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State of Utah
DEPARTMENT OF NATURAL RESOURCES
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Division of Water Rights
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July 9, 2024

RE: Response to Comments

Dear Water Users:

In response to public comments received regarding the State Engineer's January 9, 2023 public meeting concerning the development of a groundwater management plan in Parowan Valley in Iron County, the Division of Water Rights provides the following information:

Adopting One or Two Groundwater Management Plans - Dividing the Parowan Valley into Two Sub-Basins

Scientific Investigations Report 2017-5033[1] clearly indicates that the North and South areas are hydrologically connected aquifers in the basin fill, both from flow gradient of water levels and chemical evolution of water movement (page 43). Figure 9 of SIR 2017-5033 shows that the potentiometric surface is continuous between the North and South subareas, with no evident discontinuity. Because of the hydraulic connectivity of the groundwater basin throughout Parowan Valley, the groundwater management plan will be developed for the entire groundwater basin as a single unit, with the goal of limiting withdrawals to the estimated safe yield of 22,000 acre-feet per year. Monitoring and data gathering will be an ongoing effort. The groundwater management plan will be amended as needed to conform with the best available scientific information.

Changes in Appropriation Policy – Possible Modification of the Current Policy Restricting Changes between North and South

The purpose of a groundwater management plan is to balance withdrawals with the safe yield of the basin. Areas of concentrated pumping may see continued groundwater level declines even after total basin withdrawals are balanced with the safe yield. Through changes in appropriation

[1] Marston, T.M., 2017, Water resources of Parowan Valley, Iron County, Utah: U.S. Geological Survey Scientific Investigations Report 2017–5033, 45 p., https://doi.org/10.3133/sir20175033.

policy, additional groundwater level declines may be minimized by not allowing water right changes to areas of greater groundwater level decline. For this reason, the State Engineer is considering modifying the current policy restricting changes between north and south sub-basins (the boundary delineated by the southern boundary line of T32S). The policy may be modified to restrict changes into specific areas of groundwater decline, namely the south sub-basin. The factors in the decision to modify the appropriation policy are the hydraulic connections between groundwater and the locations of the areas of greatest groundwater decline. The goal of a policy change would be to prevent the potential for additional groundwater withdrawals in locations of greatest groundwater decline. Any appropriation policy changes will be addressed separately from the groundwater management plan.

Longer Curtailment Timeline to Prevent Economic Impacts
Subsection (4)(b) of Utah Code § 73-5-15 states: "When adopting a groundwater management plan for a critical management area, the state engineer shall, based on economic and other impacts to an individual water user or a local community caused by the implementation of safe yield limits on withdrawals, allow gradual implementation of the groundwater management plan." The draft plan proposes a gradual implementation, with the first cut delayed until 2043 and the final scheduled cut in 2080. While potential economic impact is a factor in determining the proper timeframe for this gradual implementation, extending the regulation implementation dates further into the future would result in increased water level declines before the aquifer is brought back into balance and increase risk of water quality degradation and land subsidence.

Dr. Ryan Smith's Research and the Difference in Safe Yield Estimation
As presented in the public meetings, the State Engineer commissioned the U.S. Geological Survey to study the hydrogeology and groundwater budget of Parowan Valley in preparation for this groundwater management plan. This effort resulted in two scientific reports:

- USGS SIR 2017-5033 - Water resources of Parowan Valley, Iron County, Utah
- USGS SIR 2017-5072 - Groundwater model of the Great Basin carbonate and alluvial Aquifer system version 3.0: Incorporating revisions in southwestern Utah and east central Nevada

Based on a review of these two reports, the State Engineer has selected the value of 22,000 acre-feet as safe yield. Available information suggests that well depletion averaged 33,000 acre-feet per year from 2010 to 2019[2], indicating that annual depletion exceeded safe yield by 11,000 acre-feet per year during this period.

At the public meeting, Dr. Smith described a water budget analysis that used a linear regression between annual pumping and annual storage change to estimate that water levels would stabilize if pumping was reduced to a range of 26,000 to 31,000 acre-feet per year (3.3-3.8 $\times 10^7$ m^3/yr). He also described an estimate of annual storage loss ranging from approximately 3,400-5,500

[2] Data from Groundwater Conditions in Utah reports show that well diversions have averaged about 35,000 acre-feet per year over this period. SIR 2017-5033 estimates that 95% of well withdrawals for irrigation purposes are depleted.

acre-feet per year. After the public meeting, division staff corresponded with Dr. Smith and considered this new analysis. We still believe the best available scientific information supports the safe yield estimate of 22,000 acre-feet. As noted by Dr. Smith, there is uncertainty in estimating safe yield. If additional data becomes available after the plan is adopted, the safe yield estimate may be adjusted accordingly and the plan amended as necessary.

Exemption from Secondary Metering
In accordance with Utah Code § 73-10-34(11), a secondary water supplier located within a critical management area that is subject to a groundwater management plan adopted or amended under Section 73-5-15 on or after May 1, 2006, is exempt from secondary metering requirements.

Other Issues Not Related to the Division of Water Rights' Responsibility
Some comments regarding the management of forestry, creating a buyout program, and regulating the groundwater rights other than priority dates are not within the scope of the Division of Water Right's statutory obligations.