

collection system. Stormwater runoff and leachate from the CCBL discharge to a lined sedimentation pond, referred to as Sedimentation Pond No. 1.

Groundwater in the CCBL area occurs primarily within fractured bedrock and flow is controlled by a combination of topography and the bedrock structure (i.e., dip). The Lower Sewickley Sandstone has been identified as the uppermost aquifer for CCR Rule groundwater monitoring for the CCBL. This aquifer is situated approximately 60 to 70 feet above the Pittsburgh Coal which has been extensively deep mined across the site. In some localized areas, collapse of the abandoned mine workings is potentially resulting in overburden fracturing that could serve as a drain for groundwater in the Lower Sewickley Sandstone and other overlying rock units to migrate vertically into the abandoned mine workings, however, this is not believed to be significant on a large scale. Historic and recent groundwater level data indicate groundwater flow at the CCBL to be from west to east (approximating the dip of the Pittsburgh Coal), and that the flow exhibits little seasonal and temporal fluctuations. Water level data from the current reporting period (2025) were used for contouring groundwater flow patterns at the site. A more detailed discussion of the site's geologic and hydrogeologic characteristics is provided in Section 2.0 of this report.

1.2 REGULATORY BASIS

As required by § 257.90(e) of the CCR Rule, Owners or Operators of existing CCR landfills and surface impoundments were to prepare an initial Annual Groundwater Monitoring and Corrective Action Report ("AGMCA Report") no later than January 31, 2018 and annually thereafter. According to the subject section, "For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year."

This report has been developed to meet the general requirements above and the specific requirements of §§ 257.90(e)(1) through (6), which include:

(1) A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit (see Figures 2-1 and 2-2);

(2) Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken (see Section 2.1.1);

(3) In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs (see Sections 3.0 and 4.0 and Table 3-1);

(4) A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels; see Section 2.3);

(5) Other information required to be included in the annual report as specified in §§ 257.90 through 257.98 (see Sections 4.1 and 5.0 and Table 4-1); and

(6) A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit (See Section 1.0).

In addition, the Owner or Operator must place the report in the facility's operating record as required by § 257.105(h)(1), provide notification of the report's availability to the appropriate State Director within 30 days of placement in the operating record as required by § 257.106(h)(1), and place the report on the facility's publicly accessible website, also within 30 days of placing the report in the operating record, as required by § 257.107(h)(1).

1.3 OVERVIEW OF REPORT CONTENTS

Section 1.0 of this report provided an overview of the CCR groundwater program status, CCR unit characteristics, regulatory basis, and a summary of the requirements for CCR Annual Groundwater Monitoring and Corrective Action Reports. Section 2.0 summarizes the status of key actions pertaining to CCR groundwater monitoring and activities completed during 2025 for the CCBL and plans for the upcoming year. Section 3.0 presents Detection Monitoring (DM) results from groundwater sampling events completed in 2025. Section 4.0 presents Assessment Monitoring (AM) results from groundwater sampling events completed in 2025. Finally, Section 5.0 presents a summary of the Selection of Remedy (SoR) activities that were performed for the CCR unit during 2025, including additional Nature and Extent (N&E) of Release characterization activities performed using a new well installed at the site in 2021.

2.0 GENERAL INFORMATION

This section provides an overview of the status of the CCR groundwater monitoring program through 2025 and key activities planned for 2026.

2.1 STATUS OF THE CCR GROUNDWATER MONITORING AND CORRECTIVE ACTION PROGRAM

During calendar year 2025 (January 1st through December 31st), the following key actions were completed with regard to the CCR groundwater monitoring program for the CCBL.

2.1.1 Groundwater Monitoring Well System

As documented in the facility's previous AGMCA Reports (accessible at https://ccrdocs.firstenergycorp.com/), the certified CCR monitoring well network currently consists of one upgradient (background) well (MW-5), and four downgradient wells (MW-17, -18, -19, and -20). There is also one downgradient N&E of Release well (MW-23) that was installed in 2021 as part of ongoing SoR activities at the site. It was originally planned to add MW-23 to the certified CCR monitoring well network for either AM and/or Corrective Action Monitoring (CAM) once sufficient data had been collected to confirm its usefulness in better characterizing potential natural attenuation impacts on arsenic concentrations downgradient of the CCR unit. However, as detailed in Section 2.2 below, the continued viability of this well has been an issue that needs to be addressed. All of the wells noted above are summarized in attached Table 2-1 and shown on attached Figures 2-1 and 2-2. No changes to the certified monitoring well network (i.e., new wells added or existing wells abandoned) occurred during 2025.

2.1.2 Groundwater Monitoring Plan

Consistent with the work performed and summarized in previous AGMCA Reports, the CCR unit's Groundwater Monitoring Plan (GWMP) was followed during all 2025 field sampling and laboratory analysis activities and for statistically evaluating groundwater monitoring data developed from the CCR sampling and analysis program. No changes to the facility's GWMP occurred during 2025.

2.1.3 Background Groundwater Sampling

As documented in the 2017 and 2018 AGMCA Reports, eight independent rounds of background groundwater samples were collected from each CCR monitoring well and each sample was analyzed for all Appendix III and IV parameters prior to initiating the facility's CCR Detection

Monitoring program in October 2017. No modifications to this background dataset occurred during 2025.

2.1.4 Statistical Methods

As documented in the 2017 and 2018 AGMCA Reports, the background dataset discussed in Section 2.1.3 of this Report was used to select the appropriate statistical evaluation methods for each CCR groundwater monitoring parameter to identify any Statistically Significant Increases (SSIs) over background concentrations and determine whether any concentrations were at Statistically Significant Levels (SSLs) above their respective Groundwater Protection Standards (GWPS) established for the site. These statistical methods are available on the facility's publicly accessible website and no changes were made to them during 2025.

2.2 PROBLEMS ENCOUNTERED/RESOLVED

Insufficient recoverable volumes of groundwater by pumping from downgradient well MW-18 were encountered during AM-15 and AM-16. As such, MW-18 was sampled by a combination of HydraSleeve and disposable bailer during AM-15 and only by disposable bailer (due to the lower water level) during AM-16. The water levels measured in MW-18 during the second (AM-15) and fourth (AM-16) quarters of 2025 are presented below:

Date	Depth to Water (ft)	Total Well Depth (ft)	Total Standing Water Depth (ft)
5/12/2025	262.80	266.80	4.00
11/18/2025	263.54	266.80	3.26

When compared to the water levels measured during 2023 and 2024, MW-18 is exhibiting a downward trend that indicates redevelopment of the well will again be necessary (this was last performed in 2021) which is discussed in Section 2.4 of this report.

Consistent with previous sampling events in 2024, the standing water levels in MW-19 and MW-20 during AM-15 and AM-16 were also too low to allow sampling using the wells' dedicated bladder pumps or with disposable bailers. The water levels measured in MW-18 during the second (AM-15) and fourth (AM-16) quarters of 2025 are presented below:

Well	Date	Depth to Water (ft)	Total Well Depth (ft)	Total Standing Water Depth (ft)
MW-19	5/12/2025	514.99	516.75	1.76
	11/18/2025	514.95	516.75	1.80
MW-20	5/12/2025	363.65	366.68	3.03
	11/18/2025	363.52	366.68	3.16

These wells have exhibited a long-term decrease in water levels that began to impact the ability to recover samples from them starting in 2023 (AM-13) and now continuing through 2025. As such, they will be redeveloped in 2026 as discussed in Section 2.4 of this report.

Lastly, during an attempt to complete N&E of Release sampling of MW-23 in May and November, 2025 (discussed in Section 5.0 of this report), an insufficient volume of recoverable water was available to complete sampling of the well. Since shortly after its installation in 2021, MW-23 has not contained a sufficient volume of water to be sampled. The Sewickley Sandstone formation that this well monitors exhibits a very low hydraulic conductivity consistent with other deeper wells installed in this formation including MW-19, MW-20, and in wells and borings installed during past site characterization work performed under state permitting activities. However, unlike MW-19 and MW-20, MW-23 exhibited a rapid decrease in its water level after installation which indicates redevelopment is unlikely to be successful. Pending permission from the off-site landowner where this well is located, it will be replaced with a new well at a position as close as practical to its existing location in 2026 as discussed in Section 2.4 of this report.

Other than the recoverable water volume issues noted above, there were no other significant problems encountered during 2025 with regard to the CCR groundwater monitoring program.

2.3 TRANSITION BETWEEN MONITORING PROGRAMS

As documented in the 2018 AGMCA Report, the CCR unit transitioned from DM to AM that year. As part of this transition, all required notifications were issued, appropriate GWPS for Appendix IV parameters were established, and the first two AM sampling events (AM-1 and AM-2) were completed that year. Statistical evaluations of the AM-1, -2, and -3 sampling events were performed and documented in the 2019 AGMCA Report and the data indicated there were SSLs in one or more well comparisons. Based on the parameters for which SSLs were identified, an Appendix IV Alternative Source Demonstration (Appendix IV ASD) was then undertaken but not all of the Appendix IV SSLs that were identified could be attributed to alternative sources. As such, initial N&E of Release Characterization activities and an Assessment of Corrective Measures (ACM) were completed and are also documented in the 2019 AGMCA Report. Since

that time and throughout 2025, the CCR unit has remained in AM with ongoing SoR activities being performed as discussed in Section 5.0 of this report, which includes additional SoR/N&E of Release characterization work.

2.4 KEY ACTIVITIES PLANNED FOR THE UPCOMING YEAR

The following are the key CCR groundwater compliance activities planned for 2026:

- Continue with AM by conducting the semi-annual rounds of sampling and analysis for Appendix III and Appendix IV constituents [per 40 CFR § 257.96(b)] and evaluate the need to update the background data sets and associated Upper Prediction Limits (UPLs).
- Redevelop monitoring wells MW-18, MW-19, and MW-20 prior to the first scheduled AM sampling event of 2026 (AM-17). Redevelopment will be performed by surging the wells with potable water obtained from the Station, followed by pumping the wells dry using a portable submersible pump. This surge/purge process will be repeated multiple times until turbidity readings stabilize at acceptable levels. The wells will then be left to stabilize hydraulically and geochemically until the AM-17 sampling event.
- Abandon monitoring well MW-23 and replace it with a new well (MW-23A) positioned as close as practical to the existing MW-23 location while avoiding surrounding buried gas lines and pending approval of the existing landowner as this is an off-site well.
- The existing ACM Report originally prepared for the site in October 2019 to address arsenic as the primary constituent will be revised to also address lithium and will also include an evaluation to determine if a source other than the CCR unit may be causing the elevated lithium concentrations. To support this work (and subsequent SoR activities), two (2) additional N&E wells are planned to be installed in 2026, pending access approval for one of the wells by an off-site landowner.
- If any new SSLs are identified, provide appropriate notification [per § 257.95(g)] then potentially conduct an Appendix IV ASD [per § 257.95(g)(3)(ii)] to determine if a source other than the CCR unit may be causing the new SSLs. Concurrent with undertaking an Appendix IV ASD, characterize the N&E of the new Appendix IV release and provide appropriate notification depending on the findings [per §§ 257.95(g)(1) and (2), respectively].
- If any new SSLs are identified and an ASD is either not undertaken, indicates that an alternative source is not responsible for all the new SSLs identified, or is not completed

within 90 days of identifying there are new SSLs, then initiate and perform an ACM for the new SSLs in accordance with § 257.96.

- Conduct SoR activities in compliance with § 257.97(a), which states that as soon as feasible after completion of the ACM, select a remedy that, at a minimum, meets the performance standards listed in § 257.97(b) and the evaluation factors listed in § 257.97(c). These activities are currently in progress and include continued attempts to sample N&E of Release well MW-23; if samples are able to be recovered, evaluating the chemistry data from MW-23 to determine if one or both of two proposed side-gradient wells positioned on FE-owned property (MW-21 and MW-22) may not need to be installed; installing, surveying, and sampling MW-21 and MW-22 if it is determined they are needed and if they can be positioned such that they will reliably yield sufficient quantities of groundwater for sampling; evaluating the historic groundwater monitoring dataset for relationships between key parameters affecting arsenic natural attenuation and arsenic concentrations in groundwater; and completing development of the Arsenic Natural Attenuation Evaluation Work Plan.
- As required by § 257.97(d), specify, as part of the selected remedy, a schedule(s) for implementing and completing remedial activities. The schedule will require the completion of remedial activities within a reasonable period of time taking into consideration the factors set forth in §§ 257.97(d)(1) through (d)(6).
- As required by § 257.97(a), continue preparing semi-annual reports describing the progress in selecting and designing the remedy.
- Should all required SoR activities be completed in 2026, prepare a final report describing the selected remedy. The final report will include a certification from a qualified professional engineer that the remedy selected meets the requirements of the CCR Rule selection criteria and the final report will be placed in the facility's operating record as required by § 257.105(h)(12).
- As required by 40 CFR § 257.96(e), discuss the results of the ACM at least 30 days prior to the final SoR, in a public meeting with interested and affected parties.

3.0 DETECTION MONITORING INFORMATION

3.1 GROUNDWATER ANALYTICAL RESULTS SUMMARY

As noted in Section 2.3, site-wide AM was performed throughout 2025. As part of the AM program, all DM (Appendix III) parameters were also analyzed during each AM sampling event.

The need to statistically evaluate the 2025 Appendix III data to identify SSIs and determine if AM was necessary was precluded by the CCR unit already being in AM during all of 2025, so no statistical analysis of the Appendix III data was necessary. The 2025 Appendix III data that was collected and validated is presented in Table 3-1 with the intent of using it during the next update of the background dataset and associated UPLs, which will help increase the statistical power of future analyses.

4.0 ASSESSMENT MONITORING INFORMATION

4.1 GROUNDWATER ANALYTICAL RESULTS SUMMARY

In accordance with 40 CFR §§ 257.95(b) and (d)(1), the CCR groundwater sampling and analysis program implemented during 2025 consisted of two AM sampling events (AM-15 and AM-16). AM-15 sampling was performed in two mobilizations, with the first being on May 12, 2025 (MW-5, -17, -19, and -20) and the second on June 26, 2025 (MW-18 only), and for AM-16 between November 18 and 19, 2025. For both AM events, all Appendix III and all Appendix IV constituents were analyzed for those wells with a sufficient volume of water available to sample. The analyses that were performed during AM-15 and AM-16 exceed the requirements of § 257.95 which only stipulate analyzing for all Appendix IV parameters once per year. Laboratory analysis and subsequent validation of the AM-15 and AM-16 sample data were completed and Table 3-1 presents the validated analytical results for these events.

Statistical evaluations of sampling events AM-15 and AM-16 were performed in accordance with the certified methods included in both the facility's operating record and the publicly accessible website and the results were used to determine whether there were any detected Appendix IV parameters at SSLs above the CCR unit's established GWPS. As documented in the 2018 AGMCA Report, site-specific Appendix IV GWPS were established for the CCR unit using the higher of the federal Maximum Contaminant Level (MCL) or UPL for each parameter or, for those parameters that do not have MCLs, the higher of the EPA Risk Screening Level (RSL) or the UPL. The site-specific GWPS and the results of the statistical evaluations of AM-15 and AM-16 are presented in Table 4-1 and discussed below:

- For the downgradient wells that could be sampled during the reporting period (MW-17 and MW-18), SSIs were identified for three parameters: Arsenic (MW-18 during AM-15 and MW-17 and MW-18 during AM-16), Lithium (MW-17 during both AM events), and Radium 226/228 (MW-18 during both AM events). These findings are consistent with historical results for these wells with the exception of Radium 226/228, which was measured for the first time at concentrations greater than the UPL (2.14 and 2.4 mg/L versus 1.599 mg/L). SSIs were similarly identified for arsenic and lithium during AM-16 in upgradient well MW-5, which was the first time that had occurred for arsenic since AM-8 and for lithium since AM-9. In all of these instances, the SSIs were below their respective GWPS.

- Arsenic has been the only parameter regularly found at confirmed SSLs above its GWPS in MW-20 but it could not be evaluated during the current reporting period since no samples could be collected. Arsenic has also been previously identified at SSLs in MW-19, although more sporadically than in MW-20 (during AM-1, AM-3, and AM-12), but like MW-20, it could not be evaluated during the current reporting period since no samples could be collected. However, given the consistency in detected parameters and concentrations in wells MW-17 and MW-18 with their historical results as noted above, it is reasonable to assume arsenic was still present at SSLs above the GWPS in MW-20 and potentially at SSLs above the GWPS in MW-19 during the current reporting period.
- Lithium has been a parameter that has been intermittently identified at SSLs above its GWPS in both MW-19 and MW-20, occurring more frequently in MW-19 (starting in 2021) than in MW-20 (starting in 2022). Given the consistency in detected parameters and concentrations in wells MW-17 and MW-18 with their historical results as noted above, it is reasonable to assume lithium was still potentially present at SSLs above the GWPS in MW-19 and MW-20 during the current reporting period. However, as discussed in previous AGMCA Reports, lithium has historically been measured in upgradient well MW-5 at concentrations between 0.012 and 0.020 mg/L, with the highest value in this range being measured in 2022 and exceeding the MW-5 UPL of 0.019 mg/L. As such, the measured lithium increases in MW-19 and MW-20 have appeared to be at least partly attributable to the upward trending of background lithium concentrations observed in MW-5. Therefore, as noted in Section 2.4, an ACM will be completed for lithium that will include an evaluation to determine if a source other than the CCR unit may be causing the elevated lithium concentrations.
- Molybdenum, which was identified in 2019 as a potential SSL in MW-20, had continued to trend below its GWPS from 2020 through 2024. Lead was similarly identified as a potential SSL in MW-20 in 2020 but was ultimately determined to be an outlier due to the sampling method employed and the associated turbidity of the sample. This determination was substantiated from 2021 through 2024 as lead was measured in MW-20 at concentrations below or near its UPL, consistent with results prior to 2020. Continued evaluation of lead and molybdenum in MW-20 could not be performed during the current reporting period since no samples could be collected. However, given the consistency in detected parameters and concentrations in wells MW-17 and MW-18 with their historical results as noted above, it is reasonable to assume molybdenum and lead were present below their respective GWPS in MW-20 during the current reporting period.

- In addition to arsenic in MW-19 as noted above, the 2023 AGMCA Report identified potential SSLs for cobalt, lead, and lithium in MW-19, but those results were evaluated against corresponding field-filtered samples and deemed to be directly related to the sampling method employed for both MW-19 and MW-20 (bailer) during AM-11 and AM-12. Because MW-19 was unable to be sampled during AM-15 or AM-16, those findings could not be re-evaluated/confirmed during the current reporting period.

Taking into account the data presented in Table 4-1, no other Appendix IV constituents other than those discussed herein were detected at SSLs above their GWPS under the CCR unit's AM program during the reporting period, and arsenic currently remains the only parameter that is the focus of ongoing SoR activities for the CCR unit as discussed in Section 5.0 of this report.

5.0 SELECTION OF REMEDY

As previously noted in Section 2.3 of this report, throughout 2025 the CCR unit remained in AM with ongoing SoR activities being performed. As detailed in the CCR unit's 2019 ACM Report, the evaluation of viable remediation technologies for addressing arsenic in groundwater at the site determined that Monitored Natural Attenuation (MNA), combined with source control by the eventual installation of a final cover system on the CCR unit, ranked highest among the evaluated options. Therefore, the 2025 SoR activities were focused on developing additional information and data to determine if the preferred remedy identified during the ACM meets the performance standards listed in 40 CFR § 257.97(b), while considering the evaluation factors listed in § 257.97(c).

5.1 CURRENT STATUS OF THE SELECTION OF REMEDY PROGRAM

As outlined in the Semi-Annual SoR Progress reporting included as Attachment A of this report, the following activities have been performed during the current reporting period to support final remedy selection at the site:

- No N&E of Release characterization sampling for MW-23 was able to be performed during the AM-15 and AM-16 events due to an insufficient volume of recoverable water. The results from the January 2022 N&E sampling event provided in the 2022 AGMCA Report indicated that the measured arsenic concentration was below the site's arsenic GWPS. However, MW-23 has not contained an adequate volume of water to sample since its initial N&E of Release characterization sampling in January 2022. As such and as noted in Section 2.4, the decision was made to abandon MW-23 and replace it with a new well (MW-23A) positioned as close as practical to the existing MW-23 location as part of the 2026 program.
- To further advance the N&E of Release characterization to support SoR and, ultimately, Corrective Action Monitoring (CAM), site stratigraphy, topography, and property access limitations were evaluated to identify feasible locations for two new N&E wells and requests for pricing and availability/scheduling were solicited from qualified drilling subcontractors to install the wells. Initial outreach was also made to an off-site landowner to develop an access agreement to support installation of one of the new proposed wells and to replace MW-23.
- Due to the continued issues with insufficient recoverable volumes of sample water impacting SoR evaluations, downhole camera inspections were completed for MW-18,

MW-19, and MW-20 to evaluate the physical condition of the well casings and screens and determine the viability and approach to be used for redevelopment. Based on the findings, the decision was made to redevelop monitoring wells MW-18, MW-19, and MW-20 as part of the 2026 program.

- Continued development of a Natural Attenuation Evaluation Work Plan to include evaluating historic concentrations of parameters which can affect the natural attenuation of arsenic (e.g., iron, pH, ORP, etc.) as well as planning the sampling and analysis program that would be associated with future MNA activities.
- Continued a review of candidate technologies with regard to their potential to meet the performance standards listed in § 257.97(b) and the evaluation factors listed in § 257.97(c).
- Assessed May and November 2025 groundwater flow patterns in the monitoring network area downgradient of the CCR unit and confirmed they were consistent with established flow patterns at the site. Water level data from MW-23 was not included in these assessments because the well was determined to be dry during 2025 water level gauging activities.
- Completed statistical evaluations of the AM-15 and AM-16 analytical data to determine whether there were any detected Appendix IV parameters other than arsenic at SSLs above the CCR unit's established GWPS.

Ongoing and/or new SoR activities that are planned for 2025 have been included in Section 2.4 of this report.

6.0 WVDEP PERMIT COMPLIANCE ACTIVITIES

As previously noted in Section 1.1 of this report, with the West Virginia state legislature's adoption of the federal CCR Rule on March 1, 2022 through 33 CSR-1B, and the WVDEP's subsequent issuance of a modified permit on February 19, 2025, the Harrison CCBLF is now jointly regulated under both WVDEP Solid Waste/NPDES Permit No. WV0079171 and the CCR Rule. However, this joint regulation does result in some differing compliance requirements, which are identified and addressed below.

Sections C.2.a and D.1.a of the modified permit require submission of the parameters and associated concentrations measured during each sampling event for monitoring wells MW-5, -17, -18, -19, and -20 via the WVDEP's Electronic Submission System (ESS) FE completed the ESS submissions for AM-15 and AM-16 using the data summarized in Table 3-1 of this report.

An ACM Report was originally prepared for the site in October 2019 to comply with the CCR Rule regulatory timeframes at 40 CFR 257.96(a). At that time, arsenic was the primary constituent addressed in the report. More recently, lithium has been identified at SSLs above the GWPS and the modified permit now requires that it be addressed in a revision to the existing ACM Report. Section D.2.c of the modified permit requires FE to complete delineation of arsenic and lithium impacts to groundwater and to complete an ACM for arsenic and lithium at the site by April 1, 2027. To support this work (and subsequent SoR activities), two (2) additional N&E wells are planned to be installed in 2026, pending access approval for one of the wells by an off-site landowner. Work performed in 2025 to support this effort included an evaluation of site stratigraphy, topography, and property access limitations to identify feasible locations for the new wells; obtaining pricing and determining availability/scheduling of qualified drilling subcontractors to install the wells; and initial outreach to the off-site landowner to develop an access agreement.

Section D.2.c of the modified permit also requires notification be made to all persons who own or reside on land that directly overlies any part of a contamination plume if it has been determined that contaminants have migrated off-site. The furthest downgradient well that is co-located at the CCR waste boundary and the adjoining property boundary is MW-19 (refer to Figures 2-1 and 2-2). This well has historically exhibited arsenic concentrations that fluctuate above and below the GWPS of 0.010 mg/L, ranging from 0.00046 to 0.01965 and averaging 0.00913 mg/L since the initiation of baseline sampling at the site in 2016. Although MW-19 had an insufficient volume of recoverable water to allow for sampling during the current reporting period and the historical average arsenic concentration in the well has been below the GWPS, on October 15, 2025, FE

provided notification to the adjoining downgradient property owner that arsenic from the facility had migrated under their property, and posted the notification on the facility's publicly accessible website (http://ccrdocs.firstenergycorp.com/).

TABLES

TABLE 2-1
CCR RULE GROUNDWATER MONITORING SYSTEM WELL SUMMARY
HARRISON CCB LANDFILL - 2025 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

Well	Year Installed	Formation Monitored	Ground Surface Elevation (ft MSL)	Total Well Depth (ft bgs)	Monitored Interval (ft bgs)	Monitored Interval (ft MSL)	Casing ID and Material
Upgradient (Background)							
MW-5	1993	Lower Sewickley SS	1283.98	208.5	148.5 – 208.5	1075.52 – 1135.52	4" - Sch. 40 PVC
Downgradient							
MW-17	1997	Lower Sewickley SS	1070.64	60.6	20.6 – 60.6	1010.04 – 1050.04	2" - Sch. 40 PVC
MW-18	1997	Lower Sewickley SS	1265.91	264.8	224.8 – 264.8	1001.11 – 1041.11	4" - Sch. 40 PVC
MW-19	2016	Lower Sewickley SS	1462.87	513.9	503.9 – 513.9	948.99 – 958.99	2.5" - Sch. 80 PVC
MW-20	2016	Lower Sewickley SS	1414.28	364.0	349.0 – 364.0	1050.30 – 1065.30	2.5" - Sch. 80 PVC
Nature & Extent of Release Characterization							
MW-23*	2021	Lower Sewickley SS	1375.28	385.0	365.0 – 385.0	990.28 – 1010.28	4” – Sch. 80 PVC

Notes: SS = sandstone MSL = mean sea level bgs = below ground surface ID = inside diameter Sch = Schedule PVC = polyvinyl chloride
* = Used as Nature and Extent of Release well starting in 2022 but has been dry during the last several reporting periods and is scheduled to be replaced in 2026.

			APPENDIX III (all Chemical Constituents reported as TOTAL RECOVERABLE)[1]							APPENDIX IV (all Chemical Constituents reported as TOTAL RECOVERABLE)[1]														
SAMPLING EVENT NO.[2,5]	WELL ID[3]	SAMPLE DATE	BORON METALS MG/L	CALCIUM METALS MG/L	CHLORIDE MISC MG/L	FLUORIDE MISC MG/L	PH[4] MISC S.U.	SULFATE MISC MG/L	TDS MISC MG/L	ANTIMONY METALS MG/L	ARSENIC METALS MG/L	BARIUM METALS MG/L	BERYLLIUM METALS MG/L	CADMIUM METALS MG/L	CHROMIUM METALS MG/L	COBALT METALS MG/L	LEAD METALS MG/L	LITHIUM METALS MG/L	MERCURY METALS MG/L	MOLYBDENUM METALS MG/L	SELENIUM METALS MG/L	THALLIUM METALS MG/L	RADIUM-226 RADIOCHEM PCI/L	RADIUM-228 RADIOCHEM PCI/L
31 (AM-15)	MW-05	5/12/2025	0.195 J	6.48	1.3776	1.9775	8.47	52.87	592	0.00282 U	0.0008 U	0.055192	0.00015 U	0.0002 U	0.0016 U	0.0002 U	0.000225 U	0.013946	0.000163 U	0.000811 J	0.00315 U	0.0001 U	0.103 U	0..416 U
31 (AM-15)	MW-05(D)	5/12/2025	0.1741 J	6.74	1.5128	1.9155	8.47	52.65	608	0.00282 U	0.0008 U	0.05625	0.00015 U	0.0002 U	0.0016 U	0.0002 U	0.000225 U	0.013849	0.000163 U	0.000705 J	0.00315 U	0.0001 U	0.034 U	0.3310 U
32 (AM-16)	MW-05	11/18/2025	0.258 J	4.85	0.8808	1.8282	8.29	52.94	700	0.00282 U	0.0017	0.050746	0.00015 U	0.0002 U	0.0016 U	0.0002 U	0.000225 U	0.019204	0.000163 U	0.000609 J	0.00315 U	0.0004 U	0.156 U	1.01 U
32 (AM-16)	MW-05(D)	11/18/2025	0.2361 J	5.08	0.8852	1.8314	8.29	53.03	696	0.00282 U	0.001592	0.051677	0.00015 U	0.0002 U	0.0016 U	0.0002 U	0.000225 U	0.018741	0.000163 U	0.000758 J	0.00315 U	0.0004 U	0.196 U	0.742
31 (AM-15)	MW-17	5/12/2025	0.1145 U	136	69.17	0.0586 J	6.72	102.9	624	0.00282 U	0.0008 U	0.0982	0.00015 U	0.0002 U	0.0016 U	0.0002 U	0.000225 U	0.018997	0.000163 U	0.00055 U	0.00315 U	0.0001 U	-0.085 U	0.135 U
32 (AM-16)	MW-17	11/18/2025	0.1145 U	115	69.42	0.066 U	6.73	94.65	596	0.00282 U	0.00088	0.144252	0.00015 U	0.0002 U	0.0016 U	0.000331 J	0.0004 J	0.021113	0.000163 U	0.00055 U	0.00315 U	0.0004 U	0.143 U	0.927 U
31 (AM-15)	MW-18	6/26/2025	0.2194 J	14.963	43.09	0.4107	7.36	20.52 J-	1475	0.00282 U	0.001358 J	0.092414	0.00015 U	0.0002 U	0.001623 J	0.0002 U	0.00078 J	0.01619	0.000163 U	0.00077 J	0.00315 UJ-	0.0004 U	0.876	1.26
32 (AM-16)	MW-18	11/19/2025	0.1717 J	17.18	43.9	0.436	7.4	7.3914	1365	0.00282 U	0.00148	0.132464	0.00015 U	0.0002 U	0.00176 J	0.000397 J	0.002326	0.018798	0.000163 U	0.000585 J	0.00315 U	0.0004 U	0.392 U	2.01 U
31 (AM-15)	MW-19	5/12/2025	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
32 (AM-16)	MW-19	11/18/2025	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
31 (AM-15)	MW-20	5/12/2025	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
31 (AM-16)	MW-20	11/18/2025	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

NOTES:

[1] Lab analyses were completed by Beta Lab and Eurofins Laboratories, Inc., both of which are accredited/certified laboratories: Beta Lab NSF/ISR ISO 9001:Cert. No. 83761-IS10 (Exp. 01-16-27) and Eurofins WVDEP Certificate No. 142, Expiration Date: 1-31-27.

[2] Event Nos. 31 and 32 correspond to Assessment Monitoring (AM) sampling events AM-15 (31) and AM-16 (32).

[3] Field duplicate samples that were taken for Quality Control purposes are noted with a (D).

[4] pH results reported are field sampling measurments as lab pH testing exceeded hold times.

[5] There was an insufficient volume of recoverable water to collect a sample from MW-19 and MW-20 during events AM-15 and AM-16.

NA = Parameter was not analyzed.

NS = Not sampled.

DATA QUALIFIER DEFINITIONS:

The following definitions provide brief explanations of the validation qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted method detection limit for sample and method.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
R	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in sample
UR	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in sample.
F	The sample MS/MSD Recovery and/or RPD exceeds the control limits.
G	The sample MDC is greater than the requested RL.

Lower Sewickley Sandstone							Event 31 (AM-15) Downgradient Wells						Event 31 (AM-15) Upgradient Well MW-5	
Parameter	Units	Data Distribution for Upgradient Well MW-5	UPL Type	UPL Value[a,b]	Federal MCLs/RSLs	GWPS	MW-17	MW-18	MW-19[e]	MW-20[e]				
Antimony	mg/L	Unknown	Poisson	0.00143	0.006	0.006	<0.00282	<0.00282	NS	NS			<0.00282	U
Arsenic	mg/L	Unknown	Non-parametric	0.0005	0.01	0.01	<0.0008	0.001358	NS	NS			<0.0008	U
Barium	mg/L	Normal	Parametric	0.152477	2	2	0.0982	0.092414	NS	NS			0.055721	
Beryllium	mg/L	Unknown	Poisson	0.00156	0.004	0.004	<0.00015	<0.00015	NS	NS			<0.00015	U
Cadmium	mg/L	Unknown	Poisson	0.00143	0.005	0.005	<0.0002	<0.0002	NS	NS			<0.0002	U
T. Chromium	mg/L	Unknown	Poisson	0.00758	0.1	0.1	<0.0016	0.001623	NS	NS			<0.0016	U
Cobalt	mg/L	Unknown[c]	DQ[d]	NA	0.006	0.006	<0.0002	<0.0002	NS	NS			<0.0002	U
Fluoride	mg/L	Normal	Parametric	2.251	4	4	0.0586	0.4107	NS	NS			1.9465	
Lead	mg/L	Unknown	Poisson	0.00425	0.015	0.015	<0.000225	0.00078	NS	NS			<0.000225	U
Lithium	mg/L	Normal	Parametric	0.018835	0.04	0.04	0.018997	0.01619	NS	NS			0.0138975	
Mercury	mg/L	Unknown	Poisson	0.00032	0.002	0.002	<0.000163	<0.000163	NS	NS			<0.000163	U
Molybdenum	mg/L	Log Normal	Parametric	0.01496	0.1	0.1	<0.00055	0.00077	NS	NS			0.000758	J
Selenium	mg/L	Unknown[c]	DQ[d]	NA	0.05	0.05	<0.00315	<0.00315	NS	NS			<0.00315	U
Thallium	mg/L	Unknown	Poisson	0.00143	0.002	0.002	<0.0001	<0.0004	NS	NS			<0.0001	U
Sum Ra226+Ra228	pCi/L	Log Normal	Parametric	1.599	5	5	<0.0496	2.14	NS	NS			<0.442	U

[a]Prediction Limits calculated using 5% alpha.
[b]Upper Prediction Limit used for all parameters.
[c]Data distribution set to Unknown if all values non-detect in upgradient well.
[d]DQ is Double Quantification Rule. If two successive, independent detected values occur, that would be an SSI and also an SSL if > GWPS. However, if value was detected in upgradient well during the same sampling event, would use Poisson PL instead.
[e]Not sampled (NS) due to insufficient water.

#.#### = UPL > Result > MCL/RSL
= SSI < GWPS
= SSI > GWPS
= DQ Parameter with Verification Sampling Needed

Lower Sewickley Sandstone							Event 32 (AM-16) Downgradient Wells						Event 32 (AM-16) Upgradient Well MW-5	
Parameter	Units	Data Distribution for Upgradient Well MW-5	UPL Type	UPL Value[a,b]	Federal MCLs/RSLs	GWPS	MW-17	MW-18	MW-19[e]	MW-20[e]				
Antimony	mg/L	Unknown	Poisson	0.00143	0.006	0.006	<0.00282	<0.00282	NS	NS			<0.00282	U
Arsenic	mg/L	Unknown	Non-parametric	0.0005	0.01	0.01	0.00088	0.00148	NS	NS			0.001646	U
Barium	mg/L	Normal	Parametric	0.152477	2	2	0.144252	0.132464	NS	NS			0.0512115	
Beryllium	mg/L	Unknown	Poisson	0.00156	0.004	0.004	<0.00015	<0.00015	NS	NS			<0.00015	U
Cadmium	mg/L	Unknown	Poisson	0.00143	0.005	0.005	<0.0002	<0.0002	NS	NS			<0.0002	U
T. Chromium	mg/L	Unknown	Poisson	0.00758	0.1	0.1	<0.0016	0.00176	NS	NS			<0.0016	U
Cobalt	mg/L	Unknown[c]	DQ[d]	NA	0.006	0.006	0.000331	0.000397	NS	NS			<0.0002	U
Fluoride	mg/L	Normal	Parametric	2.251	4	4	<0.066	0.436	NS	NS			1.8298	
Lead	mg/L	Unknown	Poisson	0.00425	0.015	0.015	0.0004	0.002326	NS	NS			<0.000225	U
Lithium	mg/L	Normal	Parametric	0.018835	0.04	0.04	0.021113	0.018798	NS	NS			0.0189725	
Mercury	mg/L	Unknown	Poisson	0.00032	0.002	0.002	<0.000163	<0.000163	NS	NS			<0.000163	U
Molybdenum	mg/L	Log Normal	Parametric	0.01496	0.1	0.1	<0.00055	0.000585	NS	NS			0.0006835	J
Selenium	mg/L	Unknown[c]	DQ[d]	NA	0.05	0.05	<0.00315	<0.00315	NS	NS			<0.00315	U
Thallium	mg/L	Unknown	Poisson	0.00143	0.002	0.002	<0.0004	<0.0004	NS	NS			<0.0004	U
Sum Ra226+Ra228	pCi/L	Log Normal	Parametric	1.599	5	5	1.07	2.4	NS	NS			1.049	

[a]Prediction Limits calculated using 5% alpha.
[b]Upper Prediction Limit used for all parameters.
[c]Data distribution set to Unknown if all values non-detect in upgradient well.
[d]DQ is Double Quantification Rule. If two successive, independent detected values occur, that would be an SSI and also an SSL if > GWPS. However, if value was detected in upgradient well during the same sampling event, would use Poisson PL instead.
[e]Not sampled (NS) due to insufficient water.

#.#### = UPL > Result > MCL/RSL
= SSI < GWPS
= SSI > GWPS
= DQ Parameter with Verification Sampling Needed

FIGURES

PGH \\TT.LOCAL\GIS\US\EGS\PITTSBURGH\GIS\GIS\FIRST_ENERGY\MAPDOCS\HARRISON\HARRISCN_CCR_GWMONITORING_2025_05MAY.APRX 12/18/2025 TIM.TEAFORD

References:
1. Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (©2021 ESRI and its data suppliers).
2. Contours obtained from the West Virginia GIS Technical Center.
3. Approximate Waste Boundary line was obtained from FirstEnergy Drawing No. C89506725, Rev. 1, dated 1/25/2011.
4. Monitoring well locations MW-5, MW-17, and MW-18 and the approximate Parcel Boundary line were obtained from FirstEnergy Drawing No. C8950199, Rev. B, dated 1/9/2003, and Drawing No. C8950153, Rev. 1, dated 3/27/2002.
5. Monitoring wells MW-19 and MW-20 were installed by Tetra Tech, Inc. in June 2016. As-built well locations were obtained by field survey performed by Tetra Tech, Inc. on 07/11/2016.
6. Monitoring well MW-23 was installed and field surveyed by Tetra Tech, Inc. in July 2021 and February 2022, respectively.

WELL NUMBER	NORTHING	EASTING
MW-5	330871.6	1731733.0
MW-17	328548.0	1736010.0
MW-18	329269.8	1736473.2
MW-19	330293.3	1736904.0
MW-20	331766.1	1735688.8
MW-23	330406.9	1738181.4

Coordinates are in NAD 1983 State Plane West Virginia North (feet)

N

MW-20 (1053.63)

MW-5 (1092.11)

MW-19 (951.07)

MW-18 (1005.62)

MW-17 (1036.30)

MW-23 (N&E Well - Not Part of 2025 CCR Monitoring Program)

Upper Area

Main Area

Lower Area

Sedimentation Pond No. 1

Prospect Valley

Lucas Rd

Salerno Hollow Rd

Robinson Run

Mirkwood Dr

Branch of West Fork

Clark St

Hood St

Hood Ave

West Fork River

S Pike St

Legend
- CCR/WVDEP Monitoring Well
- Approximate Waste Boundary
- Approximate Parcel Boundary
- Groundwater Elevation Contour (10-foot) (dashed where inferred)
- (1044.36) Groundwater Elevation May 2025
- Topographic Contour (10-foot)

1,000 0 1,000 Feet

TETRA TECH

CCR RULE GROUNDWATER MONITORING SYSTEM
INTERPRETED GROUNDWATER FLOW MAY 2025
HARRISON POWER STATION
CCB LANDFILL

FIRSTENERGY CORPORATION
GREENSBURG, PENNSYLVANIA

DRAWN BY: T. TEAFORD 12/18/2025
CHECKED BY: J. CLARA 12/18/2025
APPROVED BY: B. BAKER 12/18/2025

CONTRACT NUMBER: 212C-SW-00069

FIGURE NUMBER 2-1

REVISION 0

PGH \\TT.LOCAL\GIS\US\EGS\PITTSBURGH\GIS\GIS\FIRST_ENERGY\MAPDOCS\HARRISON\HARRISON_CCR_GWMONITORING_2025_11NOV.APRX 1/6/2026 TIM.TEAFORD

References:
1. Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (©2021 ESRI and its data suppliers).
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4. Monitoring well locations MW-5, MW-17, and MW-18 and the approximate Parcel Boundary line were obtained from FirstEnergy Drawing No. C8950199, Rev. B, dated 1/9/2003, and Drawing No. C8950153, Rev. 1, dated 3/27/2002.
5. Monitoring wells MW-19 and MW-20 were installed by Tetra Tech, Inc. in June 2016. As-built well locations were obtained by field survey performed by Tetra Tech, Inc. on 07/11/2016.
6. Monitoring well MW-23 was installed and field surveyed by Tetra Tech, Inc. in July 2021 and February 2022, respectively.

WELL NUMBER	NORTHING	EASTING
MW-5	330871.6	1731733.0
MW-17	328548.0	1736010.0
MW-18	329269.8	1736473.2
MW-19	330293.3	1736904.0
MW-20	331766.1	1735688.8
MW-23	330406.9	1738181.4

Coordinates are in NAD 1983 State Plane West Virginia North (feet)

N

MW-20 (1053.76)
MW-5 (1086.95)
MW-19 (951.11)
MW-18 (1004.88)
MW-17 (1033.22)
MW-23 (N&E Well - Not Part of 2025 CCR Monitoring Program)
Sedimentation Pond No. 1

Upper Area
Main Area
Lower Area

Lucas Rd
Prospect Valley
Salerno Hollow Rd
Robinson Run
Mirkwood Dr
Beatrice Dr
Clark St
Hood St
Hood Ave
S Pike St
West Fork River
Sargent Creek

1,000 0 1,000 Feet

Legend
- CCR/WVDEP Monitoring Well
- Approximate Waste Boundary
- Approximate Parcel Boundary
- Groundwater Elevation Contour (10-foot) (dashed where inferred)
- (1044.36) Groundwater Elevation November 2025
- Topographic Contour (10-foot)

TETRA TECH

CCR RULE GROUNDWATER MONITORING SYSTEM
INTERPRETED GROUNDWATER FLOW NOVEMBER 2025
HARRISON POWER STATION
CCB LANDFILL

FIRSTENERGY CORPORATION
GREENSBURG, PENNSYLVANIA

DRAWN BY: T. TEAFORD 01/06/2026
CHECKED BY: J. CLARA 01/06/2026
APPROVED BY: B. BAKER 01/06/2026

CONTRACT NUMBER: 212C-SW-00069

FIGURE NUMBER 2-2

REVISION 0

ATTACHMENT A

SEMI-ANNUAL SELECTION OF REMEDY (SoR) PROGRESS REPORT (Q1 AND Q2 2025)

COAL COMBUSTION BYPRODUCT LANDFILL

Harrison Power Station
Harrison County, West Virginia

Prepared for:

FirstEnergy

800 Cabin Hill Drive
Greensburg, PA 15601

Prepared by:

Tetra Tech, Inc.

400 Penn Center Boulevard, Suite 200
Pittsburgh, PA 15235
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Tetra Tech Project No. 212C-SW-00069

July 2025

TABLE OF CONTENTS

1.0 INTRODUCTION

This Semi-Annual Selection of Remedy (SoR) Progress Report was prepared by Tetra Tech, Inc. (Tetra Tech) on behalf of FirstEnergy Generation (FE) for the Coal Combustion Byproduct Landfill ("CCBL", "CCR unit", or "site") at the Harrison Power Station (hereinafter referred to as the "Station"). The CCBL and Station are located near the town of Shinnston in Harrison County, West Virginia. The period covered by this report includes the first two quarters (Q1 and Q2) of calendar year 2025 (January 1st through June 30th).

As per 40 CFR 257.97(a), once a Coal Combustion Residual (CCR) unit has completed an Assessment of Corrective Measures (ACM) and transitions to SoR, "The owner or operator must prepare a semiannual report describing the progress in selecting and designing the remedy." Accordingly, this report summarizes the progress during the current reporting period in selecting and designing the remedy for addressing arsenic concentrations in groundwater downgradient of the CCR unit and also includes a summary of anticipated SoR activities which will be conducted over the next SoR reporting period.

Detailed background information on the CCR unit, hydrogeologic site conditions, and CCR monitoring results can be found in various other documents on the CCBL's publicly accessible website, the most recent of which being the 2024 Annual CCR Rule Groundwater Monitoring and Corrective Action Report (Harrison CCB Landfill 2024 Annual GWMCA Report). The following section provides background information as it relates to the SoR at the CCR unit.

1.1 Background

Groundwater Assessment Monitoring (AM) conducted at the site in accordance with the federal CCR Rule identified arsenic and molybdenum concentrations in certain downgradient CCR monitoring wells which were at Statistically Significant Levels (SSLs) above their corresponding Groundwater Protection Standards (GWPS). Pursuant to 40 CFR 257.95(g)(3)(ii), Tetra Tech performed an Alternative Source Demonstration (ASD) to assess if the Appendix IV SSLs determined for sampling events AM-1, -2, and -3 were attributable to a release from the CCR unit or from a demonstrable alternative source(s). The Appendix IV ASD is included as Attachment A of the ACM Report prepared for the Site (Harrison CCB Landfill 2019 ACM Report) and determined that evidence existed that the CCR unit, combined with impacts from an unidentified alternate source (e.g., grout infiltration into the sand pack of the well), were likely the causes of elevated molybdenum concentrations observed in monitoring well MW-20, which was the only well to have a molybdenum SSL, and that the arsenic SSLs could not be attributed to sources

other than the CCR unit. As such, a transition to Nature and Extent (N&E) of release characterization and ACM for arsenic per 40 CFR 257.96 of the CCR Rule were implemented.

As required by 40 CFR 257.96(c), the ACM conducted by Tetra Tech on behalf of FE included an analysis of the effectiveness of potential corrective measures in meeting the remedy requirements and objectives as described under 40 CFR 257.97. The ACM Report evaluated the following corrective measures against the criteria referenced in 40 CFR 257.96(c): Source Control, Groundwater Extraction and Treatment, In-Situ Technologies and Monitored Natural Attenuation (MNA).

Based on the evaluation of viable remediation technologies, MNA, combined with source control by the eventual installation of a final cover system on the CCR unit, ranks highest among the evaluated options. In September 2019, pursuant to 40 CFR 257.96(d), the ACM Report was posted in the CCR unit's Operating Record, and then subsequently posted to the facility's publicly accessible website on October 16, 2019 (Harrison CCB Landfill 2019 ACM Report). However, more recently, lithium has been identified at SSLs above the GWPS and the landfill's latest state solid waste permit modification (issued in February 2025) requires that it also be addressed in a revision to the existing ACM Report. As such, this progress report includes the activities now needed to meet this requirement.

1.2 SoR Regulatory Basis

SoR activities must be completed in compliance with 40 CFR 257.97(a), which states that as soon as feasible after completion of the ACM, a remedy must be selected that, at a minimum, meets the performance standards listed in 40 CFR 257.97(b), and considers the evaluation factors listed in 40 CFR 257.97(c).

2.0 CURRENT STATUS OF THE SELECTION OF REMEDY PROGRAM

The following activities have been performed during the current reporting period as part of selecting the remedy at the site:

- Continued AM with a sampling event in May 2025 (AM-15), which included sampling of the site's CCR monitoring well network with analyses for all Appendix III and Appendix IV parameters along with targeted general chemistry parameters to assist in evaluating potential natural attenuation impacts.
- Assessed the May 2025 groundwater flow patterns in the monitoring network area downgradient of the CCR unit and found they remained consistent with historical flow patterns at the site, although the measured water levels were again lower site-wide. Water level data from MW-23 was not included in this assessment as the well continued to exhibit a continuing trend of post-development water level stabilization at near-dry conditions.

- During the AM-15 sampling event, downgradient monitoring well MW-18, which was redeveloped in late 2021 in an attempt to reestablish its yield, was again found to have a sufficient volume of water to allow for collection of a full sample set, however, the water level was too low to perform low-flow sampling using a bladder pump, so the well was sampled using a bailer instead.
- Continued to perform a site-wide evaluation of arsenic concentration trends. However, during AM-15, both MW-19 and MW-20 had an insufficient volume of recoverable water to allow for sampling, similar to what had occurred during AM-14. These wells are historically the only downgradient wells to exhibit arsenic SSLs at the site, so the inability to sample them during AM-15 impacted the arsenic evaluation work.
- During AM-15 an attempt was made to sample N&E of Release monitoring well MW-23 for the seventh time. However, there was an insufficient volume of recoverable water in the well (less than one foot; the same water level that was found during attempted sampling in July 2024), so it could not be sampled. Even though this well was successfully sampled in January 2022, the continued low water level indicates this issue is not due to seasonal effects or to the well's water level still exhibiting post-development stabilization.
- Due to the continued issues with low or insufficient recoverable volumes of sample water impacting SoR evaluations, downhole camera inspections were completed for MW-18, MW-19, and MW-20 to evaluate the physical condition of the well casings and screens and determine the viability and approach to be used for redevelopment. Based on the findings, it was determined that redevelopment using a surge/purge process is viable for all three wells.
- Continued development of a Natural Attenuation Evaluation Work Plan that includes evaluating historic concentrations of parameters which can affect the natural attenuation of arsenic (e.g., iron, pH, ORP, etc.) as well as planning the sampling and analysis program that would be associated with future MNA activities.
- Continued reviewing candidate technologies with regard to their potential to meet the performance standards listed in 40 CFR 257.97(b) and the evaluation factors listed in 40 CFR 257.97(c).

3.0 PLANNED SOR ACTIVITIES

The following activities are planned as part of the ongoing SoR process:

- Complete the second scheduled 2025 AM sampling event at the site (AM-16), along with continued attempts to collect N&E/background samples from monitoring

well MW-23. Should this well again fail to provide sufficient water for sampling, a final determination will be made regarding its replacement.

- If MW-19, MW-20, and/or MW-23 will yield sufficient water for sampling, evaluate the chemistry data from them to reassess the need for installing one or both of two previously proposed sidegradient monitoring wells (MW-21 and -22). If it is determined that these wells are needed to better characterize the nature and extent (N&E) of arsenic and lithium in groundwater and if they can be positioned such that they will reliably yield sufficient quantities of groundwater for sampling, procure the services of a drilling firm and install, develop, and perform aquifer characterization testing for new monitoring wells MW-21 and/or -22.
- Should MW-18 fail to provide sufficient water for sampling during AM-16, a determination will be made whether to again redevelop it or to assess the viability of replacing it with a new well at a position as close as practical to its existing location or to abandon and permanently remove it from the CCR monitoring network.
- Conduct additional sampling and analysis for molybdenum to evaluate whether the downward trend in molybdenum concentrations measured in MW-20 over the last four years is statistically significant and remains below the associated GWPS of 100 ppb.
- Continue development of the Arsenic Natural Attenuation Evaluation Work Plan, including a review of the historic groundwater monitoring data set for relationships between key parameters affecting arsenic natural attenuation and arsenic concentrations in groundwater.
- Continue evaluating the candidate technologies identified in the ACM against the performance standards listed in 40 CFR 257.97(b) and the evaluation factors listed in 40 CFR 257.97(c).
- As required by 40 CFR 257.96(e), FE will discuss the results of the corrective measures assessment at least 30 days prior to the final selection of remedy, in a public meeting.
- Upon completion of all required SoR activities, FE will prepare a final report describing the selected remedy and how it, at a minimum, meets the performance standards listed in 40 CFR 257.97(b) and considers the evaluation factors listed in 40 CFR 257.97(c).
- As required by 40 CFR 257.97(d), FE will specify, as part of the selected arsenic remedy, a schedule(s) for implementing and completing remedial activities.

Should the final remedy for the CCR unit not be selected during Q3 or Q4 2025, then another Semi-Annual SoR Report will be prepared as required by 40 CFR 257.97(a).

SEMI-ANNUAL SELECTION OF REMEDY (SoR) PROGRESS REPORT (Q3 AND Q4 2025)

COAL COMBUSTION BYPRODUCT LANDFILL

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January 2026

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1.0 INTRODUCTION

This Semi-Annual Selection of Remedy (SoR) Progress Report was prepared by Tetra Tech, Inc. (Tetra Tech) on behalf of FirstEnergy Generation (FE) for the Coal Combustion Byproduct Landfill ("CCBL", "CCR unit", or "site") at the Harrison Power Station (hereinafter referred to as the "Station"). The CCBL and Station are located near the town of Shinnston in Harrison County, West Virginia. The period covered by this report includes the last two quarters (Q3 and Q4) of calendar year 2025 (July 1st through December 31st).

As per 40 CFR 257.97(a), once a Coal Combustion Residual (CCR) unit has completed an Assessment of Corrective Measures (ACM) and transitions to SoR, "The owner or operator must prepare a semiannual report describing the progress in selecting and designing the remedy." Accordingly, this report summarizes the progress during the current reporting period in selecting and designing the remedy for addressing arsenic concentrations in groundwater downgradient of the CCR unit and also includes a summary of anticipated SoR activities which will be conducted over the next SoR reporting period.

Detailed background information on the CCR unit, hydrogeologic site conditions, and CCR monitoring results can be found in various other documents on the CCBL's publicly accessible website, the most recent of which being the 2024 Annual CCR Rule Groundwater Monitoring and Corrective Action Report (Harrison CCB Landfill 2024 Annual GWMCA Report). The following section provides background information as it relates to the SoR at the CCR unit.

1.1 Background

Groundwater Assessment Monitoring (AM) conducted at the site in accordance with the federal CCR Rule identified arsenic and molybdenum concentrations in certain downgradient CCR monitoring wells which were at Statistically Significant Levels (SSLs) above their corresponding Groundwater Protection Standards (GWPS). Pursuant to 40 CFR 257.95(g)(3)(ii), Tetra Tech performed an Alternative Source Demonstration (ASD) to assess if the Appendix IV SSLs determined for sampling events AM-1, -2, and -3 were attributable to a release from the CCR unit or from a demonstrable alternative source(s). The Appendix IV ASD is included as Attachment A of the ACM Report prepared for the Site (Harrison CCB Landfill 2019 ACM Report) and determined that evidence existed that the CCR unit, combined with impacts from an unidentified alternate source (e.g., grout infiltration into the sand pack of the well), were likely the causes of elevated molybdenum concentrations observed in monitoring well MW-20, which was the only well to have a molybdenum SSL, and that the arsenic SSLs could not be attributed to sources

other than the CCR unit. As such, a transition to Nature and Extent (N&E) of release characterization and ACM for arsenic per 40 CFR 257.96 of the CCR Rule were implemented.

As required by 40 CFR 257.96(c), the ACM conducted by Tetra Tech on behalf of FE included an analysis of the effectiveness of potential corrective measures in meeting the remedy requirements and objectives as described under 40 CFR 257.97. The ACM Report evaluated the following corrective measures against the criteria referenced in 40 CFR 257.96(c): Source Control, Groundwater Extraction and Treatment, In-Situ Technologies and Monitored Natural Attenuation (MNA).

Based on the evaluation of viable remediation technologies, MNA, combined with source control by the eventual installation of a final cover system on the CCR unit, ranks highest among the evaluated options. In September 2019, pursuant to 40 CFR 257.96(d), the ACM Report was posted in the CCR unit's Operating Record, and then subsequently posted to the facility's publicly accessible website on October 16, 2019 (Harrison CCB Landfill 2019 ACM Report). However, more recently, lithium has been identified at SSLs above the GWPS and the landfill's latest state solid waste permit modification (issued in February 2025) requires that it also be addressed in a revision to the existing ACM Report. As such, this progress report includes the activities now needed to meet this requirement.

1.2 SoR Regulatory Basis

SoR activities must be completed in compliance with 40 CFR 257.97(a), which states that as soon as feasible after completion of the ACM, a remedy must be selected that, at a minimum, meets the performance standards listed in 40 CFR 257.97(b), and considers the evaluation factors listed in 40 CFR 257.97(c).

2.0 CURRENT STATUS OF THE SELECTION OF REMEDY PROGRAM

The following activities have been performed during the current reporting period as part of selecting the remedy at the site:

- Continued AM with a sampling event in November 2025 (AM-16), which included sampling of the site's CCR monitoring well network with analyses for all Appendix III and Appendix IV parameters along with targeted general chemistry parameters to assist in evaluating potential natural attenuation impacts.
- Assessed the November 2025 groundwater flow patterns in the monitoring network area downgradient of the CCR unit and found they remained consistent with historical flow patterns at the site, although the measured water levels were again lower site-wide. Water level data from MW-23 was not included in this assessment as the well continued to exhibit a continuing trend of post-development water level stabilization at near-dry conditions.

- During the AM-16 sampling event, downgradient monitoring well MW-18, which was redeveloped in late 2021 in an attempt to reestablish its yield, was again found to have a sufficient volume of water to allow for collection of a full sample set, however, the water level was too low to perform low-flow sampling using a bladder pump, so the well was sampled using a bailer instead.
- Continued to perform a site-wide evaluation of arsenic concentration trends. However, during AM-16, both MW-19 and MW-20 had an insufficient volume of recoverable water to allow for sampling, similar to what had occurred during AM-15. These wells are historically the only downgradient wells to exhibit arsenic SSLs at the site, so the inability to sample them during AM-16 impacted the arsenic evaluation work.
- During AM-16 an attempt was made to sample N&E of Release monitoring well MW-23 for the eighth time. However, there was an insufficient volume of recoverable water in the well (less than one foot; the same water level that was found during attempted sampling in May 2025), so it could not be sampled. Even though this well was successfully sampled in January 2022, the continued low water level indicates this issue is not due to seasonal effects or to the well's water level still exhibiting post-development stabilization.
- Based on continued difficulty with recovering samples from MW-18 and the inability to again recover samples from MW-19 and MW-20 and considering the findings of the downhole camera work discussed in the 2025Q1Q2 progress report, the decision was made to redevelop monitoring wells MW-18, MW-19, and MW-20 as part of the 2026 program.
- Based on the continued inability to recover samples from MW-23, the decision was made to abandon MW-23 and replace it with a new well (MW-23A) positioned as close as practical to the existing MW-23 location as part of the 2026 program.
- To further advance the Nature and Extent (N&E) of Release characterization to support SoR and, ultimately, Corrective Action Monitoring (CAM), site stratigraphy, topography, and property access limitations were re-evaluated to identify feasible locations for the two previously proposed sidegradient wells (MW-21 and MW-22).
- To support the well redevelopment, abandonment, and installation work noted above, requests for pricing and availability/scheduling were solicited from qualified drilling subcontractors. Initial outreach was also made to an off-site landowner to develop an access agreement to support installation of one of the new proposed N&E wells and to replace MW-23.
- Continued development of a Natural Attenuation Evaluation Work Plan that includes evaluating historic concentrations of parameters which can affect the

natural attenuation of arsenic (e.g., iron, pH, ORP, etc.) as well as planning the sampling and analysis program that would be associated with future MNA activities.

- Continued reviewing candidate technologies with regard to their potential to meet the performance standards listed in 40 CFR 257.97(b) and the evaluation factors listed in 40 CFR 257.97(c).

3.0 PLANNED SOR ACTIVITIES

The following activities are planned as part of the ongoing SoR process:

- Complete the first scheduled 2026 AM sampling event at the site (AM-17), along with continued attempts to collect N&E/background samples from monitoring well MW-23..
- If MW-19, MW-20, and/or MW-23 will yield sufficient water for sampling, evaluate the chemistry data from them to continue arsenic assessment and advance lithium assessment to support revisions to the original 2019 ACM Report.
- Procure the services of a drilling firm and redevelop monitoring wells MW-18, MW-19, and MW-20 prior to the first scheduled AM sampling event of 2026 (AM-17). Redevelopment will be performed by surging the wells with potable water obtained from the Station, followed by pumping the wells dry using a portable submersible pump. This surge/purge process will be repeated multiple times until turbidity readings stabilize at acceptable levels. The wells will then be left to stabilize hydraulically and geochemically until the AM-17 sampling event.
- Procure the services of a drilling firm and abandon MW-23 and install replacement well MW-23A positioned as close as practical to the existing MW-23 location while avoiding surrounding buried gas lines and pending approval of the existing landowner as this is an off-site well.
- Procure the services of a drilling firm and install, develop, and perform aquifer characterization testing for new monitoring wells MW-21 and MW-22, with MW-22 pending access approval by an off-site landowner.
- Conduct additional sampling and analysis for molybdenum to evaluate whether the downward trend in molybdenum concentrations measured in MW-20 over the last four years is statistically significant and remains below the associated GWPS of 100 ppb.
- Continue development of the Arsenic Natural Attenuation Evaluation Work Plan, including a review of the historic groundwater monitoring data set for relationships

between key parameters affecting arsenic natural attenuation and arsenic concentrations in groundwater.

- Continue evaluating the candidate technologies identified in the ACM against the performance standards listed in 40 CFR 257.97(b) and the evaluation factors listed in 40 CFR 257.97(c).
- As required by 40 CFR 257.96(e), FE will discuss the results of the corrective measures assessment at least 30 days prior to the final selection of remedy, in a public meeting.
- Upon completion of all required SoR activities, FE will prepare a final report describing the selected remedy and how it, at a minimum, meets the performance standards listed in 40 CFR 257.97(b) and considers the evaluation factors listed in 40 CFR 257.97(c).
- As required by 40 CFR 257.97(d), FE will specify, as part of the selected arsenic remedy, a schedule(s) for implementing and completing remedial activities.

Should the final remedy for the CCR unit not be selected during Q1 or Q2 2026, then another Semi-Annual SoR Report will be prepared as required by 40 CFR 257.97(a).