

Selection of Remedy **Semiannual Report August 2020**

Montana-Dakota Utilities Co. (MDU) operates the Lewis & Clark Station (Lewis & Clark), a coal-fired steam-electric generating plant, near Sidney, Montana (Site). Operation of Lewis & Clark produces coal combustion residuals (CCR) as a by-product. CCR management is subject to the requirements of 40 CFR 257 Subpart D, Standards for Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments (CCR Rule).

Background

The United States Environmental Protection Agency (EPA) published the CCR Rule on April 17, 2015, to implement national minimum criteria for existing and new CCR landfills and existing and new CCR surface impoundments and all lateral expansions. The CCR Rule included location restrictions; design and operating criteria; groundwater monitoring and corrective action requirements; closure and post-closure care requirements; and recordkeeping, notification, and internet posting requirements.

A groundwater monitoring program was implemented at Lewis & Clark in accordance with the CCR Rule. A statistically significant increase (SSI) of appendix III constituents was determined on January 15, 2018. Assessment monitoring was established as required by § 257.94(e)(3) on April 15, 2018.

On July 30, 2018, the EPA issued a revision (Phase I) to the CCR Rule that, among other things, established default groundwater protection standards (GWPS) for cobalt, lead, lithium, and molybdenum, which do not have published maximum contaminant levels (MCLs). The default GWPS for lithium under the revised CCR Rule is 40 micrograms per liter ($\mu\text{g/L}$).

In compliance with CCR Rule § 257.95 (d)(2), GWPS were established for all appendix IV constituents detected in groundwater. GWPS are defined as the highest of the following values: the applicable MCL; in the case of cobalt, lead, lithium and molybdenum, the default GWPS values established under the CCR Rule; or, for any constituent, a site-specific background concentration established from baseline sampling. Background levels of lithium at the site are demonstrated to be higher than the default GWPS. Thus, a site-specific GWPS has been adopted for lithium in accordance with § 257.95(h)(3). The initial assessment monitoring and resample monitoring events showed detections of lithium and selenium (Constituents of Potential Concern, COPC) at statistically significant concentrations above GWPS.

On August 29, 2019, MDU published an Assessment of Corrective Measures (ACM) providing an initial assessment of potential corrective measures. The ACM concluded, among other things, that “[f]urther evaluation of these potential remedies, including pilot testing, bench testing, site investigations and further studies, as appropriate, are necessary to verify if the technology is feasible and appropriate for this Site.”

In February 2020, MDU reported that following completion of the ACM, it engaged Barr Engineering (Barr) to better understand the source(s) of exceedances of the GWPS for selenium and lithium. This will enable MDU to select and design an appropriate remedy (if any) for those exceedances. Barr commenced studying groundwater transport modeling and mineralogy of upgradient and downgradient soils at the Site. By February 2020, Barr had completed one round of soil sampling and testing, with another round of sampling and testing expected to occur within the next few months.

In anticipation of the next stage of the selection of remedy process, MDU also identified several consulting firms that might assist MDU with such work. Upon completion of Barr's studies, discussed above and further below, MDU anticipates engaging in one or more Request for Proposal (RFP) processes to secure the necessary services to complete the selection and implementation of any selected remedy.

In compliance with the CCR Rule, this report describes the progress MDU has subsequently achieved in selecting and designing the appropriate remedy.

Progress in Selecting and Designing the Remedy

Since MDU's last selection of remedy semiannual report, Barr has completed another round of groundwater sampling and conducted additional soil borings at ten locations. Some of the test results were non-conclusive or showed non-detects. As a result, further sampling and testing is required to properly understand the statistical correlation between the leaching ratio of soils at the Site, in particular. Existing samples that were not previously tested have been submitted for testing. Additional groundwater sampling has also been performed, and another round of groundwater sampling is planned for October 2020. The results of these and any additional sampling/testing that becomes necessary will be discussed in future reports.