

6. *What is the amount of authorized diversions and depletion in the sub-basins south of SR-56 and north of SR-56? [Cedar City]*
7. *Will there be a separate list of water rights generated for the south side and the north side of SR-56? [Cedar City]*
8. *If it is determined that the priority date needs to be cut back, will there be different cutback dates for the north and south sides of SR-56? [Cedar City]*

It has not yet been determined whether the management plan will divide the basin into a northern and southern sub-basin and if that boundary would remain along SR-56. If the sub-basins are regulated separately, then yes, the safe yield and water rights in each sub-basin would be determined and a different priority cut would be used. This data is being compiled and analyzed and will be made available when it is completed.

9. *Would the State Engineer look at the possibility of relaxing the requirement of keeping water rights on one side of the SR-56 divide – i.e., allow rights to be moved from north to south as part of the groundwater management plan? [Cedar City]*

If the basin was to be regulated as one (undivided), yes, it's possible that the restriction could be removed or modified in some way to allow water rights to be moved out of (but not necessarily into) localized areas of declines.

Regulating Localized Areas of Decline

10. *How will the localized critical areas (i.e. Quichapa and Enoch) be considered in the groundwater management plan? [Cedar City]*
11. *What is the safe yield in the localized critical areas of Quichapa and Enoch? Will there be an attempt to define a boundary for these critical areas and determine a safe yield in these critical areas? [Cedar City]*

This has not yet been determined. Boundary lines simplify administrative processes, but are difficult to define. We will be analyzing in greater detail these critical areas.

Gradual Implementation / Economic Impacts

12. *The potential for significant economic loss from surface fissuring to both public infrastructure and private property touches a much broader class than merely water right owners. Therefore, the Groundwater Management Plan (GMP) process for the Aquifer must carefully consider adopting a much shorter implementation timeframe than the neighboring Beryl Junction Ground Water Management Plan. [R. Scott Wilson]*

17. *What incentives are there for agriculture users to improve their irrigation practices and reduce their water use? [Cedar City]*

Irrigators with efficient irrigation systems can maximize the yield of their crops and minimize the cost of pumping. Concerns regarding irrigation inefficiencies often don't take into account excess irrigation water that returns to the aquifer is not truly wasted.

18. *What consideration will be made as part of the groundwater management plan to account for conversion from agricultural to municipal use over time? [Cedar City]*

Water users will continue to be allowed to buy and sell water rights and apply to change their nature of use. When changing from irrigation to municipal use, the historic depletion will be maintained. An accounting of these changes in use is part of the State Engineer's record.

Accuracy of Current Estimates

19. *What is the safe yield of the overall basin? What methodology will be used to determine safe yield? Will an independent consulting engineer (non-biased) be retained to review the safe yield calculations to ensure accuracy? [Cedar City]*

As presented in the public meeting, we currently believe safe yield is between 21,000 and 24,000 acre-feet. The estimates were made using the USGS flow budget, USGS groundwater model, USGS chemical mass balance analysis, and our own storage change analysis.

No, we are not planning to contract with an independent consulting engineer. The recent USGS study represents independent professional work. As additional information becomes available – including how the aquifer responds to any future regulation, or results from independent analyses or studies brought about by any interested parties – the safe yield estimate may be revised.

20. *What is the total amount of authorized diversions and depletions under currently valid appropriations in the overall basin? [Cedar City]*

About 76,000 acre-feet of diversion and 50,000 acre-feet of depletion have been approved or perfected.

These figures exceed estimates of use actually occurring because:

- Some rights have not been fully developed, esp. municipal rights
- Some groundwater rights are supplemental to surface rights
- Some rights may be fully used some years but not each year
- Some rights may not have been fully used for a long time
- The actual use figures are also estimates that are not exact

21. *Can the estimate of current depletion be defined more accurately? [Cedar City]*

If water is imported into the valley in the future then the importer has the right to fully deplete the imported water. The use of this imported water would be allowed independent of any priority regulation or voluntary agreement because the source of import water, by definition, is completely separate.

Potential Development of Bedrock Aquifers in Nearby Mountain Areas

27. *Exploration of bedrock aquifers in the mountains of Iron County could result in the identification of more renewable water than is currently pumped ("over drafted") from the sand and gravel aquifers under Cedar Valley. Average annual precipitation records show that water production from the bedrock aquifers in the mountainous areas of the county can be sustained without damaging existing flows from the springs and creeks now tapped for use. [Gary Player]*
28. *Is there a possibility that the State would consider appropriating new water rights if it was found that water contained in bedrock aquifers does not contribute to the valley aquifer? [Cedar City]*

The State Engineer wants to encourage new groundwater development so long as it does not take away water from existing users. Mr. Player's exploration proposals and his previous reports to Cedar City have been reviewed and compared with findings from other hydrogeologic studies. Two regions have been proposed for exploration: the mountains west of Cedar City and the mountains east of Cedar City. At this time, the State Engineer believes the western mountain bedrock aquifers are hydrologically connected to the valley aquifer and water in the eastern mountain bedrock discharges to Coal Creek or flows southeast and to the Virgin River. Since each of these sources is considered to be fully appropriated, further development would cause impairment to other water rights. To alleviate overdrafts in the basin water rights would need to be purchased and transferred to these locations prior to diverting from these sources.