

## **Pawnee Station Inactive CCR Impoundments**

### **Demonstration for Extension of Time**

Consistent with 40 CFR § 257.102(f)(2) of the Coal Combustion Residuals (CCR) Rule, PSCo is providing this demonstration for extension of time to complete groundwater corrective actions.

Public Service Company of Colorado (PSCo), an Xcel Energy Company, owns and operates Pawnee Station, a coal-fired, steam turbine electric generating station. Between 1980 and 2005, PSCo operated two CCR impoundments on site, the Bottom Ash Storage Pond (BASP) and the Ash Water Recovery Pond (AWRP), for management of sluice water and temporary storage of bottom ash generated at Pawnee Station, prior to beneficial use or final disposal in an on-site landfill. Both ponds were constructed with a synthetic liner placed over two feet of compacted clay. Pawnee Station converted to dry handling of bottom ash, and these two CCR impoundments were removed from service in 2005. Both impoundments ceased receiving CCR prior to October 19, 2015, and therefore met the definition of Inactive CCR Surface Impoundments subject to Closure and Post-Closure Care requirements under §257.100. Pursuant to 40 CFR §257.100(b), inactive impoundments that completed closure prior to April 17, 2018 were exempt from all other requirements of the CCR Rule.

EPA adopted a Direct Final Rule effective October 4, 2016 (Extension Rule) that reinstated requirements for CCR Surface Impoundments that were defined as inactive and originally not subject to the full requirements of the CCR Rule if closed by April 17, 2018. The adoption of the Extension Rule effectively applied the same requirements as active impoundments that the removal and decontamination of the CCR unit are complete when constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring concentrations do not exceed the groundwater protection standard established pursuant to 257.95(h) for constituents listed in Appendix IV.

Pursuant to section 257.100(c)(1), PSCo prepared a Notification of Intent to initiate closure and placed it into the operating record, posted to Pawnee Station's CCR Website, and notified the state as required by 257.105, 257.106 and 257.107. Per section 257.102(c), PSCo has completed physical removal of the CCR and the synthetic liner for landfilling and decontaminated the secondary clay liner in the impoundments. Physical closure of the impoundments was completed in 2017 with oversight by a Qualified Professional Engineer. The physical closure activities and demonstration that constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed are documented in the August 2017 CCR Removal Certification report. Accordingly, all physical closure and removal were completed, and all decontamination also has been completed, except for completion of groundwater corrective actions.

While the physical closure, removal, and secondary clay liner decontamination was completed and many of the groundwater monitoring requirements have been performed, additional time is needed to complete groundwater corrective action. Pursuant to Section 257.100(e)(5) of the Extension Rule, PSCo installed and began sampling a groundwater monitoring system by April 17, 2019. Detection monitoring SSLs were identified in June 2019, assessment monitoring SSLs were identified in May 2020 and the ACM was completed in January 2021. PSCo intends that the remedy will be comprised of source removal (complete) and monitored natural attenuation (MNA) as an additional component. Groundwater monitoring requirements have been performed and documented through the following:

- Groundwater Monitoring System Certification,
- Determination of Statistically Significant Increases over Background per 257.93(h)(2),
- Groundwater Protection Standards and Determination of SSLs per 257.95(g),
- Assessment of Corrective Measures (ACM), and
- Annual Groundwater Monitoring and Corrective Action Annual Report and Semi-Annual Remedy Selection and Design Progress Reports.

Under section 257.102(c), CCR removal and decontamination of the CCR unit are complete “when constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring concentrations do not exceed the [applicable] groundwater protection standard.” Closure by removal was complete when all CCR and areas affected by releases from the CCR Unit were removed in 2017. Decontamination will be complete when groundwater monitoring concentrations no longer exceed the applicable groundwater protection standards, and the remedy will be complete when these standards have been met for a period of three consecutive years.

Implementation of the groundwater monitoring and corrective action requirements following the steps and timeframes in the CCR Rule requires multiple years to implement. Furthermore, if exceedances are identified and ACM is triggered, the time necessary to complete the ACM, select design, procure, construct, and implement a remedy and operate the remedy until groundwater protection standards are met can easily span ten years or more. Once groundwater standards are initially met, Section 257.98(c) requires that groundwater protection standards continue to be met for three consecutive years of sampling before the remedy is considered complete.

Physical closure and removal were completed within five years. Ongoing groundwater corrective action to meet groundwater protection standards will continue. As EPA has noted, “the existing timelines to complete closure by removal of CCR were not designed to also provide sufficient time to complete groundwater corrective action” within a five-year (or even seven year) period.<sup>1</sup>

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<sup>1</sup> See 85 Fed. Reg. 12456, 12469 (Mar 3, 2020), Proposed Rule: Hazardous and Solid Waste Management System: Disposal of CCR; A Holistic Approach to Closure Part B: Alternate Demonstration for Unlined Surface Impoundments; Implementation of Closure.

PSCo has completed physical closure and removal of the inactive impoundments at Pawnee Station and continues assessment monitoring. Additional field work is being conducted in 2023 to evaluate whether monitored natural attenuation, in combination with the previous source removal, is working as an effective remedy to meet the groundwater protection standard established pursuant to 257.95(h) for constituents listed in Appendix IV. Completion of the remedy (i.e., demonstration that decontamination of the groundwater is complete and has been met for three consecutive years) will take several additional years. Accordingly, PSCo is making this demonstration for additional time needed for groundwater corrective action to meet groundwater protection standards.

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*I certify under penalty of law that I have personally examined and am familiar with the information submitted in this demonstration and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

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