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New Mexico Interstate Stream Commission
Via email to nm.awsa@state.nm.us

Attn: Craig Roepke

Subject: Comments regarding Bohannon-Huston Draft Preliminary
Engineering Report for Phase II Engineering Evaluation of
AWSA Diversion and Storage Proposals

Dear Mr. Roepke:

After years and millions expended on studies and engineering, the ISC's AWSA Gila River diversion planning has not demonstrated any opportunity to build a successful diversion project. The concept remains fatally flawed. Failure is inevitable and certain due to:

- Immense costs
- Low or no usable water
- No demand for water at the associated cost
- Endangered species impacts of diversion

The \$700,000, 700 page Phase II Engineering Evaluation of AWSA Diversion and Storage proposals follows the ISC's Gila River diversion planning process theme of wasting public funds to produce dense, inaccessible technical studies that are meaningless or misleading in the overall context of hydrologic reality and Southwest New Mexico's needs and practical solutions. This report attempts to perpetuate the untruth that an AWSA Gila River diversion project could be made to work. It addresses ludicrous concepts and evaluates or recommends infeasible solutions, such as:

- solving the problem of severe reservoir seepage losses that would consume all of the diverted water by shaping all the entire reservoir areas with earth movers and installing thin plastic liners,
- pumped diversions of 350 cfs, and
- solar power for huge water pumps.

This expensive report also is very untimely. ISC's plan as adopted at its June 2012 meeting was to relax its schedule to complete its studies, make a preliminary

decision in August 2014, provide a 60-day public comment period, and make a final decision in November 2014. The current facts are that the ISC has not provided any staff or consultant integration of millions in compartmentalized studies and continues to spend huge sums on untimely studies with only 2% of the 10-year planning period remaining. The ISC Director's August 2014 offer to publicly provide the preliminary staff recommendation for the decision that is the goal and end point of these 10 years of planning was met with silence by Commission members at that meeting and ignored at the September 2014 meeting. How does the ISC justify not providing its preliminary decision and the reasons therefore and eliminating the opportunity for meaningful public comment before finalizing its decision?

Given the cost, low volumes of unreliable usable water, lack of need for the water, and the insurmountable mandates of federal law including but not limited to the Endangered Species Act and federal requirements for federal water resources development projects, the rational decision is clear but the ISC is unable or unwilling to make it. Why?

Most importantly, ISC has still not publicly addressed the hydrologic realities of New Mexico's legally available water supply and the physical conditions that will result low average yield of usable water, if any, and none during drought. The BHI Phase II report updates costs for the impossible yield of 10,000 acre-feet for the pipeline to Deming. It purports to analyze solutions to provide 90 cfs of supplemental irrigation and environmental flows water at the head of the Cliff-Gila valley. The stored water cannot possibly provide this amount for the historical duration of low flows and would benefit only a handful of irrigators, principally Freeport-McMoRan Copper and Gold.

RJH Consultants, Inc., advised the ISC that net yield is the very foundation of any water development project, yet the ISC continues to ignore this foundation while withholding from the public its erroneous analysis of the water legally available for diversion. The facts pertaining to the legally available water supply, which the BHI preliminary engineering report ignores, include:

- Median annual legally divertible water is 3,699 acre-feet, less than one-third of the 12,400 acre-feet mean, which is skewed by rare extraordinarily wet years.
- Twenty percent of the total volume of legally divertible water since 1937 occurred in three years, two of which were in the 1980s and 1990s, the two wettest decades in the last 2000 years.
- 23% of years since 1937 produced no legally divertible water.
- An additional 22% of years had less than 2,500 acre-feet of legally divertible water, approximately the amount needed just for the ISC's promised river augmentation for species during dry times.
- This means no water for human use in 55% of the years.

- The historical record shows consecutive years with no water legally available for diversion: one 6-year period, four 4-year periods, and two 2-year periods.

The BHI Preliminary Engineering Report was created in disregard of these crucially important constraints and without recognition of the fatal flaws. It therefore provides no additional value.

The draft PER quantifies sediment loads in diverted water as averaging 22 acre-feet per year with 44 acre-feet of diverted sediment in a wet year. These figures demonstrate my sediment-as-a-fatal-flaw assertion regarding the preferred alternative in BHI's first draft PER. An annual sediment load in diverted water of 44 acre-feet is almost ten times the volume of the pressure pipe system for BHI's fatally flawed alternative. The ISC's rewarded BHI's very poor quality work with the \$700,000 contract for its Phase II effort, which was not previously planned nor included in any prior ISC work plan.

The Coanda screen diversion dam extending across a fraction of the flood plain won't work. Because a diversion dam must back up the river to create a vertical separation of the river bed above and below the diversion dam and because the Gila River at flood will fill the area upstream of the diversion dam with sediment, the river will soon bypass the dam. ISC can verify this assertion with Reclamation, whose river engineers also will verify the unsuitability of the Coanda screen as a diversion concept for the Gila River. The draft PER fails to address the scope of work that requires BHI to assess how to protect the fragile screen. The BHI narrative regarding protection of the screen from bed load boulders during floods is inadequate. BHI omits any discussion of protection of the screen from massive trees and root balls that the river transports downstream at flood. I also note the absence of the architectural rendering of the diversion required by the scope of work.

The BHI track record of estimating costs of an AWSA Gila River diversion project with storage and export to Deming casts doubt on the veracity of the estimates in the draft Phase II PER. BHI cost estimates officially provided to the ISC in 2014 have risen from approximately \$350 million to \$450 million to over \$600 million in the latest report.

The draft PER cost estimates in the body of the report fail to include significant cost components that must be paid, and therefore are misleading. The cost estimates in Appendix J are higher than those summarized in the body of the report but are very incomplete, adding gross receipts taxes but omitting the present value of exchange costs, interest during construction, and adequate labor for operations and maintenance. At this state of design, BHI's contingency percentage of 30% is much too low. Reclamation's contingency percentages are more than twice as high. Albuquerque's diversion project increased from \$180 million at completion of planning to \$500 million actual costs. Similarly, Santa Fe's diversion increased from \$100 million to \$250 million.

The PER indicates five personnel would be required for operations and maintenance. This estimate is 20 times the 0.25 FTE labor estimate of BHI's Phase I draft PER. An O&M staff of five for these complex facilities is woefully inadequate.

Taking these omissions into account, the true present value of costs for the BHI alternative exceeds \$1 billion.

I request these comments and my written comments provided previously be posted on the nmawsa.org website, in accordance with the statement ISC staff provided for this web site at the ISC meeting when the ISC approved expenditures to create the website. "The website will provide all information related to ongoing studies and assessments and provide a record of **all** public comments and suggestions related to that work." (emphasis added)

I suggest that the ISC's only rational decision is to abandon its quest for an AWSA Gila River diversion project.

The ISC should instead move quickly to establish a process to approve expenditure the available \$90 million in federal funds for practical, cost-effective water supply solutions, as it has complete authority to do now. Utilizing federal funds for these projects means neither New Mexico taxpayers nor water consumers will have to pay for them. Projects should include:

- Infrastructure improvements to all publicly owned public water systems in the four counties.
- Water treatment facilities to meet arsenic and uranium drinking water standards for systems that are currently out of compliance.
- Improvements in irrigation efficiency.
- A fund with remaining federal dollars to address future drought emergencies in the four-counties.

Implementing such projects will result in better water availability in southwest New Mexico and protect the economy, landscape and resources of the area.

Sincerely,

/s/

Norman Gaume, P.E. (ret.)