PacifiCorp – Huntington Power Plant

GROUND WATER DISCHARGE PERMIT UGW150002 Renewal

Comment Response Summary

Division of Water Quality

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I. INTRODUCTION

A. PacifiCorp and the Huntington Power Plant

The PacifiCorp Huntington Power Plant is a coal-fired steam electric generating facility. The power plant operates the Huntington Research Farm for land application of non-contact cooling water, boiler blowdown water, treated domestic wastewater and other process wastewaters described in 40 CFR Part 423.11, including cooling tower blowdown, low-volume sources of wastewater and metal cleaning wastewaters. The power plant also operates an active landfill for the disposal of coal combustion wastes, including fly ash, bottom ash, slaker grits, pyrites and scrubber sludge, and manages an older, closed landfill that was used for disposal of these same wastes.

The two units of Huntington Power Plant were put into service in 1974 and 1977. As a means to dispose of non-contact cooling water and other waste streams, the plant's owners, Utah Power and Light Co., proposed beneficial re-use of them by irrigating a tract of crop land on the Huntington Creek alluvial plain, known as the Research Farm. Wastewater was to be applied seasonally, according to a plan that maximizes evapotranspiration by the crops. Wastewater is produced year-round, and would be collected in a reservoir for use during the growing season.

The Division of Water Quality's (DWQ) predecessor agency, the Bureau of Water Pollution Control (BWPC) approved this plan in 1977. A series of monitor wells was installed at the Research Farm site in 1979, and ground water monitoring data was reported to BWPC. These wells, however, were not constructed to standards that would allow for collection of ground water samples that are scientifically valid and legally defensible. At DWQ's request, these wells were replaced in 1997 with new wells constructed according to contemporary monitor well standards.

The Ground Water Quality Protection Regulations, UAC R317-6, were adopted in 1990. Under these regulations, the Huntington Power Plant was defined as an "existing facility". Existing facilities were required to report on the nature of their discharge to ground water. BWPC, which became DWQ in 1991, ranked these facilities according to their potential to impact ground water quality. During the 1990s, these facilities were evaluated one by one, according to rank, and those that posed a serious threat to ground water quality were required to apply for a ground water discharge permit. DWQ did not require Huntington Power Plant to apply for a permit at the time.

In 2003, PacifiCorp, which had merged with Utah Power and Light in 1989, voluntarily requested to obtain a ground water discharge permit for the Huntington Power Plant from DWQ. During the next three years, PacifiCorp conducted site investigations and gathered background water quality data, under DWQ's guidance, to provide information needed to develop permit conditions.

Permit No. UGW150002 was first issued in 2006. Discharge minimization technology for the permit, required for existing facilities under UAC R317-6-6.4C(3), consisted of corrective action for ground water impacted by the plant's combustion waste landfills and best management practices for land application of wastewater at the Research Farm as well as several other areas and facilities at the plant site that had the potential to affect ground water. Ground water and surface water monitoring is the primary compliance monitoring method for the permitted facilities, although experience since 2006 has shown that in many cases, ground water monitoring is complicated by site factors and is not straightforward, as described below. Corrective measures were implemented for ground water affected by the combustion waste landfills in 2009. The permit was renewed in 2011. Several plant facilities have been closed or reconstructed to minimize the potential for ground water contamination.

This renewal of the permit requires PacifiCorp to have a new method of disposal for wastewater that is currently land-applied and for this method to be in place by the end of this permit term; five years from the date of renewal. PacifiCorp must propose this new disposal method within two years of permit issuance and must be in place by the end of the permit term with all necessary permits and approvals. If the new plan needs to be regulated under this ground water discharge permit, the proposed permit terms will be subject to public review before this permit is modified or renewed. Other aspects of this permit not related to the waste streams that are currently land-applied are still subject to regulation under the permit and will also be made available for public comment before the permit is renewed or modified.

After reviewing the submitted comments, DWQ is satisfied from a substantive perspective that the permit order is properly protective, based on negligible risk to ground water and its present and future beneficial uses and most importantly, to surface water in Huntington Creek.

B. Site Conditions

The Ground Water Rules take into account hydrogeological conditions related to the potential for ground water contamination as well as varying natural ground water quality. In developing permit conditions the Ground Water Rules allow these factors to be taken into account so as not to impose unnecessary conditions on permittees.

Hydrogeology and Ground Water Occurrence at the Huntington Power Plant

Ground water at the power plant site is contained in alluvial deposits that overlie the Mancos Shale, a sedimentary geological formation of Cretaceous age that contains soluble salts. Many of the plant facilities are built on localized areas of older alluvium (not associated with a currently-active stream), deposited over the Mancos Shale. Zones of water saturation exist in some of these areas, recharged from precipitation falling on the older alluvium or from discharges associated with the power plant. The Research Farm land application area is underlain by younger alluvium deposited by Huntington Creek. The aquifer contained in this younger alluvium is recharged from: 1) precipitation; 2) flow from the creek; 3) flow from tributaries draining into the alluvium; and 4) land application and

other plant activities. Please refer to the Statement of Basis which has a more complete description of these saturated zones and the alluvial aquifer.

Ground water in these bodies of alluvium is perched on the Mancos Shale. The longer that ground water has been in contact with the shale, the more salts will have dissolved into it from the shale. Natural degradation of ground water quality upon contact with the Mancos Shale is documented in the Statement of Basis. Ground water in the older alluvium moves down the slope of the underlying contact with the Mancos Shale in that particular area of alluvium. Ground water in the Research Farm alluvial aquifer moves parallel to Huntington Creek, from northwest to southeast. All aquifers and saturated zones at the Huntington Power Plant site eventually drain to Huntington Creek.

C. Organization and Nature of Response to Comments

Comments were received from Rob Dubuc, attorney for Western Resource Advocates (WRA) on behalf of HEAL Utah and the Sierra Club. Part I of this document presents the primary considerations in permit renewal which include: 1) Legal and regulatory requirements; and 2) Natural site hydrogeological conditions. Part II addresses specific comments submitted by WRA on behalf HEAL Utah and the Sierra Club.

D. Legal and Regulatory Requirements

1. The DWQ under the authority of the Utah Water Quality Act and the Utah Ground Water Quality Protection Rules[1] (Ground Water Rules) issues ground water discharge permits[2] to facilities which have a potential to discharge contaminants to ground water. As defined by the Ground Water Rules, such facilities include ponds, lagoons and land application of wastes.[3] Ground water is divided into classes based on its quality[4]; and higher-quality ground water is given greater protection[5] due to the greater potential for beneficial uses. The purpose of the Ground Water Rules is to provide for the maintenance and protection of current and probable future beneficial uses of ground water without ruling out man's economic, social or recreational activities:

   > Utah has adopted an anti-degradation policy for ground water protection. Broadly this policy provides for the maintenance and protection of current and probable future beneficial uses of ground water; protection of higher quality waters at their existing water quality; and prevention of degradation of water quality that would be injurious to existing or potential beneficial water use. Thus, anti-degradation incorporates many of the beneficial characteristics of both the non-degradation and differential protection policy alternatives. It recognizes that there are some effects on ground water from man's activities but limits those effects to acceptable levels. It

[1] Utah Admin. Code R317-6
[2] https://deq.utah.gov/ProgramsServices/programs/water/groundwater/docs/2008/08Aug/GWQP_PermitInfo.pdf
[3] Utah Admin Code R317-6-6.1A
[4] Utah Admin. Code R317-6-3
[5] Utah Admin. Code R317-6-4

provides a greater degree of protection to higher quality ground water. Finally it does not rule out man's economic, social or recreational activities as a strictly-applied non-degradation policy might. Although some other states profess a non-degradation policy goal, they in actual practice function as an anti-degradation regulatory program.[6]

2. Under Rule 317-6-6.4C, DWQ may issue a ground water discharge permit for an existing facility if:

    1) The applicant demonstrates that the applicable class TDS limits, ground water quality standards protection levels and permit limits established under R317-6-6.4E will be met;
    2) The monitoring plan, sampling and reporting requirements are adequate to determine compliance with applicable requirements;
    3) The applicant is using treatment and discharge minimization technology commensurate with plant process design capability and similar or equivalent to that utilized by facilities that produce similar products or services with similar production process technology; and
    4) There is no current or anticipated impairment of present and future beneficial uses of ground water.

3. Under Rule 317-6-6.8, A ground water discharge permit may be terminated or a renewal denied if one of the following applies:

    A) noncompliance by the permittee with any condition of the permit where the permittee has failed to take appropriate action in a timely manner to remedy the permit violation;
    B) the permitee's failure in the application or during permit approval process to disclose fully all significant relevant facts at any time;
    C) a determination that the permitted facility endangers human health or the environment and can only be regulated to acceptable levels by plan modification or termination; or
    D) the permittee requests termination of the permit.

4. The ground water application provisions in Rule 317-6-6.3 provide discretion to DWQ in determining the particular information that must be submitted in an application as evidenced by the introductory sentence that provides: "*Unless otherwise determined by the Director [DWQ]*, the application for a permit to discharge wastes or pollutants to ground water shall include the following complete information . . ." (emphasis added). . Rule 317-6 applies to a wide variety of facilities with varying degrees of potential to discharge contaminants to ground water. Operational and natural site characteristics are relevant to a Rule 317-6 inquiry. Rule 317-6-6.3 lists all informational categories that may

[6] Section 2.1 of the preamble to the Utah Ground Water Quality Protection Rules (1989).

be used within the universe of permitted facilities to provide substantial evidence in the administrative record to support a finding that Rule 317-6-6.4.A has been satisfied. In other words, Rule 317-6-6.3 makes the DWQ the gatekeeper in determining what is required to be submitted to meet the requirement of Rule 317—6-6.4.A on a case by case basis, therefore not requiring applicants for a ground water discharge permit to submit information that is not relevant. To be clear, the DWQ's discretion is not without limitation, rather the discretion is exercised based upon appropriate review of the *relevant* scientific, technical, engineering or other facts related to the permit, its processes and site characteristics.

5. Subsection 1 of Rule 317-6-6.4.A (protection levels) is satisfied for the renewal because the applicant has operated the existing plant facilities under monitoring and reporting requirements of a Utah ground water discharge permit since 2006. As demonstrated by the monitoring program and data, discharges from plant facilities have not been proven to be harmful to water quality in Huntington Creek. Water samples collected from monitoring wells, however, demonstrate that the concept of protection levels as defined in UAC R317-6-4 is very difficult to apply at this site, considering the complications described on p. 5 and 6 of the Statement of Basis. Ground water protection levels have been exceeded many times since the permit was issued in 2006, but it can be very difficult to distinguish changes in ground water quality caused by the permittee's activities from those occurring naturally.

6. Subsection 2 of Rule 317-6-6.4.A (monitoring) is satisfied for the permit renewal because the applicant has fulfilled monitoring and reporting requirements of a Utah ground water discharge permit since 2006.

7. Subsection 3 of Rule 317-6-6.4.C is satisfied for previous permit terms because land application of wastewater has been done according to a plan to minimize infiltration of the applied water below the plant root zone, and because PacifiCorp has conducted remedial activities for discharge of contaminants from the combustion waste landfills and have closed inadequately-lined wastewater ponds. Furthermore, by the end of this permit term, all land application of untreated wastewater will end.

8. Subpart 4 of Rule 317-6-6.4.C (impairment) is satisfied for the renewal because the ground water affected by plant activities will be under the institutional control of PacifiCorp, and because it has not affected water quality in Huntington Creek, the only other water body that could be affected, and which is available for beneficial use downstream. Therefore, DWQ has concluded that the proposed facility meets the required conditions for permit issuance.

9. Subpart A of Rule 317-6-6.8 (Compliance) is satisfied for the following reasons:

    a. PacifiCorp has consistently reported in compliance with permit conditions and has followed DWQ instructions for appropriate follow-up actions.

b. PacifiCorp has designed and implemented a plan to contain and dispose of contaminated ground water originating from disposal of scrubber sludge in the combustion waste landfills, as required by DWQ
c. PacifiCorp has proactively closed or modified sources of ground water contamination on Huntington Power Plant property.

10. Subpart B of Rule 317-6-6.8 (Disclosure) is satisfied since the permittee properly and adequately disclosed all relevant facts during the application and approval process.

11. Subpart C of Rule 317-6-6.8 (Endangerment) is satisfied because permit compliance monitoring has demonstrated that ground water influenced by power plant operations is confined to aquifers and saturated zones entirely contained on PacifiCorp's property and subject to their future institutional control; and any influence this ground water may have on beneficial uses of ground water, human health, the environment or water essential for wildlife habitat is of *de minimis* levels.

12. Subpart D of Rule 317-6-6.8 (Termination) is satisfied since the permittee has requested permit renewal.

E. Purpose of the Permit

1. Permit No. UGW150002 covers all facilities and activities at the Huntington Power Plant that have a potential to discharge contaminants to ground water, and are not regulated by other permits. The permit regulates land application of wastewater at the power plant site. It also regulates the closed coal combustion waste landfill, and will include the active coal combustion waste landfill until a permit for it is issued by the Division of Waste Management and Radiation Control under the new Coal Combustion Residual regulations. Other permitted facilities, primarily lined ponds, sumps and basins, are listed in Table 3 of the permit. Please refer to the Statement of Basis which has a more complete facility description.

2. Permit conditions must also take into account the nature of the contaminants that may be discharged to ground water. For the most part, discharges and potential discharges from the power plant's activities contain dissolved constituents already present in the site's ground water.

3. Individual zones of saturation underlying the plant facilities or the alluvial aquifer underlying the Research Farm are not significant aquifers nor are they tapped for beneficial uses or are a source of water important for the continued existence of wildlife habitat. The plant site is also an area where natural degradation of ground water quality is occurring. Plant activities that could result in a discharge of contaminants to ground water had been ongoing for as much as sixteen years before UAC R317-6 was adopted, and thirty-two years before this permit was first issued. Considering these conditions, the Statement of Basis for the 2006 version of this permit states: "Ground water under the alluvial plain at the Research Farm

site is not used for culinary or drinking water purposes. The main threat this site poses to beneficial uses of water is discharge of contaminants to Huntington Creek." Accordingly, permit conditions were developed with the main goal of protecting water quality in the creek. The Research Farm aquifer and the other zones of saturation underlying plant facilities eventually discharge to the creek; however, comparison of ground water quality with that of water in the creek shows that the discharge of ground water to the creek has *de minimis* effect on surface water quality. Surface water quality standards for Huntington Creek have not been exceeded in the previous two permit terms.

II. DWQ Response to Comments

The text of the comments are restated verbatim in italics. The comments are divided into 3 types: 1) Comments (pgs.1-5); 2) General Comments (pgs.5-7); and 3) Specific Comments on Draft Permit (pgs.7-14). Further, some of the numbered "general comments" and "specific comments on draft permit" are broken into subparts for purposes of the DWQ's response.

Comment 1

From: Rob Dubuc, Western Resource Advocates on behalf of HEAL Utah and the Sierra Club

History of contamination caused by PacifiCorp's waste disposal practices

It is well-documented that PacifiCorp's waste disposal practices at the Huntington coal plant have caused, and are causing, contamination of groundwater at the site, as well as unpermitted direct discharges into Huntington Creek and/or its tributaries.

1 DWQ Response

PacifiCorp's activities were existing when UAC R317-6 was adopted in 1990, and are occurring in an area where natural degradation of ground water quality is also taking place. PacifiCorp is not discharging highly toxic contaminants and for the most part, the constituents they have discharged also occur naturally in the site's ground water. Potential beneficial uses of ground water, water essential for wildlife habitat, human health or the environment are not impaired. There has been no direct (i.e. point source) discharge into Huntington Creek since this permit has been in effect.

Permit Action: None.

Comment 2

The Huntington Plant is located in Utah's high desert in Huntington Canyon, approximately 110 miles south east of Salt Lake City and adjacent to State Route 31. The plant consists of two units, both of which burn coal and produce coal ash. Each unit generates 480 MW and both were constructed in the early 1970s. Since at least 1973, PacifiCorp has disposed of the coal ash from

these units in landfills at the site. The first landfill used, now termed the "old ash landfill", lies to the south of the plant between two unnamed tributaries of Huntington Creek. The most northerly tributary flows in the bottom of West End Canyon. The "new ash landfill" began operating on or around July 2000 and is located to the southeast of the old landfill on a bluff on the other side of West End Canyon containing the more southerly tributary of Huntington Creek, which we term "Landfill Canyon." Neither landfill is lined and the State of Utah did not initially require them to be permitted as solid waste disposal facilities. Neither did the State initially require a groundwater discharge permit at the Huntington plant.

2 DWQ Response

Permit history is outlined on pages 2-3 of the Statement of Basis. The site was an "existing facility" under UAC R317-6. After 1990, DWQ ranked existing facilities according to their potential threats to beneficial uses of ground water and evaluated most of those facilities on a case-by case basis. DWQ did not call for a permit application at that time. PacifiCorp voluntarily requested to obtain a ground water discharge permit in 2003.

Lining of landfills, particularly those that receive extremely dry wastes such as coal combustion wastes is not necessary to prevent a discharge of contaminants to ground water. Rather, appropriate containment for such landfills is to install a final cover that will minimize infiltration of precipitation, the only means by which contaminants would be mobilized from dry wastes and potentially affect the underlying ground water. Disposal of wet wastes, such as scrubber sludge, in such landfills is improper, and when that was done at PacifiCorp's landfills, remedial measures were required by DWQ as described on p. 4 of the Statement of Basis.

Permit Action: None

Comment 3

In addition to disposing of coal combustion wastes in the landfills, PacifiCorp also disposed such wastes to Lacey's Lake, which it built in 1979. The wastes disposed there included flue gas desulphurization slurry, a component of coal ash. The "lake" acted as a settlement basin to remove suspended ash and combustion wastes. According to the State of Utah "[d]isposal of combustion waste products in this unlined pond [Lacey's Lake] has led to exceedances of [groundwater] permit protection levels in downgradient well HSW-1." Email to Bradley Giles dated 1/6/2011. In December 2010, PacifiCorp stated its intention to close this pond. To do so, the State stated PacifiCorp had to eliminate flow from the ash loading and dewatering areas. The utility was then going to dredge the pond and fill it in. See p. 72 of current Permit No. UGW150002. The dredged material was to be disposed at the on-site ash landfill. Lacey's Lake actually closed in late 2011. P.16 (Table 1) of Permit No. UGW150002.

3 DWQ Response

PacifiCorp has closed Lacey's Lake and removed the dredged sludge. The report on its closure is referenced in the Statement of Basis (Reference No. 9). This report is a public record and is available upon request under the Government Records Access Management Act, Utah Code Ann. § 63G-2-101, et. seq. Monitored natural attenuation of ground water that was affected by discharges from Lacey's Lake will continue for this permit term.

Permit Action: None

Comment 4

In 1979, PacifiCorp also constructed the "Duck Pond" to intercept drainage and runoff from Landfill Canyon and a local spring that flowed in West End Canyon. The Duck Pond is at the mouth of Landfill Canyon but upgradient of the "research farm." Originally the purpose of the Duck Pond was to collect the water in Landfill Canyon and West End Canyon so that it could be diverted directly into Huntington Creek via a point source.

4 DWQ Response

DWQ Response: The point source is not currently active. It was never regulated under the ground water discharge permit.

Permit Action: None

Comment 5

Below the Duck Pond, in a flat area to the northwest of the landfills, PacifiCorp operates a "research farm." Various effluents from the plant are collected in an "evaporation pond" and are then used to irrigate the grass, alfalfa, or other crops grown at the "research farm." A drainage system under the farm collected shallow groundwater, which was routed to a point source field drain that discharged to Huntington Creek. The flow discharging to Huntington Creek from the field drain was estimated to be 40 to 50 gpm. Huntington Creek, adjacent to the research farm, is listed as impaired for temperature and total dissolved solids ("TDS").

5 DWQ Response

The "research farm" referenced in this permit is the primary land application area for disposal of the various wastewater streams collected in an irrigation reservoir, referenced in Table 1 of Appendix B to the permit. The reservoir is necessary to collect and contain wastewater year-round for application during the growing season. As used in documents related to this permit, the "Research Farm" refers to the contiguous area on the alluvial plain southwest of Huntington Creek where controlled land application to pasture land and alfalfa is done, as opposed to the "Rock Garden" area northeast of the creek, where land application is also done and which is

entirely irrigated pasture. Land application is done according to measured evapotranspiration (ET) at both sites, as described in Appendix A of the draft permit, and each site has its own station to measure ET. The field drain on the Research Farm was constructed in the early 1980's. The area which the drain covers is 3.5 acres. In 2004 the drain to the river was removed and the water was diverted into the pump house. This water is then pumped back to the Huntington Unit #2 Scrubber mist eliminators. When Unit #2 is off line the water is pumped to the irrigation storage reservoir. The UPDES permit for a point source discharge from this drain into Huntington Creek has been terminated.

Huntington Creek at monitor site UPL-9, on the downstream end of PacifiCorp's facilities, has exhibited TDS in the 200-400 mg/l range in PacifiCorp's monitoring data from 1997 to 2016. Impairment for TDS is defined by exceeding 1200 mg/l. Because that standard was exceeded at the U-10 highway crossing, several miles downstream, the whole stream segment between there and the first sampling site upstream from there that is used for determining surface water quality, at the national forest boundary, is listed as impaired for TDS, as well as pH and temperature. The water quality degradation actually happens downstream of the power plant site, most likely from dissolution of salts from the Mancos Shale in the stream bed and tributaries, and possibly from irrigation return flows.

Permit Action: None

Comment 6

PacifiCorp also operates a second water pollution land application site, which is known as the Rock Garden. The Rock Garden is located across Highway 31 from the plant and above the evaporation pond. Effluent in the evaporation pond is also sprayed onto the Rock Garden. Finally, there is a canal near the research farm that drains the Stump Flat area into Huntington Creek. On occasion this canal has overflowed onto the research farm.

6 DWQ Response

The "Rock Garden" referenced in this comment is a secondary land application area, separate from the Research Farm, as described above. The canal mentioned in this comment receives stormwater from an area not affected by PacifiCorp's activities. With the strong storms that occasionally affect the region, the canal has overflowed but the water is not contaminated by any manmade source.

Permit Action: None

Comment 7

A 2003 report prepared by PacifiCorp, and submitted to DWQ, details the history of contamination caused by its coal ash disposal operations. According to the report, groundwater flows into Huntington Creek below the farm. Groundwater velocities are 5 to 20 feet/day. Over

time, water in the spring (monitoring at H-11) discharging to West End Canyon and the Duck Pond degraded significantly with respect to chloride, TDS, boron, and sulfate starting in about 1996. All of these chemicals are found in coal ash, leading PacifiCorp to admit that this contamination may have been caused by the coal ash landfills. The TDS, chloride, and boron contamination of the spring spiked in 1998 indicating that the leading edge of a plume from the landfills reached the spring at that time. Boron is often used as an indicator of coal ash pollution because it is highly soluble and mobile in groundwater. In terms of absolute levels, between 1998 and 2002, boron levels in the spring went from less than 1 mg/L to over 50 mg/L, TDS went from about 2,000 to 11,000 mg/L, chloride went from 500 to over 3,000 mg/L and nitrate went from around 2 mg/L to around 25 mg/L.

The levels of TDS, chloride, boron, and nitrate in the groundwater below the area of the landfills steadily increased between 1997 and 2003. Well NH-5W, the well furthest from the landfills had the lowest increases, while NH-4W, the well closest the new landfill had the highest. A field drain below the research farm showed large increases in nitrate in 2002, but with seasonal fluctuations. Much of this data is attached to our October 15, 2015 60-day notice letter which is attached hereto as Exhibit 1.

7 DWQ Response

The combustion waste landfills are not located over the alluvial aquifer underneath the Research Farm, which discharges to Huntington Creek and has the ground water velocities cited in the comment above. Rather, the landfills are located over older alluvium and Mancos Shale bedrock, and ground water underneath them flows into a natural drainage channel incised into the older alluvium and bedrock, referred to in documents related to the draft permit as the "Duck Pond drainage". Formerly, this ground water flow collected in a small impoundment at the base of the drainage, the "Duck Pond", and could infiltrate the alluvial aquifer under the Research Farm from there.

The ground water quality degradation referenced in this comment was due to improper disposal of scrubber sludge at the combustion waste landfills, a practice dating from before permit issuance. Under DWQ requirements, the source of the discharge to ground water was cut off by revised methods of sludge disposal at the active landfill. In addition, a drain was installed to collect affected ground water downgradient from the landfills in 2009, as described on p. 4 of the Statement of Basis. The drain has intercepted the source of contamination for downgradient ground and surface water.

The estimate of ground water velocity of 5 to 20 feet per day cited above is for the aquifer underlying the alluvial plain where the Research Farm is located. This aquifer is partially recharged by flow from Huntington Creek. Saturated zones contained in the older alluvium where most plant facilities including the landfills are located likely have a much slower ground water velocity because they are primarily recharged by precipitation falling directly on the alluvium.

Permit Action: None

Comment 8

A 2007 report prepared by a consultant for PacifiCorp, and submitted to DWQ, confirms that the observed contamination was caused by the utility's waste disposal operations, particularly placement of large amounts of sulfur scrubber slurry into the landfills along with fly ash and bottom ash. In 2003, seepage started to emerge from the toe of the new landfill. PacifiCorp's consultant found that this seepage was from the sulfur scrubber slurry. This report concluded that the stream in Landfill Canyon had experienced "significant impacts to groundwater or surface water quality…most likely due to the disposal of FGD [sulfur scrubber]slurry."

8 DWQ Response

The source of this contamination was cut off by construction of the ground water drain in 2009, as described in the response to Comments 5 and 7 above, and also on p. 4 of the Statement of Basis.

Permit Action: None

Comment 9

The monitoring results from 2003 to 2014 show that the documented contamination has continued to intensify and spread. For boron, the groundwater downgradient of the landfills below the stream bed in Landfill Canyon is around 30 to 60 mg/L compared to an upgradient level of 0.5 to 0.7 mg/L. The wells on the upgradient side of the farm, closest to the coal ash landfills, have boron concentrations from 4 to 7 mg/L. The wells on the downgradient side of the research farm have boron levels ranging from <0.5 to 6 mg/L. This demonstrates that the source of most of the boron detected is the ash landfills. In addition, this pollution is continuing to spread and has now reached the edge of the research farm. For example, the boron levels at H-8W, adjacent to Huntington Creek, have increased steadily from 1.00 mg/L in 2009 to 2.00 mg/L in 2014. Levels at NH-6W have also increased but less steadily over the same period. These results are consistent with the ongoing spread of a plume of groundwater contamination from the landfills below the research farm area.

9 DWQ Response

Ground water in the Duck Pond drainage (called "Landfill Canyon" by WRA) is collected in a drain installed in 2009, as described in the responses to Comments 5 and 7 above, and also on p. 4 of the Statement of Basis. This has cut off the source of boron and other constituents in the downgradient ground water. In general, wells near Huntington Creek have lower boron content than those on the valley slope (southwest) side of the alluvial plain where the Research Farm is located. Ground water in the alluvial aquifer moves from northwest to southeast, parallel to Huntington Creek. While boron is present naturally in some upgradient monitor wells, much of the elevated boron in other monitor wells is probably due to PacifiCorp's

activities. However these elevated boron levels do not impair beneficial uses of ground or surface water, ground water necessary for wildlife habitat, or human health and the environment.

Permit Action: None

Comment 10

Surface water samples in the north fork of Landfill Canyon near the old landfill show boron levels of around 50 mg/L, chloride levels of 1,700 to 2,200 mg/L, sulfate levels of 3,000 to 4,500 mg/L, and TDS levels of around 9,000 mg/L. In the south fork of the canyon, near the new landfill, boron levels are around 10 mg/L, chloride levels are around 3,000 mg/L, sulfate levels are 4,000 to 5,000 mg/L, and TDS levels are 10,000 to 12,000 mg/L. Just before the Duck Pond, the creek in Landfill Canyon had boron levels of 19 mg/L, chloride levels of 2,900 mg/L, sulfate levels of 6,000 mg/L, and TDS levels of 13,000 mg/L before it was dewatered in 2009. The flow to the Duck Pond from West End Canyon had boron levels of 5 mg/L, chloride levels of 640 mg/L, sulfate levels of 850 mg/L, and TDS levels of over 2,000 mg/L in 2014. The Duck Pond inflow to the pump house (formally the outfall to the Creek) has boron levels of around 2 mg/L, chloride levels of 300 to 500 mg/L, sulfate levels of over 500 mg/L, and TDS levels of over 1,400 mg/L. The flow to the field drain has boron levels of around 1.5 mg/L, chloride levels of 260 mg/L, sulfate levels of over 600 mg/L, and TDS levels of 1,500 mg/L.

These monitoring data show that pollution from the coal ash waste in the landfills has now spread widely on the site and has reached the groundwater adjacent to Huntington Creek in places. Unsurprisingly, the upstream/downstream sampling in Huntington Creek show that the Creek normally gains in conductivity and TDS as it passes the research farm.

10 DWQ Response

Ground water draining from the landfills, which has been impacted by inappropriate disposal of scrubber sludge in the landfills, has been collected by a drain since 2009 and routed to the Unit 2 flue gas desulfurization (FGD) mist eliminator sprays. When the Unit 2 FGD mist eliminator sprays are not available the intercepted ground water is pumped to the irrigation reservoir to be combined with other waste streams before land application. This action was taken by PacifiCorp in requirements from DWQ dating from 2004 to 2006, as described in the responses to comments 5 and 7 above, and also on page 4 of the Statement of Basis. Under the terms of the current draft permit, these waste streams will no longer be land-applied by the end of the permit term in 5 years.

While ground water under the Huntington Power Plant site has been affected by plant operations, discharge of this ground water to Huntington Creek has *de minimis* effect on water quality in the creek, and surface water standards have not been exceeded in the creek since permit issuance in 2006.

Natural degradation of water quality in Huntington Creek occurs at the plant site as water in the stream comes into contact with the Mancos Shale. Water quality in Huntington Creek is still very high at the downstream end of PacifiCorp's facilities, in the 200-400 mg/l range for TDS. Monitor wells adjacent to Huntington Creek have boron levels below 2 mg/l.

Permit Action: None

Comment 11

As discussed more fully in the October 15, 2015 60-day notice of intent letter, which is incorporated herein by reference, PacifiCorp has not managed its liquid wastes in an environmentally sound manner or compliance with state and federal water quality standards. Rather, PacifiCorp co-mingles the liquid wastes from its Huntington Power Plant operations and stores the liquid waste in the so-called evaporation ponds. The waste streams in these ponds include coal ash landfill leachate, process waters, and contaminated springs. The pollutants in the ponds include sulfate, nitrate, metals, boron, selenium, TDS, salts, and other pollutants. The liquid wastes are then sprayed onto the so-called "research farms" located immediately adjacent to Huntington Creek. A 2012 photograph of the irrigation system and research farms is provided below:

On at least one occasion, representatives from HEAL Utah observed the irrigation system spraying this liquid waste directly into Huntington Creek. Certainly, the research farm irrigation practices have resulted in significant contamination to groundwater below the research farms

and to Huntington Creek itself. The research farms were originally designed as a way to avoid treating certain waste streams from the power plant. However, the waste streams polluted with coal ash constituents were toxic to plants and not suitable as irrigation water. The "farms" the wastewater is currently sprayed on are not designed to yield agricultural crops, instead they are designed to absorb pollution that PacifiCorp would otherwise have to pay to treat. The current "crops" from the "research farms" are not fed to livestock. Rather, these "crops" are disposed of at the Huntington coal ash landfill.

11 DWQ Response:

There is no evidence that "significant contamination" has occurred to ground water under the Research Farm and to Huntington Creek. Interpretation of ground water monitoring data is complicated by the factors described on pages 5 and 6 of the Statement of Basis. In addition, beneficial uses of this ground water were limited independent of PacifiCorp's activities due to poor yield and naturally-occurring degradation of ground water quality.

Surface water monitoring data in Huntington Creek, from site UPL-9, located at the downstream end of PacifiCorp's property, does not reveal any "significant contamination".

According to PacifiCorp (Bradley Giles, personal communication, Feb. 7, 2017) the observation of "wastewater sprayed directly into Huntington Creek" was on the first day of irrigation season, and a directional sprinkler and deflector had not been adjusted yet. PacifiCorp does not spray wastewater directly into the creek intentionally or regularly.

Permit Action: None

General Comments

General Comment 1 (1.1)

1. Despite this long history of acknowledged contamination at the Huntington coal plant, ***the Draft Permit fails to require any remediation of the existing contaminated ground water plume or impose any measures to prevent the spread of the existing plume.***

The Draft Permit states "[r]educing infiltration combined with monitored natural attenuation (MNA) is the preferred way to restore water quality." MNA does not mandate any affirmative action to stop the spread of contamination or affirmatively remediate the existing contamination. Instead, MNA only requires monitoring of the concentration and spread of the ground water plume. The Draft Permit admits that "ground water recharge at these sites is very slow due to the dry climate in the area, and improvement in ground water quality may not occur rapidly." Despite this admission, DWQ fails to impose any remedial requirements with respect to the existing plume. Rather, the Draft Permit states, "[i]f DWQ determines that ground water quality has not improved in areas affected by past discharges within a reasonable amount of

time, additional corrective measures may be required." Draft Permit at p. 3. This provision is vague and unenforceable.

1.1 DWQ Response:

The language cited in this comment comes from Appendix B, Best Management Practices, and specifically refers to management of the closed (old) combustion waste landfill. Ground water affected by discharges from both this landfill and the active (new) landfill flows to the drainage above the Duck Pond. As described in the responses to Comments 5 and 7 above, and also on p. 4 of the Statement of Basis, DWQ did impose remedial requirements on ground water affected by the landfills in 2004 and 2006. Since 2009, this ground water has been collected in a drain and diverted to either Unit 2 FGD mist eliminator sprays or to the irrigation reservoir for eventual land application. With the current permit requirement to end land application, a new disposal for waste streams currently collected in the irrigation reservoir will be developed that is protective of waters of the state.

Additional plant facilities which affected ground water quality were closed and removed by PacifiCorp, as described in references 9, 10 and 11 of the Statement of Basis.

As described in the Statement of Basis to the original permit issuance in 2006, the main goal of this permit is to protect water quality in Huntington Creek. Water quality in the Research Farm alluvial aquifer and other saturated zones is important mainly to the extent that it could potentially affect the creek. Monitoring since the first permit issuance in 2006 has not shown exceedance of surface water quality standards, despite 40 years of plant operation.

No single plume of contaminated ground water originates at the plant site that could be remediated. In reality, there are small zones of affected ground water at some plant facilities like the wastewater pond and the site of the former Lacey's Lake, and a plume associated with scrubber sludge disposal at the landfills, which was contained. See Statement of Basis at 4.

It is DWQ's judgment that the existing contamination of ground water at the power plant site does not pose a danger to water quality in Huntington Creek nor to ground water essential to wildlife habitat. Potential future beneficial uses of the ground water are naturally limited due to naturally poor water quality and poor yield. Any actual endangerment of potential future beneficial uses will be eliminated if PacifiCorp retains control over the ground water.

Permit Action: PacifiCorp will be required, as a permit condition, to develop institutional control of ground water under its property to control future use. Language in Part I.G.3 of the draft permit will be clarified to state that if discharge of ground water affected by PacifiCorp's activities causes water quality in Huntington Creek to exceed the surface water standards listed in Part I.G.3 of the permit, investigation into the sources of water quality degradation will be required and, depending on the results of the investigation, additional corrective action may be required to preserve water quality in the creek. If necessary, this corrective action may include ground water remediation.

General Comment 1 cont. (1.2)

It has been nearly two decades since waste disposal practices at Huntington have caused contamination to surface and ground waters. A "reasonable amount of time" has already passed and DWQ has failed to require PacifiCorp to undertake actions to remediate the existing ground water plume, or to stop the spread of the contamination from its waste disposal activities. ***We request that the Draft Permit be amended to include immediate enforceable remedial measures to stop the spread of the existing ground water plume and to require immediate remediation of the plume. Given our existing federal court lawsuit addressing this contamination, we request that DWQ establish a work group that includes PacifiCorp, DWQ, the Division of Waste Management and Radiation Control, Sierra Club, and HEAL Utah. The purpose of the work group would be to establish remedial actions that would be employed at the Huntington site to remediate the existing plume, prevent the spread of the plume, and resolve other issues raised in the federal complaint. If an agreement can be reached among all of the work group participants that achieve these goals, the agreement would then be included as an enforceable compliance schedule into a final permit(s) and also incorporated in a federal consent decree that would be lodged with the court. The work group would proceed in parallel with the federal litigation and would in no way delay prosecution of the lawsuit absent an agreement of all parties.***

1.2 DWQ Response:

DWQ is satisfied that ground water affected by PacifiCorp's activities has not affected water quality in Huntington Creek; nor is it a threat to beneficial uses of ground water, human health or the environment, or ground water necessary for wildlife habitat. As described in Part I.E.3 above, ground water quality at the plant site is of concern mainly in as far as it may affect surface water quality. So far, monitoring has shown that discharge of ground water affected by PacifiCorp's activities has *de minimis* effect on Huntington Creek.

Other than boron in some wells, constituents introduced into the saturated zones and the aquifer at the site by PacifiCorp's activities are already present in the ground water. Continued reaction with soluble salts in the Mancos Shale along ground and surface water flow paths naturally introduces more of these same constituents into the water over relatively short distances. In an area such as this where there is natural degradation of ground water quality and great variability of ground water quality over short distances, DWQ would not be able to designate water quality standards that would apply for ground water remediation. The technical feasibility, costs of ground water remediation, and the resulting benefits would also be questionable.

As long as discharge of ground water from the power plant site does not degrade water quality in Huntington Creek immediately downstream of the power plant site (which degrades naturally a few miles downstream from the site), there is no justification under UAC R317-6-6.15 and UCA 19-5-107 to require ground water remediation. DWQ has used its enforcement

discretion to determine that removal or containment of sources of ground water contamination at this site, and monitored natural attenuation, are adequate to protect waters of the state.

Permit Action: None.

General Comment 2 (2.1)

2. *We are pleased that the Draft Permit requires a phase out of the practice of land applying wastewater from the Huntington plant to the research farm(s). However, as discussed above, the waste disposal practices at Huntington have resulted in contamination of soil and groundwater at the site as well as unpermitted direct discharges into Huntington Creek and/or its tributaries. Therefore,* ***the draft permit must impose an enforceable compliance schedule to require termination of the land application practices at the Huntington site immediately and certainly over a much shorter time period than the proposed 5-year timeframe****.*

2.1 DWQ Response:

Despite plant operation since 1974, surface water quality standards in Huntington Creek have not been exceeded, beneficial uses of its water have not been impaired, and human health and the environment have not been endangered. As long as these conditions still apply, there is no justification to require termination of land application sooner than the end of the next permit term. Immediate termination, as WRA requests, is technically infeasible and unnecessary.

Permit Action: None.

General Comment 2 cont. (2.2)

As you know, my clients have initiated a federal citizen suit to address the imminent and substantial endangerment caused by PacifiCorp's waste disposal practices at the site. ***To date, the Department of Environmental Quality has not taken any enforcement actions to address the violations of RCRA and the Clean Water Act ("CWA") alleged in our complaint.*** *Under our federal court litigation schedule, our initial expert report must be exchanged by August 31, 2017.* ***Thus, we request that PacifiCorp be required to identify its preferred alternative to land application practices at the research farm by June 1, 2017 and that all such land application practices be terminated by December 31, 2017, rather than delaying for another 5 years. A resolution of this issue could also be addressed by the above-referenced work group and incorporated into an enforceable ground water permit compliance schedule as well as a federal consent decree.***

2.2 DWQ Response:

Approximately 40 years of activity at the power plant site has not led to degradation of water quality in Huntington Creek, loss of beneficial uses of its water, or harm to human health or the environment. WRA's litigation schedule on an unrelated matter does not justify requiring an

end to land application in as short of a time frame as WRA requests. The permit requirement was intended to give PacifiCorp adequate time to design and construct an alternative wastewater disposal system, and secure the required permits.

Permit Action: None

General Comment 3 (3.1)

3. In addition, we remain concerned about PacifiCorp's proposal to dispose of 315 million gallons/year of mine drainage from the Deer Creek Mine at the Huntington power plant site.[1] PacifiCorp has applied for approval with the Forest Service and Bureau of Land Management to dispose of 315 million gallons/year of Deer Creek mine drainage at the Huntington coal plant site, with a portion of this water to be land applied at the research farm(s).[2] My clients submitted public comments on PacifiCorp's proposal, which are attached hereto and are incorporated herein by reference.[3] In addition, my clients filed formal Objections to this project with the Forest Service, a copy of which is attached hereto and incorporated herein by reference.[4] Our Objections identified a number of failures with the Environmental Assessment for this project including the failure to adequately assess the impacts to surface and ground water at the power plant site and downstream resulting from disposal of 315 million gallons of mine drainage at the Huntington power plant site. Ultimately, the Forest Service agreed with our Objections that additional analysis is needed to adequately consider the direct, indirect, and cumulative effects of the PacifiCorp's proposal to dispose of the mine drainage at the power plant site.[5] ***Unfortunately, the Draft Permit fails to examine the water quality impacts associated with disposal or land application of this mine drainage at the Huntington site. In light of the failure of the Draft Permit to conduct any analysis and the Forest Service's admission of the need for further analysis, we request that the Final Permit include a specific provision prohibiting the disposal of mine drainage at the power plant site.***

1 See, https://www.fs.usda.gov/project/?project=49573
2 See Environmental Assessment for the Deer Creek Project, attached hereto as Exhibit 2.
3 Attached hereto as Exhibits 3 and 4.
4 Attached hereto as Exhibit 5.
5 Attached hereto as Exhibit 6.

3.1 DWQ Response:

PacifiCorp has not requested that the Ground Water Section of DWQ modify the permit to include any possible, future diversion of any Deer Creek mine water to the raw water pond at the Huntington Power Plant site, nor has it requested to eventually pipe such water to the irrigation reservoir for land application. When and if PacifiCorp does propose such actions, it would require a major modification to Permit No. UGW1500O2, and be subject to public notice. The current draft permit does not allow PacifiCorp to dispose of mine drainage water at the power plant site, at least in any way that may potentially affect ground water quality.

Permit Action: None.

General Comment 4 (4.1)

4. In addition, our federal court complaint alleges that PacifiCorp illegally placed dredged or fill material in, and illegally appropriated the surface waters of, Landfill Canyon and West End Canyon without a permit as required by Section 404 of the Clean Water Act. For example, Appendix C (collection systems) of the current permit requires impoundment and the collection of surface water in these areas, which is then land applied to the research farm or otherwise appropriated at the power plant. These surface waters used to be tributary to Huntington Creek before they were impounded and appropriated. PacifiCorp's own study admits that cutting off these tributaries have had an adverse impact on water quality in Huntington Creek. PacifiCorp 2016 Research Farm Isotope Study, p. 15 (attached to DWQ's Statement of Basis). Our research shows that PacifiCorp never applied for, or received, a CWA 404 permit to impound and appropriate these tributaries. To date, DWQ has failed to bring any enforcement action regarding these illegal activities. ***We request that DWQ enforce the requirements of Section 404 of the CWA by requiring removal of the fill material and restoration of these watersheds. This is another issue that can be addressed by the above-referenced work group. If an agreement can be reached to remediate the impacted watersheds, the resolution can be incorporated into an appropriate permit/enforcement document and submitted to the court in a federal consent decree.***

4.1 DWQ Response:

Permit No. UGW150002 is issued under the authority of UAC R317-6 and does not address matters pertaining to Section 404 of the Federal CWA, which is administered by the U.S. Army Corps of Engineers.

Permit Action: None.

General Comment 5 (5.1)

5. Also noted in our 60-day notice letter, PacifiCorp has failed to implement best management practices for storm water at its coal pile located along Burma Road across the highway from the Huntington Power Plant. To date, DWQ has failed to bring any enforcement action addressing storm water management at the coal pile. We request that DWQ enforce the requirements of the Huntington storm water permit by requiring implementation of best management practices at the coal pile, restoration of affected watersheds and areas impacted by the coal pile. ***This is another issue that can be addressed by the above-referenced work group. If an agreement can be reached to remediate the impacted watersheds, the resolution can be incorporated into an appropriate permit/enforcement document and submitted to the court in a federal consent decree.***

5.1 DWQ Response:

Storm water issues are not regulated under the ground water discharge permit. They are regulated under permit No. UTR266299, as required under UAC R317-8-3.9 and 40 CFR 423.

Permit Action: None.

General Comment 5 cont. (5.2)
5.2 DWQ Response:
Permit Action:

Specific Comments on Draft Permit

Specific Comment 1 (1.1)

1. The Draft Permit is unenforceable because it was not issued to a "person" or "applicant" as defined by Rule R317-6, Ground Water Quality Protection. Ground Water Quality Protection Rule ("Rule" or Rules") R317-6-6 requires that "persons" apply for and obtain a permit to discharge to ground water. The term "person" is defined as "any individual, corporation, partnership, association, company or body politic, including any agency or instrumentality of the federal, state, or local government." R317-6-1. In contrast, the term "facility" is defined to mean "any building, structure…." Id.

The "person" requesting and applying for the renewal of Ground Water Discharge Permit No. UGW150002 is "PacifiCorp".[6] PacifiCorp is an Oregon corporation and thus is a "person" for purposes of the Utah Ground Water Protection rules. However, the Draft Permit is not issued in the corporate name of the applicant. Instead, the proposed permittee in the Draft Permit is the "PacifiCorp Huntington Power Plant." The "PacifiCorp Huntington Power Plant" itself is not a corporate entity nor is it a "person" for purposes of the Utah Ground Water Protection Rules. The power plant is a series of "buildings and structures" and thus a "facility" under the Rule. Thus, DWQ may not issue a permit to the "facility" known as the "PacifiCorp Huntington Power Plant" and must instead issue the permit to the corporation that applied for the permit, namely PacifiCorp. We ask that DWQ change the name of the "Permittee" on page 1 of the Draft Permit (and elsewhere in the Draft Permit) from the "PacifiCorp Huntington Power Plant" to simply "PacifiCorp" to ensure that the permit is enforceable against a "person" as that term is defined under the Rules.

Permit Action: The permit title page has been changed to indicate that the permit is issued to PacifiCorp rather than to the Huntington Power Plant.

Specific Comment 2 (2.1)

2. Please define the term "research farm". The Draft Permit uses the term "research farm" throughout the document, but fails to define the term. A definition for the term is important because there are several land application sites at the power plant. For example, the draft permit refers to the "lower farm", the "mid farm", as well as at the "Rock Garden". Appendix F to the current permit (Huntington Research Farm Wastewater Land Application Plan) also describes the farm using the terms "east farm" and "west farm". See Appendix E (Sprinkler line identifying names) to Appendix F. The term "research farm" must be defined to identify to which of these facilities the permit applies. While the Draft Permit calls for a phase out of land application practices at the "research farm" it is unclear which of these facilities will be phased

out. Will land application of wastewater be phased out at all of these facilities, or a subset of these facilities? Please define the term "research farm" and identify whether land application will be completely phased out at the Huntington power plant. As we explained above, because land application practices have led to unlawful ground and surface water discharges, all land application of wastewater must be phased out immediately and the term "research farm" be defined accordingly.

6 See, January 28, 2016 cover letter to permit application from Darrell Cunningham, PacifiCorp to Utah Division of Water Quality.

2.1 DWQ Response:

The Research Farm is defined in the Statement of Basis at 3.

The intent of the permit is to end all land application by the end of the permit term (in five years).

Permit Action: Permit language will be clarified to replace "Research Farm" with "land application, to show that the permit's intent is that all land application will be terminated before the end of the permit term.

Specific Comment 3 (3.1)

3. The Draft Permit fails to apply criteria of Appendix F. The Draft Permit does not contain a previous appendix entitled "Criteria to End Land Application". We request that Appendix remain an enforceable part of any final permit. The Draft Permit authorizes the discharge to ground water at the research farms for the next five years. It is possible that the criteria for ending land application could be satisfied prior to five years. While land application should be phased out immediately, Appendix F should remain an enforceable part of the final permit until land application is permanently terminated at the power plant site.

Appendix F states:

> *"[t]he soil [at the research farm] has a finite capacity for salt storage that is determined by plant sensitivity to salinity. No matter how little one irrigates, eventually the salt storage capacity of the soil is exhausted and the accumulated salt causes a yield reduction…This salinity-induced yield loss results in a decrease in transpiration (or plant water uptake) and the water not used by the plant becomes drainage. Thus, leaching is inevitable"…The useful lifetime of the Huntington Research Farm will end when the crop plants cannot transpire all of the waste water. At that point, irrigation will produce leaching in violation of the Ground Water Discharge Permit, Permit No. UGW15002…If…a buildup of unused saline water in the lower 25 to 50 cm of the crop root zone…were to occur and persist over two growing seasons, recommendations will be made for the discontinuance of waste water irrigation at the site."*

Appendix F at p. 1.

The Draft Permit proposes to discontinue land application at the research farm within 5 years indicating that the criteria for discontinuance of land application has been met. However, Appendix G also found in the permit files posted to the DWQ website reaches the opposite conclusion. Thus, we ask that DWQ answer the following questions prior to finalizing the Draft Permit:

- *Has the criteria been met for discontinuance of land application at all research farm areas (mid-farm, lower farm, east farm, west farm, Rock Garden)?*
- *If so, has there been a violation of the Ground Water Permit? If so, why does the Draft Permit authorize land application for an additional 5 years?*
- *If the criteria for discontinuance of land application has not been met, what is the basis for discontinuance of land application at the research farm?*

Appendix F notes that, "[m]onitoring data and results will be included in an annual report that will be filed in the Huntington Research Farm office for inspection." We request that DWQ promptly obtain and produce a copy of each annual report filed since 2011. This will allow the public to review these reports and provide any further comments warranted by this review before DWQ finalizes the Draft Permit.

3.1 DWQ Response:

Appendix F to the 2011 version of the permit provided a methodology to evaluate the buildup of salts and water in the soil column as a means to determine whether land application could be continued. It is mainly concerned with the ability of the cover crops to provide adequate evapotranspiration to dispose of applied wastewater and not allow it to percolate below the plant root zone. The most recent report, for 2016, concludes that salts are mainly building up deeper in the soil profile where they do not significantly affect the cover crops' ability to transpire applied wastewater.

However, the Discharge Minimization Technology requirements of the permit require that land application be done according to the plan contained in Appendix A of the permit. The premise of this plan is that land application is carefully controlled, by measuring evapotranspiration rates and other weather data at the land application site, so that all applied wastewater is contained within the root zone of the crops grown at the Research Farm, and it does not migrate lower in the soil profile to the water table.

The study of stable isotopes in waters at the site, ordered by DWQ in preparation for permit renewal, revealed that water affected by evaporation was present in ground water at the Research Farm site. This isotopic signature could be due either to evaporation of cooling water

or evapotranspiration of applied wastewater at the Research Farm site. In either case, this is an indication that the land application plan is not operating as designed.

These isotopic results were the main reason that DWQ and PacifiCorp decided to end land application at the power plant site. (See Statement of Basis at 6.) Other factors also entered into this decision. TDS levels had been rising in the irrigation reservoir where wastewater is stored prior to land application and they are significantly higher than when land application was first permitted in 2006. Also, many instances of protection level exceedances have been reported at Research Farm monitor wells since the permit was first issued. These results, in and of themselves, are not proof that applied wastewater is affecting the ground water, given the complexities of this site as described at p. 5-6 of the Statement of Basis; however, they are consistent with influence of wastewater on ground water.

As explained above at 2.1, surface water standards in Huntington Creek have not been exceeded after 40 years of plant activity despite exceedances of permit protection levels in monitor wells at the power plant site. The decision to end land application was conservative and there is no immediate endangerment of surface water resources, beneficial uses of water, human health or the environment. Rather than quickly implementing an alternative wastewater disposal plan that may function poorly, DWQ is satisfied there is adequate time within this permit term to design, build and permit a well-functioning system that is protective of waters of the state. If discharge of ground water to Huntington Creek causes surface water standards to be exceeded in the creek, permit conditions allow DWQ to require PacifiCorp to take actions to restore surface water quality, including ground water remediation if appropriate.

As the decision to end land application has already been made, and PacifiCorp will proceed with development of an alternative wastewater disposal system within a time frame that DWQ considers to be reasonable, there is no more need to evaluate water and salt buildup within the soil profile to determine when land application should end. Accordingly, Appendix F was deleted from the draft permit, as explained in the Statement of Basis at 2.

Permit Action: None.

Specific Comment 4 (4.1)

4. The Draft Permit fails to remediate of contaminated ground water plume.

The current permit contains Appendix I entitled "Corrective Action Plan." Appendix I acknowledges that existing waste disposal practices at the Huntington power plant have resulted in a contaminated ground water plume, as well as contaminated surface water at the site. Appendix I examines corrective action measures to remediate the existing contaminated ground water plume, but fails to impose any requirements to stop the spread of the existing plume or remediate the existing plume. Instead, the corrective action plan allows "monitored

natural attenuation" as he sole means for resolving the existing contaminated ground water plume caused by discharges from the new and old coal ash landfills. Appendix I pp. 20 and 29. "Monitored natural attenuation" is another way of saying that DWQ has not imposed any requirements on PacifiCorp to stop the spread of the existing plumes, or to remediate the existing plumes.

It is not clear whether the Corrective Action Plan will remain an enforceable portion of the Draft Permit. The Corrective Action Plan is not included as one of the appendices to the Draft Permit, but was posted as a separate appendix to DWQ's website. Please clarify whether the Corrective Action Plan will remain an enforceable component of the Draft Permit.

DWQ's Draft Permit is deficient because it fails to prevent spread of the existing plumes and fails to require remediation of the plumes to meet ground water standards at all locations of the plume.

4.1 DWQ Response:

Appendix I is contained in the modified version of the 2006 permit, issued in 2009, and is related to remediation of ground water affected by the combustion waste landfills. This remedial activity was completed in 2009 with the installation of a ground water drain below the landfills to collect ground water affected by them, thereby cutting off the source of discharges to ground water. Any "spread of existing plumes" is limited by the site's hydrogeology, because all ground water on the site does not move off PacifiCorp's property but rather discharges to Huntington Creek and has a *de minimis* effect. While some ground water affected by the landfills may flow in the underlying Mancos Shale and bypass the drain, water quality in Huntington Creek has not been degraded. Because DWQ has not identified any endangerment to beneficial uses of ground or surface water, ground water essential to wildlife habitat, or human health and the environment, active ground water remediation has not been required at the Huntington Power Plant site. Rather, DWQ has determined that natural attenuation of ground water affected by plant activities is appropriate at this site and it will be monitored under permit conditions. Any potential influence on Huntington Creek is also monitored under permit conditions and PacifiCorp is held to maintaining surface water standards in the creek. Currently, remedial activities involving removal or isolation of contaminant sources have been completed. Therefore, there is no current need for a corrective action plan and there is no appendix addressing it in either the current (2011) permit or the renewed (2017) permit versions.

Under the current conditions, active ground water remediation would only be required under hypothetical situations such as:

- water quality in the creek was degraded and ground water remediation was identified as a method to restore it,
- ground water highly affected by plant activities did not naturally attenuate in a reasonable length of time, or

- in the event of a spill or other unplanned release.

DWQ has the authority to require ground water remediation in such cases under R317-6-6.15.

Permit Action: None.

Specific Comment 5 (5.1)

5. The Analysis fails to present cumulative ground water data.

The Huntington Power Plant Water Quality Analysis (January 11, 2016) fails to present adequate data revealing the cumulative impact of waste disposal practices at the site. The Analysis fails to present any water quality data prior to 2002. Thus, the Analysis fails to present data showing the impacts to ground and surface waters from waste disposal activities from their inception through 2001. Monitoring data prior to 2002 exists, as is evidenced in our October 15, 2015 60-day notice letter. Exhibit 1 hereto. We request that the Analysis be amended to present all water quality data beginning with the initial placement of waste at the site through the present.

5.1 DWQ Response:

Data from the first set of monitor wells installed at the site is not valid, due to inadequate construction that would not allow collection of a legally or scientifically meaningful sample. Data used for this permit comes primarily from the second set of wells, installed in 1997, well after the "initial placement of wastes".

Ground water affected by PacifiCorp's activities before permit issuance in 2006 is considered "existing", since true background ground water quality, before "initial placement of wastes", is unknown. As long as ground water under the site does not affect water quality in Huntington Creek and PacifiCorp retains institutional control over future uses of ground water at the site, DWQ does not consider the cumulative impact of waste disposal practices to be a threat to beneficial uses of waters of the state, water necessary for wildlife habitat, human health or the environment.

Permit Action: None.

Specific Comment 6.1

6. Protection levels must be derived from true background water quality.

Page 1 of the Draft Permit states,

[g]round water varies from Class II to Class IV across the power plant site, and in some areas it has been impacted by operation of the power plant. Because of this and other factors cited in the Statement of Basis, comparison of ground water quality upgradient and

downgradient of the plant facilities cannot be used to evaluate any impacts caused by the facilities. Therefore, protection levels are not derived from water quality data in the upgradient monitor wells, but rather from initial data taken from downgradient wells.

In other words, DWQ is using downgradient wells that have been previously contaminated by Huntington power plant operation to establish protection levels. DWQ's use of previously contaminated ground water monitoring wells to determine "background" conditions is contrary to the Utah Ground Water Protection Rule R317-6.10 requiring that "background water quality contaminant concentrations shall be determined and specified in the ground water discharge permit." Simply put, it is arbitrary and capricious for DWQ to use contaminated downgradient wells as a substitute for clean natural background concentrations. To do so would ignore and fail to address the previous contamination caused by PacifiCorp and would result in arbitrarily high protection levels.

The purported "background" concentrations in compliance wells, including but not limited to wells NH1 W, NH3 W, NH-9W, NH-10W, RG-1, HLF-7Od, HDP-1, HDP-2, and HSW-1, as presented in Table 1 of the Draft Permit reveal extremely high levels of boron, nitrate and TDS. These high concentrations establish that many of these so-called "background" wells have been significantly contaminated by waste disposal activities at the Huntington power plant.

The Draft Permit fails to prove that it is impossible to find upgradient groundwater that has not been impacted by PacifiCorp's waste handling practices. For example, Figure 5 in our 60-day notice letter presents groundwater data as far back as 1979 for the Huntington plant. DWQ must obtain all historic groundwater data for the Huntington plant and use the appropriate data to determine true background concentrations in groundwater. Further, there are numerous areas hydrologically up gradient of the Huntington Plant where clean upgradient groundwater monitoring wells could be located, including the County Boy Scout camp upgradient and adjacent to the power plant property. DWQ must require that PacifiCorp install un-impacted upgradient ground water monitoring wells and collect data for use in establishing protection levels under this permit. PacifiCorp is presently using its condemnation rights to acquire land for purposes of constructing its Deer Creek Pipeline and could do the same to locate truly upgradient non-impacted ground water wells. Exhibit 7 hereto.

6.1 DWQ Response

UAC R317-6 does not require that background water quality in the compliance monitor wells represents "clean natural background concentrations". It cannot be assumed that water quality in an aquifer is uniform from place to place, and that any change seen in a well downgradient of a permitted facility as compared to a well upgradient from it (for constituents present in both wells) is entirely due to constituents added by the permitted facility. Experience in administering UAC R317-6 has shown this is rarely if ever the case, and particularly not so at this site. Ground water quality can vary naturally over short distances in an aquifer or other saturated zone, and sometimes it varies significantly, as is the case at this site. Ground water quality at this site degrades upon contact with the Mancos Shale, and at least some of the

observed spatial variation in ground water quality is due to this factor. While PacifiCorp's activities likely affected ground water quality at the site, as an "existing facility" at the time UAC R317-6 was adopted, any ground water quality degradation that occurred before permit issuance in 2006 is considered to be "existing", and the purpose of establishing ground water background concentrations and protection levels is to evaluate any water quality degradation above those existing levels.

Because of these complications, a comparison of upgradient and downgradient water quality is not a scientifically valid means of evaluating the power plant's effects at this site. Rather, since 2006, DWQ has compared monitoring data from downgradient wells with averaged background data that was collected before 2006 from those same wells. The use of downgradient monitor wells for permit compliance monitoring is to look for rises in contaminant concentrations above the concentrations seen in pre-2006 data. Upgradient wells are monitored as a check, to insure that changes in downgradient water quality were not a result of changes in water quality due to sources upgradient of the facility.

UAC R317-6 does not require that protection levels must be based on water quality data from "clean upgradient groundwater monitoring wells" where site conditions do not allow this. Given the complicating factors cited above, particularly the naturally-occurring degradation of ground water quality and the effects of almost 25 years of plant operations before background was defined for the permit, setting protection levels based on upgradient ground water quality is not required under UAC R317-6. Because all of the constituents introduced by PacifiCorp's activities also occur naturally in the ground water (other than boron in some wells) and also naturally increase in concentration from contact with the Mancos Shale, DWQ recognizes that it is not always possible to distinguish changes in ground water quality due to causes that are under PacifiCorp's control from natural changes due to factors not under its control.

Protection levels as applied in this permit were intended to reflect existing water quality before the permit was issued in 2006, and to monitor for increases over time in the concentrations of constituents that are conservative tracers, i.e. they do not bind to soil particles and move with the ground water. An initial set of monitor wells was installed at the site in 1979, however, they were not constructed in a way to allow for collection of scientifically and legally valid ground water samples (see Statement of Basis at 2-3). Therefore, background concentration levels and the protection levels that were derived from them were based on the second set of wells installed at the site in 1997.

Permit Action: None.

Specific Comment 6 cont. (6.2)

DWQ's failure to rely on data from clean upgradient ground water monitoring wells is also inconsistent with EPA's coal ash disposal regulations. Under EPA's regulations, PacifiCorp must install a groundwater monitoring system by October 17, 2017 that accurately represents the quality of background groundwater that has not been affected by leakage from a CCR unit. 40

C.F.R. § 257.91(a). Data from these upgradient wells will be compared to data from downgradient wells to determine whether corrective action is mandated. C.F.R. §§ 257.95 and 257.96. DWQ's Draft Permit fails to comply with these requirements and fails to satisfy any exception to the requirement to install and collect data from clean upgradient groundwater monitoring wells.

6.2 DWQ Response:

DWQ and this permit do not administer the CCR regulations. Requirements of that program are not applicable to permits issued under UAC R317-6.

Permit Action: None.

Specific Comment 6 cont. (6.3)

We also object to DWQ's failure to establish a ground water class for the area around the Duck Pond. All ground water on the site must be properly characterized.

6.3 DWQ Response:

Ground water in this area was affected by PacifiCorp's activities, and the original background water quality is unknown. There is insufficient information to establish ground water class(es) in this area.

Permit Action: None.

Specific Comment 6 cont. (6.4)

We also request that protection levels be established for boron in addition to nitrate and TDS.

6.4 DWQ Response:

Protection levels were established in the 2006 version of this permit as a way to evaluate influence from wastewater on ground and surface water. Total dissolved solids (TDS) and nitrate + nitrite were chosen for this purpose because they are present in the wastewater and do not interact with the aquifer matrix, and so travel in the ground water without retardation and provide a timely indication of influence from wastewater.

Boron data has been collected at monitor points since the start of this permit, for informational purposes, and will continue to be collected during the current permit term. Boron can adsorb onto the aquifer matrix under alkaline conditions and may not provide the most timely notice of influence from wastewater. The boron data can be used to guide remediation efforts, if necessary.

DWQ does not see any benefit to establishing ground water protection levels for boron. Under the current permit conditions, several plant facilities have been closed, and land application will end before the end of the current permit term. As stated earlier, there is no indication that beneficial uses, water necessary for wildlife habitat, human health or the environment will be harmed by leaving the existing ground water affected by PacifiCorp's activities in place. However, this ground water is in a location where it could potentially affect water quality in Huntington Creek. (It should be noted that boron concentrations in the creek are currently below detectable levels.)

Permit Action:

A surface water standard for boron of 0.75 mg/l will be established for Huntington Creek. Boron may not rise above this level due to PacifiCorp's activities. Permit conditions will be modified to state that **one** detection of a surface water parameter (see permit section I.G.3) exceeding permit standards will trigger monthly monitoring of Huntington Creek and a requirement to investigate the detection to determine whether it is due to PacifiCorp's activities. If PacifiCorp is responsible for the exceedance, DWQ may require remedial action, including ground water remediation if necessary.

Specific Comment 6 cont. (6.5)

The Draft Permit fails to provide a rationale for use of a different calculation of protection levels for well NH-9W. Please provide your rationale for public review and comment.

6.5 DWQ Response:

It has been DWQ practice, in consultation with statisticians, to base background water quality on data from at least eight independent samples taken over a one-year period. Protection levels are based on statistics calculated from that data set. Wells NH-9W and NH-10W were recently installed and do not have the necessary data set to define background water quality. Background water quality, ground water class and protection levels will be officially defined when adequate data have been collected.

Permit Action: None.

Specific Comment 6 cont. (6.6)

The Draft Permit also fails to present the raw data relied upon to establish protection levels. We request that DWQ present the raw data and protection level calculations for public review and comment prior to finalization of the Draft Permit. The public should be allowed an opportunity to review the raw data and DWQ's calculations and comment on the same.

6.6 DWQ Response:

Protection level calculations were based on data collected before permit issuance in 2006. A spreadsheet containing all permit monitoring data is at DWQ-2016-017141 and is available upon request under the Government Records Access Management Act, Utah Code Ann. § 63G-2-101, et. seq.

Permit Action: None.

Specific Comment 6 cont. (6.7)

DWQ's failure to obtain and/or utilize true background water quality data is arbitrary and capricious and results in inappropriate protection levels. We request that DWQ obtain and/or utilize all historic groundwater data, identify the true background concentration of each well/groundwater area, and present the data and DWQ's calculation of protection levels for review and comment prior to finalizing the permit.

6.7 DWQ Response:

See DWQ response to comment 6.1, above. Protection levels were based on ground water samples taken from 1997-2006 and were calculated as the mean plus two times the standard deviation from that data set.

Protection levels were established when the permit was first issued in 2006. The public had the opportunity to comment on the content of the permit at that time.

Permit Action: None.

Specific Comment 7 (7.1)

7. Require PacifiCorp to post all reports to its CCR website.

EPA's CCR regulations require PacifiCorp to establish and maintain a publicly accessible website where it will post reports and information related to its CCR units at the Huntington coal plant. We request that the Draft Permit include a requirement that PacifiCorp post all reports required under the ground water permit to its publicly accessible CCR website simultaneous with the submission of such reports to DWQ. This posting requirement would include a requirement to simultaneously post notice of any ground water monitoring well data showing exceedances of protection levels, as well as any subsequent investigation reports or remedial action.

7.1 DWQ Response:

This permit was issued under UAC R317-6, and the requirements of other regulatory programs have no application. Monitoring data is a public record and is available upon request under the Government Records Access Management Act, Utah Code Ann. § 63G-2-101, et. seq.

Permit Action: None.

Specific Comment 8 (8.1)

8. All facilities should have a double liner with leachate detection.
We request that DWQ impose, in a compliance schedule, the requirement that PacifiCorp install a double synthetic liner system with leachate detection in all existing and future plant site ponds and impoundments where there is any potential for discharging to groundwater, as well as at all future ponds or impoundments. Clay and concrete liners are not the best available technology and do not allow for a prompt identification of any discharge from such structures.

8.1 DWQ Response:

As an existing facility and given the site conditions and nature of the wastes stored in permitted ponds, ground water monitoring is an appropriate discharge minimization technology for this permit; in fact, it has identified problems with ponds that were later remedied by PacifiCorp.

UAC R317-6 does not require that all ponds and impoundments for wastewater must have a double liner with leak detection. Best available technology for containing wastewater is defined on a case-by-case basis considering the site characteristics and the nature of the wastewater to be stored in the pond, and any other relevant factors.

Permit Action: None.

Specific Comment 9 (9.1)

9. Leachate from the landfills should not be allowed to drain.

Appendix B to the Draft Permit states that the coal ash waste in the old ash landfill would remain in place and that the landfill would be capped "thereby allowing the existing liquid in the landfill to drain." As stated above, the liquid in the landfill is highly contaminated and is causing contamination of ground and/or surface water at the site. The liquid from the old landfill should not be allowed to drain. Instead, the Draft Permit should include an enforceable compliance schedule specifying mandatory measures proven to stop the spread of this liquid and to remediate the contaminated ground water. In the event DWQ refuses to impose these requirements, the Draft Permit should answer the following questions:

• Where is the liquid in the old landfill draining to? What is the fate and transport of this drainage? Will allowing the liquid to drain adversely impact classified or unclassified ground water or surface water at or near the plant site?
• Do pollutant concentrations in the drainage currently violate protection levels? Will allowing the liquid to drain result in any future violation of protection levels? If so, where are these violations expected to occur and for which constituents?

9.1 DWQ Response:

Liquids draining from the landfills are collected in a drain installed in 2009, as described on p. 4 of the Statement of Basis. This liquid was disposed of in accordance to permit conditions and used in FGD mist eliminator sprays as needed with the remainder diverted to the irrigation pond. After implementation of the alternative wastewater disposal system required in this version of the permit, this waste stream will no longer be land-applied.

Collecting drainage from the landfills has cut off the source of contaminants that could potentially affect downgradient ground and surface water. DWQ does not see any evidence that the remaining affected ground water will impair beneficial uses, water needed for wildlife habitat, human health or the environment.

As explained above, all ground water contained in aquifers and saturated zones at this site eventually drains to Huntington Creek. If discharge of ground water affected by PacifiCorp's activities causes surface water standards in the creek to be exceeded, permit conditions allow DWQ to require remedial action to preserve water quality in the creek.

Permit Action: None.

Specific Comment 10 (10.1)

10. Identify the fate of the FGD slurry in Appendix B and the applicable BMP.

Appendix B to the Draft Permit states the BMP for FGD waste is to "[e]liminate free liquid content of FGD slurry. Use drum vacuum filters to remove free liquid from slurry prior to placement on the ash landfill." Appendix B fails to identify the fate and transport of the free liquids from the FGD slurry after it is collected. The Draft Permit must identify the fate and transport of the free liquid and impose best available technology for preventing this free liquid from contaminating ground or surface waters.

10.1 DWQ Response:

Coal combustion wastes are extremely dry, and Huntington Power Plant produces a great volume of them. Since PacifiCorp has implemented operational changes in the handling of FGD slurry, the liquid is mixed with fly ash and the ash disposed of in the landfill. Addition of this

relatively small quantity of liquid to the ash will not bring it to anywhere near its field capacity, the percentage content of liquid that would result in liquids draining from the ash.

Permit Action: None.

Specific Comment 11 (11.1)

11. The BMPs at the coal pile have not been consistently maintained.

Appendix B of the Draft Permit imposes BMPs for management of the coal pile. As documented in our October 15, 2015 60-day notice letter, BMPs have not been consistently implemented at the coal pile resulting in surface discharges and solid waste disposal of coal constituents outside the boundary of the coal pile in violation of both this ground water permit as well as the Industrial Stormwater permit for the Huntington plant. To date, DWQ has failed to take any enforcement action requiring compliance with the terms of these permits. The Draft Permit should impose additional BMPs and monitoring requirements to ensure that the coal pile is not resulting in offsite surface or groundwater discharges, or discharges of coal constituents outside the boundary of the coal pile.

11.1 DWQ Response:

Surface discharges from the coal piles are regulated under the stormwater permit No. UTR266299, as required under UAC R317-8-8.9 and 40 CFR 423. Potential discharges from the coal piles to ground water are regulated under this ground water discharge permit and are monitored by wells HCP-1 through HCP-6.

Permit Action: None.

Specific Comment 12 (12.1)

12. Appendix B does not accurately state the fate of the collection system leachate.

Appendix B of the Draft Permit states that "[c]ollection systems were installed to intercept leachate leaving both the New and Old Landfill areas and surface water in the Duck Pond area…Captured water gravity flows to the pump house sump, where it is pumped back to the facility for re-use in plant operations." We believe this is a misleading representation of the fate and transport of the collected leachate from the landfills. Based on previous permit applications and other documents prepared by DWQ and/or PacifiCorp, it is our understanding that the pump house sump is connected to the evaporation pond across Highway 31 which is used to irrigate the research farm. Please clarify the fate and transport of the collected landfill leachate. In addition, the Draft Permit fails to contain a diagram of all current man-made conveyances of ground and surface water at the site, including but not limited to the conveyances associated with the landfill leachate, pump house sump, evaporation pond, raw water pond, and FGD slurry dewatering system. We request that the Draft Permit include a

current diagram of all such man-made conveyance systems for surface water, ground water, leachate, and wastewater at the site including all inputs and outputs from any pond or impoundment. In the event there have been any changes to this conveyance system since the issuance of the last ground water discharge permit, the Draft Permit should include a diagram of the previous conveyance system and should clearly identify any such changes to the system both in narrative form and diagram form.

12.1 DWQ Response:

Fate and transport of groundwater collected in the drain installed in the Duck Pond drainage is described in the Statement of Basis on p. 4. A flow diagram of the conveyance system is at DWQ-2016-013635 and is available upon request through the Government Records Access Management Act, Utah Code Ann. § 63G-2-101, et. seq.

Permit Action: None.

Specific Comment 13 (13.1)

13. The Draft Permit fails to include a map of all relevant structures.

The Draft Permit fails to include a single comprehensive and current map identifying all facilities potentially discharging to surface and ground water and all surface and ground water monitoring wells. We request that DWQ produce such a comprehensive map for public review and comment prior to finalization of the Draft Permit.

13.1 DWQ Response:

A current map of monitor well locations is at DWQ-2016-017142, and is available upon request through the Government Records Access Management Act, Utah Code Ann. § 63G-2-101, et. seq. Appendix B of the permit lists which plant facilities are monitored by which wells.

Permit Action: None.

Specific Comment 14 (14.1)

14. All surface and ground water monitoring should be done on a quarterly basis.

We request that all surface and ground water monitoring locations identified in Appendix C of the Draft Permit be monitored and reported on a quarterly basis through the life of this permit. There has been extensive contamination at the site and it is important to closely monitor temporal changes in ground and surface water concentrations.

14.1 DWQ Response:

WRA does not identify any specific reasons why "it is important to closely monitor temporal changes in ground and surface water concentrations" by implementing a quarterly monitoring schedule. At monitor wells adjacent to Huntington Creek, a quarterly monitoring schedule will be required under this permit term, to evaluate the potential for ground water impacted by PacifiCorp's activities to discharge to the stream. At other monitor wells there is no indication of what benefit would result from quarterly monitoring, due to the slow movement of ground water. Stream sampling is to be done at times of annual high and low flow; WRA does not identify any benefit from monitoring at intermediate flow stages.

Permit Action: None.

Specific Comment 15 (15.1)

15. The Draft Permit should identify all violations of protection levels.

The Draft Permit should contain a table identifying the location, parameter, protection level, and concentration of all violations of ground water protection levels at our adjacent to the Huntington power plant site.

15.1 DWQ Response:

Copies of written notices of protection level exceedances are located in DWQ-2017-002132 and are available upon request through the Government Records Access Management Act, Utah Code Ann. § 63G-2-101, et. seq.

Permit Action: None.