

C/015/018 Incoming
cc: Keenan



Electronically Submitted (Hard Copy to be sent USPS)

Brian M. Pentecost
Forest Supervisor
Manti-La Sal National Forest
U.S. Forest Service

Ahmed Mohsen
Price Field
Price Field Office
Bureau of Land Management
U.S. Department of Interior

Deer Creek Mine Closure Water Pipeline
UTU-91700
Proponent: PacifiCorp - Application for ROW

RECEIVED

DEC 27 2016

DIV. OF OIL, GAS & MINING

Gentlemen:

Thank you again for your consideration of PacifiCorp's SF-299 application for a right-of-way for the construction of a pipeline to convey intercepted groundwater from the Deer Creek Mine's Rilda Canyon Right Fork portal to the Raw Water Pond at PacifiCorp' Huntington Power Plant. As you know, on September 27, 2016, the Forest Service published its Environmental Assessment (EA) and draft Decision Notice and Finding of No Significant Impact. On November 21, 2016, the Sierra Club and HEAL Utah filed Objections to the EA and draft DN.

In reviewing those Objections, we've noted numerous issues and mischaracterizations that we believe warrant correction, clarification or elaboration. The attached Memorandum provides relevant background and context that we believe will be helpful as you consider the issues and assertions set forth in the Objections. As an example, PacifiCorp Response #1 (page 2) provides background and support to correct the Objectors' mistaken assertion that the power plant's Raw Water Pond was unlined; PacifiCorp Response #5 demonstrates that the Objectors' characterization of the intercepted groundwater as "acid mine drainage" is erroneous; PacifiCorp Responses #7, #9, #10, #11, #14 and #15 refute the Objectors' mistaken assertions that the EA failed to evaluate whether the eventual discharge of the intercepted groundwater into the power plant's Raw Water Pond for consumptive use would have adverse impacts on the water quality of Huntington Creek; etc.

We believe the corrections, clarifications and elaborations in the attached Memorandum will be critical in your evaluation of the substance and the credibility (or lack thereof) of the Objections. Thank you for your consideration.

Sincerely,

Charles Semborski

Charles Semborski
Manager of Geology and Exploration
PacifiCorp Interwest Mining

cc: Ken Paur (U.S. Department of Interior)
Jeff Salow (USFS)
Steve Rigby (BLM)
Dana Dean (DOGM)
Kim Shelley (DWQ)
Scott Child (Interwest)
Megan McKay PacifiCorp)
Marty Banks (Stoel Rives)
Jenna Jorgenson (Jones & DeMille)

Subject: NEPA Objection Document from Sierra Club and HEAL Utah – Summarized with Responses from PacifiCorp

In order to meet applicable mine closure requirements, PacifiCorp must manage the groundwater that naturally will build up in the Deer Creek Mine during its closure process. PacifiCorp has developed the most effective way to accomplish this task by taking advantage of ongoing water needs at the nearby Huntington power plant. Routing mine water to the power plant requires a pipeline, the installation of which across Forest Service land is the purpose for the current NEPA action. The mine water will be combined with other water sources (primarily Huntington Creek) in a lined pond at the plant. This combined water mostly will be consumed during normal plant operations. In fact, only about 3% of the combined water from all sources – including the mine water – will not be consumed and will be routed to the irrigation pond at the plant for management in accordance with the plant’s permit requirements. Sierra Club/HEAL Utah attempt to twist these simple and straightforward facts into something they are not.

To do so, Sierra Club/Heal Utah base their objections on inaccurate and misleading statements and assumptions as detailed below. In addition, the Sierra Club/ HEAL Utah rely on outdated documents and data. Further, a closer look of the Sierra Club/HEAL’s objections shows that their concerns are not whether the Forest Service complied with the National Environmental Policy Act in approving the pipeline, but whether the water management system at the Huntington Plant is environmentally sound. State regulatory processes govern these water management practices, not NEPA, and the Sierra Club/HEAL is currently litigating those issues in federal court.

PacifiCorp has been working diligently since December 2014 to close the Deer Creek Mine in a compliant and environmentally sound manner. PacifiCorp’s commitment to protecting the hydrologic regime during this mine closure is unprecedented in the coal mine industry. Repeated throughout their objections, Sierra Club/Heal Utah misrepresent the hydrology of the Deer Creek Mine, mischaracterizing the mine drain water as highly polluted and as “acid mine drainage.” Data was presented in the EA documenting the characteristics of the mine water as good quality and that it is impossible for this hydrologic system to produce water that is acidic.

The following are excerpts from the objection along with PacifiCorp’s responses.

Sierra Club/HEAL Utah Objections:

Introductory Section:

Sierra Club/HEAL Utah Objections: Page 1:

“In an effort to protect water quality on federal lands, the FS has approved a project that will pipe 315 million gallons/year of mine drainage from federal lands to a downstream private property for disposal in unlined ponds and land application sites immediately adjacent to Huntington Creek.”

RECEIVED

DEC 27 2016

DIV. OF OIL, GAS & MINING

(Underline added for emphasis)

PacifiCorp Response #1:

Sierra Club/HEAL Utah's statement that the mine drainage will be disposed of in unlined ponds and land application sites is incorrect and misleading.

- *PacifiCorp proposes to divert mine water drainage from the Deer Creek Mine to the Huntington Plant settling pond (also referred to as the Raw Water Pond). The settling pond, including its liner, was designed and engineered by Sterns Roger Corporation and approved for construction January 27, 1972.*
 - *Settling Pond Construction Details*
 - *Dead Storage Capacity 80.01 acre feet*
 - *Live Storage Capacity 256.43 acre feet*
 - *Pond liner*
 - *Thickness 3.0'*
 - *Compacted clay/silty soils compacted to 98% density (ASTM D1557-70)*
- *As indicated in the professional engineer certified construction drawing the settling pond includes a compacted clay liner three feet in thickness.*
- *The Huntington Plant's 2016 Groundwater Permit renewal application states that the pond has a clay liner.*
- *The second part of the statement indicating that PacifiCorp intends to divert the mine water for use in land application is incorrect. Mine water drainage will be diverted from the mine directly to the Raw Water Pond for use in the Power Plant operations. No physical connection exists to allow the mine water to be diverted directly for use in t land application practices*

Sierra Club/HEAL Utah Objections: Page 2:

“The Public Comment Package and the EA largely ignore the fate of the wastewater once it is disposed of at the Huntington Power Plant.”

PacifiCorp Response #2:

At the heart of this objection is the Sierra Club's faulty assumption that mine water will be discharged at the plant using the land application systems currently in place. This is not the case. The EA and corresponding references (Plan-of-Development – POD) outline the purpose and need of the mine water drain line. The POD expressly and clearly explains the final disposition of the mine drain water for use in power plant operations (POD page 6). As explained later in this response, 97 percent of the water from the Raw Water Pond will be consumed by plant operations. Because the Raw Water Pond contains other sources of water

(storm water from the lands surrounding the pond and Huntington river diversion), mine water will make up only a small fraction of the remaining three percent of total water.

Sierra Club/HEAL Utah Objections: Page 2&3:

“In addition, the FS denied the Objectors the right to review and comment on its 197-page Environmental Assessment. Instead, the only public comment opportunity was on the FS’s 6-page Public Comment Package, which was nothing more than a general scoping announcement.”

“The FS’s proposed project will harm Objectors and their members. As described below, the FS’s failure to comply with the mandatory public involvement requirements of NEPA has denied the Objectors and their members a meaningful opportunity to comment on the environmental analysis for this project and the range of alternatives.”

PacifiCorp Response #3:

Sierra Club/Heal asserts without providing any supporting data that the drain water pipeline will harm the Objectors. Sierra Club/Heal Utah again misstates that the BLM and the USFS did not comply with the NEPA and CEQ regulations. BLM and USFS fully complied with the applicable laws, regulations and guidelines, including those pertaining to initial scoping and public notices, including the Council of Environmental Quality (CEQ) regulations. Federal law does not require the issuance of a “Draft EA” for public comment, or the opportunity for public comment on a final EA NEPA and its implementing CEQ regulations provide in general terms that agencies “shall involve environmental agencies, applicants, and the public, to the extent practicable, in preparing” EAs. 40 C.F.R. § 1501.4(b); see Sierra Club v. Hodel, 848 F.2d 1068, 1094 (10th Cir. 1988) (summarizing CEQ requirements for public participation related to EAs and FONSI).

When an agency prepares an EA instead of an EIS, however, it is NOT required to make a draft EA available to the public for comment before making a final decision. Greater Yellowstone Coal. v. Flowers, 359 F.3d 1257, 1279 (10th Cir. 2004) (stating that “NEPA’s public involvement requirements are not as well defined when an agency prepares only an EA and not an EIS” and rejecting argument that agency acted arbitrarily by failing to make EA and other documents available to the public before issuing a final decision); see Fund for Animals, Inc. v. Rice, 85 F.3d 535, 549 (11th Cir. 1996) (“[T]here is no legal requirement that an Environmental Assessment be circulated publicly and, in fact, they rarely are.” (emphasis in original)); Theodore Roosevelt Conservation P’ship v. Salazar, 616 F.3d 497, 518-20 (D.C. Cir. 2010) (finding no violation of § 1501.4(b) despite failure to solicit comments on draft EA); Bering Strait Citizens for Responsible Res. Dev. v. U.S. Army Corps of Eng’rs, 524 F.3d 938 (9th Cir. 2008) (rejecting argument that public circulation and comment on draft EA is required in every case under NEPA and noting that “conclusion is consistent with the views of other circuits, which uniformly have not insisted on the circulation of a draft EA.”); Pogliani v. U.S. Army Corps of Eng’rs, 306 F.3d 1235, 1238-39 (2d Cir. 2002) (refusing to require agency to provide opportunity for public comment on draft EA and FONSI where such opportunity was not required by agencies’ regulations implementing NEPA); Como-Falcon Cmty Coal., Inc. v. U.S. Dept. of Labor, 609 F.2d 342, 345 (8th Cir. 1979) (holding there is no statutory requirement for

an agency to provide an opportunity for particular kind of method for public input and refusing to “by judicial decision legislate such a requirement into [NEPA]”); *Alliance to Protect Nantucket Sound, Inc. v. U.S. Dept. of Army*, 398 F.3d 105, 115-16 (1st Cir. 2005) (holding that nothing in the CEQ regulations required circulation of a draft EA for public comment, except under certain “limited circumstances”).¹

As reflected above, and as summarized by one court, “the vast majority of circuits addressing this issue have found that the [CEQ] regulations do not require an agency to circulate an [EA] for public comment.” *Montrose Parkway Alts Coal. v. U.S. Army Corps of Eng’rs*, 405 F.Supp. 2d 587, 596 (D. Md. Dec. 16, 2005), citing *Alliance to Protect Nantucket Sound, Inc.*, 398 F.3d 105, 115 (1st Cir.); *Greater Yellowstone Coal.*, 359 F.3d 1257, 1279 (10th Cir. 2004); *Pogliani*, 306 F.3d 1235, 1238-39 (2d Cir. 2002); *Como--Falcon Cmty Coal., Inc.*, 609 F.2d 342 (8th Cir. 1979);² see also *Nat. Res. Def. Council, Inc. v. U.S. Forest Service*, 634 F. Supp. 2d 1045 (E.D. Cal. Sept. 5, 2007); *Nat. Res. Def. Council v. Kempthorne*, 525 F.Supp. 2d 115 (D.D.C. Nov. 30, 2007); *City of Irvine v. Fed. Aviation Admin.*, 539 F.Supp. 17, 31-32 (N.D. Tex. Dec. 28, 1981) (excusing an agency’s failure to provide any opportunity for public input into an EA and FONSI on the grounds that the agency was already “fully aware” of public objections to its proposed action). In short, nothing in NEPA, the CEQ implementing regulations, USFS’s NEPA regulations, or USFS’s guidance documents required USFS to prepare a draft EA or to provide an opportunity for public comment on the final EA and draft FONSI.

Section I - Sierra Club and HEAL Utah are both proper “entities” and “objectors”:

Sierra Club/HEAL Utah Objections: Page 3

“The FS’s proposed project and discharges of contaminated mine drainage at the Huntington Power Plant site is likely to cause pollution of groundwater and local surface waters that is reasonably likely to impair the health of the aquatic ecosystem and impair the full use of the water, thus harming members of Sierra Club and HEAL Utah. The FS’s proposed project and discharge of acid mine drainage at the Huntington power plant site is likely to degrade, and

¹ The CEQ regulations do provide that, in “certain limited circumstances” which do not apply here, the agency “shall make the finding of no significant impact available for public review ... for 30 days before the agency makes its final decision on whether to prepare an environmental impact statement and before the action may begin.” 40 C.F.R. § 1501.4(e)(2). These include inapposite situations in which “[t]he proposed action is, or is closely similar to, one which normally requires the preparation of an environmental impact statement” or in which “[t]he nature of the proposed action is one without precedent.” *Id.*; see *Theodore Roosevelt Conservation P’ship*, 616 F.3d 497 (finding no violation of § 1501.4(e)(s)). In any event, USFS has made the draft FONSI available for public review for 30 days before the agency makes its final decision.

² See also *Bering Strait Citizens for Responsible Resource Dev.*, 524 F.3d at 952 (9th Cir. 2008) (“we stress that the regulations governing public involvement in the preparation of EAs are general in approach, see 40 C.F.R. § 1506.6, requiring the circulation of a draft EA in every case would apply a level of particularity to the EA process that is foreign to the regulations. Also, requiring the circulation of a draft EA in every case could require the reversal of permitting decisions where a draft EA was not circulated even though the permitting agency actively sought and achieved public participating through other means. The regulations do not compel such formality.”)

continue to degrade, the quality of these waters, and thereby adversely affect the recreational, aesthetic, environmental, property, and other interests of the Objectors' members."

PacifiCorp Response #5:

Sierra Club/Heal Utah mention "acid mine drainage" for the first time. As outlined in the EA document (POD), mine water drainage from Deer Creek is not "acid mine drainage." In fact, the excess alkalinity available from the dissolution of carbonate minerals of the strata of the Wasatch Plateau prevents acidity. Branding this water as "acid mine drainage" 12 times throughout the objection letter is patently incorrect. PacifiCorp has retained Petersen Hydrologic, Inc. to prepare an independent professional analysis of this issue, showing that the mine discharge water is clearly not "acid mine drainage",. A copy of the Peterson Hydrologic report is attached to this response letter

Section IV – General Statement of Objections:

Sierra Club/HEAL Utah Objections: Pages 4-5

"The Forest Service's Public Notice Package dated June 13, 2016 states that, '[i]f the water is out of compliance with water quality standards it must be treated before being discharged. The Public Notice Package acknowledges that the water contains 'elevated iron.' The Forest Service's Project Initiation Direction states that a "[d]ischarge permit cannot be obtained within National Forest boundaries, due to elevated concentrations of iron, which would stain and discolor Huntington Creek."

PacifiCorp Response #6:

The first two sentences stating that if the water is out of compliance with DWQ's water quality standards it has to be treated and that the mine discharge water contains elevated iron are correct. However, PacifiCorp is proposing to transport the groundwater via a pipeline to the Raw Water Pond for consumption, not for discharging to a receiving drainage. PacifiCorp has documented the hydrogeologic characteristics and outlined the scientific reasons for the elevated total iron in the groundwater. Monitoring of the intercepted groundwater has shown that the elevated total iron is related to the presence of a pyritic split in the coal seam. That contribution of iron is finite and the level of total iron will reduce in about four to five years. The third sentence stating that a "[d]ischarge permit cannot be obtained within National Forest boundaries, due to elevated concentrations of iron, is incorrect. All new point source discharges of water, treated or otherwise, are prohibited within the United States Forest Boundary after the effective date of designation (R317-2-3). This justification for the pipeline to route the intercepted groundwater from the Deer Creek Mine through a pipeline to a point outside the Forest Boundary is documented in the EA.

“The Project Initiation Direction states that “[t]his action is needed...to discharge that water from the mine in an environmentally sound manner in compliance with state and federal water quality standards. However, the Public Comment Package and Environmental Assessment fail to contain an adequate analysis of current baseline water quality conditions at the power plant site and also fails to conduct a complete analysis of the potential impacts of disposing of 315 million gallons/year of contaminated mine drainage into unlined ponds and land application sites at the power plant. Instead, the Public Comment Package and EA rely on unsubstantiated and conclusory findings of ‘no impact.’

The Public Comment Package and EA are largely silent on the fate of the mine drainage once it is conveyed to the Huntington Power Plant other than vague statements such as the “pipeline would then be buried from the diversion structure to the Huntington Power Plant settling pond.” The Forest Service’s June 13, 2016 Location Map shows the pipeline terminating at an otherwise unidentified “pond” on the power plant property. The Plan of Development states that the “[i]ntercepted groundwater from Deer Creek Mine will be transported to Huntington Power Plant for plant feed water.” However, the PacifiCorp Application states, “[w]ater from the pipeline...may be used further downstream for irrigation.”

PacifiCorp Response #7:

- *In these two paragraphs the Sierra Club/HEAL Utah again misrepresent details related to the pipeline infrastructure, power plant site conditions, water quality of the mine drainage and usage of the mine drainage water for power plant operations. The EA and POD documents outline the construction details of the pipeline terminating at the power Raw Water pond. As stated earlier, the Raw Water Pond at the Huntington Plant includes a clay liner. The EA, POD or application documents never state that the water will be stored in an unlined reservoir. The Huntington Plant’s 2016 Groundwater Permit renewal application – which is currently pending before the Utah Department of Environmental Quality states the pond has a clay liner.*
- *The POD document states that the mine water along with water diverted Huntington Creek will be stored in the Raw Water Pond for plant operations. Water from the Raw Water Pond is used for various plant operations. After usage in the plant, a small fraction (~3%) of the total combined water sources (including mine water) used at the plant will be routed to the irrigation reservoir. The Sierra Club/Heal Utah misconstrues the information provided in the application to mistakenly conclude that the 315 million gallons/year of diverted water will be used for land application. That is not correct. No physical connections exist that would allow for the water in the Raw Water pond to be diverted for land application.*
- *As to allegation that the Public Comment Package and the EA “fail to contain an adequate analysis of current baseline water quality conditions,” PacifiCorp has a comprehensive hydrologic monitoring program for the Deer Creek Mine including:*

intercepted groundwater, groundwater springs and surface drainage systems for the East Mountain property. These data establish a solid baseline and support PacifiCorp's conclusions related to the hydrology of the intercepted groundwater in the Deer Creek Mine and ultimate use as a source of water for the Power Plant. PacifiCorp provided the water quality analyses to the governmental agencies to assist their review.

Sierra Club/HEAL Utah Objections: Pages 5-6

“The ‘pond’ on the Huntington Power Plant property that will serve as the initial disposal site for the mine drainage is an unlined pond used to accumulate co-mingled liquid waste streams from the power plant...

Liquids in the Raw Water Pond include Huntington Creek water, groundwater from the Deer Creek mine, and process water from the power plant.”

PacifiCorp Response #8:

- “unlined pond” – *refer to PacifiCorp Response #1 above.*
- “accumulate co-mingled liquid waste streams from the power plant”, “Liquids in the Raw Water Pond include Huntington Creek water, groundwater from the Deer Creek mine, and process water from the power plant” *As documented in the Huntington Power Plant Storm Water Pollution Prevention Plan (amended June 2016), the Raw Water Ponds’ only source of water is from the Huntington Creek and storm water runoff– no co-mingling occurs within the Raw Water Pond.*

Sierra Club/HEAL Utah Objections: Page 6

“The pond that is scheduled to initially receive the mine drainage has a history of seepage into Huntington Creek. PacifiCorp previously stated that “[a]ll attempts to control the seepage from the pond have failed. Although PacifiCorp terminated its discharge permit for the Raw Water Pond discharge in 2015, there is no analysis in the Public Comment Package of whether the substitution of contaminated mine drainage might exacerbate the history of seepage or contamination from the pond into groundwater and/or Huntington Creek. Further, while the EA includes a Hydrology Report by Jeff Salow, the hydrological analysis is incomplete and fails to meet the scientific requirements of NEPA.”

PacifiCorp Response #9:

PacifiCorp has previously acknowledged that the Raw Water Pond has had identifiable leaks of the liner system. When such leaks are identified, PacifiCorp has made immediate repairs to the liner system. PacifiCorp conducts routine inspections of the Pond, including of the dam and embankment structures to verify integrity. As part of the EA process, PacifiCorp provided a hydrologic analysis to the governmental agencies comparing the diverted water from Huntington Creek to the projected blended ratio including the intercepted groundwater from the Deer Creek

Mine. That analysis concluded that blending the Huntington Creek water with the intercepted groundwater from Deer Creek will cause insignificant geochemical change to the water stored in the Raw Water Pond. In the event of a future leak in the Raw Water pond liner, the relatively small amount of mine water in the Raw Water pond will cause not environmental harm to the hydrologic balance. (Refer to PacifiCorp's response #10 for a discussion mine water compliance to the Numeric Criteria for Aquatic Wildlife – 3C).

Sierra Club/HEAL Utah Objections: Page 6

The EA misrepresents the water quality of the discharge by stating, “none of the pollutant parameters were detected” from PacifiCorp’s water quality sample base on EPA’s Priority Pollutant List. However, the EA fails to recognize that EPA’s Priority Pollutant List largely contains manufactured organic pollutants that would not be expected to be found naturally in rural groundwater in a mountainous area of the state. The EA fails to acknowledge that additional analytical results were generated for inorganic compounds, such as salts and metals. These inorganic analytical results show significant detections for nitrogen, conductivity, TDS, chloride, sulfate, aluminum, boron, calcium, chromium, iron, magnesium, manganese, molybdenum, nickel, potassium, and sodium.

PacifiCorp Response #10:

These statements are misleading and show a misunderstanding of the basic hydrology of the area. Sierra Club/HEAL Utah’s attempt to portray PacifiCorp as misrepresenting the water quality of the mine water is without merit. In fact, PacifiCorp has collected hundreds of samples documenting the quality of the intercepted groundwater at the Deer Creek Mine. The analysis includes not only solute constituents documenting the geochemical nature of the groundwater, but also whole effluent testing that has verified the groundwater discharge is not detrimental to aquatic life. All water, whether surface or groundwater will include minor amounts of the constituents listed above. Levels of the constituents depends upon the hydrogeologic setting and interaction of the groundwater and the geologic formations from which it derives. Specifically to the statement concerning the EPA’s Priority Pollutant List, DWQ requested that PacifiCorp analyze the intercepted groundwater to comply with the EPA Form 2C requirements. PacifiCorp continues to sample and analyze the intercepted groundwater at Deer Creek, and to provide the detailed results to multiple governmental agencies.

The following table compares the numeric standards established by the State of Utah (Table 2.14.2 – Numeric Criteria for Aquatic Wildlife 3C – Huntington Creek) and groundwater intercepted in the Deer Creek Mine projected to be discharged at Rilda Canyon Portals.

Parameter	State of Utah Utah Administrative Code	Deer Creek Mine Intercepted Groundwater Projected Discharge at Rilda Canyon Portals ^{Note 1}
Standards of Quality for Waters of the State Rule R317.2		
Table 2.14.2 Numeric Criteria for Aquatic Wildlife 3C – Huntington Creek		
pH (units)	6.5 – 9.0	7.38
Aluminum, ug/L (dissolved) (1 hour average)	750	50 Detected in three out of the six samples
Arsenic, ug/L (total) (1 hour average)	340	ND Lab reporting limit 10
Cadmium, ug/L (total and dissolved) (1 hour average)	2.0	ND Lab reporting limit 1
Chromium, ug/L (total) (1 hour average)	16	3.6 Five samples analyzed
Copper, ug/L (total and dissolved) (1 hour average)	13	ND Lab reporting limit 10
Lead, ug/L (total and dissolved) (1 hour average)	65	ND Lab reporting limit 10
Mercury, ug/L (total) (4 day average)	0.012	ND Lab reporting limit <0.2 Five samples analyzed
Nickel, ug/L (total) (1 hour average)	468	34.6 Five samples analyzed
Selenium, ug/L (total) (1 hour average)	18.4	ND Lab reporting limit <2
Silver, ug/L (total) (1 hour average)	1.6	ND Lab reporting limit <2
Zinc, ug/L (total and dissolved) (1 hour average)	120	28.5 Detected in two out of the six samples
Sample period represents the last six months of sampling from 11 th – 17 th West sealed area		
Note 1: Samples collected from 11 th – 17 th West discharge		
ND: Not Detected		

All of the water quality constituents analyzed in the Deer Creek Mine intercepted groundwater projected to discharge at Rilda Canyon Portals complies with the State of Utah (Table 2.14.2 – Numeric Criteria for Aquatic Wildlife 3C – Huntington Creek) numeric criteria for aquatic wildlife for the receiving waters of Huntington Canyon.

“The EA states that the mine drainage has an estimated Total Dissolved Solids (“TDS”) level of 500 mg/l. In contrast, the TDS water quality data for Huntington Creek is much lower than the mine drainage, with an average of 244 mg/l. Therefore, the mine drainage has the potential to exacerbate the impairment to Huntington Creek. The Huntington Power Plant is located along a segment of Huntington Creek that is impaired for TDS, pH, temperature, and dissolved oxygen. The Public Comment Package and EA both fail to perform any field investigation, fate and transport modeling or other accepted scientific analysis to determine whether disposal of the mine drainage into the pond could contribute to the TDS impairment in Huntington Creek. In addition, the Public Comment Package and EA also fail to perform any similar analysis to determine whether the concentrations of salts in the mine drainage could interfere with compliance with Colorado River Salinity Standards.”

PacifiCorp Response #11:

As stated earlier, the POD (included as part of the EA) document states that the mine water along with water diverted from Huntington Creek will be stored in the Raw Water Pond for plant operations. Water from the Raw Water Pond will be used for various plant operations, and ultimately, after usage in the plant, a small fraction (~3%) of the water will remain and be routed to the irrigation reservoir. The objection above misconstrues the facts to suggest that groundwater from the mine will have a direct impact to Huntington Creek. As part of the EA process, PacifiCorp provided a hydrologic analysis to the governmental agencies comparing the diverted water from Huntington Creek to the projected blended ratio including the intercepted groundwater from the Deer Creek Mine. Blending the Huntington Creek water with the intercepted groundwater from Deer Creek will cause insignificant geochemical change to the water stored in the Raw Water Pond as outlined in the EA.

“Instead, the EA simply states that “[t]he water management and discharge would be regulated by PacifiCorp’s existing UPDES permits. This statement is misleading because PacifiCorp does not have a UPDES permit to discharge into surface waters from the Huntington Power Plant. Moreover, PacifiCorp’s current stormwater discharge permit and current groundwater discharge permit do not authorize a discharge of mine drainage water from the proposed project.”

PacifiCorp Response #12:

PacifiCorp does not currently have a UPDES permit to discharge from Huntington Plant because PacifiCorp does not discharge from the Huntington Plant and therefore is not required to have a UPDES permit. In the unlikely event that PacifiCorp desires to discharge the mine water into Huntington Creek at some future date, then the Deer Creek Mine UPDES permit could be amended (if approved by the State of Utah) to obtain another discharge point for the mine discharge water. If the State of Utah approves a new discharge point to Huntington Creek

under an amended UPDES discharge point, it will only allow for the discharge of mine water, and not Plant discharge water.

Sierra Club/HEAL Utah misrepresent the information from the EA. Simply put, PacifiCorp is not proposing to discharge the mine drainage to a receiving drainage of Huntington Canyon, but instead to consume the intercepted water in the power plant operations. If in the event PacifiCorp alters the plan and discharges the water to the receiving drainage of Huntington Canyon the following steps are required by state and federal regulations:

- *Meeting with DWQ staff and management:*
 - *Discussion of optional point source discharge options*
 - *Water quality criteria sampling for application submittal*
- *Sample intercepted mine groundwater according to the specifications outlined by DWQ*
- *Apply for a point source discharge permit (important to note that in any event, PacifiCorp would not be allowed to establish a new point source discharge within the Forest Boundary, meaning that a pipeline would be required to be built at least to the Forest boundary). PacifiCorp officially submitted an application to DEQ on September 15, 2016 to revise the current Deer Creek UPDES permit to allow for a permanent discharge point to Huntington Creek outside the Forest boundary.*
 - *Provide the necessary hydrologic background data to DWQ including the anti-degradation analysis*
- *DWQ accepted PacifiCorp's application as complete on October 5, 2016*

Sierra Club/HEAL Utah Objections: Page 7

“PacifiCorp’s application admits that ‘[w]ater from the pipeline...may be used further downstream for irrigation.’ In fact, water in the initial receiving pond is transferred to an ‘irrigation pond’ and is land applied (‘irrigated’) to a so-called ‘research farms’ (land application site) at the Huntington Power Plant. The so-called research farm at the Huntington Power Plant is immediately adjacent to Huntington Creek. The research farm also has a history of discharge into Huntington Creek through a series of field drains constructed to collect seepage from the land application site and deliver it to Huntington Creek.”

PacifiCorp Response #13:

Again the Sierra Club/HEAL Utah misstate the facts related to the operation of the Huntington Plant water usage and land application practices. Water from the Raw Water pond is not physically connected to the irrigation reservoir. Water diverted from Huntington Creek to the Raw Water pond is used in various functions within the plant operations, mainly in the cooling towers and boiler vents. Approximately 97% of all water diverted from Huntington Creek is evaporated and the remaining 3% is transferred to the irrigation reservoir after plant utilization.

As to the last sentence, referring to the “field drains constructed to collect seepage from the land application site and deliver it to Huntington Creek”, again Sierra Club/Heal Utah’s

objections are referring to outdated documents accusing PacifiCorp of diverting the “field drains” directly to Huntington Creek. PacifiCorp amended the field drain collection system back in late 2008 and early 2009 eliminating the potential diversion to Huntington Creek. Water from the field drains is diverted back to the plant with a lift station pump or diversion ditches for use in the plant scrubber operations or transferred to the irrigation reservoir.

Sierra Club/HEAL Utah Objections: Page 8 Paragraph 2

“In the latest draft of Utah's list of impaired waters, Huntington Creek is listed as impaired for TDS, pH, dissolved oxygen, and temperature. The TDS, pH, oxygen, and temperature impair the water's use for agriculture and to support aquatic life.”

PacifiCorp Response #14:

The issue regarding the impairment of Huntington Creek is irrelevant to the Forest Service's approval of the pipeline across federal land. Further, Sierra Club/HEAL Utah simultaneously complain about the impairment to Huntington Creek while acknowledging that more water will be left in the Creek – thereby improving water quality – as a result of the pipeline supplying additional water to the Raw Water Pond from the Deer Creek Mine. As explained above, the water from the mine will not impair Huntington Creek because it will not be discharged, but consumptively used at the plant. In any event, the following addresses the reasons for Huntington Creek being listed as impaired.

Levels of TDS, pH, dissolved oxygen, and temperature outside the range of the numeric criteria set by EPA and DEQ do indeed impact the beneficial uses of the Huntington Creek. However, Huntington Creek has not always been listed as impaired. Prior to the current Integrated Report (IR), 6 year period of record from October 1, 2008 through September 30, 2014, data utilized by DEQ was collected by DEQ, USFS, BLM and a variety of other state and local agencies that strictly followed a QA/QC program where State of Utah certified analyzing equipment was calibrated and used by qualified and experienced individuals. During this current IR assessment period, EPA required DEQ to include data collected in rivers and streams as part of the compliance monitoring for the Division of Oil, Gas, and Mining (DOGM) as well as data collected by citizen groups. (2016 IR ver. 2.0, Introduction, page 16). The DOGM database in particular included field monitoring results which by their nature include results from instrumentation not as accurate as lab based instrumentation. Without the inclusion of this new data set, excluding TDS (see separate discussion concerning TDS below) for Assessment Units (AU) Huntington Creek 2 (HC2) and Huntington Creek 3 (HC3), would not have been designated as impaired.

The additional data set collected for these AUs came from the DOGM hydrology database. DOGM requires (R645-301-723) water samples to be collected and analyzed according to the methodology in the current edition of Standard Methods for Examination of Water and Wastewater” or the methodology in 40 CFR Parts 136 and 434. Field analytical results can vary from laboratory analytical results due to the type of instrumentation used (portable meters

and probes). For instance, the table below shows all samples collected within the period of record that fell out of the range of the numeric standard criteria for TDS (1200 mg/L), pH (6.5 – 9), Dissolved Oxygen (DO) (minimum 6.5 mg/L), and Temperature (20° C). Notably, pH units for the Deer Creek Mine Rilda Canyon impair the beneficial uses of Huntington Creek. All values excluding TDS showing impairment were field results. Lab results, excluding TDS, did not result in any impairment designations.

The following table identifies all sample sites that resulted in exceedances of the water quality numeric criteria used for DEQ's decision for determining whether Assessment Units HC2 and HC3 support their designated uses or not. Flow has been added to the table to show the contribution to Huntington Creek. (Data retrieved from the Excel file downloaded at www.deq.utah.gov, 2016 Integrated Report, Chapter 3, River and Stream Assessment. Select the link All Rivers and Stream Assessments)

Mine	Site	Date	TDS (mg/L)	pH (field)	pH (lab)	DO (mg/L)	Temp C°	Flow (gpm)
Bear Canyon	CK-2	6/10/16					23.7	140
Bear Canyon	CK-2	6/8/15					22.1	150
Bear Canyon	CK-2	10/22/14					23.3	100
Bear Canyon	CK-2	6/10/14					22.3	140
Bear Canyon	CK-2	6/27/13					23.5	120
Bear Canyon	CK-2	6/25/12					20.5	160
Bear Canyon	SBC-17	6/9/16					21.8	4
Bear Canyon	SBC-17	6/8/15					22.1	20
Bear Canyon	SBC-17	10/22/14					21.5	10
Bear Canyon	SBC-17	6/10/14					20.2	10
Bear Canyon	SBC-17	6/27/13					21.4	5
Bear Canyon	SBC-17	6/25/12					20.1	7
Bear Canyon	SBC-17	8/4/09					22.5	1
Bear Canyon	SBC-17	2/22/06 ^{See Note 1}					50.8	
Bear Canyon	FC-2	10/27/15				6.1		10
Bear Canyon	FC-2	8/12/15				3.6		10
Bear Canyon	FC-2	10/23/14				6.1		5
Bear Canyon	FC-2	8/13/14				6.3		5
Bear Canyon	FC-2	10/24/13				6.0		5
Bear Canyon	FC-2	8/14/13				6.1		5
Bear Canyon	FC-2	8/24/12				6.03		5
Bear Canyon	BC-2	6/9/16	1290					40
Bear Canyon	BC-2	8/10/15	1269					40
Bear Canyon	BC-2	2/14/14	1244					50
Bear Canyon	BC-2	9/27/11	1305					20
Bear Canyon	BC-2	2/25/10	1238					1.5
Crandall Canyon	UPF-1	6/27/14	1781					1540
Deer Creek	HCC01	6/6/13				4.6		43,668.24
Deer Creek	HCC01	3/12/13				6.33		3051.84
Deer Creek	HCC01	6/9/10				5.28		102,102.00
Deer Creek	HCC02	6/3/15				6.25		67,903.44
Deer Creek	HCC02	9/3/14				5.02		18,535.44
Deer Creek	RFC-1	6/4/14		9.03	8.67			2894
Deer Creek	RFC-1	9/5/13		9.17	8.49			368
Deer Creek	RFC-1	6/3/13		9.08	8.55			1151
Deer Creek	RFC-1	9/6/11		9.05	8.55			190
Deer Creek	RCF3	9/14/15				5.59		20
Deer Creek	RCF3	6/2/15				5.0		2693
Deer Creek	RCF3	6/4/14				6.0		
Deer Creek	RCF3	3/12/13				5.75		50
Deer Creek	RCF3	6/15/11				5.5		26076
Deer Creek	RCF3	6/8/10				5.74		2903
Deer Creek	RCW4	3/24/09	1393					148.6

Note 1: Although outside the period of record for the current IR, this data point shows a water temperature of 123.44° F. Obviously this data is an outlier and should have been omitted during review of the data.

The analytical results for DO are also misleading. Both Bear Canyon and Deer Creek reported DO below the limit of the numeric criteria. However, when comparing the analysis results for DO to flow for the Deer Creek sites and Huntington Creek, a reviewer must conclude that there was a potential problem with instrumentation, or the selection of the stream segment. This provides insight on the potential problems of simply including additional hydrologic data without evaluating the merit of data. At the time the sample was collected, flow in Huntington Creek was well above average flow rates and it would not have been likely to produce low DO results as shown for the sites. The numeric results for DO for Bear Canyon and Deer Creek Canyon have an insignificant impact to the Huntington Canyon drainage as shown by the negligible flows reported in comparison to the total flow rate of Huntington Creek. Proportional flow rates from the contributing sub-drainages should have been evaluated in quantifying the relationship to the impairment of Huntington Creek.

TDS is also found in three monitoring locations to be outside the numeric criteria used for the AU. Bear Canyon exceeded the numeric criteria in one sample per year in very low flow conditions. Crandall Canyon and Deer Creek both exceeded one sample during the 6 year assessment period of the IR. Huntington Creek samples (sampling locations of Huntington Creek HCC01 and HCC02) did not exceed the numeric criteria during the 6 year assessment period of the IR. The exceedances reported have negligible impacts to the water quality of the entire Huntington Canyon drainage system.

Sierra Club/HEAL Utah's statement attempting to relate the impairment status of HC2 and HC3 with the irrigation practices of the Huntington Plant is very misleading and shows a complete misunderstanding of the assessment methods used to determine whether the designated uses are supported or not.

Sierra Club/HEAL Utah Objections: Page 9 Paragraph 2-4, refer to Objection document

PacifiCorp Response #15:

Paragraphs 2-4 repeatedly accuse PacifiCorp of conducting practices at the Huntington Plant that impact Huntington Creek, and fail to account for the mitigation efforts implemented by PacifiCorp. The operation of the Plant, including the use of waste water for irrigation is a separate issue in the context of evaluating the purpose and need of the mine closure pipeline project. Diverting mine water to the raw water pond that will be approximately 3% of the total diverted water to the pond, will not alter the operation of the plant. This means that the combined water in the Raw Water pond will continue to be used in plant operations using existing operational constraints just as it was used before the mine water was introduced. For example, if the mine drainage water flow rate diverted to the plant is 500 gpm and the average diversion of Huntington Creek is 8,500 gpm, and knowing that approximately 97% of the diverted water is evaporated, mainly by the cooling towers and boiler vents, approximately 15 gpm of the mine water diversion will be routed to the irrigation reservoir as a portion of the combined water. However, regardless of whether the water supply to the Raw Water pond is strictly from the Huntington Creek or includes the proposed mine water, total diversion from the

plant operations to the irrigation pond will remain constant. The Deer Creek Mine water supply has an increased TDS concentration as compared to the Huntington Creek supply; however, the Huntington plant cooling tower circulating water quality is controlled through a water treatment process such that the TDS concentration of the circulating water will not be affected by the use of the supplemental Deer Creek Mine supply. In essence, although the fraction of the make-up water supply to the Huntington cooling tower circulating water system from the Deer Creek Mine will have an increased TDS concentration as compared to the Huntington Creek water supply, the cooling tower circulating water system will be controlled to maintain the current TDS concentration.

Sierra Club/HEAL's assertion that water quality downstream of the plant will be impacted by the mine water in reality is a continuation of Sierra Club/HEAL's theme that the plant is impacting downstream water quality. Even if that were true – which it is not – that is an issue separate from the NEPA process for installation of the pipeline.

Sierra Club/HEAL Utah Objections: Page 10, Paragraph 2

Section V – Specific Statement of Objections:

1. The FS has failed to satisfy the mandatory public involvement requirements of NEPA and its implementing regulations.

Sierra Club/HEAL Utah claim that the Public Comment Package is deficient because it did not include information on the fate of the water once it reached the Plant. The NEPA was done primarily for the construction of the pipeline, rather than the impacts of the water discharge. This NEPA action rightly focuses primarily on the pipeline construction impacts, whereas the water quality issues are appropriately addressed primarily in other forums such as UDEQ and UDOGM (e.g., the NEPA analysis for the pipeline project covers the cumulative impacts of the water quality issues).

Sierra Club/HEAL Utah Objections: Page 11

The claims that the 315 million gallons per year (“MGY”) discharged at the pond will then be applied to a field immediately adjacent to Huntington Creek are unsupported and incorrect. The NEPA document was clear on what would happen to the water once it reached the plant; the water will be consumed in the plant cooling operations.

Sierra Club/HEAL Utah Objections: Page 12

2. “The FS’s ‘purpose and need’ statement is illegally narrow because it forecloses evaluation of reasonably foreseeable impacts that will occur off public lands.”

“The FS’s Public Comment Package states, “the purpose of the pipeline is to avoid potential contamination of the water resources on *federal lands* due to water with high levels of iron filling the mine and naturally flowing out of the portals in Rilda

Canyon.” Public Comment Package, p. 1 (emphasis added). The FS’s statement of purpose and need is illegally narrow because it only serves to protect *federal lands* from contamination and ignores impacts to nonfederal lands downstream. Likewise, the FS’s environmental analysis only focuses on impacts to lands and waters upgradient of the point of discharge at the Huntington Power Plant and fails to analyze impacts to ground and surface waters at the power plant site, to Huntington Creek, and areas downstream. Here the FS violated NEPA by refusing to consider reasonably foreseeable impacts to ground and surface waters by impermissibly cutting off its evaluation as soon as the water reaches an unlined pond at the Huntington Power Plant. NEPA, however, does not allow federal agencies to avoid analyzing and disclosing the reasonable foreseeable impacts of their decision merely by crafting a narrow purpose and need statement.”

PacifiCorp Response #17:

Sierra Club/HEAL Utah oversimplifies the asserted purpose and need of the mine water drain pipeline and the arduous steps taken by PacifiCorp dealing the mine closure. BLM and USFS accurately disclosed the potential environmental impacts associated with the installation mine water drain line and the usage at the power plant. Sierra Club/Heal Utah fails to understand the water diversion and usage in the plant. Use of the mine water will not alter the plant operations and diversions by the plant are not directly linked to the irrigation reservoir as stated by the Sierra Club/Heal Utah. The use of the term “high levels of iron” is used by the Sierra Club/Heal Utah to suggest adverse changes to the water quality when in fact the total iron level, (based on hydrologic sampling, which data was transmitted to the governmental agencies during the preparation of the EA) is slightly above one part million. As stated in the EA, total iron is expected to dissipate in time to back-ground levels of intercepted groundwater.

The USFS did not shirk a duty by not analyzing the groundwater and surface water in the Huntington Plant vicinity because the irrigation systems and ground and surface water are regulated by the State of Utah Division of Water Quality.

Sierra Club/HEAL Utah Objections: Pages 15-29 Objections #3 through #13

In Objections #3 through #13 the Sierra Club/Heal Utah restates the same main objections discussed previously through multiple scenarios. PacifiCorp will respond only to points previously not addressed.

Sierra Club/HEAL Utah Objection

“The Forest Service failed to undertake public comment on its range of alternatives and failed to consider reasonable and less environmentally harmful alternatives.” Page 18.

PacifiCorp Response #18:

The EA, which includes the POD documents, discloses PacifiCorp's attempts to close the mine and redirect the water from the northwest portion of the mine to the Deer Creek portals. USFS did consider alternatives, such as installing a hydrologic bulkhead in the Deer Creek Mine. Mine Safety and Health Administration (MSHA) denied PacifiCorp's request to install hydrologic bulkheads in the Deer Creek Mine in April 2016. That action causes water intercepted in the mine to gravity flow to the Rilda Canyon portals and if discharged, would result in non-approved point source discharge. Location of the Rilda Canyon portals within the Forest boundary presents another level of difficulty. Anti-degradation regulations prohibit any new point source discharges within the forest boundary. Given these circumstances, options to drain the intercepted groundwater from the mine become problematic. PacifiCorp, after discussions with parties of interest, including local, state and federal agencies, proposed the pipeline alternative to drain the mine minimizing the impacts to the environment.

Sierra Club/HEAL Utah Objection

“The FS failed to adequately present information on the baseline ground and surface water conditions at the disposal site downstream.” Pages 18-20.

PacifiCorp Response #19:

PacifiCorp has conducted extensive hydrologic monitoring related to the Deer Creek Mine including; groundwater studies (seeps and springs), intercepted groundwater in the mine and surface drainage systems. Routine hydrologic data collected by PacifiCorp is uploaded to the DOGM database. In addition to the hydrologic monitoring, PacifiCorp has conducted numerous studies to determine the hydrologic regime and potential hydrologic consequences of conducting underground coal mining. Applicable data related to the proposed mine drain line was transmitted to USFS to evaluate the hydrologic conclusions.

Sierra Club/HEAL Utah Objection

“The FS illegally deferred to the unsubstantiated, undisclosed, and sometimes future determinations of state agencies to satisfy its obligations under NEPA.” Pages 20-21.

PacifiCorp Response #20:

The Objection claims that it is illegal to defer to other agencies to ensure compliance with laws and regulations regarding ground and surface water impacts. PacifiCorp applied and received approval from Division of Water Rights to include the mine portals of the Deer Creek Mine (Deer Creek Canyon and Rilda Canyon) as permanent points of diversion for use in the Power Plant (approved November 2016). PacifiCorp has applied for an additional UPDES outfall for the Deer Creek Mine (Outfall 003) to potentially discharge intercepted groundwater directly to Huntington Creek at some future date if necessary. The UPDES permitting process will ensure

that potential impacts to the receiving stream are properly regulated. USFS is not deferring to these permitting processes in lieu of a NEPA analysis, rather in analyzing the potential impact of the proposed action on water quality, it is taking into consideration that any such future discharges will be subjected to a rigorous regulatory permitting process.

Sierra Club/HEAL Utah Objection

“The Public Comment Package and EA acknowledges that PacifiCorp may have to acquire a Clean Water Act Section 404 dredge and fill permit to proceed with this project.” Page 21.

PacifiCorp Response #21:

As stated in the EA and POD documents, PacifiCorp proposes to construct/bury a HDPE pipeline within the existing rights-of-way in Rilda Canyon along Emery County Road #306 and Huntington Canyon State Highway 31. Construction layout and installation techniques employed avoids impacts to the streams in Rilda and Huntington canyons. PacifiCorp coordinated these pipeline construction efforts with State of Utah Water Rights and the United States Army Corps of Engineers. Both agencies verified that neither a State of Utah (Stream Alteration permit) nor a US Army Corps of Engineers (Federal Clean Water Act Section 404) permit is required for the proposed Deer Creek Mine water relief pipeline project. Even if such permits were required, it is not USFS's responsibility under NEPA to ensure that a proponent obtains the needed permits; rather, USFS's responsibility is simply to take a hard look at the reasonably foreseeable environmental impacts. It is the proponent's responsibility to obtain the needed permits.

Sierra Club/HEAL Utah Objection

“The DN/FONSI fails to require any mitigation or monitoring despite approving disposal of 315 MGY of mine drainage into unlined ponds and land application sites at the Huntington Power Plant.” Page 22.

PacifiCorp Response #22:

The Objection claims that no mitigation measures were “imposed” by the FS. PacifiCorp has complied with all rules and statutes that deal with protective measures to prevent leakage / contamination of existing water resources while the pipeline is transporting water. PacifiCorp has committed to monthly monitoring of water quantity and quality at the upstream and downstream ends of the pipeline, when transporting water, to ensure that there are no leaks or water quality excursions until the water quality has reached compliance levels. In any event, it is not the role of NEPA or the DN/FONSI to require mitigation or monitoring; rather, NEPA's role is to require USFS to take a hard look at the reasonably foreseeable environmental impacts.

Sierra Club/HEAL Utah Objection

“The FS failed to evaluate impacts to BLM sensitive fish species.” Pages 22-23.

PacifiCorp Response #23:

The EA and corresponding documents (including the USFS BA/BE report) evaluated the proposed project’s environmental resource impacts that were reasonably foreseeable. PacifiCorp is not proposing to discharge the mine water directly to the receiving drainages of Huntington Creek. Plans required of the construction contractors will include SWPPP and SPCC plans designed to prevent spills or sediment from entering waterways. Because such impacts were not reasonably foreseeable, USFS was not required to evaluate them.

Summary:

As in the original objection from July, the mine discharge water is mistakenly and repeatedly (at least 12 times) mischaracterized as “acid mine drainage”. This is a basic misunderstanding that appears to show a complete lack of knowledge about one of the fundamental facts of the discharge issue. The term “acid mine drainage” refers to a different problem that is an issue in other parts of the country. Using emotional and hyperbolic language such as “acid mine drainage,” “highly contaminated mine drainage” and “highly contaminated acid mine drainage” when use of these terms is not supported by facts, reveals the obstructionist nature of these objections.

The Objection lists **14 specific issues** and dozens of legal cases to declare that the EA was conceived, prepared, and published illegally. The Objection repeatedly faults USFS for “illegally” not allowing comments during the preparation of the EA and only soliciting “objections” after the preparation of the EA and the draft DN were published. The legal analysis above, of NEPA’s public notice requirements demonstrates that BLM and USFS fully complied with all existing NEPA laws and regulations.

The Objection repeatedly makes demands that baseline water quality data be obtained or made available for the mine discharge, Huntington Creek above and below the Plant, inflow and outflow of the pond, and groundwater at Huntington Plant. PacifiCorp has collected hydrologic data for several decades related to the mines and power plants both in terms of groundwater and surface water, and has provided that data to USFS.

The Objection demands that studies of the effects of dewatering the mine on surface and groundwater be analyzed, and that the EA should conduct a survey of springs and seeps in the vicinity of the mine to analyze whether there would be an adverse effect on the springs and seeps from the diversion of groundwater. These demands go well beyond the requirements of NEPA, and show a lack of understanding of the regulations imposed on coal industry.



PETERSEN HYDROLOGIC

RECEIVED

DEC 27 2016

DIV. OF OIL, GAS & MINING

15 December 2016

Mr. Charles Semborski, P.G.
Manager of Geology and Exploration
PacifiCorp – Interwest Mining Company
15 North Main Street
Huntington, Utah 84528

Chuck,

At your request, we have evaluated the potential for acid mine drainage to occur in Deer Creek Mine drainage water discharging from the Rilda Canyon portals. Our findings in this regard are summarized in this letter report.

Introduction

The Deer Creek Mine surface facilities are located in Deer Creek Canyon, approximately eight miles northwest of the town of Huntington, Utah (Figure 1). The mine is located in the Wasatch Plateau coal district of Emery County, Utah.

In December 2014, PacifiCorp announced that the Deer Creek Mine would be permanently closed. Currently, the mine is undergoing mine closure procedures. It has been projected that there will be permanent gravity discharges of intercepted mine

groundwater from the Deer Creek Mine from both the Deer Creek and Rilda Canyon portals. While the drainage that includes the Deer Creek portals is classified by the State of Utah as a Category 2 water, the drainage that includes the Rilda Canyon portals is classified as a Category 1 water. PacifiCorp currently holds UPDES discharge permits for the Deer Creek portals, but it is not possible to obtain a discharge permit for the Rilda Canyon portals because point source discharges into Category 1 waters are prohibited. Consequently, PacifiCorp plans to construct a buried pipeline to convey intercepted mine groundwater from the 1st Right portals in Rilda Canyon directly to the Huntington Power Plant where the water will be utilized in the operations at the plant.

The purpose of this investigation is to evaluate the potential for the generation of acid mine drainage (AMD) at the Rilda Canyon Portals at the Deer Creek Mine.

Water Quality Characteristics of Potential Deer Creek Mine Discharge Water to the Rilda Canyon Portals

PacifiCorp personnel have collected a large amount of water quality and water quantity data from the historic discharges of mine groundwaters from the Deer Creek Mine (UDOGM, 2016). Recent sampling (12 July 2016) and analysis of mine waters from the 11th West - 17th West panels sealed area (the groundwater projected to eventually discharge to the surface through the Rilda Canyon portals) has taken place (See Attachment E in the Deer Creek Mine Closure Water Pipeline Environmental Assessment, September 2016 for water quality sampling results).

It is noteworthy that both the historic Deer Creek Mine discharge waters and the recent 11th West – 17th West groundwaters are *not* acidic in nature, but rather are consistently neutral to slightly alkaline as reflected by pH levels. The neutral to slightly alkaline character of these waters is as anticipated given the hydrogeochemical regime of the Deer Creek Mine as will be discussed in the following section of this report. The analytical

results from the long-list sampling of EPA priority contaminants of the 11th West – 17th West groundwater demonstrate the absence of elevated levels of these contaminants in the water that is projected to eventually report to the Rilda Canyon portals. The total dissolved solids (TDS) concentration of the 11th West – 17th West water sampled on that date was 489 mg/L. The total iron concentration measured in the 11th West – 17th West sample was 1.35 mg/L, which is marginally above a 1.0 mg/L discharge limit.

PacifiCorp reports that the total iron concentrations in groundwater from the 11th West – 17th West area has been declining gradually over time. It is noted that the dissolved iron concentration of the water was below the laboratory detection limit (<0.03 mg/L), indicating that the iron detected in the total iron analysis occurs as solid particulate matter rather than ionic iron dissolved in the groundwater. The 11th West – 17th West groundwater contains similar amounts of calcium, magnesium, and sodium cations (when expressed as milliequivalents per liter) with bicarbonate being the dominant anion.

It should be noted that the mine water that will potentially be discharged from the Rilda Canyon portal pipeline (11th West – 17th West groundwater) has erroneously been referred to as “highly contaminated acid mine drainage”. As noted above, the water is *not* acidic but rather is neutral to moderately alkaline. Additionally, the groundwater is not contaminated with any of the EPA priority contaminants and the overall water quality as reflected by the TDS concentrations is good. As a reference, the 11th West – 17th West groundwater would not be unsuitable for use as drinking water per U.S. EPA drinking water standards. Additionally, the 11th West – 17th West water does not exceed the more stringent Utah water quality standards for aquatic life. Furthermore, the 489 mg/L TDS concentration does not exceed the TDS limitation set forth in the Colorado River Salinity Forum.

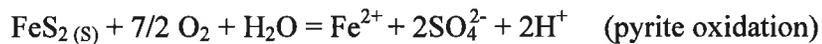
It should be emphasized that the water from the Deer Creek Mine Rilda Canyon pipeline is planned to be used/consumed in connection with operations at the Huntington Power Plant rather than discharging the water to receiving surface-water systems.

Potential for Acid Mine Drainage from the Rilda Canyon Portals

Acid mine drainage is rare in the coal fields of the western United States (Mayo et al, 2000). It is projected that acid mine drainage will not occur at the Deer Creek Mine discharge. The basis for this conclusion is discussed below.

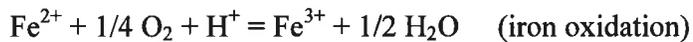
AMD is associated with the oxidation of sulfide minerals (commonly pyrite) in the presence of water and oxygen.

This reaction may be expressed as:

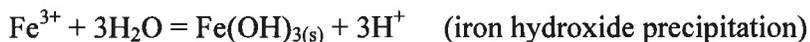


This reaction yields free, reduced iron (Fe^{2+}), sulfate, and H^+ (acid), and removes oxygen from the water.

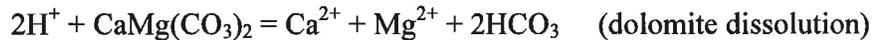
Water flowing in a surface stream that is fully aerated with near neutral pH generally will generally not contain more than a few micrograms per liter of dissolved iron (Hem, 1985). This is because oxygen is continuously present in an actively flowing stream and the Fe^{2+} is rapidly oxidized to Fe^{3+} according to:



The oxidized iron is subsequently precipitated as a solid (commonly as an amorphous iron hydroxide) which eventually settles to the bottom of the water body. This simplified reaction may be expressed as:



The liberation of H^+ in this reaction results in a temporary lowering of the pH and facilitates the dissolution of carbonate minerals according to:



These two reactions result in an increase in the calcium, magnesium, and bicarbonate concentrations of the water and consume H^+ , resulting in a rising of the pH (the water becoming increasingly less acidic). Because of the abundance of carbonate minerals in the coal fields of the western United States (Mayo et al, 2000), the acid produced from pyrite oxidation is readily consumed in the reactions described above and acid-mine-drainage does not occur.

In the Eastern and Interior Coal Provinces of the United States, coal mine drainage problems can occur as a result of the combined effects of abundant iron disulfide minerals and low background solute concentrations of many streams and groundwaters (Mayo et al, 2000). The low solute concentrations in Eastern waters are due largely to high rates of meteoric precipitation which have previously flushed soluble minerals from the soil and bedrock. Without the neutralization effect of soluble carbonate minerals, acid mine drainage may occur. In contrast, the geochemical environments of the coal fields of the Western United States are such that coal mine drainage generally does not contain AMD and associated elevated concentrations of iron and manganese (Mayo et al, 2000). Largely because western region coal mining regions are generally dryer than are the Interior and Eastern coal mining regions, soluble carbonate minerals such as limestone are usually available for neutralizing AMD. Because of the pervasiveness of carbonate minerals in the mine environment, oxidized iron may precipitate in the neutral pH water prior to leaving the mine (Mayo et al, 2000).

It is noted that Mayo et al (2000) investigated the chemical evolution of coal mine drainage in a non-acid producing environment in Utah's Wasatch Plateau coal field. The

investigation performed by Mayo et al (2000) was performed at the non-acid producing Canyon Fuel Company, LLC Sufco Mine which is located in the same Wasatch Plateau coal field about 25 miles south of the Deer Creek Mine. The mining techniques utilized at the Sufco Mine (longwall mining production with continuous mining development entries) are similar to those that were employed at the Deer Creek Mine. The mining activities at both mines occurred in the generally low-sulfur, bituminous coal seams contained in the lower portions of the Cretaceous Blackhawk Formation. The historic absence of AMD discharges at the Sufco mine are supportive of the conclusion that AMD in Deer Creek Mine discharge will likewise not occur.

While AMD is not anticipated in the Deer Creek Mine discharge, the results of total iron analysis from the 12 July 2016 11th West – 17th West panels area does indicate the presence of total iron in the water at a concentration of 1.35 mg/L. The source of the iron in that groundwater is likely the oxidation of pyrite in flooded, oxygenated portions of the Deer Creek Mine as described above. The presence of total iron in the 12 July 2016 11th West – 17th West sample, while dissolved iron was absent, indicates that the total iron consists of only solid iron particulate in the water (i.e. the iron has been oxidized to Fe³⁺ and subsequently precipitated from solution, likely as iron hydroxide prior to the water reaching the underground sampling location). Similar conditions were observed at the nearby Genwal Resources, Inc. Crandall Canyon Mine, which is located immediately north of the Deer Creek Mine permit area. After gravity discharge at the Crandall Canyon Mine first commenced in 2008, iron was found to be present in the discharge water. The total iron concentration in the Crandall Canyon Mine discharge water peaked in late 2009/early 2010 at concentrations greater than 5 milligrams per liter. Subsequently, the total iron concentrations decreased gradually over the following several years. Current total iron concentrations in the Crandall Canyon Mine discharge are now near 1.0 mg/L (UDOGM, 2016). The cause of the decreasing iron concentrations over time is believed to be related to the oxidation of available pyrite with available dissolved oxygen in the flooded portions of the mine and the subsequent flushing of the total iron reaction products from the underground mine workings by

actively flowing mine waters. Discharge waters from the Crandall Canyon Mine have been neutral to slightly alkaline as are groundwaters recently sampled at the 11th West – 17th West panels area at the Deer Creek Mine. Given the similarities of the Deer Creek mine environment and the adjacent Crandall Canyon Mine environment (where AMD has not occurred and total iron concentrations have gradually declined to low levels over time), it is anticipated that similar occurrences will be observed in the future at the Deer Creek Mine Rilda Canyon portals.

Conclusions

Based on the information provided to me and the analysis presented in this document, it is my professional opinion that acid mine drainage will not be of concern in the discharge from the Deer Creek Mine Rilda Canyon portals.

References Cited

Hem, 1985, Study and Interpretation of the Chemical Characteristics of Natural Water, United States Geological Survey Water-Supply Paper 2254.

Mayo, A.L., Petersen, E.C., and Kravits, C, 2000, Chemical evolution of coal mine drainage in a non-acid producing environment, Wasatch Plateau, Utah, USA, Journal of Hydrology 236 (2000) 1-16, Elsevier Science, B.V.

Utah Division of Oil, Gas and Mining, 2016, Utah Coal Mining Water Quality Database, available on-line at <http://linux3.ogm.utah.gov/WebStuff/wwwroot/wqdb.html>.

Mr. Charles Semborski
Page 8 of 8

Please feel free to contact me should you have any questions in this regard.

Sincerely,



Erik C. Petersen, P.G.
Principal Hydrogeologist
Utah PG #5373615-2250

