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IN THE SUPERIOR COURT OF THE STATE OF ARIZONA
IN AND FOR THE COUNTY OF APACHE

IN RE THE GENERAL
ADJUDICATION OF ALL
RIGHTS TO USE WATER IN THE
LITTLE COLORADO RIVER
SYSTEM AND SOURCE

CV 6417-203

Orders re:
Hopi Tribe's Motion *in Limine* No. 1
Re: Testimony of Dr. Hanemann on Social-Cost
Benefit Analysis
and
Salt River Project's Motion *in Limine* to Preclude
Testimony or Other Evidence Concerning Social
Cost-Benefit Analysis
and
Salt River Project's Motion *in Limine* to Preclude
Admission of Manuscript by Drs. Hanemann and
Whittington
and
Hopi Tribe's Rule 37(c) Motion to Extend Time
for Disclosure

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2 CONTESTED CASE NAME: *In re Hopi Reservation HSR*

3 HSR INVOLVED: *Hopi Reservation*

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5 DESCRIPTIVE SUMMARY: Order denying Hopi Tribe's Motion *in Limine* No. 1
6 Re: Testimony of Dr. Hanemann on Social-Cost Benefit Analysis, granting Salt River Project's
7 Motion *in Limine* to Preclude Testimony or Other Evidence Concerning Social Cost-Benefit
8 Analysis, granting Salt River Project's Motion *in Limine* to Preclude Admission of Manuscript
9 by Drs. Hanemann and Whittington, denying Hopi Tribe's Rule 37(c) Motion to Extend Time for
10 Disclosure, and confirming the denial of Hopi Motion *in Limine* No. 8: John Leeper.

11 NUMBER OF PAGES: 16

12 DATE OF FILING: August 6, 2020

13 The United States and the Hopi Tribe claim federal reserved water rights for sufficient water
14 to support proposed future operations on the Hopi Reservation, such as alfalfa farms, expanded
15 cattle growing operations, a coal-fired power plant, a coal liquefaction gasification plant, and
16 development of an additional 2,890 acres of individual farming plots and storage ponds dependent
17 on groundwater pumped from the surrounding aquifers. The Arizona Supreme Court requires that
18 future projects for which federal reserved water rights are claimed must meet two requirements.
19 "First, development projects need to be achievable from a practical standpoint – they must not be
20 pie in the sky ideas that will likely never reach fruition. Second, projects must be economically
21 sound." *In re Gen. Adjudication of All Rights to Use Water in Gila River Sys. & Source*, 201 Ariz.
22 307, 320, ¶49, 35 P.3d 68, 81 (2001) ("*Gila V*"). According to the Hopi Tribe, "[o]ne of the core
23 disputes between claimants and objectors in this case is the issue of how to determine whether future
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1 development projects are practicable and economically sound.” Hopi Tribe’s Motion *in Limine* No.
2 1: Re Testimony of Dr. Hanemann on Social Benefit-Cost Analysis (January 29, 2020) (Hopi
3 Motion I) at 2.

4 The Hopi Tribe retained Dr. Hanemann, along with two other economists, to testify about
5 the economics of future water projects. Dr. Hanemann has offered the opinion that no economic
6 test should be applied to future projects for domestic, commercial, municipal or industrial (DCMI)
7 use, but if a test will be applied to a DCMI use or a claim for ceremonial and subsistence gardening
8 use, “it should be an economic feasibility test that measured social benefits and costs to consider
9 the impact on the wellbeing of society as a whole.” *Id.* Salt River Project summarized Dr.
10 Hanemann’s opinion more broadly as applicable to any of the Hopi Tribe’s projects or claims.
11 Motion *in Limine* to Preclude Testimony or Other Evidence Concerning Social Cost-Benefit
12 Analysis (March 9, 2020) (“SRP Motion I”) at 4. Dr. Hanemann’s opinion, the economic analysis
13 undertaken by the Claimants’ economists, and the work Dr. Hanemann and his colleagues
14 performed after the deadlines for submission of expert reports resulted in the four motions that are
15 the subject of this decision.
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18 Hopi Motion I seeks an order to prevent the parties from questioning Dr. Hanemann about
19 whether he conducted the social benefit cost analysis referenced in his opinion. The Hopi Tribe
20 argues that such questions would not be fair due to an earlier ruling that does not allow Dr.
21 Hanemann to testify about the September 2019 survey conducted after the final deadline for
22 submission of expert reports. Hopi Motion I at 6. In the alternative, the Hopi Tribe requests
23 reconsideration of the ruling that excludes the September 2019 survey. SRP Motion I seeks an
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1 order finding that no expert performed social cost benefit analysis and precluding any testimony on
2 the topic because such testimony is irrelevant and a waste of time. The Salt River Project also
3 seeks to preclude evidence of an untimely disclosed academic paper written by Dr. Hanemann and
4 two colleagues based on the September 2019 survey (the “Manuscript”) in its Motion *in Limine* to
5 Preclude Admission of Manuscript by Drs. Hanemann and Whittington or Any Testimony Relating
6 to that Manuscript (March 25, 2020) (“SRP Motion II”). The Hopi Tribe responded to SRP Motion
7 II and filed a Rule 37(c) Motion to Extend Time for Disclosure (May 4, 2020) (“Hopi Motion II”)
8 for a finding of good cause for its late disclosure and to permit it to use the Manuscript at trial.
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11 **A. Background**

12 The initial Case Management Order (Aug. 25, 2016) set a March 6, 2017 deadline for the
13 United States and the Hopi Tribe to produce the expert reports in support of their claims for federal
14 reserved water rights for future projects. After additional extensions had been granted¹, amended
15 Case Management Order (Dec. 20, 2018) set the final dates for the production of expert and rebuttal
16 reports for this phase of the case from the Hopi Tribe at March 15, 2019, and June 14, 2019,
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21 ¹By order dated January 12, 2017, the deadline for the Hopi Tribe’s expert reports was first extended
22 to June 16, 2017. Pursuant to an unopposed motion filed by the Hopi Tribe on June 16, 2017, an extension
23 was granted to allow Drs. Hanemann and Whittington additional time to complete their reports. On August
24 4, 2017, the Hopi Tribe was granted extensions until December 15, 2017 and August 10, 2018 to file expert
25 and rebuttal reports, respectively. On August 9, 2018, the Hopi Tribe moved to extend the date for filing
rebuttal reports, which was granted in part and denied in part as to three rebuttal reports for which an
unspecified amount of time was requested.

1 respectively. The Hopi Tribe timely produced an expert report and a rebuttal report from Dr.
2 Hanemann.

3 On September 23, 2019, the Hopi Tribe disclosed the Survey Report. A copy of the Survey
4 Report is attached as Exhibit A to Hopi Motion I. The Survey Report describes a questionnaire
5 prepared by Dr. Hanemann that consisted of a series of representations about the Hopi people and
6 reservation, four questions, and the results of the surveyed sample population. Dr. Hanemann
7 represented to the participants in the survey that the Hopi “depend entirely on groundwater and
8 natural springs on their reservation” and that “[h]eavy use outside the Hopi reservation in the past,
9 including for coal mining, is causing the groundwater on the reservation to run out and the natural
10 springs to dry up.” Survey Report at 3. Further he represented that “a pipeline could be built to the
11 reservation from the Colorado River or from distant locations where there is more ample
12 groundwater” and that in the past the “U.S. government has paid for bringing water to cities such
13 as Phoenix and to other Indian reservations in the Southwest”. *Id.* Dr. Hanemann contracted with
14 YouGov to administer an internet survey over a three-day period in September 2019 of 1,000
15 respondents chosen to create a sample based on gender, age, race, and education. *Id.* As
16 demonstrated by the responses to the questions classified as “knowledge questions” almost one-
17 third of the survey participants did not know or were not sure if there were Indian reservations in
18 the southwestern United States and almost two-thirds of the respondents did not know or were not
19 sure if there were water shortages in the southwestern United States. The four questions and the
20 results of the survey are set forth in Table 1.
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Question	Percentage who answered "Yes"	Percentage who answered "No"	Percentage who answered "Not sure"
Did you know there were Indian Reservations in the Southwest?	68.4	24.8	6.8
Have you heard anything about water shortages in the Southwest?	37.5	54.0	7.2
Did you know the federal government has played a large role in paying for water projects in the Southwest?	33.9	55.2	10.9
If it would cost your household \$5 a year for each of the 5 years of project construction for the Federal government to bring additional water to the Hopi reservation, would you support Congress voting to do this, or would you be opposed to Congress voting to do this?	76.4	8.4	15.2

Table 1

The LCR Coalition, joined by the Arizona State Land Department, the Navajo Nation, Salt River Project, and the City of Flagstaff, moved to strike the Survey Report because the Hopi Tribe violated the Amended Case Management Order and prejudiced the parties by the introduction of a substantive new expert opinion after the final deadline. Oral argument was held on an expedited basis due to the timing of the Hopi Tribe's production of the Survey Report one week before Dr. Hanemann's deposition. The LCR Coalition's Motion to Strike was granted and the Minute Entry (Sept. 27, 2019) directed that the Survey Report "shall not be listed as an exhibit at trial nor shall oral testimony about the Report be elicited from Dr. Hanemann at deposition or trial." Minute Entry at 2.

1 On March 19, 2020, after the issuance of the September 27, 2019 Minute Entry and the
2 December 20, 2019 disclosure deadline, the Hopi Tribe listed a manuscript prepared by Drs.
3 Hanemann, Whittington and Carson entitled “The Existence Value of a Distinctive Native
4 American Culture: Survival of the Hopi Reservation” (Manuscript) on a Disclosure Statement. The
5 Hopi Tribe included the statement that it reserved the right to list the Manuscript as a learned treatise
6 on its exhibit list. The Manuscript is a published academic paper based on data from the September
7 2019 survey that provides an economic analysis of the survey results.
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10 **B. Social Cost-Benefit Analysis**

11 In Hopi Motion I, the Hopi Tribe argues that the objecting parties should not be permitted
12 to question the Claimants’ expert witnesses about whether a social cost-benefit economic analysis
13 has been conducted of future projects that necessitate a grant of federal reserved water rights:
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15 The objectors cannot argue through implication or inference that Dr.
16 Hanemann has conducted no social benefit-cost analysis for Hopi.
17 That is not true. Dr. Hanemann and Dr. Whittington have conducted a
18 household survey that considers unquantified social benefits of
19 economic development and they have conducted a survey to measure
20 social benefits. . . . To allow the objectors to ask questions and to
21 comment on the excluded evidence, while maintaining that the Hopi’s
22 hands are bound on re-direct, does not promote truth or fairness at trial.

23 Hopi Motion I at 6.

24 The assumption underlying Hopi Motion I is that the Survey Report constitutes a social
25 cost-benefit analysis. Dr. Hanemann defined a social cost-benefit economic analysis as a
26 comparison of the sum of the private costs of a project and the external costs of a project to society
27 with the sum of the private benefits and external benefits of a project. Deposition of William
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1 Michael Hanemann, (Oct. 1, 2019), attached as Exh. 1 to SRP Motion I (“Hanemann Deposition”)
2 at 161-162. Based on this definition, a social cost-benefit analysis requires an identified project
3 and calculations of the private costs, the external costs, the private benefits, and the external
4 benefits.

5 The Survey Report does not list any of the future water project for which the United States
6 or the Hopi Tribe seeks a grant of federal reserved water rights. Instead, it generally references an
7 unidentified construction project that would bring water to the Hopi Reservation for an unspecified
8 use. The Survey Report does not quantify any costs, whether private or external. The Survey
9 Report provides no information about the value of a private benefit of any project. It is even
10 questionable whether the Survey Report alone, without expert economic interpretation, quantified
11 the social benefit of a construction project to transport water from either the Colorado River or
12 unnamed aquifers. On its face, the Survey Report only provides the information that 780
13 respondents were willing to pay a total of \$25 over five years for a construction project to transport
14 water to the Hopi reservation.
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17 Dr. Hanemann does not describe the Survey Report as a social cost-benefit analysis. He
18 characterized the survey as a “non-market valuation designed to measure ‘[t]he United States’
19 public’s willingness to pay to ensure that the Hopi Reservation continues to exist and a Hopi culture
20 remains part of the fabric of American life.” Survey Report at 2. Dr. Hanemann described the
21 survey as a “component of a social benefit-cost analysis.” *Id.* Based on the foregoing, the Survey
22 Report does constitute a social benefit-cost analysis. Questions by the parties of the Claimants’
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1 economists about the lack of social cost-benefit analysis in the absence of testimony about the
2 Survey Report would jeopardize neither truth nor fairness at the trial.

3 Salt River Project took an additional step beyond the Hopi Tribe's request to limit questions
4 about the absence of social cost benefit analysis by moving to preclude any testimony about the
5 social cost-benefit methodology. It argues that Michael Hanemann, Dale Whittington and Eric
6 Henson, economists retained by the Hopi Tribe, and Jason Bass, an economist hired by the United
7 States, did not conduct a social cost-benefit analysis of any proposed water projects. It cites to
8 Ariz. R. Evid. 401 as the basis for excluding testimony about a type of economic analysis that was
9 not performed and is therefore not relevant to a determination about whether a particular proposed
10 water project is economically sound. It also contends that testimony about a type of analysis not
11 done is a waste of time and should not be admitted pursuant to Ariz. R. Evid. 403. Although the
12 Hopi Tribe had sought in Hopi Motion I to bar questioning that would establish the absence of
13 social cost-benefit analysis, it nonetheless opposed SRP Motion I that would eliminate all
14 questioning about social cost-benefit analysis. The United States also opposed SRP Motion I to the
15 extent it applies to testimony from its economist, Jason Bass, about the proposed coal-fired power
16 plant.
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19 In support of its motion, SRP cites Dr. Hanemann's deposition testimony that in the two
20 timely expert reports he prepared with Dr. Whittington, he "did not do a social cost-benefit analysis
21 of water supply for DCMI and ceremonial and subsistence." Hanemann Deposition at 163. Mr.
22 Henson stated at his deposition that he was not asked to perform any social cost-benefit analysis of
23 any of the Hopi Tribe's proposed water uses and he did not perform such an analysis. Deposition
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1 of Eric Hanson (Oct. 14, 2019) attached as Exhibit 2 to SRP Motion I at 30. Mr. Bass explained
2 the scope of his economic analysis of a coal-fired power plant to be operated on the Hopi
3 Reservation as follows:

4 The degree to which non-monetary benefits and costs may be reasonably
5 monetized in an economic feasibility analysis can prove challenging and
6 controversial, as it is often reliant on subjective methods such as surveys
7 administered to individuals who may be impacted by the action under
8 consideration.

9 ...
10 The assessment is limited solely to those economic costs and benefits that
11 are monetary in nature. In the case of non-monetary benefits, no attempt
12 was made to monetize anticipated positive standard-of-living and human
13 health impacts of the Project because such an assessment would be highly
14 speculative absent supporting relevant empirical data, which is unavailable.

15 *Economic Feasibility Analysis of Potential Coal-Fired Power Development Project on Hopi Indian
16 Reservation in Support of Hopi Indian Tribe's Future Use, Federal Reserved Water Rights Claims
17 REVISED (December 2017)* at 10-12.

18 The basis of the Claimants' opposition to SRP Motion I appears to be definitional. The
19 Hopi Tribe argues that *Gila V* does not mandate the production of a social cost-benefit analysis "as
20 that term is most narrowly defined to require a formal reduction of *all* costs and *all* benefits to a
21 single quantitative unit of measure." Hopi Response at 6. Similarly, the United States contends
22 that "nothing about how [social cost-benefit analysis] is conducted dictates that all the social costs
23 and benefits that are considered be monetized or quantified." United States Consolidated Response
24 to Motions *in Limine* filed by Salt River Project and LCR Coalition Concerning Mr. Jason Bass
25 (May 20, 2020) at 2.

1 As discussed above, Dr. Hanemann provided a definition of social cost-benefit. In a case
2 cited by the Hopi Tribe, the court provided a definition of the term “cost-benefit analysis” similar
3 to the definition given by the Hopi Tribe’s economist:

4 In “the narrow definition of the economist” [cost-benefit analysis]
5 means “the systematic identification and evaluation of the
6 consequences of a project, program, or action and the expression of
7 these consequences in a single unit of measure (in the United States,
8 usually dollars)”, and in this sense is said to be rarely used by the
federal government in making current environmental decisions.
[citation omitted].

9 *Life of the Land v. Ariyoshi*, 59 Haw. 156, 160, 577 P.2d 1116, 1119 (1978).

10 The issue here is not whether Claimants are required to produce a particular type of
11 economic analysis or perform that analysis in a specific manner. The narrow issue presented by
12 SRP Motion I is whether testimony should be allowed at trial about a type of analysis that was not
13 done or assessments not undertaken. None of the economists conducted a social cost benefit
14 analysis as defined by Dr. Hanemann, by the quotation from *Life of the Land v. Ariyoshi*, or as
15 understood by Mr. Henson. Testimony about an economic methodology or analysis not performed
16 is not relevant as evidence “of consequence in determining the action.” Ariz. R. Evid. 401.
17 Testimony about an economic methodology or analysis not performed or analysis beyond the stated
18 scope of an economic assessment is a waste of time. Ariz. R. Evid. 403. Moreover, the admission
19 of such testimony about methodologies not applied or assessments not undertaken would be the
20 antithesis of the rule that permits an expert opinion if, *inter alia*, the “expert has reliably applied the
21 principles and methods to the facts of the case.” Ariz. R. Evid. 702(d). Based on the demonstrated
22 absence of analysis undertaken and the cited rules of evidence, no expert testimony about the social
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1 cost benefit methodology or a social cost analysis, as defined by Dr. Hanemann, will be admitted.
2 Similarly, no testimony about economic costs and benefits will be permitted from Mr. Bass that is
3 outside the scope of his assessment as he defined it in his expert report.

4 The Hopi Tribe also makes the broad arguments that evidence of costs and benefits of
5 development projects should not be precluded because all costs and benefits of the project have not
6 been monetized and that the court has an obligation to use a “social cost-benefit framework” to
7 weigh and consider all of the evidence. These assertions about unspecified evidence and the
8 court’s obligation to undertake a particular form of analysis far exceed the narrow focus of SRP
9 Motion I and will not be addressed.

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12 **C. Contingent Valuation**

13 The remaining issues raised by the parties concern the admissibility of the late Survey
14 Report, and the Manuscript, which was also untimely prepared and produced and would constitute
15 a violation of the September Minute Entry if used at trial. The Hopi Tribe sought reconsideration
16 of the September 27 Minute Entry in Hopi Motion I. In SRP Motion II, Salt River Project moved
17 to exclude the Manuscript because the Hopi Tribe produced it after the final extension of the
18 deadlines set in the case and its use at trial would prejudice the parties. The Hopi Tribe argues that
19 good cause exists for the late disclosures. Based on the representations made, Dr. Hanemann
20 apparently prepared the Survey Report and the Manuscript as part of his academic research and
21 counsel for Hopi Tribe produced the documents upon receipt. This explanation does not establish
22 good cause for the admission of reports on which work does not appear to have begun until after
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1 the final extended deadlines. The Hopi Tribe also contends that the objectors will not be prejudiced
2 because they can counter-designate articles on contingent valuation. Hopi Response at 3.

3 The Survey Report and the Manuscript involve a distinctive type of economic analysis
4 known as contingent valuation. Manuscript at 5. Contingent valuation was “developed as a means
5 to assign a dollar value to what are obviously non-market goods, i.e., things that are not bought and
6 sold, such as preservation of a wilderness area.” *Dzielak v. Whirlpool Corporation*, 2017 WL
7 1034197 *17 (D. New Jersey, 2017). It requires “carefully designed and administered sample
8 surveys” that directly elicit values that survey respondents attach to particular changes in particular
9 resources. *Id.* at *16; *State of Ohio v. U.S. Dept. of the Interior*, 880 F.2d 432, 475–76 (D.C. Cir.
10 1989). “CV methodology thus enables ascertainment of individually-expressed values for different
11 levels of quality of resources, and dollar values of individuals’ changes in well-being. The
12 regulations also sanction resort to CV methodology in determining . . . existence values.” *State of*
13 *Ohio v. U.S. Dept. of the Interior*, 880 F.2d at 475–76. “Existence value is the dollar amount an
14 individual is willing to pay although he or she does not plan to use the resource, either at present or
15 in the future. The payment is for the knowledge that the resource will continue to exist in a given
16 state of being. [citation omitted]. Though lacking any interest in personally enjoying the resource,
17 an individual may attach some value to it because he or she may wish to have the resource available
18 for others to enjoy.” *Id.*

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22 Courts have accepted contingent valuation studies in some environmental and consumer
23 class actions to quantify damages and rejected contingent valuation studies “where they cannot be
24 used to reliably measure damages or where the study proposed is too vague”. *Dzielak v. Whirlpool*

1 Corporation, 2017 WL 1034197 *18 (D. New Jersey, 2017); see also *Ohio v. U.S. Dept. of the*
2 *Interior, supra*. This type of economic analysis presents a challenging set of issues in the legal
3 system that requires evidence to possess a certain level of certainty and reliability. Dale B.
4 Thompson, Valuing the Environment: Courts' Struggles with Natural Resources Damages, 32
5 *Envtl. L. Rev.* 57 (2002). Contingent valuation studies has required the courts to resolve objections
6 by opposing parties, such as survey questions are inaccurate and misleading, the questionnaires are
7 inappropriately pretested, the respondents were not within the proper universe and not
8 representative, and statistical analysis is flawed. See, e.g., *Cotromano v. United Techs. Corp.*, 2018
9 WL 2047468, at *18 (S.D. Fla. May 2, 2018)(representations made in the survey fact card, among
10 other defects in the design and implementation of the contingent valuation survey, were considered
11 fundamental flaws that rendered the survey inadmissible); *Hartle v. FirstEnergy Generation Corp.*,
12 2014 WL 1317702, at *5 (W.D. Pa. Mar. 31, 2014)(court found that problems with survey questions
13 rendered study fundamentally flawed and inadmissible); *Cannon v. BP Products N. Am., Inc.*, 2013
14 WL 5514284, at *13 (S.D. Tex. Sept. 30, 2013) (contingent valuation rejected for reasons that
15 included failure of the survey to inform the respondents about relevant information).
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18 The Hopi Tribe's untimely attempt to insert contingent valuation analysis into this case is
19 not merely an easily anticipated and understood revision of an existing expert report or even a new
20 opinion about one aspect of an opposing expert's methodology. Instead, it is the introduction of a
21 new, substantive economic theory. As shown by the court decisions that have considered
22 contingent valuations, this type of analysis can present a number of issues beginning with the
23 validity of the survey and ending with the statistical conclusions. As asserted by the Navajo Nation,
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1 the late production of this new analysis deprived the parties of the time necessary to seek, retain,
2 and obtain opinions from experts qualified to opine on matters such as the quality of the poll, any
3 biases in the survey, and the statistical analysis used to draw conclusions.

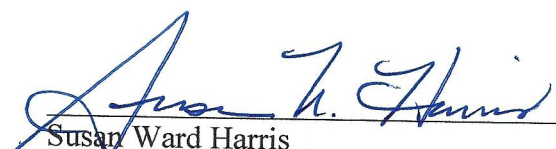
4 In addition to the potential objections that may be anticipated, based on the existing case
5 law, to a contingent valuation analysis, this particular work presents a key threshold issue requiring
6 expert testimony, which is whether the contingent valuation analysis is appropriate for the issues in
7 this case. Dr. Hanemann represented in the Manuscript that “to the best of our knowledge, there is
8 nothing exactly like the study presented here.” Manuscript at 6. He also stated: “This paper opens
9 up an important new area of research valuing not just individual indigenous artifacts, but indigenous
10 cultures writ large.” Manuscript at 14. The untimely production of the Survey Report and
11 Manuscript prejudiced the parties because they have not had the opportunity to retain appropriate
12 experts to evaluate the work. Prejudice created by the late introduction of a novel use of a complex
13 economic theory cannot be cured by allowing the parties’ lawyers to conduct and present a survey
14 of the academic literature on contingent valuation.
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19 **IT IS ORDERED:**

- 20 1. Hopi Tribe’s Motion *in Limine* No. 1 Re: Testimony of Dr. Hanemann on Social-Cost
21 Benefit Analysis is denied as moot and the alternative motion to reconsider the exclusion
22 of the Survey Report is denied.
- 23 2. The Salt River Project’s Motion *in Limine* To Preclude Testimony or Other Evidence
24 Concerning Social Cost-Benefit Analysis is granted.

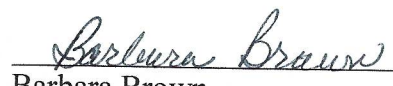
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3. The Salt River Project's Motion *in Limine* To Preclude Admission of Manuscript by Drs. Hanemann and Whittington is granted.
4. Hopi Tribe's Rule 37(c) Motion to Extend Time for Disclosure is denied.
5. The Hopi Tribe's Motion *in Limine* No. 8: John Leeper is denied for the reasons stated in the minute entry filed June 16, 2020 at 11.



Susan Ward Harris
Special Master

On August 6, 2020, the original of the foregoing was mailed to the Clerk of the Apache County Superior Court for filing and distributing a copy to all persons listed on the Court approved mailing list for the Little Colorado River Adjudication Civil No. 6417-203.



Barbara Brown