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TECHNICAL MEMORANDUM

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File No. 129778-043

TO: Evergy Kansas Central, Inc.
Jared Morrison – Director, Water and Waste Programs

FROM: Haley & Aldrich, Inc.
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SUBJECT: Semi-Annual Remedy Selection Progress Report Pursuant to 40 CFR § 257.97(a)
Lawrence Energy Center
Area 2 Pond, Area 3 Pond, and Area 4 Pond (inactive)

Evergy Kansas Central, Inc. (Evergy) has implemented the U.S. Environmental Protection Agency Federal Coal Combustion Residuals (CCR) Rule (Code of Federal Regulations Title 40 [40 C.F.R.] §§257 and 261) effective October 19, 2015, along with subsequent revisions for the inactive CCR surface impoundments referred to as Area 2 Pond, Area 3 Pond, and Area 4 Pond (inactive units; collectively, inactive Ash Ponds) at the Lawrence Energy Center located in Lawrence, Kansas. Section 40 C.F.R. §257.97(a) of the CCR Rule requires that the owner or operator of a CCR management unit which has completed an Assessment of Corrective Measures (ACM) for groundwater to prepare a semi-annual report describing the progress in selecting and designing the remedy. This semi-annual remedy selection progress report is comprised of activities during the period of September 2021 through February 2022.

The ACM was initiated for the inactive Ash Ponds on October 12, 2020 in response to statistically significant levels of Appendix IV constituents (arsenic, lithium, and molybdenum) exceeding Groundwater Protection Standards (GWPS). Pursuant to 40 C.F.R. §257.96(a), a demonstration of need for a 60-day extension for the assessment of corrective measures was completed on January 11, 2021. The ACM Report was completed and placed in the facility operating record and posted to Evergy's CCR public website on March 11, 2021. Based on the results of the ACM, Evergy must, as soon as feasible in accordance with the CCR Rule, select a remedy that meets the standards listed in 40 C.F.R. §257.97(b). A summary of the progress in selecting a remedy in compliance with the CCR Rule is provided below.

SUMMARY OF ACTIONS

The following actions have been completed during this reporting period (September 2021 through February 2022):

- Continued nature and extent (N&E) investigation of the Appendix IV constituents (arsenic, lithium, and molybdenum) in exceedance of the CCR Unit's GWPS pursuant to 40 C.F.R. §257.95(g). This N&E investigation included the sampling in September 2021 for the off-site N&E wells that were installed in June 2021.
- Completed removal of interior and exterior berms, and completed regrading of and established vegetation on the surface in support of future positive drainage from and erosion control for the former ponds site.
- With the completion of closure by removal, continued evaluations of stated in-situ groundwater remedy option listed in the ACM. Also, the evaluations of monitored natural attenuation (MNA) as a viable groundwater treatment (in addition to source control through the closure by removal efforts) focused on Phase I and Phase II assessments described in the USEPA MNA technical guidance (USEPA, 2015¹) which aims to provide demonstrations that the groundwater plume is not expanding (Phase I) and that the mechanism and rate of the attenuation process is sufficient to reduce contaminant concentrations to required levels (Phase II) specific to arsenic and molybdenum. Haley & Aldrich continues to consider lines of evidence that provide support to geochemical processes associated with precipitation and attenuation of SSL constituents and has updated the ACM groundwater model in the ongoing enhanced evaluation of groundwater remedies considered in the ACM. Potential biogeochemical enhancement for arsenic and molybdenum attenuation is also being evaluated.

Anticipated activities for the upcoming semi-annual corrective measures selection progress period (March 2022 through September 2022) include the following (subject to change):

- Continue Assessment Monitoring: Collect groundwater samples in March 2022 and August 2022 from the CCR well network. The groundwater data will be evaluated for SSLs compared to GWPS. Any new constituent that exceeds GWPS will be considered in selection of the final remedy.
- Continued efforts to evaluate N&E:
 - Evaluate the groundwater analytical data collected during the March 2022 semi-annual sampling event that will include the N&E monitoring wells; and
 - Continue development of remaining geochemical evaluations.
- Continue evaluation of regulatory requirements listed under 40 C.F.R. §257.97 in support of selecting a remedy, including updated timelines and required demonstration elements.
- Continued evaluations of in-situ remediation and MNA as a potential remedy selection along with considerations of the other groundwater remedy options listed in the ACM. The

¹ USEPA, 2015. *Use of Monitored Natural Attenuation for Inorganic Contaminates in Groundwater at Superfund Sites*. Office of Solid Waste and Emergency Response. August.

evaluations of MNA as a groundwater treatment (in addition to source control through the closure by removal efforts) focused on Phase I and Phase II of the USEPA MNA technical guidance which provide demonstrations that the groundwater plume is not expanding (Phase I) and that the mechanism and rate of the attenuation process is sufficient to reduce contaminant concentrations to required levels (Phase II) specific to arsenic and molybdenum. Further evaluations for lithium are being completed. Evaluation of potential biogeochemical enhancement for arsenic and molybdenum attenuation, which may be used as a MNA enhancement measure, will continue.

- Phase I evaluations have demonstrated groundwater plumes exhibiting either stable or decreasing temporal concentration trends with the exception of one well (MW-39). Groundwater plumes are anticipated to recede in the near future due to recently completed source control measures at the Site. This evaluation will continue to be updated as new data are generated to monitor plume stability and trending based on upcoming semi-annual monitoring event results.
- Geochemical speciation and reaction path modelling of arsenic and molybdenum has been initiated and will be continued. Modelling results are being developed to be used as lines of evidence that may support geochemical natural attenuation mechanisms for these constituents. Further evaluation of potential enhancements to MNA options will be considered as well. For in-situ remediation options, further evaluation of geochemistry, reducing conditions, potential pilot study evaluations are being further considered.
- Continue to perform an engineering review of the potential ACM alternatives in pursuit of the corrective measures remedy selection. For these reviews, emphases will be placed on understanding and reacting to impacts of newly gathered analytical results, identifying, and researching applicability of emerging technologies and their impacts on the ACM and selection of remedy process.
- Progress towards selecting a remedy that meets the standards of 40 C.F.R. §257.97(b), including the development of a final report which also contains a schedule for implementing and completing remedial activities as required by 40 C.F.R. §257.97(d).
- Evaluation of the potential corrective action groundwater monitoring program meeting the requirements of 40 C.F.R. §257.98(a)(1).
- Provide a semi-annual progress report that summarizes Evergy's progress and status regarding a selection of remedy.