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Groundwater Remedy Selection and Design Semiannual Progress Report

Coal Combustion Residuals Rule Compliance

Facility
Healy Power Plant
2.5 Mile Healy Spur Road
Healy, Alaska

February 28, 2021

This semiannual progress report is the fifth report following completion of the *Corrective Measures Assessment Report* in August 2018 to comply with §257.97 of the coal combustion residuals (CCR) rule (CCR Rule). This report documents GVEA's progress towards selecting and designing the remedy for the groundwater impacts associated with the four CCR¹ units at the Healy Power Plant near Healy, Alaska. The CCR units include three unlined CCR surface impoundments (the Ash Pond, the Recirculating Pond and the Emergency Overflow Pond) and an Ash Drying Area defined as a CCR landfill under the CCR Rule. This report has been placed in GVEA's facility operations records to satisfy requirements under §257.105(h)(12) of the CCR Rule, and posted to GVEA's CCR Website² in accordance with §257.107(h)(9).

At the Healy Power Plant, groundwater concentrations of constituents listed in Appendix IV of the CCR Rule have been detected at statistically significant levels above the groundwater protection standard. Accordingly, corrective measures are to be assessed and taken to prevent further releases, to remediate any releases, and to restore affected areas to their original conditions in accordance with the CCR Rule. Under §257.101(b)(1)(ii) of the CCR Rule, GVEA is required to cease placement of CCR and non-CCR waste in the three ponds. GVEA plans to cease placing waste in the CCR units by April 11, 2021 and commence closure thereafter in accordance with the CCR Rule. Closure of the ponds will involve removing coal ash from within the waste boundary of each of the four CCR units and backfilling excavations, as outlined in the *Closure and Post-Closure Plan* amended in February 2021.

In August 2018, GVEA completed an assessment of corrective measures to evaluate potential remedies to address monitored groundwater impacts associated with the CCR units at the Healy Power Plant. As part of the assessment process, potential corrective measure alternatives were developed and screened against threshold criteria to determine whether corrective measures would meet the remedial objectives and whether they should be retained or eliminated from further consideration. As described in the 2018 *Corrective Measures Assessment Report* (CMAR), CCR source removal was incorporated in each alternative as a primary corrective measure since the ponds must close. Preliminary analyses of groundwater impacts at the site have suggested that infiltration of highly alkaline water from the ponds has led to elevated pH in down gradient groundwater, which in turn has increased mobilization of naturally-occurring metals from the aquifer matrix. Infiltrating pond water may also be contributing to concentrations of some metals in groundwater. Based on the current conceptual model it is anticipated that eliminating the alkaline recharge would lower pH levels in down gradient groundwater, reduce the mobilization of metals, and eventually eliminate

¹ CCR is defined under the CCR Rule as fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated from burning coal for the purpose of generating electricity by electric utilities and independent power producers.

² <https://www.gvea.com/ccr-rule-compliance>

exceedances of the groundwater protection standards (GWPS). If the preliminary conclusions are correct, closure of the CCR ponds will be necessary to eliminate the source of alkaline recharge to groundwater at the site and reduce contaminant concentrations. Closure process and source removal can begin when an alternative process is in place to manage CCR from Unit 1. GVEA is currently overseeing plant modifications to manage waste streams from Unit 1 and eliminate the need for the CCR units; the modifications are scheduled to be completed by April 11, 2021.

In 2020, GVEA conducted site investigations to further characterize the nature and extent of groundwater impacts at the site. Site investigations included installation and sampling of ten new monitoring wells to delineate the vertical extent and further define the lateral extent of impacts in the shallow aquifer, as well as soil sampling, aquifer testing, water level measurements, and water quality analyses. In addition, a geochemical modeling analysis was performed to examine the fate and transport of contaminants in groundwater affected by the CCR units and estimate timeframes for concentrations to decline below GWPS. Results of the investigations were used to update the conceptual site model. The results will guide GVEA in evaluating potential corrective measures technologies and assist in the selection and effective implementation of corrective action for groundwater. The 2020 site investigations are summarized in the *2020 Groundwater Monitoring and Corrective Action Report*.

Over the coming months GVEA will continue to engineer and construct alternative systems to fully bypass the CCR units, plan for and commence closure of the CCR units, and evaluate potential corrective measures to address constituents of concern in groundwater at the site. In 2021, GVEA will revise the CMAR to incorporate comments provided by EPA in 2020 and to reflect GVEA's current understanding of site conditions and regulatory requirements. Table 1 presents GVEA's planned tasks and anticipated completion dates to close the CCR units and comply with the CCR Rule.

Table 1. CCR Rule Compliance Actions and Anticipated Completion Dates

Compliance Action	Anticipated Completion Date
Revise Corrective Measures Assessment Report (§ 257.96)	March 31, 2021
Complete plant upgrades to CCR and non-CCR waste handling systems, cease receipt of waste and commence closure of CCR Units (§ 257.101)	April 11, 2021
Complete CCR removal from the Ash Drying Area (i.e., CCR landfill)	October 11, 2021
Complete CCR removal from CCR surface impoundments	November 2022
Next Steps for Remedy Selection	Anticipated Schedule
Hold public meeting to discuss Corrective Measures Assessment	October 2021
Select groundwater remedy and implement corrective action	As soon as feasible

Tasks and anticipated completion dates presented in Table 1 are tentative and subject to change. However, GVEA is committed to initiating closure of the CCR units no later than April 11, 2021 and removing CCR material from the CCR units promptly and within the timeframes required by the CCR Rule.