Remedy Selection Report

CCR Landfill - Huntington Power Plant
Huntington, Utah

August 2020

Prepared For:
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REMEDY SELECTION CERTIFICATION: HUNTINGTON POWER PLANT

The undersigned, hereby certify that the remedy selected to address releases from the CCR Landfill located at the Huntington Power Plant located west of Huntington, Utah, meets the requirements set forth in the Code of Federal Regulations, 40 CFR, Part 257, § 257.97 Selection of Remedy. The attached Remedy Selection Report demonstrates how the remedy will meet the specific criteria outlined in the *Final Rule*.

Dated this 5th day of August, 2020.

By: Steven M. Anderson

Its: Senior Engineer

Dated this 5th day of August, 2020.

By: _____

Its: Principal Hydrogeologist

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ACRONYMS

ATSDR	Agency for Toxic Substances and Disease Registry
CCR	Coal Combustion Residuals
COPC	Contaminant of Potential Concern
EPA	U.S. Environmental Protection Agency
FGD	Flue Gas Desulfurization
MCL	Maximum Concentration Limit
NIH	National Institute of Health
O&M	Operations and Maintenance
RCRA	Resource Conservation and Recovery Act
SAP	Sampling and Analysis Plan
SSI	Statistically Significant Increase
TDS	Total Dissolved Solids
UDEQ	Utah Department of Environmental Quality
WET	Water & Environmental Technologies

1.0 INTRODUCTION

This remedy selection report ("Report") was prepared for PacifiCorp, by Water and Environmental Technologies (WET), to comply with the requirements of the Coal Combustion Residuals (CCR) *CCR Rule*, § 257.97 *Selection of Remedy*. When triggered, the requirements of the § 257.97(a) require that the owner / operator of a CCR unit meet the following criteria:

- As soon as feasible, select a remedy;
- Upon selection of a remedy, prepare a final report describing the selected remedy and how it meets applicable standards;
- Obtain a certification from a qualified professional engineer that the selected remedy meets applicable requirements; and
- Place the remedy selection report in the operating record.

1.1 Selected Remedy

The potential remedies for the CCR Landfill at the Huntington Power Plant were assessed in the Corrective Measures Assessment completed in 2019 utilizing the criteria in § 257.96 *Assessment of Corrective Measures.* A public meeting was conducted July 23, 2019 to present the findings of the Nature and Extent investigation and Corrective Measures Assessment. Public comments were solicited during the meeting and over the ensuing 30 days. Additional site characterization was conducted in 2019 to address the public concerns and to provide supplemental information to aid in selecting a remedy. The remedy for the CCR Landfill at the Plant was selected based on the criteria and evaluation factors in 40 CFR § 257.97 - *Selection of Remedy*, as described in this report.

The primary elements of the selected remedy are: (1) maintain existing corrective measures that have proven effective, including (a) waste management practices that remove free liquids from all wastes prior to their placement in the landfill, (b) diversion and collection of stormwater, and (c) continued operation of the current horizontal groundwater collection system; (2) supplement the current horizontal groundwater collection system with a groundwater pump system that employs a vertical well network to capture and route impacted groundwater for re-use in the plant.

Operational changes were implemented at the Huntington plant as early as 2007 to reduce groundwater impacts. These changes included conditioning of FGD waste, prior to placement in the landfill, by removing all free liquids. The reduction in liquids eliminated leachate that had been forming from the liquid waste and had historically been the source of groundwater impacts. The landfill was also constructed with stormwater run-on controls placed upstream of the landfill to divert surface water which effectively eliminates surface water infiltration into the landfill. Stormwater, (rain) that falls inside the landfill footprint, was directed to the stormwater pond east of the landfill. The 23-acre stormwater pond is lined with 18 inches of impermeable clay and is designed to retain a 6-hour, 100-year storm water equivalent, or 1.8 inches (UDEQ, 2015). There is no discharge from the stormwater pond.

The existing groundwater capture system has proven effective in reducing groundwater impacts and will remain in place. In addition, a groundwater pump system will be employed by installing vertical wells in the Duck Pond Drainage alluvium upgradient of the Huntington Creek Valley alluvium, near monitoring well HDP-2. Aquifer testing completed between October 2019 and January 2020 utilized an existing well (HLF-8N) and four new wells installed in 2019 (HDP-4, HDP-5, HDP-6 and HDP-7).

The four new wells were installed along a transect perpendicular to the Duck Pond Drainage. They produced sufficient water to support groundwater capture. The pump system will extract impacted groundwater by pumping from the new wells. The captured water will be pumped via a closed piping system for re-use in Plant operations. There will be no discharge of impacted water. The new pump system both removes impacted groundwater from the subsurface and prevents migration of impacted water to the downgradient alluvium, eliminating potential exposures to downgradient receptors on the facility Research Farm and at offsite locations including Huntington Creek.

As explained in this Report, the selected remedy meets the standards set forth in 40 CFR § 257.97 because it is protective of human health and the environment, will meet applicable groundwater standards, and removes impacted water from the environment, eliminating migration to downgradient alluvium.

The following sections summarize the findings of the Nature and Extent Investigation, the Corrective Measures Assessment, and the general and specific requirements for the selection of remedy found in 40 CFR §§ 257.97(b) - 257.97(d).

2.0 NATURE & EXTENT OF CONTAMINATION

The nature and extent of contamination resulting from the CCR Landfill is detailed in the Nature and Extent Report (PacifiCorp, 2020), which is available in the Huntington Power Plant operating record. Following is a summary of the nature and extent of groundwater impacts:

- The groundwater flow direction beneath the CCR Landfill is southwest to northeast. Releases from the landfill have generally migrated along this flow path, with constituents released at the landfill migrating to the northeast along the more permeable alluvial contact (Figure 1).
- The initial nature and extent investigation was conducted at the Huntington Power Plant between fall 2018 and spring 2019. The results revealed SSIs for cobalt, chromium, lithium, and selenium confined to PacifiCorp property (Figure 2). As per Section 257.95(g)(1), the nature and extent investigation included sampling of Research Farm wells downgradient of the Duck Pond Drainage starting in 2018, including: NH-1W, NH-2W, NH-4W, NH-5W, and NH-10W. These wells provide spatial coverage of the alluvial aquifer from the bottom of the Duck Pond Drainage, to the southeastern facility boundary.

- The results of the 2018 Research Farm well sampling effort revealed selenium in well NH-4W exceeded the groundwater protection standard. The remaining Farm wells are cross or downgradient of NH-4W. All Appendix IV constituents in these wells were below groundwater protection standards, confirming impacts downgradient of the CCR Landfill are confined to PacifiCorp property.
- Additional groundwater monitoring completed in the spring of 2019 revealed SSIs for cobalt, lithium, and selenium (Figure 3), while the fall 2019 event exhibited SSIs for fluoride, lithium, and selenium (Figure 4). All downgradient impacts were confined to PacifiCorp property in 2019.

3.0 CORRECTIVE MEASURES ASSESSMENT

The Corrective Measures Assessment (PacifiCorp, 2019) report was prepared for PacifiCorp by Water and Environmental Technologies (WET), to comply with the requirements of the CCR Rule, 40 CFR § 257.96 - *Assessment of Corrective Measures*. The report is available on the company's website. The following is a summary of the findings of the report. Table 1 provides a summary of the alternatives screening completed as part of the Corrective Measures Assessment. As required by CCR Rule, various potential corrective measures for the CCR Landfill were evaluated. They were screened based on several factors including the specific elements defined in § 257.96(c)(1):

- Performance
- Reliability
- Ease of Implementation
- Potential Safety Impacts
- Cross-Media Impacts
- Exposure Control to Residual Contamination

The corrective measures that were evaluated are listed below.

1. Closure by Removal
2. Pump & Treat
3. Impermeable Barrier with Pumpback
4. Reactive Permeable Barrier
5. In Situ Injection of Reactive Compound
6. Phyto-Remediation
7. Electro-Kinetics

Possible corrective measures included the following options to address residual groundwater impacts: extracting groundwater for re-use; extracting groundwater with direct discharge or treatment; or treating impacted water in-situ.

The Corrective Measures Assessment identified two potential alternatives:

1. Alternative 1: Maintain existing Corrective Measures

2. Alternative 2: Maintain Existing Corrective Measures with a Pump and Treat Groundwater Treatment System

Supplemental monitoring completed in 2019 and aquifer testing completed in 2020, indicate Alternative 2 is the preferred alternative. As noted, the current corrective measures consist of improved waste management practices that eliminate free liquids from wastes prior to their placement in the landfill, and a horizontal groundwater capture system that has operated in the Duck Pond Drainage since 2008.

The Pump and Treat Groundwater Treatment System that will be added includes a cutoff/collection system and the installation of pumps and piping in new vertical capture wells HDP-4, HDP-5, HDP-6 and HDP-7. The system will transport groundwater captured in the Duck Pond drainage to active plant operations for reuse. Assessment of adding the new groundwater capture system to the existing corrective measures showed that the combined systems provide the best remedy option to address groundwater impacts because they meet long-term performance objectives and reliability and implementability criteria, eliminate potential cross-media impacts, offer the highest degree of source control, and eliminate the potential for exposure to contaminants of potential concern.

The reduction of impacts to groundwater relies on both Landfill seepage capture systems, reuse of the collected water in Plant operations and natural processes to decrease or attenuate concentrations of contaminants in soil and groundwater downgradient of the Duck Pond Drainage.

The results of the Corrective Measures Assessment were discussed in a public meeting in Huntington, Utah on July 23, 2019. Though not required, PacifiCorp offered interested parties 30 days to submit written comments on Corrective Measures Assessment. HEAL Utah, Utah Clean Energy, and the Sierra Club submitted written comments. PacifiCorp evaluated the public comments in the Corrective Measures Assessment as part of the preparation of this Report (Section 5.4).

Table 1. Remedial Alternatives Screening

Regulatory Reference	257.96 (c) (1)						257.96 (c) (2)		257.96 (c) (3)
Corrective Measure – Alternative:	**Performance**	**Reliability**	**Implementation**	**Potential impacts of Remedy**	**Safety Impacts**	**Control of exposure**	**Time required to begin**	**Time required to complete**	**State & Local Permits, Public Health Requirements**
Closure by Removal	+	+	+	+	=	=	+	+	+
Pump & Treat	+	+	+	+	+	+	+	+	=
Impermeable Barrier with Pumpback	+	-	-	-	-	-	-	=	-
Reactive Permeable Barrier	-	-	-	-	-	-	-	-	-
In Situ Injection of Reactive Compound	-	-	-	=	-	+	-	-	
Phyto-Remediation	NV								
Electro-Kinetics	-	-	-	=	-	-	-	-	-

+ Positive
- Negative
= Neutral
NV – Not Viable

4.0 SELECTION OF REMEDY-GENERAL REQUIREMENTS- § 257.97(b)

40 CFR § 257.97(b) of the CCR Rule, specifies that remedies must:

(1) Be protective of human health and the environment,
(2) Attain groundwater protection standards,
(3) Control sources to prevent future releases,
(4) Remove as much of the contaminated material that was released as feasible, and
(5) Ensure waste management complies with RCRA requirements.

The following sections describe the manner in which the selected remedy satisfies each of the five criteria.

4.1 Protection of Human Health & Environment

The remedy selected protects human health and the environment by maintaining current waste management and storm water run-on control practices and continued operation of the current seepage/impacted groundwater collection system immediately downgradient of the CCR Landfill which have proven safe and effective over time. In addition a new groundwater collection/cutoff system will be installed to enhance the current remedy to achieve attainment with groundwater protection standards, in accordance with 40 CFR Part 257. As explained in more detail below, groundwater data shows drinking water supplies in the area remain in compliance with the Safe Drinking Water Act. The nearest surface water, the Huntington River, has not been impacted by the CCR Landfill, and ecological risks of the selected remedy are minimal. Finally, health and safety plans and best management practices associated with the selected remedy will prevent and reduce risks associated with worker exposure. Any potential for exposure resulting from implementing the remedy will be managed in accordance with the applicable worker safety standards, which constitute standard practice at PacifiCorp facilities. Thus there is minimal probability of adverse effects on health or the environment as a result of implementation of the remedy.

Appendix IV SSI constituents do not pose a risk to human health or the environment unless a complete exposure pathway is present, whereby human or ecological receptors regularly come into contact with the elevated concentrations. The only potentially complete exposure routes for groundwater impacted by release from the CCR Landfill include the following:

1. Dermal contact and ingestion of groundwater from impacted water supply wells.
2. Release of impacted waters to the Huntington River.
3. Dermal contact and ingestion of impacted waters during environmental sampling.

Table 2 provides a summary of potential human and ecological exposure pathways and denotes complete and incomplete pathways.

Table 2. Conceptual Site Model

Receptor:	Ingestion:	Dermal:	Inhalation:
Plant Worker		✓	
Offsite Rancher	✓	✓	
Offsite Recreationist	✓	✓	
Cattle/Stock	✓	✓	
Wildlife	✓		
Fish/Biota	✓	✓	
✓Potentially Complete Exposure Pathway			

The constituents found in groundwater at the Huntington Power Plant include those Appendix IV constituents that have SSIs over groundwater protection standards as determined under 40 CFR § 257.95(d)(2). The constituents included chromium, cobalt, lithium, and selenium in the 2018 assessment monitoring and cobalt, lithium, and selenium during the first sampling event of 2019. SSI's are generally slightly over background and/or the EPA maximum contaminant limit (MCL), and impacts are confined within the plant facility. Potential human health effects associated with these constituents are as follows (per ATSDR 2019):

- Chromium: lung irritation and cancer, intestinal tract irritation and cancer.
- Cobalt: lung irritation, fetus, cancer.
- Fluoride: bone rigidity, joint inflammation
- Lithium: none.
- Selenium: skin irritation, nerves.

The risk of these effects is low to negligible because the pathways for these constituents are either incomplete or can easily be interrupted.

4.1.1 Human Exposure

Based on the reasonably anticipated complete exposure pathways in Table 2, the following sections examine the potential for exposure through those pathways as well as the likelihood that such exposure or contact with these constituents could occur.

4.1.1.1 Water Supply Wells

No potable water wells exist within the Duck Pond Drainage or within the Plant boundary downgradient of the drainage. Monitoring indicates that impacted groundwater is confined within the facility boundary. Thus, ingestion of impacted groundwater is not a complete exposure route for offsite receptors. A prohibition on current or future use of groundwater has been instituted at the facility through a restrictive covenant put into place in 2018, eliminating onsite ingestion exposure through water supply wells.

4.1.1.2 Huntington Creek

Groundwater monitoring indicates that CCR-affected groundwater has not impacted Huntington Creek, and, therefore, humans and wildlife are not exposed to constituents via surface waters from the creek. Concentrations of Appendix IV constituents having SSIs above groundwater protection standards are relatively low where SSIs are observed and decrease as groundwater migrates downgradient. Results from the nature and extent investigation indicate impacted groundwater is contained within the Plant boundary, between Research Farm wells NH-4W and NH-2W. Based on these findings, current site use, and facility water management practices, risks to human health through Huntington Creek at the HPP are negligible and are fully manageable with current interim remedies, until remedy optimization can be fully implemented.

4.1.1.3 Worker Contact

Worker safety is a priority for PacifiCorp, and all available preventative measures will be implemented to manage work safely. Potential worker contact with impacted groundwater is currently limited to environmental sampling. Safety precautions, such as required training and personal protective equipment ("PPE"), are standard practice and are already in place to limit dermal exposure of environmental samplers (gloves, safety glasses). These practices reduce exposure to impacted groundwater. The planned remedy will include a health and safety plan and best management practices to ensure exposure continues to be minimized through staff training, proper waste and impacted groundwater management, and use of appropriate equipment. Proper planning is already underway and is a standard requirement for all PacifiCorp projects involving contaminants. These practices will reduce potential exposures to safe levels throughout sampling, construction, and closure.

4.1.2 Ecological Exposure

The risk of ecological exposure to wildlife, cattle/stock or offsite ranchers is low because release of the COPCs is to groundwater below ground surface and is contained within the controlled-access Plant site. Completion of the remedy will further mitigate potential exposure. The only constituent detected in the groundwater exceeding ecological standards is cadmium, and background cadmium concentrations for the Plant also exceed the published value.

Based on the conceptual site model, wildlife and aquatic species would only be exposed to COPCs through their release to surface or groundwater. The U.S. Environmental Protection Agency (EPA) National Recommended Aquatic Life listing contains the most up to date criteria for water quality pertaining to aquatic life. EPA defines aquatic life criteria for toxic chemicals as "*the highest concentration of specific pollutants or parameters in water that are not expected to pose a significant risk to the majority of species in a given environment...*".

Based on this definition, the following COPCs for ecological exposure and associated ecological impacts have been identified.

- Chromium: lung irritation and cancer, intestinal tract irritation and cancer
- Cobalt: lung irritation, birth defects, cancer
- Lithium: None
- Selenium: skin irritation, nervous system

There are no acute or chronic values assigned for total recoverable chromium. Measured values for chromium (III) exceed chronic values, and measured values for chromium (VI) exceed chronic and acute values. However, chromium impacted groundwater does not extend beyond the Duck Pond drainage and so risks to ecological receptors are negligible. There are no freshwater standards assigned for cobalt, lithium, or selenium. As a result, overall ecological risks relating to the Huntington CCR Landfill are considered negligible.

4.2 Attainment of Groundwater Protection Standards

Existing corrective measures were estimated to achieve attainment with groundwater protection standards within 9 years, without a vertical pump/cutoff system. If attainment levels were reached as expected without the new pump system, the estimated time to full attainment was 12 years, assuming three consecutive years of compliant results once the groundwater protection standards are achieved. The addition of the vertical well capture, pump and treat system is expected to decrease the time to full attainment by 5 years, meaning full attainment would be achieved in 8 years, assuming three consecutive years results below groundwater protection standards. The capture system will be designed to ensure groundwater protection standards are achieved over the near-term and will provide full protection to downgradient groundwater during the capture period.

4.3 Source Control and Removal of Contaminated Material

The selected remedy to address groundwater impacts at the Huntington Power Plant has eliminated releases from the landfill and will contain the extent of impacted groundwater and in addition will remove impacted groundwater to enhance attainment. The selected remedy involves maintaining current corrective measures (which include enhanced waste management practices that remove free-liquids from waste prior to disposal and a horizontal groundwater capture system), coupled with a new vertical well collection and pump system downgradient of the landfill. The current waste management practices eliminates the quantity of free liquid deposited into and generated by the landfill. The landfill seepage capture systems intercepts impacted seepage for reuse in Plant operations to both prevent and contain any possible further release. Available groundwater monitoring data indicates impacted groundwater has not migrated offsite and is already contained upgradient of monitoring wells at the Plant boundary. Based on these findings, the existing remedy dramatically reduced any release from the source and provided sufficient source control to prevent offsite impacts. By combining the current remedy with the new vertical capture system, any further migration is prevented, and the quality

of groundwater will continue to improve over time as the constituents naturally attenuate until attainment has been reached.

4.4 Waste Management

Current waste management practices at the CCR Landfill comply with the provisions of the Resource Conservation and Recovery Act (RCRA) and all other applicable Utah and Federal standards. Because no additional waste removal practices are necessary to implement the remedy, no new requirements are necessary to ensure the selected remedy complies with RCRA.

5.0 SELECTION OF REMEDY-EVALUATION FACTORS - § 257.97(c)

The remedy selection process included consideration of the evaluation factors set forth in 40 CFR § 257.97(c). The following sections explain how the selected remedy will meet these criteria.

5.1 Short and Long-Term Effectiveness and Protectiveness

The remedy includes waste management practices that eliminate free-liquids, the existing horizontal capture system, and installation of the vertical well capture system that will provide a high degree of long and short-term effectiveness and protectiveness at the CCR Landfill. The selected remedy will greatly reduce or eliminate seepage from the landfill and prevent possible migration outside of the Duck Pond Drainage, thus reducing or eliminating further releases, while existing constituents attenuate in the downgradient alluvial aquifer.

The remedy selected is expected to be successful because available data suggests the current remedy is providing sufficient protectiveness to contain leachate / impacted groundwater and any potential migration upgradient of the facility boundary. Installation of new vertical wells coupled with recent pump testing indicate groundwater capture at the base of the Duck Pond Drainage will reduce existing contamination and promote quicker attenuation of impacted groundwater resulting from past releases. With routine maintenance of the capture systems to address scaling and related parts wear and tear, the remedy can be maintained for the life of the landfill operation and beyond, while providing long-term protectiveness to the environment.

5.2 Degree of Certainty of Success

Adding the vertical well capture system to continuation of current corrective measures offers the highest degree of certainty of success of all the alternatives considered at the Huntington CCR Landfill. Retaining existing waste in-place while addressing past and current groundwater impacts will reduce the likelihood of large scale releases to air or surface water by maintaining the waste placement and following capping protocol. This alternative also provides the most expeditious means of controlling the source by capturing impacted groundwater resulting from contact with the landfill and preventing downgradient migration of impacted groundwater to the alluvial aquifer in the valley.

5.2.1 Risk Reduction

As noted in Section 4.1, risks to exposure from groundwater at the Huntington Power Plant are low to negligible given current water management practices and uses at the Plant. Engineering of a closed piping system that transports captured groundwater to the Plant will eliminate potential exposures to human or ecological receptors. Safe work practices and other health and safety planning and training associated with the installation of the pump and treat system will minimize risks to workers performing construction of the groundwater collection system. Workers will be properly trained and outfitted with all necessary PPE to ensure exposures are minimized. Best engineering and management practices (e.g. stormwater controls) will be incorporated into the engineering design to minimize the likelihood of a release or exposure occurring during the construction of the collection system.

5.2.2 Residual Risks

The CCR Rule requires that remedy selection consider the potential for residual exposure of humans and ecological receptors to wastes remaining after active remediation. The selected remedy was chosen for its ability to reduce residual contamination, and as a result residual risk is also reduced after active remediation at the Huntington Power Plant. The primary role of the selected remedy is to reduce contamination on the front end by eliminating water in wastes before disposal. However, the remedy goes even further by also capturing any potential remaining contaminants below the landfill. Active capture of groundwater in the Duck Pond Drainage will remove even these unlikely potential sources of impacts to groundwater in the valley alluvium, thereby eliminating even improbable future exposures to human or ecological receptors. As residual impacts that already exist in the alluvium attenuate due to the reductions in loading in groundwater, any current risks to exposure will be further reduced over time.

5.2.3 Long-Term Monitoring and O&M

In accordance with the *CCR Rule*, long term groundwater monitoring will be completed semi-annually throughout the life of the landfill and for 30 additional years of post-closure care. During active remediation, the groundwater capture systems will be inspected annually and pumps, piping, and related infrastructure will be maintained.

5.2.4 Short-Term Risks During Remedy Implementation

The CCR Rule requires that remedy selection consider potential short-term threats to human health and the environment associated with implementation of the remedy. The remedy will include bringing power into the Duck Pond Drainage, installing pumps and pump regulators in vertical wells, and connecting vertical wells to a closed piping network that transports captured groundwater to the Plant. The short-term risks include exposure to impacted groundwater during testing of the capture system. Risks to the general public are minimal because all activities will take place on PacifiCorp property. Work-related risks will be addressed and mitigated utilizing a detailed health and safety plan addressing each potential exposure and identified risk.

5.2.5 Time to Full Protection

Existing corrective measures were estimated to achieve attainment with groundwater protection standards within 9 years, without a vertical pump/cutoff system. If attainment levels were reached as expected without the new pump system, the estimated time to full attainment was 12 years, assuming three consecutive years of compliant results once the groundwater protection standards are achieved. The addition of the vertical well capture, pump and treat system is expected to decrease the time to full attainment by 5 years, meaning full attainment would be achieved in 8 years, assuming three consecutive years results below groundwater protection standards. The capture system will be designed to ensure groundwater protection standards are achieved over the near-term and will provide full protection to downgradient groundwater during the capture period.

5.2.6 Potential for Exposure of Humans and Environment

Potential risks to human health and the environment are minimal and are detailed in Section 4.1 of this report. Because the affected groundwater is below the ground surface and contained on the facility site, risks to humans and the environment are minimized. The pump and treat system will be a closed pump and piping network that transports captured groundwater to Plant operations. Worker contact with contaminated water during system testing and maintenance presents the highest potential risk for exposure. These exposures will be minimized by proper health and safety planning, training of personnel in safe work practices, and the use of personal protective equipment (i.e. safety glasses, gloves).

5.2.7 Long-Term Reliability

Existing corrective measures coupled with a vertical collection system will meet all reliability requirements. Multiple historical landfills have been operated and closed with no long-term groundwater impacts. With the proper maintenance procedures for the groundwater capture systems, waste and impacted groundwater can be controlled while eliminating impacts to downgradient groundwater in the future. Following landfill closure and installation of the final cap, infiltration of water into the landfill will be fully eliminated. Institutional controls were implemented at the Plant in 2018, which placed a prohibition on the use of groundwater as a potable water source. Other institutional controls will be implemented after closure and will include a prohibition on construction on the landfill cap and any intrusive activities such as drilling or excavation through the cap.

5.2.8 Need for Remedy Replacement

Elements of the groundwater capture systems will require repair or replacement from time to time, due to the high concentrations of dissolved solids found in the captured water and the generally caustic nature of the captured liquids. Such maintenance and repair may range from periodic acid flushing of piping systems to remove scale, to replacement of piping and/or pumps due to failure. Regularly scheduled inspections and maintenance will minimize the amount of

downtime the system will experience and will help to minimize the potential for extended periods when groundwater could migrate beyond the Duck Pond Drainage without capture. This schedule will also prevent the need for a full system replacement that could require months to install and bring online. In the unlikely event that a complete system replacement is ever deemed necessary, the new system will be designed and installed while the existing system is operating and implemented in parallel with the deactivation of the current system, to ensure seepage capture is always occurring and system interruption is minimal.

5.3 Source Control Effectiveness

Existing corrective measures have already proven effective in controlling the source of impacted groundwater within the Plant boundary. Adding the vertical well collection system in conjunction with existing corrective measures will provide an even more effective method of source control by preventing migration of impacted groundwater out of the Duck Pond Drainage into the valley alluvium. Maintaining the existing corrective measures coupled with the vertical well pump and treat system will ensure groundwater attainment can be reached in a reasonable timeframe.

5.4 Implementability

All elements of the remedy are fully implementable. Current waste management practices have already been fully incorporated into Plant operating procedures and are followed as part of normal operations by Plant staff. The existing horizontal groundwater capture system was installed and has been in operation since 2008, indicating that both the capacity and location for the proposed additional services are available. PacifiCorp will use its expertise to bring power to the new vertical well network. The components needed to install the necessary pumps, regulators, and piping are readily available, and PacifiCorp and regional contractors have the in-house capabilities to design and construct them. The additional well capture system is a longstanding and proven method of providing groundwater control and capture throughout the industry, including similar systems operated by PacifiCorp at several of its facilities. While requiring O&M to ensure the systems are optimized, these elements can be built into regular operational schedules and will not disrupt Plant operations.

5.5 Addresses Community Concerns

On July 23, 2019, PacifiCorp held a public meeting in Castle Dale, Utah, to present and discuss the current site conditions and both potential and preferred remedial actions at the Plant. The meeting was held as part of the CCR Rule requirements to gather public input and incorporate that information into the final remedy selection. Though not required, PacifiCorp offered interested parties the opportunity to submit written comments on remedial actions. HEAL Utah, Earthjustice, Utah Clean Energy, and the Sierra Club submitted written comments.

The joint comment letter is attached. The comments consisted of several general statements/concerns:

1. The commenters requested an extension of the comment period for the Corrective Measures Assessments.

2. The comment letter stated that some gaps in information were identified.

In response, PacifiCorp conducted additional site characterization to address the public concerns and used the supplemental information to aid in selecting the remedy. As outlined in this report, the selected remedy solicited and responded to the public concerns and meets the criteria and evaluation factors in 40 CFR § 257.97.

6.0 SCHEDULE

A project schedule for the implementation of the remedy has been developed that considers the factors outlined in 40 CFR § 257.97(d), including the nature and extent of the release, the reasonable probability of the remedy achieving compliance, the availability of disposal capacity and treatment, potential risks, and the resource value of the aquifer.

Table 3 provides the planned schedule for remedy implementation. It reflects the proactive interim measures taken at the CCR Landfill including removal of free-liquids from the waste stream in 2007 and installation of a groundwater collection system which has been fully operational since 2008.

Aquifer testing completed in 2020, indicates implementation of a pump and treat groundwater capture system will be an effective means of capturing impacted groundwater. The system will include a groundwater cutoff/collection system and the installation of pumps and piping in new vertical capture wells HDP-4, HDP-5, HDP-6 and HDP-7. The system will transport groundwater captured in the Duck Pond drainage to active plant operations for reuse.

6.1 Aquifer Resource Value

The remedy schedule is being implemented as soon as feasible and will not cause changes or impacts to the aquifer resource value. The landfill at the Huntington Power Plant is underlain by the Mancos shale, which is a natural source of salts, boron, selenium and trace metals (ESL, 2011). As a result of this natural degradation, groundwater quality is generally poor independent of any impacts from the CCR landfill, with many monitoring wells exhibiting TDS values in excess of 10,000 mg/l characteristic of Class IV Groundwater also referred to as Saline Groundwater.

Table 3. Huntington Power Plant - Remediation Schedule

Calendar Year	2019				2020				2021				2022				2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Remedial Activity Description	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4																			
State Directed Corrective Action[1]	Ongoing Monitoring & Maintenance →																																		
Site Characterization[2]																																			
Corrective Measures Assessment																																			
Public Meeting																																			
Remedy screening																																			
Remedy Selectiom/Selected																																			
Remedial Pilot Study																																			
Remedial Design																																			
State Permitting																																			
Contractor Selection & Award																																			
Remedial Implementation																																			
Performance Monitoring																																			
Remedial modifications/upgrades																																			
Compliance Monitoring																																			
Routine Monitoring																																			→
Operations/Monitoring/Maintenance																																			→

1 - Leachate capture and waste management changes implemented in 2006

2 - Site Characterization began in 2003

Water quality degrades in the downgradient direction due to dissolution of shale constituents and varies widely from monitoring well to monitoring well due to varying consolidation of the shale (UDEQ 2017).

The Mancos has a relatively low permeability as indicated by the aquifer testing results shown in Table 4. Hydraulic conductivities in the shale vary from 0.04 ft/day to 0.53 ft/day and most wells provide limited, low quality water. Many monitoring wells at this site do not provide enough water to allow for purging before environmental sampling. Because of the limited quantity and poor quality of the groundwater in the Mancos shale, current and future use of even the non-impacted groundwater is very limited without treatment.

Table 4. Huntington Power Plant – Slug Test Results

	HDP-2	HLF-3ND	HLF-4N	HLF-8N
Calculated Hydraulic Conductivity	2.65E-04	2.38E-05	1.26E-04	1.34E-04
	2.86E-04		1.04E-04	2.48E-04
	1.93E-04	5.92E-06	1.40E-04	1.76E-04
# of Measurements:	3	2	3	3
Mean Conductivity (cm/sec):	2.48E-04	1.48E-05	1.23E-04	1.86E-04
Mean Conductivity (ft/day):	0.70	0.04	0.35	0.53
Slug testing was conducted on a facility-wide subset of wells to characterize site-wide hydrogeologic characteristics. Not all of the slug test wells appear on every site-specific map.				

Groundwater quality in the alluvial aquifer along Huntington Creek is comparatively higher quality than the Mancos Shale water and is generally classified as Class III-Limited Use Water. As observed by Utah regulators, "Groundwater under the Research Farm is of limited extent and generally poor quality at least partly due to natural conditions, except in wells adjacent to Huntington Creek" (UDWQ 2017).

At this arid, high desert site, alternate water supplies are scarce, as evidenced by the lack of points of diversion on Figure 5. This map shows all points of diversion within 5 miles of the Plant on a geologic map. The map indicates very few points of diversion within the Mancos Shale, because of its limited quantity and poor quality. Most points of diversion are located within the Quaternary alluvium along Huntington Creek or in the North Horn Formation. Many of the purple "Underground" diversions near the facility boundary, are monitoring wells for the Plant site.

6.2 Potential Impacts to Wildlife, Crops or Structures

Little or no impact on wildlife is expected from captured water, as it is piped for re-use in Plant processes. As a result, wildlife exposure pathways are incomplete.

The results of nature and extent sampling completed in 2019 indicate no offsite impacts relating to releases from the CCR landfill. As a result, no complete pathway exists for exposure to downgradient receptors, including livestock or crops on adjacent lands.

No impacts to facility structures have been observed due to the trace levels of these constituents found in groundwater at the Plant. Based on these findings, no long-term damage to Plant operations or structures are expected to occur in the future.

6.3 Other relevant factors

No other relevant factors were identified that would impact the selected schedule to implement the remedy.

7.0 RECORDKEEPING, NOTIFICATION, AND INTERNET REQUIREMENTS

PacifiCorp has systems and standards in place to comply with the recordkeeping, notification, and internet requirements of the CCR Rule. PacifiCorp has and continues to maintain and update its operating record as required by 40 CFR 257.105(h), 257.106(h), and 257.107(h).

8.0 REFERENCES

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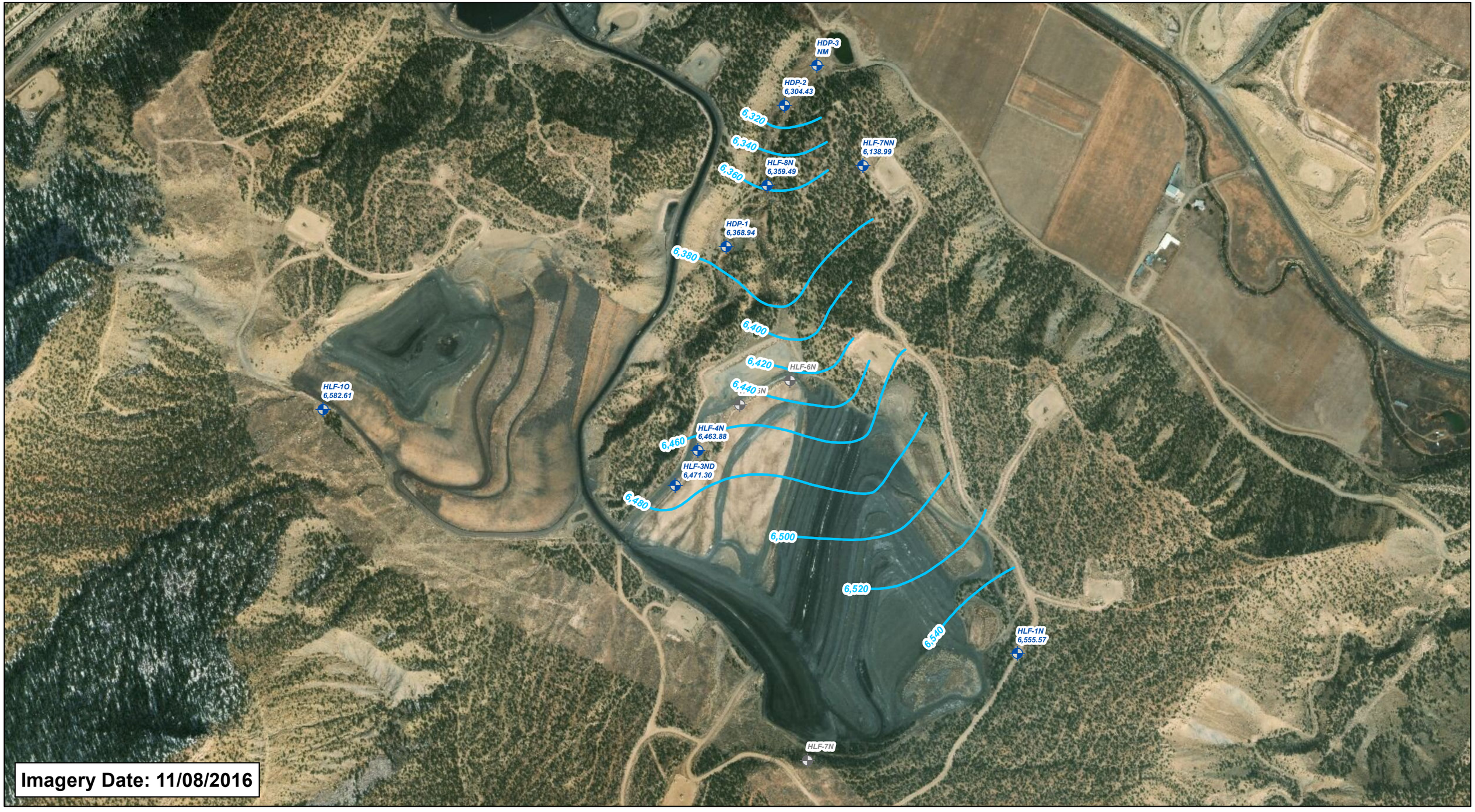
FIGURES



Legend

- CCR Well
- CCR Well - Dry & Abandoned
- Groundwater Elevation Contour (Contour Interval = 20 ft.)

N
W E
S

0 300 600 1,200 1,800 Feet

PacifiCorp

Water & Environmental Technologies

HUNTINGTON POWER PLANT

Groundwater Elevation Map
CCR Landfill 5/31/2018

Job#: PERCM052

Date: 4/1/2020

FIGURE 1

Path: M:\Huntington\2020\Remedy_Figures\Figure 2. Groundwater Elevations.mxd, Author:

Legend

- DEQ Monitoring Well
- CCR & DEQ Monitoring Well
- Abandoned CCR Monitoring Well
- Cr - Chromium
- Se - Selenium
- Groundwater Plume
- Landfill

N
W E
S

0 1,000 2,000 3,000 4,000 Feet

PACIFICORP

Water & Environmental TECHNOLOGIES

HUNTINGTON POWER PLANT

2018 Assessment Monitoring SSI Map

Job#: PERCM053

Date: 7/14/2020

FIGURE 2

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Legend

- CCR Well
- CCR Well - Dry & Abandoned
- CCR Unit

NH-4W
Se
Co
← Highlighed text indicates SSI

N
W E
S

0 150 300 600 900 1,200 Feet

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Water & Environmental TECHNOLOGIES

HUNTINGTON POWER PLANT

Spring 2019 Appendix IV
SSI Map

Job#: PERCM053

Date: 4/1/2020

FIGURE 3

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Legend

- CCR Well
- CCR Well - Dry & Abandoned
- CCR Unit

NH-4W
Se
Co
← Highlighed text indicates SSI

N
W E
S

0 150 300 600 900 1,200 Feet

PACIFICORP

Water & Environmental TECHNOLOGIES

HUNTINGTON POWER PLANT

Fall 2019 Appendix IV
SSI Map

Job#: PERCM053

Date: 4/1/2020

FIGURE 4

Path: M:\Huntington\2020\NE_Figures\Figure7_ Spring SSI.mxd, Author: jleprowse

Legend

Plant Boundary

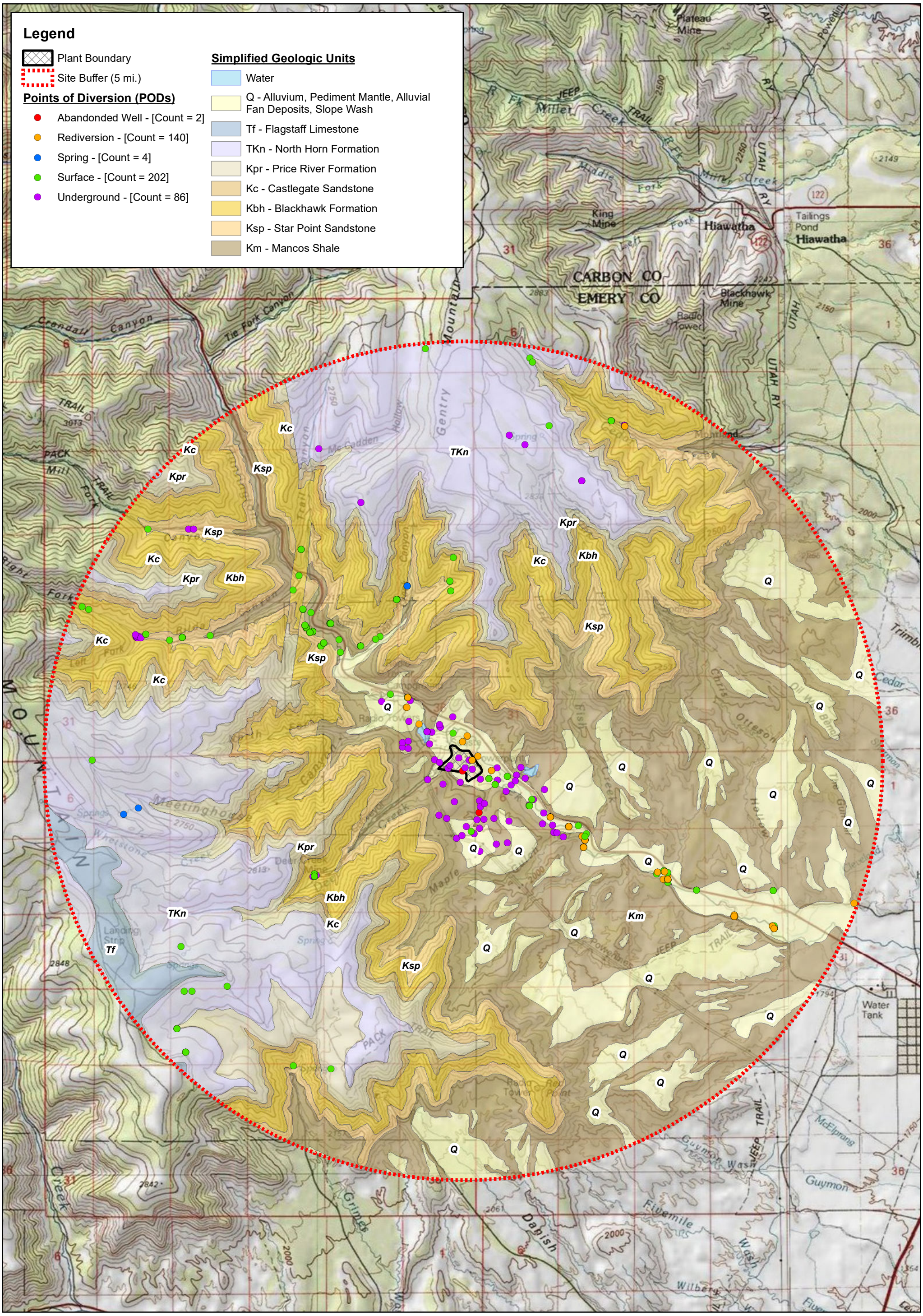
Site Buffer (5 mi.)

Points of Diversion (PODs)

- Abandonded Well - [Count = 2]
- Rediversion - [Count = 140]
- Spring - [Count = 4]
- Surface - [Count = 202]
- Underground - [Count = 86]

Simplified Geologic Units

- Water
- Q - Alluvium, Pediment Mantle, Alluvial Fan Deposits, Slope Wash
- Tf - Flagstaff Limestone
- TKn - North Horn Formation
- Kpr - Price River Formation
- Kc - Castlegate Sandstone
- Kbh - Blackhawk Formation
- Ksp - Star Point Sandstone
- Km - Mancos Shale



N

W E

S

0 3,000 6,000 12,000 18,000 Feet

PACIFICORP

Water & Environmental TECHNOLOGIES

Huntington Power Plant

Vicinity Points of Diversion Map

Job#: PERCM053

Date: 4/1/2020

FIGURE 5

Path: M:\Huntington\2020\Remedy_Figures\Figure 3. HPP, Points of Diversion.mxd, Author:

ATTACHMENT A:

Comment Letters

HEAL Utah* Utah Clean Energy* Sierra Club

August 26, 2019

Jeff Tucker
Principal Engineer
PacifiCorp
1407 W. North Temple Rm 210
Salt Lake City, UT 84116
Submitted via electronic mail to: jeff.tucker@pacificorp.com

Dear Mr. Tucker,

On behalf of our thousands of members and constituents in Utah, including Utahns who live, work and/or recreate near PacifiCorp's Hunter and Huntington coal-fired power plants, HEAL Utah, Utah Clean Energy, and Sierra Club submit the following comments on the company's proposed corrective measures assessments ("CMA") for coal combustion residuals ("CCR") facilities.

As discussed below, we have significant concerns about the company's analysis and proposed corrective measures.

INTRODUCTION & OVERVIEW OF REGULATORY REQUIREMENTS

At the outset, it is important to remember that the corrective measures are only required under the federal CCR Rule because pollutants at the company's coal combustion residuals facilities have exceeded groundwater protection standards and baseline water conditions. 40 C.F.R. §§ 257.95-257.97.

Specifically, the federal rules require PacifiCorp to assess corrective measure options and to select a remedy. This remedy 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; and
> (5) Comply with standards for management of wastes as specified in § 257.98(d).

40 C.F.R. § 257.97.

SUMMARY OF COMMENTS

Review of the CMAs dictates that closure-by-removal and pump-and-treatment of groundwater should be selected as the ultimate remedy for CCR landfills. Closure-by-removal and pump-and-treat are the only remedies that meets the requirements of the federal CCR Rule for those CCR facilities. They are also the only remedies that provide certainty in achieving pollution cleanup objectives set forth in the CCR Rule.

Given the extent of the pollution, and the inability to prevent further pollution into the future, PacifiCorp must also halt plans to construct new ash landfills, or expand existing landfills.

Additionally, PacifiCorp must do more to better characterize the nature and extent of the release of pollution.

Finally, PacifiCorp must take immediate steps to ensure funding is available to complete corrective measures, particularly if a plant closes before corrective measures are completed.

COMMENTS ON CORRECTIVE MEASURES ASSESSMENTS

I. Hunter CCR Landfill Corrective Measures Assessments

PacifiCorp operates a 230 acre CCR landfill which is subject to EPA's CCR regulations. After dewatering and treatment, the Flue Gas De-sulfurization (FGD) waste, fly ash and bottom ash are disposed in the CCR landfill. In addition, for decades PacifiCorp has disposed of wastewater from the plant by land applying the wastewater on so-called "research farms" directly adjacent to Rock Canyon Creek. The CMA states, "[t]he results of detection monitoring revealed statistically significant levels above background for the following Appendix III constituents: boron, calcium, chloride, fluoride, pH, sulfate and total dissolved solids (TDS)." CMA, p. 1. The CMA also states, "[a]s a result, the CCR Landfill monitoring program was transitioned to assessment monitoring in 2018. The results of two rounds of sampling completed between February and May of 2018, revealed Appendix IV constituents - lithium and molybdenum exceeded the groundwater protection standards established for the CCR Landfill." *Id.*

The Hunter plant and CCR landfill are surrounded by public BLM land that is used for recreation, cattle grazing, and agricultural use. Discharges of toxic compounds from the CCR landfill can adversely impact these uses and the users of the public lands.

PacifiCorp operated the CCR landfill for decades before conducting background groundwater quality monitoring. As such, PacifiCorp's groundwater monitoring results likely reveals contamination from its operation of the CCR landfill for decades prior to monitoring. It also appears that PacifiCorp's historic disposal practice was to dispose of CCR and FGD wastes in a wet form without dewatering. This is evident from the following statement in the CWA: "[t]hese improvements include improved operational practices which eliminated the liquid content in CCR materials prior to their placement in the landfill." CMA, p. 7. Apparently, wet

CCR and FGD material was disposed of onsite from commencement of operations at Hunter through at least 2007. CMA, p. 12. The CMA should identify the years and quantity of CCR and FGD materials disposed of in the CCR landfill in a wet form. The CMA should also provide sampling and analytical results for the wet material disposed of in the CCR landfill.

Table 3 of the CMA provides data of constituents found in material leaching from the CCR landfill. The CMA should provide more detail on how this data was collected. For example: where was the sample collected? how was it collected? was the sample collected in an area of the landfill where wet disposal of CCR and FGD material occurred?

The CMA also fails to provide adequate support that the upgradient (background) and downgradient wells accurately reflect conditions at the site. The CMA fails to evaluate whether wet CCR and FGD materials have left the site boundary and may be impacting surface and groundwaters further downstream of the site.

The CMA also fails to provide upgradient and downgradient surface water sampling results for Rock Canyon Creek, South Wash, Cottonwood Creek, and the unnamed tributary identified on p. 3 of the CMA. Because there is extensive public land used for recreational and agricultural purposes in close proximity to Hunter and the CCR landfill, exposure to surface waters is highly likely. These surface waters can be impacted by migrating groundwater, and well as surface waters that have been in contact with contaminated soils that have historically migrated off-site of the plant and CCR landfill. In addition to groundwater sampling, the CMA must evaluate impacts to surface waters.

The CMA also makes the following conclusory statements: "The remaining contamination is in the vadose zone and aquifer and is expected to attenuate over time since the contamination source has been eliminated. There is no additional seepage from the landfill to groundwater." CMA at p. 11. These statements are completely unsupported. The CMA must provide all evidence and assumptions supporting these conclusions.

PacifiCorp is presently attempting to purchase BLM lands along Rock Canyon Creek for the purpose of expanding the Hunter plant and CCR landfill operations. PacifiCorp's CMA makes clear that it has contaminated the land upon which the plant and CCR landfill is located. Given this contamination, PacifiCorp should abandon its plans to purchase public lands because such land will inevitably be contaminated by PacifiCorp's waste disposal practices.

The CMA also fails to provide a map showing all public lands (BLM, Forest Service, SITLA, etc) in relation to the Hunter plant and CCR landfill. Please provide such a map to show the proximity of public lands to the contaminated facilities.

A. Compliance with requirements to characterize the nature and extent of the release, 40 C.F.R. § 257.95(g)

The Federal CCR Rule requires a complete assessment of the nature and extent of the pollutant plume and release. Such an assessment must do the follow to comply with 40 C.F.R. § 257.95(g) and its requirement to "Characterize the nature and extent of the release and any

relevant site conditions . . . [in a manner] sufficient to support a complete and accurate assessment of the corrective measures necessary to effectively clean up all releases from the CCR unit":

- Install additional monitoring wells as necessary, including "at least one additional monitoring well at the facility boundary in the direction of contaminant migration"; and
- Collect data on the nature and estimated quantity of material released, including data collected through monitoring well sampling.

In spite of these requirements, our review of the CMAs shows that PacifiCorp has not finished a "complete" assessment of the nature and extent of the release. We ask PacifiCorp to supplement its analysis with additional data collected from monitoring wells and other sampling locations.

B. Compliance with requirements to control the source of release and remove contaminated material from the environment, 40 C.F.R. § 257.97(b)(3)-(b)(4)

The Federal CCR Rule requires a selected remedy to, at a minimum (1) be protective of human health and the environment; (2) attain groundwater protection standards identified in the CCR Rule; (3) "reduce or eliminate, to the maximum extent feasible, further releases of constituents" listed in appendix IV of the CCR Rule; (4) "[r]emove from the environment as much of the contaminated material that was released from the CCR unit as is feasible"; and (5) comply with waste management standards required by the federal rules.

For the CCR facility at Hunter, in order to meet the afore-mentioned requirements, the CCR landfill should be closed by excavating all CCR material and placing that material in a lined offsite landfill. Closure in place does not satisfy the requirements of 40 CFR § 257.97(b)(3)-(b)(4). Specifically, leaving the waste in place in an unlined landfill will continue to cause release of the constituents, in violation of the CCR Rule's requirements to reduce or eliminate – "to the maximum extent feasible" – further releases of constituents.

Additionally, closure and removal of the CCR waste will be the most cost-effective solution for the long-term. It is the only remedy that complies fully with the CCR Rule requirements to prevent additional release of pollutants and to remove as much of the contaminated waste as possible.

None of the other alternatives listed in the CMA comply with the CCR Rule.

C. Compliance with the National Environmental Policy Act

Given the amount of federal land and minerals at and near the Hunter plant and CCR facilities, please explain how PacifiCorp and the BLM are complying with requirements under the National Environmental Policy Act. For example, will implementation of corrective measures result in impacts to public lands or resources through well drilling, pump and treat systems, impacts to federal groundwater, traffic, or other activities?

II. Huntington CCR Landfill Corrective Measures Assessments

The Huntington Plant has two CCR landfills, the "old" and "new" CCR landfills. PacifiCorp constructed its CCR landfill in a valley containing an intermittent stream flowing to Huntington Creek ("Duck Pond drainage"). Huntington Creek runs immediately adjacent to the power plant. PacifiCorp filled the upper reaches of the valley and stream with CCR and FGD materials. Like the Hunter plant, PacifiCorp used to dispose of CCR and FGD waste at Huntington in a liquid form both on the CCR landfill and on the grounds of the power plant. The CMA should identify the years, and quantity of CCR and FGD materials disposed of in the CCR landfill in a wet form. The CMA should also provide sampling and analytical results for the wet material disposed of the in the CCR landfill.

In addition, for decades PacifiCorp has disposed of wastewater from the plant by land applying the wastewater on so-called "research farms" directly adjacent to Huntington Creek. PacifiCorp used to operate an outfall that collected leached wastewater from below the research farms and discharged the wastewater directly into Huntington Creek. Because of the risk of contamination to surface and groundwater, the State of Utah ordered PacifiCorp to discontinue its surface application of wastewater on the research farm.

As historical documents and the CMA detail, the Huntington plant CCR has had significant releases of pollutants. In fact, the groundwater is so polluted that, "[t]he 2016 [groundwater discharge] permit required PacifiCorp to place an environmental covenant on the property that restricts use of groundwater for any purpose to address the potential risk associated with use of impacted groundwater." CMA at p. 7.

There is a county park immediately above the Huntington plant that is used for both day use and camping. There are also federal public lands (BLM, Forest Service) in the vicinity of, and downstream of, the Huntington plant. There are significant agricultural diversions from Huntington Creek just downstream of the plant. Water is also diverted downstream of the plant for the Huntington Lake State Park, which allows surface contact with the waters.

The CMA states, "[d]etection monitoring was conducted between September 2015 and October 2017. The results of detection monitoring revealed statistically significant levels above background for the following Appendix III constituents: boron, calcium, fluoride, pH, and sulfate. As a result, the CCR Landfill monitoring program was transitioned to assessment monitoring in 2018. The results of two rounds of sampling completed between February and May of 2018, revealed Appendix IV constituents - chromium, cobalt, lithium, and selenium were at statistically significant levels above the groundwater protection standards established for the CCR Landfill." CMA, p. 1.

The CMA fails to provide adequate support that the upgradient (background) and downgradient wells accurately reflect conditions at the site. The CMA fails to evaluate whether wet CCR and FGD materials have left the site boundary and may be impacting surface and groundwaters further downstream of the site.

Further, the reported groundwater sampling and monitoring results (CMA, Table 2) is

deficient because it does not include constituents that can be used to "fingerprint" CCR contamination such as boron. The CMA must produce data for CCR fingerprinting compounds such as boron. The CCR landfill is a source of boron. CMA, Table 3. PacifiCorp must develop a statistically significant method for determining boron contamination, as well as identify a groundwater standard.

Table 3 of the CMA provides data of constituents found in material leaching from the CCR landfill. The CMA should provide more detail on how this data was collected. For example: where was the sample collected? how was it collected? was the sample collected in an area of the landfill where wet disposal of CCR and FGD material occurred? Was it collected from the "old" landfill?

PacifiCorp has been ordered to discontinue its practice of land applying wastewater on the research farm. The CMA must include a detailed description of PacifiCorp's future practice for managing wastewater it currently land applies on the research farm.

A. Compliance with requirements to control the source of release and remove contaminated material from the environment, 40 C.F.R. § 257.97(b)(3)-(b)(4)

Like the Hunter CCR facilities, PacifiCorp must select closure by removal for the Huntington CCR facilities to meet the requirements of the Federal CCR Rule, including 40 C.F.R. § 257.97(b) (described above). When combined with groundwater treatment actions, closure by removal is the most protective solution - required by 40 C.F.R. § 257.96(c)(1).

None of the other alternatives satisfy the CCR Rule, because the alternatives contemplate closure in place in an unlined landfill. Leaving the polluting waste in an unlined landfill will lead to more releases of harmful constituents, and will not create a long-term remedy that complies with the requirements of the CCR Rule. Nor will the proposed remedy by the most cost-effective solution for the long-term as additional remediation and cleanup will be required if pollution releases keep occurring.

III. ENSURING ADEQUATE FUNDING FOR CORRECTIVE MEASURES

Effective remedies, fully compliant with the CCR Rule will take significant time and resources to implement. For example, the CMAs disclose that pumping and treating groundwater contaminated by the Hunter and Huntington facilities may take years to attain groundwater protection standards.

Under the CCR Rule, PacifiCorp must adequately ensure that funds will be available to achieve any selected remedy identified in the CMA. Please explain how this requirement is being met, especially for facilities that may close (and fully depreciate under utility commission approved schedules) before completion of the corrective actions. Additionally, as PacifiCorp knows cost-sharing of these measures will be complicated once Oregon, Washington, and California ratepayers exit from the coal plants. Separately, we have asked the PacifiCorp IRP team to analyze CCR Rule compliance as part of the IRP to ensure that there is transparency and

disclosure to ratepayers and utility commissions about anticipated costs of compliance, and who will share in those costs.

CONCLUSION

For the forgoing reasons, our organizations urge PacifiCorp to select closure-by-removal as the remedy for all identified CCR facilities. In addition, pump and treat of groundwater should continue after all material is removed and the water quality is restored to "true background" conditions. Thank you for your time and consideration of these comments, and we look forward to a complete response.

Sincerely,

s/ Noah Miterko

Noah Miterko
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Sierra Club
2101 Webster St., Suite 1300
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Powder River Basin Resource Council * Sierra Club * Earthjustice
HEAL Utah * Utah Clean Energy

August 12, 2019

PacifiCorp
Attn: Jeff Tucker
1407 West North Temple
Salt Lake City, UT 84116
Via electronic mail to: jeff.tucker@pacificorp.com

RE: request for comment period extension for PacifiCorp Corrective Measures Assessments for coal combustion residuals facilities at Wyoming and Utah power plants

Dear Mr. Tucker,

On behalf of the undersigned organizations and our thousands of members in Wyoming and Utah, we ask PacifiCorp to extend the comment period for its proposed Corrective Measures Assessments for coal combustion residuals facilities in Wyoming and Utah.

Our organizations only discovered the Wyoming comment period through a routine search of legal notices August 2, 2019. Our organizations discovered the Utah comment period only through reading a news story on community meetings. None of our organizations received personal notice from PacifiCorp on the comment period and community meetings, in spite of long-standing stakeholder engagement in a variety of regulatory forums and frequent communication with PacifiCorp staff.

Since we learned about the comment periods, we have been busy looking through the assessments. We have identified some gaps in the information provided by the company as well as the need for expert analysis on our part. The plans cover five large power plants with multiple CCR facilities and reviewing all of the plans at the same time is proving impossible to do within the thirty day comment period offered by PacifiCorp. Additionally, the current comment period falls in August, a time when many of our staff and experts have scheduled vacation time.

We ask PacifiCorp to extend the comment deadline by at least thirty days to September 25, 2019.

Thank you for your consideration of this request and we look forward to your reply.

Sincerely,

Shannon Anderson
Powder River Basin Resource Council

Michael Shea
HEAL Utah