

## TECHNICAL MEMORANDUM

<b>To</b>	Tom Bird (GCC), Sarah Vance (GCC)	<b>Ref #</b>	2020-05-035-TM-3
<b>CC</b>		<b>Date</b>	3/26/2020
<b>From</b>	Landon Beck		
<b>Subject</b>	Response to 3 <sup>rd</sup> 2018 King Coal Mine AHR DRMS Review dated March 26, 2020		

This technical memorandum is the response to the Colorado Division of Reclamation, Mining and Safety (DRMS) comments and questions regarding the 2018 Annual Hydrology Report (AHR) for King Coal Mine presented in a letter to Tom Bird at GCC Energy, LLC, dated March 26, 2020.

The March 26<sup>th</sup> DRMS letter identified a single outstanding request:

*Please direct me to the portion of the CDS Environmental Services report from 2014 ("Summary of Analytical Activities in Response to Neighborhood Comments in Conjunction with a Permit Expansion of GCC Energy, LLC King II Coal Mine") that illustrates that the data from Vista Del Oro wells is a baseline condition, given that King II mining began in 2007.*

Please find discussion of the data interpretation and conclusion that the Vista del Oro water well chemistry represents a baseline condition in Sections 4.3 and 4.4 of the referenced CDS Environmental Services report. Further discussion is found in Appendix IV of that document.

Additionally, GCC conducts quarterly groundwater monitoring at an upgradient monitoring well cluster to satisfy a surface use legal agreement with the Ute Mountain Ute Tribe (UMUT). The monitoring well design, sampling systems and protocols for the MW-5 location are the same as for the other DRMS-regulated GCC bedrock monitoring wells. The MW-5 location is between the MW-1 location and the current King II Mine northern permit boundary and was installed during 2017 initial bedrock monitoring well installation program. The MW-5 location has a Cliff House well (MW-5-C), an "A" coal seam well (MW-5-A) and a Menefee Interburden well (MW-5-MI). While MW-5-A has been dry since installation, MW-5-MI has consistently yielded lab-measured pH values between 8.14 and 8.80 and field-measured pH values between 8.36 and 8.87. This information can be found in the MW-5-MI data summary table on page 28 of the "2019 King I & II Mines Annual Hydrology Report to the Ute Mountain Ute Tribe". This 2019 UMUT AHR is being provided as a PDF to accompany this technical memorandum for submittal to DRMS. As MW-5-MI represents indisputable upgradient baseline conditions with respect to the King II Mine, it is therefore conclusive that Menefee Formation groundwater pH values in excess of the CDPHE Regulation #34 of 6.5-8.5 are natural and can be expected at current and potential future Menefee Formation groundwater monitoring wells within the GCC monitoring network.