



Joel Linares
City Manager,

Re: Evaluation and Recommendation of Water Availability for the City of Moab

Dr. Kenneth Kolm and Paul van der Heijde have completed Phase 2 of the HSA, LLC/HHI, INC study “Hydrologic and Hydrogeological Assessment of the Surface Water and Groundwater Resources Affecting the Moab City Springs and Wells, Moab, Utah” (2019). The City of Moab Engineering staff have been involved in the development and review of the Report and have concluded that it is based on solid science and engineering practices. The Report is substantially complete and is recommended to undergo peer review by qualified independent outside agencies.

One of the products the Kolm and van der Heijde Phase 2 Report developed is a range of water budgets (Tables 1a, 1b, 2a, and 2b) for the Glen Canyon Aquifer (GCA; Labeled GCMC Hydrologic system in the Report) by utilizing different assumptions. A water budget is an accounting of all the water that flows into and out of a project area, in this case the GCA. Included in the Report’s water balance are impacts of recharge and discharge from precipitation, vegetation, diversions of water from the GCA due to the Sheley Diversion tunnel into Ken’s Lake, municipal use and changes in the underground reservoir storage. The water budget totals an Acre-feet per year estimate of the water used into and out of the GCA. Approximately 87% of the water that the City currently uses is dependent on the GCA.

At the end of the Tuesday Workshop of May 14, 2019, the Mayor pointed out that due to the temporary overnight lodging moratorium ending in the near future, the Moab City Council needs to know ASAP an estimate of future water availability for the City of Moab. At the May 14, 2019 meeting, the Chair Person of the City’s Water Conservation and Drought Management Advisory Board (Board) agreed that the City Engineering Department, under my direction, would estimate future water availability and the Board would recommend potential policies to the Council.

Since the May 14 workshop, the Engineering Departmental staff have met with the Phase 2 Report’s authors, Kolm and van der Heijde, and completed additional analysis in order to provide the annual and future water availability number that we believe the Council needs for establishing policy. Based upon comments and recommendations from Mr. Jeffrey Gittins, the City of Moab Water Rights Attorney who attended the workshop, I have chosen 40 years as the “planning window/interval” to project the City’s

needs into the future. This is consistent with our adopted Water Distribution and Storage Master Plan (Plan) which has determined that the Average Annual Demand for the City will be 3,801 acre-feet per year in 2060. The Engineering Department staff have independently verified that number as reasonable.

Based upon review and analysis of the most conservative of the Report's applicable water budgets, which is Table 1b on page 27 of Kolm and van der Heijde (2019), we believe that the annual average volume of water available now and thru 2060, is between 9,172 acre-feet per year (total water available minus Ken's Lake and consumptive use by riparian vegetation) and 11,050 acre-feet per year (reduction of evapo-transpiration from riparian vegetation and spring outflow by 20% reduction due to water use). Based upon certain Environmental Protection Agency PA data (EPA 430-F-16-046, August 2016), which estimates a reduction of the April snowpack in the La Sal Mountains by 20% over the last 60 years due to climate change and assuming that same reduction rate continues into the future, the projected reduced range for the annual average volume of water is 20% less or 7,337 acre-feet per year and 9,126 acre-feet per year, respectively.

In summary, utilizing the State of Utah and City of Moab approved Water Distribution Plan for the 2060 average annual demand of 3,801 acre-feet per year, and utilizing the Kolm and van der Heijde (2019) Report as the basis for the climate change modified range of 7,337 acre-feet per year to 9,126 acre-feet per year for average annual available water, there is sufficient water for the next 40-years. Using the lower range value of 7,337 acre-feet per year available minus the 3,801 acre-feet per year demand leaves a remainder of 3,536 acre-feet per year in exceedance of the year 2060 demand, which is 193% of the required demand. Using the higher range of 9,126 acre-feet per year available minus the 3,801 acre-feet per year demand leaves a remainder of 5,325 acre-feet per year in exceedance of the 2060 demand, which is 240% of the required demand. Under all of the scenarios it is prudent for us to develop further wells, and perhaps springs, in order to insure sufficient access to necessary water sources for the City.

It is worth clarifying that this evaluation is for the City of Moab only, including tourists who use our system and is based solely upon the Glen Canyon Aquifer. Other uses and supplies in the Greater Spanish Valley are not considered in this evaluation.



Chuck Williams, PE
City Engineer