Memorandum

To: Nikou Hesari (PacifiCorp)
From: Dale Kolstad, PE and Jim Aiken (Barr Engineering)
Subject: Final Semi-Annual Progress Report for Selecting and Designing Remedy
Date: April 15, 2025

Project: Huntington Power Plant – CCR Landfill (Site)

c: Guy Partch, P.G. Barr Engineering

Background

A final remedy for the Site was selected as described in the Remedy Selection Report (RSR) on August 20, 2020 (WET, 2020) and followed by a Notification of Remedial Construction Completion Report (NRCCR) pursuant to 257.98, and placed in the operating record on July 26, 2023.

The current conceptual site model (CSM) indicates that groundwater flows from portions of the Site on either side of the upland drainage system that converges into a ravine known as the Duck Pond drainage (WET, 2019) Groundwater continues to flow along this drainage toward Huntington Creek. The CSM is predicated on groundwater flow patterns reflecting the topographic drainage system and groundwater moves within the permeable strata within the drainages. The lower portion of the drainage strata is composed of low permeability Mancos Shale bedrock.

The selected remedy is a groundwater capture system that combines a horizontal collection system (part of the previously installed Corrective Actions) with a pump and treat system using vertical wells. The horizontal collector drains by gravity to capture and direct coal combustion residuals (CCR)-affected groundwater at the downgradient edge (toe) of the CCR Landfill and directs flow into a lined ditch within the Duck Pond drainage. A series of vertical well points is located about two-thirds down the drainage and perpendicular to the direction of groundwater flow so that it intercepts CCR-affected groundwater that is not otherwise captured by the horizontal collection system.

Status

Because the final remedy has been selected, constructed, certified and is operating as intended, this is the final semi-annual remedy selection update required under the CCR *Final Rule*, § 257.97(a) for the current groundwater capture system. The current status of corrective action at the Site is defined as "remedy implementation" subject to the requirements of § 257.98. The current monitoring status of the Site is compliant with corrective action monitoring per the requirements of § 257.98 (2) and (3). These requirements are included in Attachment A.

Because the monitoring data have not yet demonstrated three consecutive years of compliance with Groundwater Protection Standards (GWPS) for all points within the plume as required by 257.98(c), monitoring is on-going and will likely continue for approximately 5 to 8 years as was certified in the NRCCR.

Now that the remedy has been fully implemented, future results of corrective action monitoring will be included in the Annual Groundwater and Correction Action Monitoring Report prepared for the facility at the end of each monitoring year and as required by 257.90(e)6(vi).

Summary of Actions Completed

Barr has relied upon information provided by WET, Haley and Aldrich, and PacifiCorp for this Summary of Actions Completed:

July 2023: NRCCR completed by WET (2023). The remedy was certified to address chromium, cobalt, lithium and selenium concentrations above GWPS. The selected remedy is a groundwater collection system placed under the landfill and extending down a topographical low area that under the currently established CSM is the primary drainageway for groundwater.

July 2023 – August 2024: The constructed remedy was in the commissioning phase of development and early operational phase with additional efforts made to calibrate meters to ensure proper operation of pumps and control systems.

October 2024: The groundwater capture system reported to be remaining fully operational and routing water that migrates through theDuck Pond drainage in accordance with the RSR and the NRCCR.

January 2025: PacifiCorp published the 2024 Annual Groundwater Monitoring and Corrective Action Report (AGMCAR) prepared by Haley and Aldrich. All downgradient plume wells were below the GWPS for chromium and cobalt during 2024. In addition, other key findings included:

- All downgradient and plume wells were below the GWPS for selenium of 0.0683 mg/L except NH-4W. However, values for selenium at upgradient well HLF-1O have been consistently above the GWPS for selenium. Recent data from HLF-1O has not yet been utilized as part of the upgradient monitoring network.
- Lithium concentrations in samples from downgradient plume well HLF-8N continue to be observed above the GWPS for lithium of 1.37 mg/L. All other wells were observed to be below the GWPS for lithium.
- A new Statistically Significant Level (SSL) for arsenic was detected during the Fall 2024 event that was above the GWPS for arsenic of 0.0121at NH-7W. This well is located in the alluvium of Huntington Creek downgradient from the capture system and where the groundwater from the Duck Pond drainage discharges to the alluvial valley for Huntington Creek. The concentrations of arsenic in wells immediately downgradient of the CCR Landfill have not previously shown elevated concentrations of arsenic.
- PacifiCorp conducted a competitive bidding process and selected Barr Engineering Co. (Barr) as the new Qualified Professional Engineer (QPE) firm for multiple facilities operating under the CCR Rule. Barr will perform tasks related to routine reporting, certification, and engineering previously completed on an interim basis by Haley and Aldrich and by WET prior to December of 2024.

A notice of arsenic and other parameters above the GWPS was placed in the operating record on or about February 12, 2025.

March 2025: – An inspection by PacifiCorp staff found that a portion of the capture system consisting of a perforated pipe and lined ditch that collects groundwater in a ditch within the Duck Pond drainage had

been clogged with sediment. Plant representatives removed the sediment to restore function of the drain. Barr is preparing a routine inspection and maintenance plan to be amended to the documentation for the remedy. The plan is scheduled to be completed in June 2025.

Because the fall 2024 SSL for arsenic was not previously included in the Assessment of Corrective Measures (ACM) or RSR report, Barr is initiating an updated ACM in accordance with 257.96 to verify that the constructed remedy is suitable for arsenic. The SSL was confirmed on December 20, 2024; the updated ACM for arsenic was initiated on March 20, 2025, and will be completed by June 20, 2025, unless an extension (of no more than 60 days) is necessary. An Alternative Source Demonstration (ASD) evaluation is also in progress concurrently for this parameter and will be incorporated into the updated ACM if appropriate.

For reference, PacifiCorp initiated the original ACM for the CCR Landfill on January 14, 2019, within 90 days of identification of an SSL as specified in § 257.96. Notifications pursuant to § 257.95(g) that one or more constituents in Appendix IV had been exceeded were posted initially on March 12, 2019, and a completed Corrective Measures Assessment report was posted to the operating record in May 2019. Subsequent semi-annual notices have been made, including on February 25, 2025, which includes the Fall 2024 SSL for arsenic.

March 2025: – The groundwater capture system remains operational and performing as intended.

PLANNED ACTIVITIES FOR 2025

Anticipated activities for the upcoming six months include the following:

- Continue to monitor groundwater capture system operation.
- Prepare inspection and maintenance plan for groundwater capture system.
- Prepare ACM update to consider whether arsenic is likely to be addressed by the remedy in accordance with § 257.97 and § 257.98.
- Evaluate CSM and identify whether HLF-1O or other upgradient wells should be used as upgradient data points to address lithium and selenium. In addition, the evaluation will consider whether arsenic at NH-7W concentrations observed at this well location will be addressed by the existing groundwater remedy and/or whether the concentrations may be related to the CCR Landfill.
- Complete groundwater capture system evaluation including maintenance and optimization (as needed) and in regard to concentrations at the wells noted above. If modifications to the capture system are necessary, updates will be included in the AGMCAR.
- Continue semi-annual groundwater monitoring.
- Prepare the AGMCAR; future updates regarding the groundwater capture system remedy will be provided in the AGMCAR.

References

WET 2019. Corrective Measures Assessment, CCR Landfill – Huntington Power Plant, Huntington, Utah, May 2019.
WET 2020. Remedy Selection Report, CCR Landfill – Huntington Power Plant, Huntington, Utah, August 2020.
WET 2023. Notification of Remedial Construction Completion, CCR Landfill - Huntington Power Plant

Huntington, Utah, July 2023

Attachment A

Rule References

1 § 257.97 Selection of remedy.

(a) Based on the results of the corrective measures assessment conducted under § 257.96, the owner or operator must, as soon as feasible, select a remedy that, at a minimum, meets the standards listed in paragraph (b) of this section. This requirement applies in addition to, not in place of, any applicable standards under the Occupational Safety and Health Act. The owner or operator must prepare a semiannual report describing the progress in selecting and designing the remedy. Upon selection of a remedy, the owner or operator must prepare a final report describing the selected remedy and how it meets the standards specified in paragraph (b) of this section. The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority that the remedy selected meets the requirements of this section. The report has been completed when it is placed in the operating record as required by § 257.105(h)(12).
(b) Remedies must:
(1) Be protective of human health and the environment;
(2) Attain the groundwater protection standard as specified pursuant to § 257.95(h);
(3) Control the source(s) of releases so as to reduce or eliminate, to the maximum extent feasible, further releases of constituents in appendix IV to this part into the environment;
(4) Remove from the environment as much of the contaminated material that was released from the CCR unit as is feasible, taking into account factors such as avoiding inappropriate disturbance of sensitive ecosystems;
(5) Comply with standards for management of wastes as specified in § 257.98(d).
(c) In selecting a remedy that meets the standards of paragraph (b) of this section, the owner or operator of the CCR unit shall consider the following evaluation factors:
(1) The long- and short-term effectiveness and protectiveness of the potential remedy(s), along with the degree of certainty that the remedy will prove successful based on consideration of the following:
(i) Magnitude of reduction of existing risks;
(ii) Magnitude of residual risks in terms of likelihood of further releases due to CCR remaining following implementation of a remedy;
(iii) The type and degree of long-term management required, including monitoring, operation, and maintenance;
(iv) Short-term risks that might be posed to the community or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and re-disposal of contaminant;
(v) Time until full protection is achieved;
(vi) Potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, re-disposal, or containment;
(vii) Long-term reliability of the engineering and institutional controls; and
(viii) Potential need for replacement of the remedy.
(2) The effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:
(i) The extent to which containment practices will reduce further releases; and
(ii) The extent to which treatment technologies may be used.
(3) The ease or difficulty of implementing a potential remedy(s) based on consideration of the following types of factors:
(i) Degree of difficulty associated with constructing the technology;
(ii) Expected operational reliability of the technologies;
(iii) Need to coordinate with and obtain necessary approvals and permits from other agencies;
(iv) Availability of necessary equipment and specialists; and

(v) Available capacity and location of needed treatment, storage, and disposal services.
(4) The degree to which community concerns are addressed by a potential remedy(s).
(d) The owner or operator must specify as part of the selected remedy a schedule(s) for implementing and completing remedial activities. Such a schedule must require the completion of remedial activities within a reasonable period of time taking into consideration the factors set forth in paragraphs (d)(1) through (6) of this section. The owner or operator of the CCR unit must consider the following factors in determining the schedule of remedial activities:
(1) Extent and nature of contamination, as determined by the characterization required under § 257.95(g);
(2) Reasonable probabilities of remedial technologies in achieving compliance with the groundwater protection standards established under § 257.95(h) and other objectives of the remedy;
(3) Availability of treatment or disposal capacity for CCR managed during implementation of the remedy;
(4) Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;
(5) Resource value of the aquifer including:
(i) Current and future uses;
(ii) Proximity and withdrawal rate of users;
(iii) Groundwater quantity and quality;
(iv) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to CCR constituents;
(v) The hydrogeologic characteristic of the facility and surrounding land; and
(vi) The availability of alternative water supplies; and
(6) Other relevant factors.
(e) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(h), the notification requirements specified in § 257.106(h), and the Internet requirements specified in § 257.107(h).
[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36454, July 30, 2018]

2 § 257.98 Implementation of the corrective action program.
(a) Within 90 days of selecting a remedy under § 257.97, the owner or operator must initiate remedial activities. Based on the schedule established under § 257.97(d) for implementation and completion of remedial activities the owner or operator must:
(1) Establish and implement a corrective action groundwater monitoring program that:
(i) At a minimum, meets the requirements of an assessment monitoring program under § 257.95;
(ii) Documents the effectiveness of the corrective action remedy; and
(iii) Demonstrates compliance with the groundwater protection standard pursuant to paragraph (c) of this section.
(2) Implement the corrective action remedy selected under § 257.97; and
(3) Take any interim measures necessary to reduce the contaminants leaching from the CCR unit, and/or potential exposures to human or ecological receptors. Interim measures must, to the greatest extent feasible, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to § 257.97. The following factors must be considered by an owner or operator in determining whether interim measures are necessary:
(i) Time required to develop and implement a final remedy;
(ii) Actual or potential exposure of nearby populations or environmental receptors to any of the constituents listed in appendix IV of this part;
(iii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;
(iv) Further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;
(v) Weather conditions that may cause any of the constituents listed in appendix IV to this part to migrate or be released;
(vi) Potential for exposure to any of the constituents listed in appendix IV to this part as a result of an accident or failure of a container or handling system; and
(vii) Other situations that may pose threats to human health and the environment.
(b) If an owner or operator of the CCR unit, determines, at any time, that compliance with the requirements of § 257.97(b) is not being achieved through the remedy selected, the owner or operator

must implement other methods or techniques that could feasibly achieve compliance with the requirements.
(c) Remedies selected pursuant to § 257.97 shall be considered complete when:
(1) The owner or operator of the CCR unit demonstrates compliance with the groundwater protection standards established under § 257.95(h) has been achieved at all points within the plume of contamination that lie beyond the groundwater monitoring well system established under § 257.91.
(2) Compliance with the groundwater protection standards established under § 257.95(h) has been achieved by demonstrating that concentrations of constituents listed in appendix IV to this part have not exceeded the groundwater protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in § 257.93(f) and (g).
(3) All actions required to complete the remedy have been satisfied.
(d) All CCR that are managed pursuant to a remedy required under § 257.97, or an interim measure required under paragraph (a)(3) of this section, shall be managed in a manner that complies with all applicable RCRA requirements.
(e) Upon completion of the remedy, the owner or operator must prepare a notification stating that the remedy has been completed. The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority attesting that the remedy has been completed in compliance with the requirements of paragraph (c) of this section. The report has been completed when it is placed in the operating record as required by § 257.105(h)(13).
(f) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(h), the notification requirements specified in § 257.106(h), and the internet requirements specified in § 257.107(h).
[80 FR 21468, Apr. 17, 2015, as amended at 83 FR 36454, July 30, 2018]