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RE: Water Utility Resource Management Plan (WURMP) for Moab-Spanish Valley with the intended goal of ensuring resilient management of water resources for the residents and visitors to the Moab/Spanish Valley area for the next 100-years.

Dear city council, city staff, city legal counsel, WURMP contractors, consultants and press corps:

My name is John Weisheit and I have reviewed the documents and webinar of WURMP. I also attended the Workshop held in city council chambers on April 25, 2023. At this time I am presenting to you my observations and comments. It is likely that I will send supplemental information following other scheduled meetings regarding the development of the WURMP. Many thanks for sharing these opportunities with the public.

INTRODUCTION

I am a co-founder of several citizen organizations that protect watershed resources in the Colorado River Basin and starting in 1993. The organizations include: Colorado Plateau River Guides, Living Rivers, Canyonlands Watershed Council and Moab Area Watershed Partnership. I am a licensed member of the Waterkeeper Alliance and serve as the Colorado Riverkeeper and since 2002.

• I have protested the following Water Right Numbers in regards to applications to appropriate water directly from the aquifers of the Glen Canyon Group, the Colorado River, and the Green River (09-2349 (A37788e) & (01-1128; 05-1709; 92-649)
• I am also involved in litigation with the US Bureau of Reclamation (USBR) regarding the Environmental Assessment and Finding of No Significant Impact for the Green River Block Exchange Contract (press release).
• We intervened because the water managers of the Colorado River Basin do not practice best management practices. This issue wasn’t obvious when the reservoirs were full in 1999, but it certainly has become self-evident today (LA Times).

Water Background
I am a property owner in Grand County, Utah and I currently live in the service district of Grand Water and Sewer Service District. I did live as a renter in the city limits of Moab from 1987 to 1993. I moved to Moab to work as a professional guide for the various outfitter companies based in the City of Moab and the City of Flagstaff.

Both of my grandparents moved to Los Angeles County during The Great Depression and my parents moved to Maricopa County (AZ) in the mid-1960s. My father (Donald) was a lifetime employee of General Electric and in utility sales; his customers included the Bureau of Reclamation and Arizona Public Service. My mother (Donna) worked for Valley Gin and her customers were cotton growers. In the early 1970s, I was employed by Woolf Farms to irrigate cotton fields in the morning and operate tractors in the afternoon, and for a total of three harvests. Our family built a vacation home along the Colorado River in La Paz County (AZ) in 1964 along the shores of the “Parker Strip” below Lake Havasu and Parker Dam.

PREVIOUS ANALYSIS ON WATER RIGHTS IN THE COLORADO RIVER BASIN AND SPECIFIC TO MOAB, GRAND COUNTY & SAN JUAN COUNTY

I agree with the abstract of Ms. Hagen, who has since received her law degree and passed the bar exam in the state of Utah. Her law professor in 2021 was Jason A. Robinson who is the chair of the Colorado River Research Group. Jason also serves on the Water and Tribes Initiative and consults with the 30 tribes of the Colorado River Basin (see Robison CV).

Specifically, the conclusion I support is the following statement: due to the rapid decline in the average annual flow of the Colorado River, and climate disruptions caused by the loading of greenhouse gases since the 19th century, there is only enough water in the Colorado River Basin to fulfill the demands of Present Perfected (Water) Rights (PPR) for the Upper and Lower Division states, which also includes Mexico and 30 sovereign tribes.

Eventually, even the youngest holders of PPRs will suffer shortage curtailments. This was demonstrated by Ms. Hagen when she presented scenario planning graphics from 2012 Basin Study by the US Bureau of Reclamation (USBR), which was funded jointly by the federal government (2009 SECURE Water Act) and the seven states of the Colorado River Basin. These graphics are presented on page 18 of Ms. Hagen’s paper.

I am presenting the same graphic from USBR (Technical Report G). I placed red dots into this graphic, which represents the real time elevation of Lake Powell as of January 1, 2022. The purpose of this modified graphic is to demonstrate that the current hydrology of the Colorado River is in the 10th percentile (drier than the 20th century hydrology average), and that
hydroelectric power generation becomes a stranded asset during the decade of the 2030s, which persists to the end of the 21st century. The minimum elevation at Lake Powell to generate electricity is 3,490 feet. Incidentally, at this elevation, air becomes entrained into the water column of the penstock tubes and erodes the runner blades of the turbines (water hammering caused by imploding vapor bubbles).

Again, what these graphics reveal is that, in the last 11-years since the 2012 analysis, the reservoir elevations at Lake Powell are indeed positioned in the 10th percentile bracket (dry hydrology), rather than the 50th percentile bracket (normal hydrology). The trend indicates hydropower generation ceases by Year 2030 and for time-periods of multiple decades. What this also means, is the Upper Basin states cannot honor Article 3c & 3d of the 1922 Colorado River Compact. The Secretary of Interior and the Upper Colorado River Commission will likely curtail water deliveries to junior water right holders in both basins. This will be discussed in more detail on page 6.
TWO SCENARIO PLANNING GRAPHICS; USBR 2012 BASIN STUDY
Projection for Upper Basin and Lower Basin Water Shortage Curtailments

In 2011, Reclamation produced detailed graphics that indicate clearly the shortage amounts to the seven states of the Colorado River Basin, and based on 20th century flow data. The dry hydrology begins in 1927 and is referenced as “Run 21.” These graphics were released to the public in 2016 following a fulfillment to a Freedom of Information Act request.

This dry period in the 20th century included the “Dust Bowl” decade of the 1930s, and a severe drought often referred to as “the critical period” between 1953 and 1977. The average reduction in natural flow was 16%. What is important to consider is—this real-time reduction in streamflow had no impact on water deliveries in the Colorado River Basin, because the demand for Colorado River water did not yet surpass the supply. At that time, the system had a sustainable and resilient water management plan.

- Total consumption in 1977 was 10.42 million acre-feet (data, USBR.)
- Total consumption in 2001 was 14.82 million acre-feet (not counting the take of lower basin evaporation; the “structural deficit”)
- 4 million acre-feet is a proposed call for system reductions by USBR (SEIS)
- The reduction in flow from 1999 to 2020 was 16%. (data, Overpeck.)
- In 2050 the reduction in flow will be 30%
- In 2100 the reduction in flow will be 50%

On the next page, I present these two graphics generated by Colorado River System Simulator (Riverware Software; CADSWES). The model is simulating a dry hydrology (10th percentile); a natural flow reduction of 16%. The start year for the model run is 1927 (Trace 21). The reservoir operation plan for this model run is the current version of 2007 Interim Guidelines (ROD, USBR). MAF means million acre-feet per year.

Graphics of projected shortages next page
PPRs: PRESENT PERFECTED (WATER) RIGHTS

According to the Arizona vs California Consolidated Decree of 2006 (US Supreme Court), a Present Perfected Right is defined as follows:

(G) “Perfected right” means a water right acquired in accordance with state law, which right has been exercised by the actual diversion of a specific quantity of water that has been applied to a defined area of land or to definite municipal or industrial works, and in addition shall include water rights created by the reservation of mainstream water for the use of federal establishments under federal law whether or not the water has been applied to beneficial use;

(H) Present perfected rights” means perfected rights, as here defined, existing as of June 25, 1929, the effective date of the Boulder Canyon Project Act;’

In other words, these are the water rights that were properly adjudicated prior to Congress formally approving two documents: the Colorado River Compact of 1922 and the Boulder Canyon Project Act of 1928. This formal approval was necessitated by Arizona’s recalcitrance to formally authorize either document, until February of 1944.

To simplify what this exactly means in the Modern Era: if a priority date for a water right follows June 25, 1929, it is not a PPR. Water rights adjudicated by state engineers after June 25, 1929 are called “junior water rights.” The more junior the priority date, the more vulnerable the water right is to receiving an enforceable shortage curtailment.

The youngest of the PPRs are vulnerable, however, should conditions of aridity advance to a stage known as “severe and sustained drought.” The most secure PPRs are those set aside by treaties. This would include, for example, the water adjudicated to the Navajo Nation and to the United Mexican States.

Examples of water projects that hold junior water right positions are, for instance, the Colorado River Aqueduct in California (1931), the aqueduct for the Central Arizona Project (1968 to 1972), the diversions of Southern Nevada Water Authority (1969).

TRANSFERRING SENIOR WATER RIGHTS TO JUNIOR WATER RIGHTS

Current programs to transfer senior water rights to junior water right positions have been underway since the approval of the 2003 Quantification Settlement Agreement in the Lower Basin Division, and in the Upper Basin Division since the 2014 System Conservation Pilot Program was initiated. The initiation of these programs is an indirect confession that shortages would soon be arriving in the Colorado River Basin. Year 2005 is when Secretary Norton initiated an EIS for a water management plan, then called Shortage Criteria (admin record).

These programs involve irrigators with PPRs, for example, from the Palo Verde Irrigation District near Blythe, California (Lower Basin), and the Grand Valley Project near Grand Junction, Colorado (Upper Basin). Municipalities are paying hard cash for senior water rights and in amounts that involve millions of dollars, annually.
Interestingly, most (but not all) of the irrigators are not cooperating with these proposed water transfer programs. When asked why, they exclaim that food security is an essential service to the nation, and that this mission will eventually be compromised by an economic engine that is wholly dependent on natural resources that are finite and non-renewable. To reference the wisdom of Professor Luna Leopold, modern society is not yet adapting to the realities of geography and climate (Reverence for Rivers, 1977).

The water transfer programs have various names and various features. For example: 1) intentionally created surplus; 2) demand management; 3) system conservation programs, and; 4) free market capitalism. The features of these programs imply that water is being saved to augment stream flows, or stored in a reservoir or an aquifer, and that is partly true in some cases, but for a limited time-period. The final outcome with this “saved” water is that it will be consumed for human use in the near future. Therefore, what has changed is the timing of the water consumption event; the outcome of this “saved water” is merely a delay tactic, or becomes a transfer from one human use to another. In other words, there is no actual reduction in consumption at all, and this is why Lakes Mead and Powell are approaching empty and why the federal government is seeking an annual reduction of 4 million acre-feet for Water Year 2023 (SEIS Draft). If the present management plan was truly functioning properly as intended, then why is there a call to reduce consumption by 4 million acre-feet?

I do not think it is burdensome to reduce consumption by 4 million acre-feet over a time-period of 16-years. Contrarily, it is extremely burdensome to reduce consumption by 4 million acre-feet in one year. These demonstration programs are anything but best management practices.

This is why constituents are angry and vocal and not really in the mood to extend forgiveness to water managers that are deliberately manipulating the system to fuel unsustainable growth.

Here is a clarifying example of a water efficiency strategy presently used by a municipal water supplier (Southern Nevada Water Authority): a water agency pays a home owner to change their landscaping from turf, to drought tolerant plants. Then the water agency transfers this water “savings” to a new residence that is under construction. It is deceptive to call this strategy a water conservation program; it is a water transfer program to fuel growth. When the water shortages arrive, this municipality’s water efficiency strategy will now disappoint two homeowners, rather than one. There is no equity in this approved management practice (strategy).

**THE SOLUTION: Adapt to geography and climate to be sustainable and resilient**

This is a statement from the National Academy of Sciences (1983, NAS): "Climate changes, their benefits and damages, and the benefits and damages of the actions that bring them about will fall unequally on the world's people and nations. Because of real or perceived inequities, climate change could well be a divisive rather than a unifying factor in world affairs."

In conclusion, we think a comprehensive water management plan is an excellent idea and will generate community involvement, which is always a desirable outcome. We can expect this to be a difficult process, but I think this community has the courage and ethics to see it through.
Unfortunately, this country does not yet have a national policy on water management. Indeed, local communities must provide the necessary leadership to make this happen. (Congressional Research Service, 2009).

A thoughtful spending program that will adapt to our unique geography and climate should do the trick. To name but a few, this community needs grants and aid money to: 1) mitigate wildfires, drought, and floods from monsoons and atmospheric rivers; 2) we need to get the sewer treatment plant out of the 100-year flood plain; 3) we need to resolve the issues of congestion, parking, noise, public health and safety, and; 4) provide robust education and art programs for our children and seniors.

In other words, we need to organize and improve the infrastructure that we have, rather than to expand a consumptive footprint that frustrates the greater goals of sustainability and resiliency. We should be grateful that our geography does have natural limitations. Consider that we live in a collapsed salt anticline, with a topographic relief of about 9,000 feet; yet our water quality is exceptional, dependable and essentially free; provided we respect the limits of this finite natural resource.

Sincerely yours and wishing you good luck,

John Weisheit
Co-founder of Living Rivers & Colorado Riverkeeper

ADDITIONAL INFORMATION
Chronology of water jurisprudence in the Colorado River Basin

1848 - US Senate ratifies the Treaty of Guadalupe Hidalgo.

1849 - First indigenous treaty with the Navajo Nation.

1889 - USA and Mexico create the International Boundary and Water Commission (Colorado River and the Rio Grande).

1897 - Utah enables the Office of the State Engineer (Utah Division of Water Rights).

1908 - US Supreme Court affirms that water rights for tribes are reserved in perpetuity (Winter's Doctrine).

1929 - Formal approval of the Colorado River Compact of 1922 and the Boulder Canyon Project Act of 1928, which quantifies 75 million acre-feet every 10-years to the Lower Division states of California, Nevada and Arizona. Negotiated shortage curtailments are approved by the Secretary of Interior.

1944 - Mexican Water Treaty is ratified by the US Senate and the annual apportionment is provided by the states of the Upper and Lower Divisions; each Division provides 750,000 acre-
feet for a grand total of 1.5 million acre-feet. Shortage curtailments can be negotiated, which occurred for the first time in 2019 and called Minute 323.

1949 - US Congress formally ratifies the Upper Colorado River Compact of 1948, which is comprised of five states; New Mexico, Colorado, Wyoming, Utah, and northern Arizona. The annual appropriation for Arizona is fixed at 50,000 acre-feet (Arizona does not have a vote in the affairs of the Upper Colorado River Commission). The annual appropriations for the other four states are variable amounts, rather than fixed amounts, and determined by satisfaction of Article 3d of the Colorado River Compact of 1922, which states: 75 million acre-feet must pass the Compact Point (one mile below the Paria River near Lee’s Ferry, AZ) in a time-period of 10-years. In other words, the apportionment of the four states of the Upper Division is based on leftovers. Negotiated shortage curtailments are approved by the Upper Colorado River Commission (the commissioners appointed by the governors of NM, CO, WY and UT).

1970 - US Congress amends the Colorado River Basin Project Act of 1968, which gives authority to the Secretary of Interior to prepare long-range operating plans for federal dams in the Upper and Lower Divisions. The documents are prepared by the Bureau of Reclamation, and specifically by two regional offices in Boulder City, Nevada and Salt Lake City, Utah. The documents they produce are called: Annual Operating Plans, Five-year Reviews, Consumptive Use and Loss Reports, 24-Month Reports, and others. Science and data for these reports are provided by cooperating agencies and tribes.


2023 - A Draft Supplemental EIS is posted by USBR, but without choosing a preferred alternative. One proposed alternative for the Lower Basin States could reduce consumption by a maximum amount of 4 million acre-feet in the next two years. The entire Upper Basin States consumed 4.2 million acre-feet in Year 2020.

**STORAGE RESERVOIRS ABOVE MOAB**

The reservoirs above Moab are mainly for the beneficial use in the state of Colorado. Much of this water is diverted through tunnels that flow under the Great Divide and into Front Range reservoirs, and the rivers that flow east to the Mississippi River; these are called transbasin diversions.

The recovery programs for the endangered fish of the Upper Colorado River are mostly reliant on the discharges from the tributaries of the Colorado River, especially the Roaring Fork River. There is a minimum target flow requirement for the Colorado River at a 15-mile reach that stretches from town of Palisade to the city of Grand Junction.
The drinking water supply for the City of Grand Junction is from the pristine watershed of Grand Mesa. If there is a water supply emergency, Grand Junction does have infrastructure to pump Colorado River water to a treatment plant. I do not know what the priority date is for this pumping project. I do know that it has only been used once.

Dolores River: Reservoirs are McPhee and Dawson Draw; salinity input from saline springs is quite high; salinity control program at Bedrock, CO is presently compromised.

Gunnison River: very productive watershed with numerous tributaries and many irrigation projects and many storage units. The primary reservoirs of the Gunnison River that are featured in the 24-month Reports are Taylor Park, Blue Mesa, Morrow Point and Crystal.

Roaring Fork River: Ruedi Reservoir; salinity input from saline springs is significant.

Blue River: Green Mountain; water is pristine.

Colorado River: Shadow Mountain and the Windy Gap Projects; intensely diverted.

Agricultural lands in the Colorado Plateau of western Colorado have marine based soils; salinity inputs are significant.

THE DEVELOPMENT OF A FUTURE BASIN-WIDE MANAGEMENT PLAN BY 2026

The existing plan, known as 2007 Interim Guidelines, along with the six amendments (mentioned above), will expire at midnight on December 31, 2025. A new operating plan will likely emerge in the second week of December of 2025 at the annual conference of Colorado River Water Users Association (CRWUA) in Las Vegas, NV.

It is possible that litigation in the US Supreme Court could disrupt this schedule and for the reason of two primary doctrines: Prior Appropriation and Federal Reserve Water Rights.

THE COLORADO PLATEAU

Moab is in the center of a geophysical province known as the Colorado Plateau. The first geologist to describe this province was John Strong Newberry during two expeditions for Army Corps of Topographical Engineers: the Ives Expedition of 1857 and the Macomb Expedition of 1859. The goal of the 1859 expedition was to get the longitude and latitude the location where the Grand and Green rivers joined to form the Colorado River (The Confluence), and in present-day Canyonlands National Park. It was John Wesley Powell who actually achieved this goal in July of 1869.

The Colorado Plateau is where the science of geomorphology was developed, and largely by Grove K. Gilbert during his field trips into the Henry Mountains in 1875. The first experiments to perfect the techniques of dendrochronology occurred in the ponderosa pine forests near Flagstaff, Arizona by Andrew E. Douglas and in the early 1900s. The science of paleoflood hydrology was born in the scablands of the Columbia River, but perfected in the 1980s by Victor Baker and his students in the watersheds of the Colorado River Basin and the Rio
Grande. The fiancé of Grove K. Gilbert was Alice Eastwood, who completed comprehensive botanical studies in the Colorado Plateau. She started her survey at the Train Depot in Thompson Springs in 1892; John Wetherill was her guide. Wetherill also served as a guide for many archeology expeditions and largely conducted by the Peabody Museum at Harvard University (Science from the Saddle).