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Subject: Salinity Offset Program Options for UPDES Permit #UT0023604, Deer Creek Mine

Jeff:

All of the Deer Creek Mine portals have been sealed. The final closure at the Rilda Canyon portal facility took place on December 20, 2017.

Deer Creek's UPDES permit #UT0023604 was amended and renewed on December 1, 2017. The salinity program funding agreement to pay for salinity offset credits for the previous Deer Creek UPDES permit expired on December 31, 2017. The new UPDES permit (footnote c/, Page 9) requires that a salinity control program must be selected and approved by the Director of DWQ and implemented within one year of the effective date of the new permit (by December 1, 2018) if the permittee cannot meet the 1 ton of salt per day from the combined outfalls 001 + 002, and the new 003. This requirement only applies if the combined outflows have a total TDS greater than 500 mg/l and the permittee cannot achieve less than 1 ton per day of salt for the sum of discharges from all discharge points.

The previously implemented salinity control program and funding agreement were generated upon the renewal of the Deer Creek UPDES permit in December of 2014, with a term of three years. At that time, Deer Creek Mine was discharging from Outfalls 001 and 002, and was not able to meet the < 500 mg/l or <1 ton per day standard. Also at the time of the permit renewal, closure of the mine was imminent (announced in December, 2014), and the projected future amount of the mine discharge was based on the best available projections. When the Deer Creek portals were shut down and sealed in April, 2015, it was known that all discharge from the mine would cease for an indefinite period of time. The salinity agreement and three year term were made based on assumptions that mine discharge would cease upon mine sealing, then resume some months later (within three years). The term of the agreement was set at three years, assuming that the mine discharge would cease when the mine was sealed, and that discharge would resume when the underground workings filled, and then come to a post – shutdown equilibrium discharge flow (estimated at 350 gpm). At the time of Deer Creek portal sealing in April 2015, the best estimate as to when the discharge would resume was one to two years. At

the time of the expiration of the agreement, nearly three years later, the discharge from underground had not resumed as expected. Only 20.6% of the funding paid in advance for the three year term was actually used to offset salts from Deer Creek, the remaining 70.4% was forfeited.

During the three years, efforts to obtain permission to install permanent bulkheads in the mine to redirect flows underground and prevent discharge at the Deer Creek Rilda Canyon portals began in January 2015. Intercepted groundwater migrating to the Rilda Canyon portals from the north end of the mine is separated from the intercepted groundwater feeding the Deer Creek portals to the south by a high area in the mine workings. Until all mine portals were sealed, this water was pumped into the Deer Creek system to prevent possible non-permitted outflow at the Rilda Canyon portals. Efforts to permit the bulkheads were denied by UDOGM and MSHA in April 2016. An application was made to DWQ in August, 2016, to amend the Deer Creek UPDES permit to include an additional Outfall 003, to consist of intercepted groundwater transferred from Rilda Canyon portals to Huntington Power Plant and/or Huntington Creek through a 5.6-mile pipeline. The pipeline was constructed during September through November 2017. The amended permit became effective December 1, 2017. The intent of establishing Outfall 003 is to have an alternative discharge point for Rilda Canyon water. The primary fate and use of the Rilda Canyon water will be to be feed water for the Huntington Power Plant, where all of it will be consumed. Until the time of final closure of the Rilda Canyon portals in December of 2017, observations underground were indicating that the flow of water toward the Rilda Canyon portals was lagging behind the original calculated flows. The underground source location of this water is several miles underground, and as it migrates toward the Rilda Canyon portals, it must fill some large low areas in the mine workings, and pass over the jointed and porous non-saturated Star Point Sandstone that forms the floor of the mine, creating uncertainty as to when it will discharge from the mine.

Deer Creek Outfall 001, from the sediment pond, has discharged only sporadically since mine closure. The pond will be eliminated during reclamation activities (mid - 2019) and will no longer be a factor in the SUM-A calculation of TDS at the monitoring point below 001 and 002.

It is likely that when discharge resumes at Deer Creek Outfall 002 the water quality will be similar to what was being discharged while the mine was in operation. Deer Creek's discharge history shows that the TDS of the 002 discharge has been slightly above and below the 500 mg/l cutoff. Now that the mine has ceased operations, the TDS content of the discharge may be below the 500 mg/l when the flow equilibrates.

Since December 20, 2017, when the final portal seals were installed at Rilda Canyon, there has been no discharge from Outfall 003. The samples taken underground for the last few years of the Rilda Canyon intercepted groundwater show that the average TDS of that water is less than the 500 mg/l cutoff. Huntington Plant is awaiting approval of an amendment to their Groundwater Discharge Permit #UG150002 to use the full flow of Rilda Canyon water from the pipeline as a feedstock into their raw water intake pond.

Approval is anticipated in March, 2018. Huntington Plant already has permission to use the minor initial flows from the pipeline. If Huntington Plant's groundwater discharge permit amendment is approved, discharge from 003 should not be needed, except on an emergency basis and for short periods of time.

Now that the mine is completely closed and robust hardware is in place to accommodate any eventual discharges from the mine, the question remains as to the best way to anticipate the eventual quantity and quality of the discharges and the best way to structure an agreement that is fair to all parties. It is entirely possible that the 1-year time period required by the permit to select and implement a salinity offset program may pass without any discharge from the mine or other indication that would allow the scientific analysis of the discharge quantities and quality that such program would be reliant upon. While it may not be realistic to expect approval of a program that would be "pay-as-you-go" for such time as it takes for the discharges to establish themselves and reach equilibrium, perhaps a program could be developed with some flexibility that takes into account the uncertainties of the situation.

We believe that as more time passes without discharge, the eventual discharge flows will be less than originally anticipated. The original estimate for the 2014 salinity program was 350 gpm from the Deer Creek portals; this will probably drop to 200 gpm. The 2014 program did not anticipate the need for Outfall 003. Estimates for flows from Rilda Canyon were originally projected to be 600 gpm; underground observations up until the time of closure indicate that this estimate is too high; the current estimate for eventual flow from 003 is also about 200 gpm. If significant additional time passes with no discharge at either location, flow estimates may be lowered further.

When flows begin, either through the Deer Creek 002 discharge or the Rilda Canyon – Huntington Power Plant discharge, which could be routed to the 003 discharge if necessary, water quality monitoring and sampling will begin on at least a monthly basis to ensure that the flows are properly monitored and to establish whether or not a salinity offset program is warranted. If a salinity offset program were to be developed after the flows have become established, it could be made retroactive to the time when the flows began to make sure all salt discharges are properly addressed.

PacifiCorp recognizes its responsibility to adhere to the requirements of the Colorado River salinity program and will fully comply with those requirements. At present, Deer Creek Mine is not discharging at any of its outfalls, and PacifiCorp cannot accurately predict if or when discharges will begin. PacifiCorp requests that UDQ grant a deferment from this requirement until such time as the discharge situation has stabilized and can be adequately assessed and the necessity of a salinity control program has been established.

If you have any questions concerning this matter, please feel free to call Ken Fleck at (435) 687-4712 or Chuck Semborski at (435) 687-4720.

Sincerely,

Kenneth S. Fleck

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Geology and Environmental Affairs Manager

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