

# **CAMAS PRAIRIE FARMERS GROUND WATER GROUP**

August 9, 2021

Mr. Gary Spackman, Director  
Idaho Department of Water Resources  
322 E. Front Street  
Boise, Idaho 83702

Re: Position Statement of Camas Ground Water Group to the Big Wood River Ground Water Management Area Advisory Committee

The Camas Ground Water Group (CGWG), through its hydrogeologist Ed Squires of Hydro Logic, Inc. (HLI), presented an overview of its hydrological, geological, and hydrogeological investigations to date to this committee on February 17, 2021 via Zoom® teleconferencing. Digital and hard-copy documents of the presentation were submitted to the Idaho Department of Water Resources (IDWR) for the administrative record. CGWG's initial conclusions remain valid as our overarching position that “Curtailment of Camas Prairie Rift Aquifer ground water pumping will not result in more surface water storage in Magic Reservoir”. CGWG continues to study and assess the hydrogeology and hydrology of our source water, to the extent our limited budget allows, but we make steady and sure progress with the continued assistance of HLI.

In his June 28, 2021 Order, IDWR Director Gary Spackman stated *“The hydrogeological relationship of ground water pumping in the Camas Creek Basin to other surface water sources in the Wood River Basin is not evaluated by this decision”*. This statement infers that IDWR has not excluded the CGWG from potential administrative curtailments in this matter pending further study and evaluation. CGWG agrees that there is work to be done to fully characterize the Camas Basin. Our group continues to maintain that the available science supports our conclusions and that there is currently no basis under which IDWR should curtail pumping from the Camas Prairie Rift Aquifer. Our Group will continue to share our studies and conclusions with IDWR as they become available.

CGWG does not agree with the Big Wood Canal Company allegations that ground water pumping from the CPRA has reduced ground water discharge to Magic Reservoir storage. We also have not yet been apprised of the Canal Company's evidence of injury. However, we have no reason to disbelieve it can no longer get access to its full complement of Magic Reservoir storage rights because of changes in the surface water hydrology.

**1) CAMAS GROUND WATER GROUP'S FEBRUARY 17, 2021 CONCLUSIONS ON BASIN-37/ BASIN 37-B GROUND WATER/ SURFACE WATER INTERCONNECTION:**

- a. Curtailment of Camas ground water pumping will not result in additional surface water storage in Magic Reservoir.
- b. The Camas Prairie Rift Aquifer is complex, very deep, and areally extensive.

- c. The older USGS (Walton, 1960, and Young, 1973) Camas reports are limited in scope and data, inaccurate, and out of date.
- d. The newer (1989), peer-reviewed scientific reports by the Cluer brothers are the best available science for the Camas to date. Brian Cluer's 1989 paper in the scientific journal "Groundwater" is the only peer-reviewed science for the Camas Rift Aquifer.
- e. Cluer's conclusions are supported by subsequent investigations by Glenn and others (2018) and CGWG's own water level monitoring/investigations since 2015.
- f. There are no demonstrated aquifer pressure declines in pumping wells of the Camas since the wells were drilled and constructed.
- g. CGWG disagrees with Big Wood Canal Company's and IDWR's hydrogeology for the Camas Aquifer.
- h. The Camas ground water table is below the useable storage in Magic Reservoir; just as it was in 1910 when the hydroelectric out take works were constructed.
- i. Magic is filled by surface water flows from Camas and Big Wood Basins; predominantly during a rapid spring runoff that overwhelms the leakage from the pool.
- j. The Canal Company has not shown compelling evidence of injury by Camas ground water pumping.

**2) CGWG'S SCIENTIFIC STUDIES HAVE BEEN PRIMARILY FOCUSED ON THE CAMAS BASIN BUT, SINCE OUR LAST COMMENTS TO IDWR IN FEBRUARY OF THIS YEAR, WE HAVE DEVELOPED SOME ADDITIONAL IDEAS THAT MAY BE RELATED TO REDUCED WATER STORAGE IN MAGIC RESERVOIR AND PERHAPS HELPFUL TO THE CANAL COMPANY IN ANALYZING AND SOLVING ITS WATER SHORTAGE PROBLEMS.**

- a. Magic Reservoir has suffered a significant loss in water storage volume from sediment loads in tributary streams and the Big Wood River (BWR) settling out in the slack water of the reservoir over the 120-year period since the reservoir's construction.
  - i. Indeed, over 3-miles of the 100-ft deep canyon of the Big Wood River is significantly buried and obscured beneath this infill (HLI aerial photos February 17, 2021, attached).
  - ii. It would not be difficult to quantify the volume of infill from GPS measurements and soundings of the reservoir bottom in this drought year.
  - iii. A reasonable estimate of infill volume might also be derived through comparison to published data for typical Idaho stream sediment loads over the 120 years.
  - iv. In any case, it is obvious that a large volume of sediment infill now occupies a very significant percentage of the Canal Company's annual allotted 191,500 ac-ft

diversion to storage; more volume than the total annual ac-ft of ground water pumped from Camas wells.

- v. Big Wood Canal Company could recover large volumes of storage by dredging of the infill sediments over time and especially during drought years like this one.
- b. Given the unquantified volume of reservoir sedimentary infill, it may be a worthwhile exercise to recalibrate the stream gages above and below Magic Reservoir.
- i. If, for example, a quarter of the reservoir storage no longer exists, it would be difficult to reconcile the 190,000 ac-ft often recorded for the storage volume.
  - ii. CGWG has concluded that Magic must leak profusely given its direct connection to the basin ground water table that underlies it coupled with the nature of the young, highly fractured and jointed basalt/rhyolite volcanic rocks that are the vessel for the impounded water.
  - iii. Of course, the more pressure head that is applied by filling of the reservoir, the more leakage would occur at the water table and through the submergence of the volcanic rocks that contain the pool.
  - iv. The large infill volume, combined with significant leakage, and the unmeasured contributions from Willow (BWR), Poison, Rock, Camp, and Cow creeks impose uncertainty on the accuracy of the diversions to and from storage and the storage volume itself.
  - v. It is likely a complicated legal determination whether an administrative call can be made on water storage that may not exist or that prevents potential for carry over.
- c. Has Big Wood Canal Company observed ed that during the current drought of 2021, and while the Big Wood River, Camas Creek, and unmeasured tributary streams, such as Willow Creek (BWR), Poison Creek, Rock Creek, Camp Creek, Cow Creek, and others, continued to flow into Magic Reservoir in late spring and early summer (including after the releases to the Big Wood below Magic Reservoir ceased altogether), why the Magic Reservoir water level and storage volume did not increase?
- i. This apparent leakage from Magic Reservoir, at the pool's lowest water levels, further obscures the aforementioned water storage balance calculations and the full accounting of the canal Company's once-annual, diversion-to-storage water right volume of 191,500 ac-ft.
  - ii. In other words, if the reservoir leaks significantly at its lowest water levels (the water table), the level of leakage under 100-ft of additional head, into the highly vertically and horizontally fractured basalt and rhyolite volcanic rocks that make up the sides of the reservoir, would be greatly increased.

- d. Has Big Wood Canal Company ever conducted any analysis of the effects of the 2007 Richfield diversion of the River from its natural course to the wider, open, less shaded canal over an exposed basalt flow top?
  - i. Although the Richfield Diversion is below Magic Reservoir, just the sediment infill issue alone shows that the water balance of inflow/outflow/storage measurements in Magic Reservoir are in error so perhaps the loss of water the Canal Company is alleging is not only a storage issue. In other words, could part of the water deficit be a response to this relatively recent diversion?

Throughout these many years of deliberation about surface water availability in the Big Wood River system, CGWG has not previously heard mention of any of these potential extenuating circumstances, that are apparently even less studied than the Camas. CGWG brings these issues to the fore as potential answers/solutions for Big Wood Canal Company to consider with respect to its claimed water deficit.

Camas Ground Water Group respectfully recommends that our fellow farmers of the Big Wood Canal Company consider these, and all other, potential explanations before calling for storage water for which reservoir storage does not exist and for which the water accounting is apparently in error.

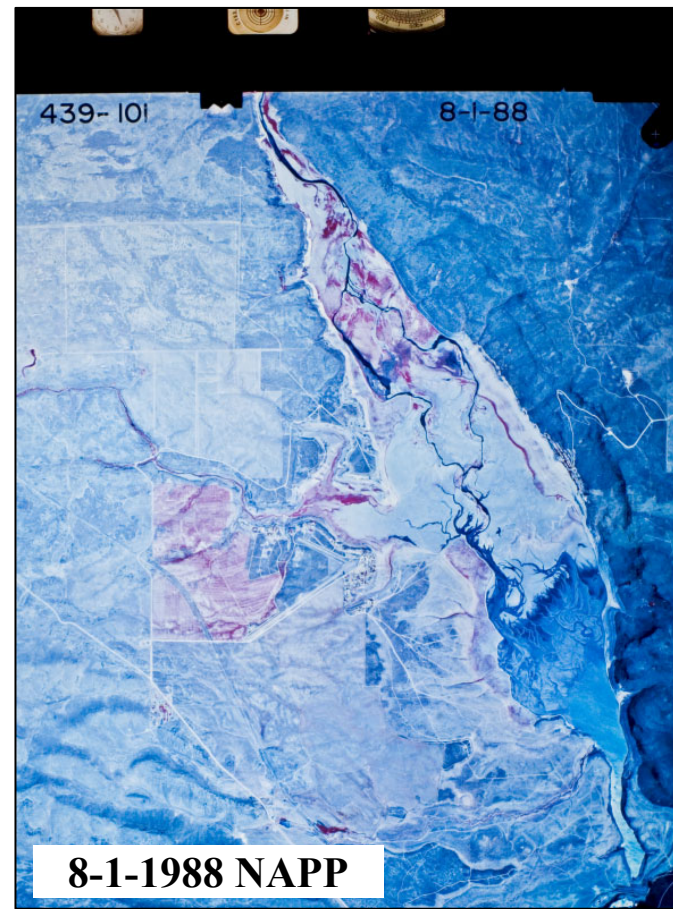
Thank you for the opportunity to contribute.

Bill Simon for the Camas Ground Water Group

- c: All parties to the administrative proceeding.  
Camas Prairie Ground Water Group  
Ed Squires, Hydro Logic, Inc.



8-23-1977 USGS



8-1-1988 NAPP

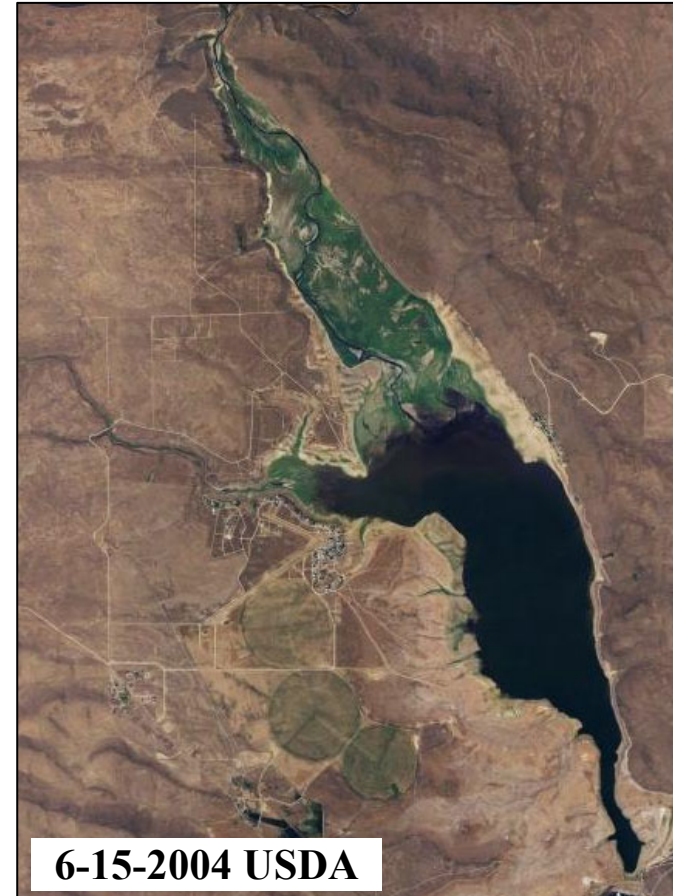


7-26-1992 NAPP

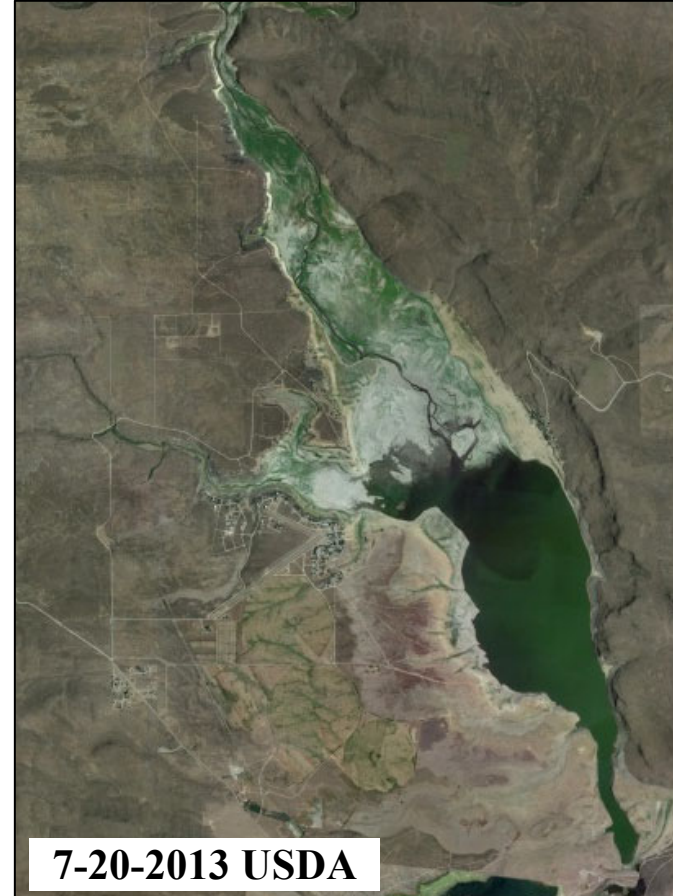
Hydro Logic, Inc  
Boise, Idaho



12-31-2003 USDA

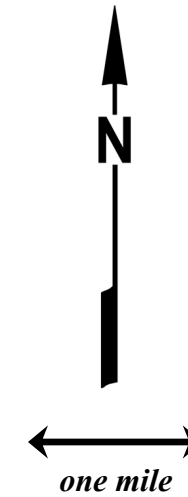


6-15-2004 USDA



7-20-2013 USDA

# Historical Photos of Low Water Levels and Infill in Magic Reservoir



Selected aerial photographs of the Magic Reservoir area of Camas Prairie over the period 1977-to-2013. In general, these photo dates are later in the irrigation year and the top three frames are from severe drought years. Evident in the photographs is that, even on the most severe drought year of 1977, a portion of Magic Reservoir remains filled with water. Studies by HLI for the Camas Ground Water Group, suggest that the remaining water in the reservoir is the expression of the regional ground water table which exists below the useable storage of the reservoir. The low levels correspond to water levels in wells along the rim and the dam tender residence. According to Water Master Kevin Lakey, the remaining water in Magic is not due to any water right circumstance and the water cannot be emptied from the reservoir by gravity means using the existing diversion works. The time series of photographs suggests that the water table of Camas Prairie has not declined significantly (if at all) in response to Camas ground water pumping or drought cycles. These drought-year photographs show the significant volume of infilling sediment loads from tributary stream over the 120-year history of the reservoir slack water.