

DISTRICT COURT
SAN JUAN COUNTY NM
FILED
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STATE OF NEW MEXICO
SAN JUAN COUNTY
THE ELEVENTH JUDICIAL DISTRICT COURT

STATE OF NEW MEXICO, *ex rel.* STATE ENGINEER,

D-1116-CV-75-184

Plaintiff,

HON. JAMES J. WECHSLER
Presiding Judge

vs.

THE UNITED STATES OF AMERICA, *et al.*,

SAN JUAN RIVER
GENERAL STREAM
ADJUDICATION

Defendants,

THE JICARILLA APACHE TRIBE AND THE
NAVAJO NATION,

Claims of the Navajo Nation

Defendant-Intervenors.

Case No. AB-07-1

NAME OF PARTY: Navajo Nation

DESCRIPTIVE SUMMARY: Supplemental disclosure concerning technical report.

NUMBER OF PAGES: 3

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THE NAVAJO NATION'S THIRD SUPPLEMENTAL DISCLOSURE

The Navajo Nation gives notice that Dr. John Leeper, the Navajo Nation's designated expert in this proceeding, has prepared an expert report regarding his opinions on the specific elements, previously identified by the Court, associated with the Settlement Motion. A copy of Dr. Leeper's report is attached to this supplemental disclosure as Attachment A (*Report on San Juan River Basin in New Mexico Navajo Nation Water Rights Settlement Agreement*). In the event that any matter arises in this proceeding that relates to those matters described in Dr. Leeper's report, the Navajo Nation will rely upon Dr. Leeper and his report as necessary.

D✓

Respectfully submitted this 11th day of February, 2013.

NAVAJO NATION



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CERTIFICATE OF SERVICE

I hereby certify that on this 1st day of February, 2013, an electronic version of the *Navajo Nation's Third Supplemental Disclosure*, together with an electronic copy of Attachment A: *Report on San Juan River Basin in New Mexico Navajo Nation Water Rights Settlement Agreement*, February 2013, was served by electronic mail to: wnavajointerse@nmcourts.gov and aoccaj@nmcourts.gov and to the attached distribution list.



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Report on
San Juan River Basin in New Mexico
Navajo Nation Water Rights Settlement Agreement

John Leeper
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February 2013

I. Introduction

This report responds to the four specific issues regarding the *San Juan River Basin in New Mexico Navajo Nation Water Rights Settlement Agreement* (Settlement Agreement): 1) The Settlement Agreement is a product of good faith, arms-length negotiations that occurred over the course of two negotiation phases and an implementation phase, 2) Provisions in the Settlement Agreement and Proposed Decrees will reduce or eliminate impacts on junior water rights, 3) The Settlement Agreement provides to the Navajo Nation less than the potential claims for water rights that could be secured at trial, and 4) the Settlement is consistent with public policy and applicable law.

II. The Settlement Agreement is a product of good faith, arms-length negotiations that occurred during two negotiation phases and an implementation phase

The first negotiation phase refers to the time prior to introduction of the federal Settlement Legislation in December 2006. The second negotiation phase refers to the time after the introduction of the Settlement Legislation until the passage of the Settlement Legislation as Public Law 111-11 in March 2009. The implementation phase refers to the time since the passage of the Settlement Legislation. These descriptions are useful in so far as they set a timeframe when the federal Executive Branch assumed very different roles and responsibilities. However, within those very broad timeframes numerous significant benchmarks occurred that demonstrate that the Settlement Agreement and the related documents (Settlement Documents) are collectively a product of good faith, arms-length negotiations.

Phase 1. Negotiations prior to Introduction of Federal Legislation

The settlement process began with an invitation. In September 1996 President Albert Hale sent a letter to Governor Gary Johnson expressing a willingness of the Navajo Nation to meet with the

Attachment A

State of New Mexico to explore the possibility of a negotiated resolution of the Navajo Nation's water rights in New Mexico. The invitation was not coerced, nor was it coercive.

The State responded affirmatively to the invitation and a series of meetings were held. Those meetings culminated in July 1997 with the execution by Governor Johnson and President Hale of *A Memorandum of Agreement between the State of New Mexico and the Navajo Nation to Commence Discussions to Determine the Water Rights of the Navajo Nation in the San Juan River Stream System through Negotiation*. In that agreement the Navajo Nation and the State of New Mexico agreed:

1. Discussions should commence between the State of New Mexico and the Navajo Nation to determine whether a negotiated decree determining the Navajo Nation's water rights in the San Juan River System in New Mexico is possible.
2. Consistent with the Government to Government Policy Agreement of July 8, 1996, the State of New Mexico and the Navajo Nation have each selected representatives to engage in these discussions...
3. The discussion between the State of New Mexico and the Navajo Nation *shall be voluntary* . . .
4. Participation in these discussions may be terminated by either party at any time without prejudice to that party.

These provisions demonstrate that the parties' decision to engage was voluntary, and was not made under duress. The facilitated discussions proved fruitful.

In October 2000 the United States appointed a Federal Assessment Team. The purpose of the Assessment Team was to evaluate the disparities in the positions of the parties and the potential impact of a Navajo claim. Then, based on that evaluation, the Assessment Team developed a recommendation on whether or not a Federal Negotiation Team is warranted.

In October 2001 the Navajo Nation and the State of New Mexico **agreed** to advance the discussions to formal negotiations with the execution by Governor Johnson and President Kelsey Begaye of *A Memorandum of Agreement between the State of New Mexico and the Navajo Nation to Advance Discussions to Quantify the Water Rights of the Navajo Nation in the San Juan River Stream System through Negotiation*. In that agreement the Navajo Nation and the State of New Mexico agreed:

1. Each party should devote additional resources to pursue a negotiated settlement...
2. The State and the Navajo Nation should take advantage of the Federal Assessment Team to vigorously pursue further negotiations...

3. ... the discussions may be terminated by either party upon written notice to the other.
4. The State of New Mexico and the Navajo Nation should cooperate to the greatest extent possible to ensure the settlement discussions continue...
5. The State of New Mexico and the Navajo Nation should cooperate to the greatest extent possible to ensure the development of the proposed Navajo Gallup Water Supply Project is consistent with a settlement of the Navajo Nation's water rights claims in the San Juan Basin.

The Navajo Nation and the State of New Mexico were not forced to advance the discussions. At the same time the Navajo Nation and the State of New Mexico **requested** a Federal Negotiation Team. That request for a Federal Negotiation Team was fulfilled in October 2002. The Navajo Nation, the State of New Mexico and the United States engaged in deliberative facilitated negotiations that addressed a wide range of complex issues and disciplines. The culmination of that intense effort was a discussion draft settlement agreement that was vetted to the respective leadership and, with their concurrence, released to both the Navajo and Non-Navajo public in December 2003 (December 2003, Discussion Draft Settlement Agreement).

The public release of the 2003 Discussion Draft Settlement Agreement began a very robust period of dialogues among the parties and their respective stakeholders throughout the basin. The Navajo Nation coordinated dozens of meetings within the Navajo chapters, and the State coordinated similar meetings among the State's stakeholders. Public comments and support resolutions were solicited. The results of those dialogues are clearly evident in the changes that the parties chose to make to the December 2003 Discussion Draft Settlement Agreement from the time it was presented to the public until the time it was presented to the Navajo Nation Council for approval in December 2004, and executed by the State of New Mexico and the Navajo Nation in April 2005. For instance, the parties added provisions for the Alternative Water Supply to address concerns regarding the seniority and magnitude of the Hogback and Fruitland Irrigation Project diversion rights, provisions for top water banking at Navajo Reservoir, and provisions to protect the Animas La Plata and San Juan Chama water users from shortages. The execution of the Settlement Agreement set the stage for Settlement Legislation to be introduced in the 109th Congress in December 2006.

Letters generated by the Navajo Nation President are subject to a formal administrative review process. Letters by the Navajo Nation President addressing government to government relations, along with memorandums of agreement, require the concurrence of the respective oversight committees of the Navajo Nation Council. For the settlement process all of the major documents were sent to the Resources Committee and the Intergovernmental Relations Committee of the Navajo Nation Council for review. Producing any of these documents was not a trivial process,

but a process that involved the full participation of both the executive and legislative branches of the Navajo Nation government.

Phase 2. Negotiations after Introduction of Federal Legislation

From December 2006 through March 2009, the Settlement Legislation underwent numerous revisions to address a wide variety of legislative concerns raised by stakeholders within and outside of the San Juan River Basin, and within and outside the State of New Mexico. For instance, in June 2006, the Upper Colorado River Commission, comprised of representatives of the Upper Division states (Colorado, New Mexico, Utah and Wyoming) in the Colorado River Basin, passed resolutions supporting:

1. The diversion of Upper Basin water for use in the Lower Basin within New Mexico via the proposed Navajo Gallup Water Supply Project;
2. The Navajo Nation Settlement Agreement;
3. The authorization of the Navajo Gallup Water Supply Project;
4. The proposed Settlement Contract for the Navajo Nation's uses in New Mexico from Navajo Reservoir; and
5. The determination that sufficient water is reasonably likely to be available to fulfill the proposed Settlement Contract.

Another example of a revision made to the Settlement Legislation was language added to the bill to address concerns raised by the Colorado River Energy Distributors Association that their rate payers could inadvertently be impacted by the construction of the NGWPS power conveyance facilities.

The leadership from the State of New Mexico and the Navajo Nation attended Congressional hearings on the Settlement Legislation and overwhelmingly expressed their strong support for the legislation that emerged. However, during this process the Department of the Interior balanced its trust responsibilities with Office of Management and Budget concerns over cost of the settlement. These officials publically expressed concerns with the cost of the legislation during Congressional testimony. These expressions of concern are another indication that these representatives were discharging their official responsibilities in an official capacity, and that these were arms-length negotiations.

Phase 3. Implementation after Passage of Public Law 111-11

Almost 14 years after Navajo Nation President Hale extended the invitation to Governor Johnson of New Mexico in 1996, through multiple Navajo, State and Federal administrations, the Settlement Legislation was approved by the 111th Congress, and signed into law by the President of the United States on March 30, 2009 (P.L. 111-11). The final conformed Settlement Agreement was executed by Secretary Salazar, Governor Richardson, and Navajo Nation President Shirley in December 2010.

The most obvious evidence that the Settlement Agreement is a product of good faith negotiations is that Section 14.1 of the executed conformed December 2010 Settlement Agreement contains the following language:

This Agreement, including its Appendices, constitutes the entire understanding among the Parties. The Parties have, among themselves, *negotiated in good faith* for the purposes of advancing the settlement of legal disputes including pending litigation.

Since the passage of Public Law 111-11 and during the implementation phase, an enormous amount of work has been accomplished implementing the Settlement Agreement. Literally dozens of support agreements involving numerous State, Federal and Tribal agencies have been executed. The Bureau of Reclamation completed the *Planning Report/Environmental Impact Statement of the Navajo Gallup Water Supply Project* and issued its Record of Decision in October 2009. In March 2010 the Navajo Nation completed its Conjunctive Ground Water Plan. In December 2010 the Navajo Nation and Reclamation executed the Settlement Water Contract. In June 2011 the State of New Mexico and Reclamation executed the Cost Sharing Agreement that anticipates the State receiving approximately \$30 million in credit for expenditures already committed towards the Navajo Gallup Water Supply Project, and committing an additional \$20 million. The Jicarilla Apache Nation and the City of Gallup executed cost repayment contracts with Reclamation. In 2011 the Bureau of Indian Affairs completed the Hydrographic Survey Report that includes supplemental technical documentation that is incorporated in the Final Settlement Decree. This substantial progress can only have been achieved with an enormous amount of good will and cooperation. Progress like this, on so many fronts, with so many participants, and so many agencies, cannot be coerced.

The Settlement Agreement was not developed in a vacuum. Rather, it was forged during some extraordinary times in the history of the San Juan River. Concurrent with the evolving Navajo Settlement Agreement was the authorization of the Ute Settlement Act Amendments of 2000, and the implementation and near completion of the Animas La Plata Project including the Navajo Nation Municipal Pipeline from the City of Farmington to Shiprock. The Navajo Tribal Utility Authority executed water treatment and conveyance contracts with the cities of Gallup and Farmington. The Jicarilla Apache Nation implemented a number of components of their

1992 Settlement Act including water supply contracts with the City of Gallup, Public Service of New Mexico and the San Juan Water Commission. In 2003 and 2004 the San Juan Water Commission and the Northwest New Mexico Council of Governments completed regional 40-year water plans for the basin that included descriptions of the Navajo water projects as they were ultimately incorporated into the Settlement Documents. In April 2006, Reclamation completed the environmental compliance and Record of Decision for the Navajo Reservoir Re-operation which enabled Reclamation to re-operate Navajo Reservoir in a manner that supports the recovery of endangered species while enabling further development on the river to occur. During this time the entire basin experienced very intense periods of drought which resulted in a cooperative effort among the major water users to share shortages and to mitigate some of the drought impacts. The Settlement Agreement was crafted in this real world setting, and it was intended to be responsive to these difficult real world circumstances.

III. Provisions in the Settlement Agreement and Proposed Decrees will reduce or eliminate impacts on junior water rights

The Navajo Nation water rights settlement cannot be reduced to a single number that represents the water rights of the Navajo Nation in the San Juan River Basin. Instead the Settlement Documents reflect a series of compromises made by the Navajo Nation and the State of New Mexico that balances the interests of all of the stakeholders in the basin. Litigation would have resulted in a long, protracted legal battle that would have consumed millions of dollars, pitted community against community, and done little to improve the conditions of the people in the basin. This following section represents a few of the major provisions that benefit the non-Navajo junior water rights holders in the basin.

1. The Terms and Conditions of the Settlement are consistent with New Mexico's Upper Colorado River Basin Compact Apportionment.

The claim prepared by the United States on behalf of the Navajo Nation included 920,745 acre-feet of diversion and 591,401 acre-feet of depletion with a very senior priority date. Based on the most recent hydrologic determinations there may be approximately 669,000 acre-feet per year of depletion apportioned for use within the State of New Mexico in the Upper Colorado River Basin. The Navajo Final Settlement Decree only includes 335,681 acre-feet of depletions. That amount is less than 60 percent of the depletions included in the claim.

The Navajo claim by itself does not have to exceed 669,000 acre-feet per year to be extremely disruptive. The State is already approaching the depletion limitation, and within a few decades may reach it. At that time in the future, the Navajo claim, even if it is significantly smaller than the claim put forward by the United States, would displace existing non-Navajo water users on

the San Juan River in New Mexico. This settlement does not entirely eliminate the possibility of a downstream Lower Basin Compact call impacting New Mexico water users. But the Settlement significantly reduces the likelihood that those impacts would be triggered as the result of the Navajo Nation claim.

As demonstrated in the 2007 Hydrologic Determination and affirmed by the Upper Colorado River Commission and the Secretary of the Interior, sufficient water is reasonably likely to be available to fulfill the settlement contract for the Navajo Nation's uses in New Mexico from Navajo Reservoir.

2. The Terms and Conditions of the settlement reduce the potential diversions of the Hogback and Fruitland Irrigation Projects.

The claim prepared by the United States on behalf of the Navajo Nation for the Hogback and Fruitland Irrigation Projects includes diversions in excess of 130,000 acre-feet per year. The claim did not specify diversion rates for these projects. Due to the low observed irrigation efficiency, as reported in historic BIA records, the historic diversion rates of these projects could theoretically exceed 600 cubic feet per second (cfs) with a very senior priority date.

The Final Settlement Decree limits the irrigation project diversions to 321 cfs which is 1cfs per 40 acres. This rate is approximately half the diversion rate that could be inferred from the descriptions in historic accounts. As incorporated in the Final Settlement Decree, the Crop Irrigation Requirements, the Field Diversion Requirements and the Project Diversion Requirements are essentially consistent with the Echo Ditch Decree methodologies. All of these values are significantly less than the claim.

The Settlement includes funding for the rehabilitation of these irrigation projects which should make it possible to irrigate these lands with less total diversion. The Settlement also includes funding to assist the non-Navajo ditches to be able to divert water during periods of lower flows on the San Juan River. These measures all reduce potential conflicts between the Navajo and non-Navajo ditches.

3. The Terms and Conditions of the Settlement provide for an Alternative Water Supply for the Hogback and Fruitland Irrigation Projects.

When the Settlement Agreement was made public in 2003 the non-Navajo irrigators in the basin expressed reservations that with administration of the San Juan River, the senior Navajo irrigation rights could result in shortages on their irrigation systems when the flows in the river are insufficient to meet all diversion demands. This concern was well founded. Prior to the construction of Navajo Reservoir, the Indian agents reported that the Navajo irrigation projects

frequently suffered shortages due in part to upstream non-Navajo irrigation diversions. Modeling by the staff of the ISC demonstrates that shortages may have occurred in the past, and shortages could occur in the future during approximately one out of every two years. The Settlement Agreement was modified so that the Navajo Nation will utilize up to 12,000 acre-feet of storage water from the Navajo Reservoir during times when the flows in the river are inadequate to meet the demands of the irrigation projects. This Alternative Water Supply reduces the frequency of shortages from approximately one year in two to approximately one year in twenty. That frequency of shortage for the junior water rights is, statistically speaking, reduced to the same frequency as if the Navajo irrigation projects were not there at all.

4. The Terms and Conditions of the Settlement do not include a water demand based on the development of future irrigation, other than the completion of NIIP.

Experts for the United States identified approximately 50,000 acres of feasible irrigable acreage that could be developed in the future not associated with the NIIP and the Hogback and Fruitland Irrigation Projects. To illustrate the potential impacts of the future projects one can compare the seasonal diversion rates of the claims versus the settlement. Based on the crop water requirements the future irrigation demands exceed 700 cfs during June and August and 900 cfs during July. Combined with the other diversions described in the claim, the total diversion could theoretically exceed 1,000 cfs in June July and August. Based on the natural flows at Archuleta between 1930 and 2003, the Navajo claim could utilize all of the water passing that gage more than 75 percent of the time during those three months. By way of contrast, with the settlement the water supply in the river during these months exceeds the settlement water demands more than 95 percent of the time.

With the settlement: 1) the only future irrigation water demand is for NIIP which is congressionally authorized, 2) the water supply for NIIP comes from Navajo Reservoir which has minimal impact on the direct irrigation diversions from the San Juan River, and 3) the impacts of the historic Navajo irrigation projects is enormously reduced.

5. The Terms and Conditions of the Settlement Legislation protect the San Juan Chama water users from administrative restrictions of their diversions due to shortage declaration by the Secretary of the Interior.

The San Juan Chama Project diverts water from the San Juan River tributaries upstream from Navajo Reservoir and upstream from Archuleta with a priority data of 1955. The Bureau of Reclamation estimates that the average annual diversion is 107,000 acre-feet per year and the average diversion is 150 cfs. Pursuant to State Water Use Permit 2847, the San Juan Chama Project is authorized to divert up to 270,000 acre-feet per year and an average of 135,000 per

year over any ten-year period.

The Secretary of the Interior may declare water shortages for the Navajo Reservoir water contractors and the San Juan Chama Project based on three conditions that are included in the 1962 Act: 1) the normal diversion requirement, 2) the storage in Navajo Reservoir, and 3) The forecasted water supply. However, the 1962 authorizing legislation did not provide clear definitions on how the normal demand was to be calculated.

The 2009 Settlement Legislation defines the annual normal diversion demand of the San Juan Chama Project as 135,000 acre-feet. With this definition, the normal diversion demand is large enough that in no year on record would the San Juan Chama Project ever have been administratively cut back due to shortage sharing provisions. Prior to the Settlement Legislation the Normal diversion requirement for the San Juan Chama Project was not precisely defined. There was the very real possibility that some stakeholders in the San Juan River basin would have recommended to the Secretary of the Interior definitions of the normal diversion demand that could have led to a risk of actual administrative reductions of San Juan Chama Project diversions during some years on record.

6. Protection for the Animas La Plata Water Users

The Animas La Plata Project (ALP) provides municipal water to water users in New Mexico. The ALP permit in New Mexico has a 1956 priority date whereas the Navajo Reservoir water supply has a 1955 priority date. The largest single water user of Navajo Reservoir water in New Mexico is the Navajo Indian Irrigation Project. In theory, if there was a downstream compact call, the ALP municipal water supplies could be fully reduced before the irrigation diversions are affected. In the event of a downstream Compact call, the Navajo Nation and the State agreed to a formula for protecting the ALP municipal water users in New Mexico. This protection includes the San Juan Water Commission, the La Plata Conservancy District and the Navajo Nation Municipal Pipeline.

IV. The Settlement Agreement provides to the Navajo Nation less than the potential claims for water rights that might reasonably be secured at trial.

From 1997 until 2011, I was the Branch Manager of the Navajo Nation Water Management Branch, which is responsible for providing technical support to the Navajo Nation for water rights litigation and negotiation. Prior to working for the Navajo Nation I was a professional consulting engineer for Stetson Engineers in California and Natural Resources Consulting Engineers in Colorado. During that time with those two firms, I worked on litigation and

settlement documents supporting more than a dozen different tribal communities, including the Navajo Nation.

Although I was not responsible for the preparation of the United States' claim on behalf of the Navajo Nation, the Water Management Branch was a key resource for the technical teams that prepared the claim. The Water Management Branch provided Navajo Nation water resources data on a wide range of water uses for the preparation of these claims. The Water Management staff became familiar with the approaches incorporated into the resulting technical reports.

In almost every category of water use described in the claim prepared by the United States, the amount of water exceeds the water rights described in the Settlement Documents. The total claim prepared by the United States on behalf of the Navajo Nation is 920,745 acre-feet per year diversion and the total depletion is 591,401 acre-feet per year. For the Navajo Final Settlement Decree the total diversion is only 646,640 acre-feet per year and the depletion is only 335,681 acre-feet per year. The following sections describe a few of the differing assumptions between the two sets of values.

1. Domestic, Commercial, Municipal and Industrial (DCMI) Water Use.

The DCMI claim prepared by the United States on behalf of the Navajo Nation is based on the population, the projected population growth, and the per capita water use rate. For this claim the federal experts used the U.S. Census for its estimate of the population. The experts projected population growth through the year 2100 using a cohort model with birth, death and migration assumption made for various age groups. And the per capita water use rate of 160 gallons per capita per day is consistent with regional norms. The assumptions made by the federal experts are in my opinion reasonable. Based on the analysis of the federal experts, the claim for DCMI uses are 36,592 acre-feet per year for both the diversions and depletions from the San Juan River system.

By comparison, the Final Settlement Decree includes three distinct San Juan River DCMI water sources, the Navajo Gallup Water Supply Project (NGWSP), the Navajo Nation Municipal Pipeline (NNMP) and water diverted directly from the mainstem of the San Juan River by the Shiprock Public Water System. The total surface water diversion is only 29,930 acre-feet per year and the total surface water depletion is 24,420 acre-feet per year. The Final Settlement Decree also allows the Navajo Nation to develop groundwater, with certain limitations, to meet DCMI demands.

The NGWSP and the NNMP were authorized for construction based on the Bureau of Reclamation's Principles and Guidelines. Both projects were designed based on a 40-year

planning horizon which is also consistent with the State of New Mexico Regional Water Planning Template. The water supply of the Shiprock Public water system was based on the recent historic system use and some additional historic State water use permits for historic water uses on the Navajo Nation. These water supplies were not based on anything close to a 100-year planning horizon that was used in the claim. However, through the Settlement Legislation the Navajo Nation is able to secure real, wet-water development that will bring water to Navajo communities that are in desperate need of sustainable water supplies, and water projects that may become catalysts for economic development and improved standards of living.

The DCMI claim is based on a Federal Reserve right with an 1868 priority date. As described in the Final Decree, the NGWSP and NNMP water supplies are subordinated to the priority dates of specific State Water Permits held by the Secretary of the Interior that supply the projects. The NGWSP would be served under water permits from Navajo Reservoir with a 1955 date and from flows arising below Navajo Dam with a 1968 date. The NNMP would be served from the ALP Project water permit with a 1956 priority date.

In conclusion, the amount of water in the Final Settlement Decree for DCMI water use is less than the DCMI claim, and the effective priority dates are more junior. The only “new” water in the Final Settlement Decree is the municipal water supply for the NGWSP with a 1955 priority date for water supplied by Navajo Reservoir and a 1968 priority date for water supplied by direct flows below Navajo Dam.

2. Heavy Industrial and Commercial Activity.

The Heavy Industrial and Commercial Activity claim prepared by the United States on behalf of the Navajo Nation is based on mining, energy production, oil and gas production, food processing and numerous miscellaneous uses. The historic precedent for these uses is self-evident. These types of uses have been on-going in the region for more than 100 years. More than 80 percent of New Mexico’s energy production is in this region. The experts report that the Navajo Nation has 40 million tons of uranium, 4 billion tons of coal, and millions of barrels of oil. Based on the analysis of the federal experts, the claim for Heavy Industrial and Commercial Activity is 100,659 acre-feet per year for the diversions and 60,883 acre-feet per year for the depletions.

By contrast, the Navajo Final Settlement Decree does not explicitly include *any* water based specifically on heavy industrial uses. The decree does not include the water used by BHP at the Four Corners Power Plant (35,421 afy diversion/28,611) described at Table L of the Hydrographic Survey prepared by the United States.

3. Livestock.

The Livestock claim prepared by the United States on behalf of the Navajo Nation is based on the aggregate carrying capacity of the land as measured in animal units and an assumed water use per animal. The claim for Livestock uses is 1,173 acre-feet per year for diversions and 733 acre-feet per year for depletions. In my opinion this method is a reasonable basis for the claim.

In the Navajo Final Settlement Decree, the livestock demands are based on the actual recorded numbers of livestock on Navajo trust lands in the basin. Due in part to drought conditions during the last 15 years, the actual recorded numbers of animals is less than the long term carrying capacity that was reported by the Bureau of Indian Affairs. This settlement methodology resulted in fewer aggregate animal units and an at-site livestock use of only 482 acre-feet per year. One of the goals of the Settlement was to protect current practices. This approach accomplishes that objective.

4. Historic and Present Irrigation (excluding NIIP).

The Historic and Present Irrigation claim (excluding NIIP) prepared by the United States on behalf of the Navajo Nation is based on the water use at the Hogback-Cudeii and Fruitland-Cambridge Irrigation Projects along the San Juan River, and tributary project and non-project irrigation. The claim for Historic and Present Irrigation uses on the Hogback and Fruitland Projects is 137,000 acre-feet per year for the total diversions and 34,930 acre-feet per year for the total depletions. The claim for tributary irrigation on 12,160 historically irrigated acres is 68,577 acre-feet per year for the total diversion and 21,793 acre-feet for the total depletion. The staff with the Interstate Stream Commission calculated that the impact of the historic irrigation on the flow of the San Juan River is approximately 1,200 acre-feet per year. These irrigation claims are based on historic uses are not based on a PIA determination.

The Navajo Final Settlement Decree for the Hogback and Fruitland Projects includes only 66,730 acre-feet per year for the total diversion and 29,250 acre-feet per year the for total depletion. The Decree includes 21,793 acre-feet for at site depletions for the tributary irrigation.

The unit diversion rates in the claim are based on the observed low irrigation efficiency of the irrigation projects. Historic BIA records suggest that these projects have had very low irrigation efficiencies in the past. Based on these historic records, instead of diverting 1 cfs per 40 acres as is typically assumed in New Mexico, the Navajo projects may have been diverting 1 cfs per 21 acres. Using this unit diversion rate, the total peak diversion would be much greater than the 321 cfs used for the Decree.

The Settlement Agreement and the Final Settlement Decree reflect numerous compromises by the Navajo Nation. The resulting diversion rates described in the decree reflect one of these compromises. Some of the objections to the settlement are based on the fact that a portion of the Fruitland Project is in an executive order area that would result in an 1880 priority date instead of an 1868 priority date. However, assigning the historic unit diversion rate just to the lands within the irrigation lands within the 1868 Treaty Area could result in a total diversion rate in excess of 400 cfs. By contrast the Final Decree includes a diversion rate for both irrigation projects of only 321 cfs. In addition, the settlement includes authorization for expenditures to rehabilitate the Navajo and non-Navajo irrigation projects. This rehabilitation will result in reduced diversions leaving more water in the river for endangered species, and will reduce the potential conflicts between Navajo and non-Navajo irrigators.

Many aspects of the settlement reflect an effort to allow traditional practices to continue. The description the tributary irrigation in the Decree reflects, and protects, the practices that have been ongoing for generations. The Navajo Nation agreed that those tributary water rights are for *in situ* purposes, and not to be severed and transferred to other parts of the San Juan River Basin. This compromise greatly reduces the potential impacts that these water rights could have on the non-Navajo water users.

5. Navajo Indian Irrigation Project Irrigation.

The Navajo Indian Irrigation Project (NIIP) was authorized for construction in 1962. Almost 80,000 acres out of approximately 110,000 authorized acres have been constructed. The historic and present NIIP irrigation claim prepared by the United States on behalf of the Navajo Nation for water use at NIIP is 264,294 acre-feet per year of diversion and 197,439 acre-feet per year of depletion. The future claim is 115,579 acre-feet per year of diversion and 86,342 acre-feet per year of depletion. The total claim is 379,873 acre-feet of diversion and 283,781 acre-feet of depletion. The unit diversion rate is 3.31 acre-feet per acre and the unit depletion rate is 2.47 acre-feet per acre. These rates are based on very recent agronomic data from NIIP and are reasonable.

The Navajo Final Settlement Decree includes 508,000 acre-feet per year of diversion at NIIP, and 270,000 acre-feet per year of depletion. The unit diversion rate is 4.59 acre-feet per acre of diversion and the unit depletion rate is 2.44 acre-feet per acre. The unit diversion is based on the values in the authorizing legislation, and the unit depletion is based in part on the analysis in the Biological Opinion for Blocks 10 and 11.

For NIIP, the Final Settlement Decree includes significantly more diversion than the claim, and slightly less depletion. However, the Settlement Documents include a number of terms and

conditions that further define and clarify the use of NIIP water. The Navajo Nation retains the statutory right to divert 508,000 acre-feet of water for irrigated agricultural purposes. Through the Settlement the Navajo Nation gains much more flexibility on how that water can be utilized. In exchange for the greater flexibility, the Navajo Nation agreed to some limitations when the type of use or place of use is changed.

6. Future Irrigation.

The Future Irrigation Claim prepared by the United States on behalf of the Navajo Nation (excluding the Navajo Indian Irrigation Project) includes 189,628 acre-feet per year of diversion, and 153,781 acre-feet per year of depletion. The federal evaluation includes all of the components of a Practicably Irrigable Acreage (PIA) analysis. Tens of thousands of arable acres were indentified, the water requirements of the recommended crops were calculated, a proposed irrigation project was designed, the cost for that system was determined, the economic benefits of the potential crops were assessed, and the water supply was modeled. The result of the federal analysis was that approximately 50,000 acres could be categorized as practicably irrigable. The multi-discipline inputs that went into this analysis are reasonable. A similar analysis by Natural Resources Consulting Engineers in 2006 on behalf of the Navajo Nation also demonstrated that tens of thousands of acres could be categorized as practicably irrigable.

Based on the analysis conducted by the federal experts, the design flow rate at the turn outs is approximately 8.0 gallons per minute per acre. The aggregate turn out design flow rate is 390,404 gpm, or 869 cfs. Depending on the system efficiency, the instantaneous peak diversion requirement may exceed 900 cfs. The federal experts proposed off-stream storage to reduce shortages during the summer low flow periods.

Early in the settlement process the Navajo Nation team presented qualitative evidence that demonstrated that the Navajo Nation had suitable natural resources to make a significant PIA claim possible. Subsequent work by the federal experts and by Natural Resources Consulting Engineers demonstrated that this presumption was, and remains, correct. The Navajo and State teams recommended to their respective leadership that they should not spend hundreds of thousands, or possibly millions of dollars to better articulate how significant and how disruptive that claim could be. Instead the teams recommended spending what limited resources they had on solving real problems that real people have in the basin.

The resulting settlement is premised on solving real problems. The Navajo Settlement Decree does not include rights to develop additional irrigation acreage in the future other than for the unfinished portion of NIIP, as authorized by Congress. There are no rights to develop future irrigation based on PIA.

7. Subordination of the Navajo Nation's Priority date.

The first treaty between the Navajo Nation and the federal government executed in 1849 established the beginnings of what are today the lands reserved for a Navajo homeland. The Treaty of 1849 reflects the first federal assurance of reserving land for a Navajo homeland, and the Navajo Nation could assert that as a potential priority date, if not earlier based on various legal theories concerning aboriginal occupancy. The priority date for *all* the water claimed on behalf of the Navajo Nation by the United States is time immemorial.

In the Final Settlement Decree, most of the Navajo Nation's water uses are subordinated based on the priority date associated with the State water permits held by the Department of the Interior for a particular project (NIIP, NGWSP and NNMP). For the most part, the water supply is from storage in either Navajo or Ridges Basin Reservoir.

This Settlement provision profoundly affects the potential impact of the Navajo Settlement on the existing water users in the San Juan Basin. The water stored in these reservoirs is diverted from the river with a priority date of 1955 and 1956 respectively. Additional water can be diverted directly from flows arising below Navajo Dam for the NGWSP with a 1968 priority date. Water is stored in the reservoirs only during the times of the year when the water supply in the river is abundant. The reservoirs can then be operated to supply the water contracts out of the reservoirs, to supply downstream compact requirements, and to meet environmental commitments.

Water is stored in the reservoirs in the spring when the snowmelt creates a large flow in the river system. Water is not retained in the reservoirs during times when the flows in the rivers are inadequate to serve the more senior water users. By servicing almost 90 percent of the Navajo uses out of reservoir storage, the Settlement diffuses the conflict between the senior direct flow diverters and the Navajo Nation. And, because the Alternative Water Supply can supply the Hogback and Fruitland Irrigation Projects, the conflict between the Navajo uses and the senior direct flow diverters is reduced even more. As an added benefit to the senior water users, during times of river flows of less than 225 cfs, the Settlement authorizes releases out of Navajo Reservoir storage, when there is at least one million acre-feet in storage, to ensure that at least 225 cfs is available below Navajo Dam.

As long the reservoirs supplying the federal permits are not irretrievably lost, the Navajo 1868 priorities can be serviced with water that is relatively junior in priority to the senior direct flow irrigators in the basin.

V. The Settlement is consistent with public policy and applicable law.

The Settlement is complicated and involves numerous federal, state and tribal agencies, jurisdictions and applicable laws. This section identifies a number of the laws that various agencies considered applicable. The Settlement is composed of several distinct components including the NGWSP. In addition, the Settlement provides a water supply for the previously authorized NNMP and NIIP, and the newly authorized NGWSP. The NNMP and the NGWSP were authorized pursuant to the Bureau of Reclamation Principles and Guidelines. For these projects and the Settlement Water Contract, Reclamation complied with the National Environmental Policy Act, Endangered Species Act, Clean Water Act, Clean Air Act, National Historic Preservation Act, Migratory Bird Treaty Act, Fish and Wildlife Coordination Act, the Native American Graves Protection and Repatriation Act, the Archeological Resource Protection Act, and Bald and Golden Eagle Protection Act. Reclamation also had to adhere to State and Tribal requirements.

The NGWSP Planning Report Final Environmental Impact Statement was developed pursuant to Public Law 92-199 and the general authority of Reclamation under the Reclamation Act of 1902. Construction was authorized pursuant to the Omnibus Public Land Management Act of 2009. The NNMP was authorized pursuant to the Colorado Ute Settlement Act Amendments of 2000. The San Juan Water Commission and the Northwest New Mexico Council of Governments completed regional 40-year water plans that included descriptions of the Navajo water projects that were ultimately incorporated into the Settlement Documents. The regional 40-year water plans were subsequently approved by the Interstate Stream Commission in 2003 and 2004, respectively.

For the Settlement water projects constructed pursuant to either Reclamation or Bureau of Indian Affairs (BIA) authorities, and for the Settlement Water Contract between the Navajo Nation and the Secretary of the Interior, Reclamation and BIA also have to comply with, among others, the Navajo Treaty of 1849, the Navajo Nation Treaty of 1868, Colorado River Compact of 1922, the Upper Colorado River Basin Compact of 1948, the Animas La Plata Project Compact, the Boulder Canyon Project Act, Colorado River Storage Project Act of 1956, the Mexican Water Treaty, the Jicarilla Apache Tribe Water Right Settlement Act of 1992, Public Law 87-483 (authorizing the Navajo Indian Irrigation Project), the Colorado Ute Settlement Act Amendments of 2000, and the Omnibus Public Land Management Act of 2009.

The NNMP, the NGWSP, the conjunctive groundwater project, and the water supply for the Shiprock public water system are all needed to get municipal water to real communities in real time. The irrigation rehabilitation authorized by the Settlement Legislation is benefiting real farmers throughout the basin. These water projects are good for the basin, good for the state of

New Mexico, and good for the Navajo Nation. This settlement complies with a complex set of laws and regulations, and it serves the interests of good public policy.

VI. Conclusions

I was a civil engineer with the Navajo Nation Department of Water Resources from 1995 until 2011. During that time I was involved in many of the Navajo Nation's major water development initiatives in the San Juan River Basin. I was able to observe, and at times participate in, hundreds of discussions with Navajo and non-Navajo stakeholders in the San Juan River Basin as the settlement emerged from a broad concept to the near reality of today. Through the many years of being engaged on the Navajo Nation Settlement Documents, the State, Federal and Tribal representatives I have observed have acted in good faith. I have not observed any of these representatives making commitments subject to undue pressure or under duress. Nor have I observed any of the representatives acting in their personal interest at the expense of their professional responsibilities. The Settlement Documents are the product of good faith, arms length negotiations.

The outcome of any trial is uncertain. However, based on the claims prepared by the federal experts, the Final Settlement Decree provides less water to the Navajo Nation, and due to the subordination provisions, it assign a less senior priority date to almost 90 percent of the total depletions than could be secured at trial.

The Settlement Documents includes numerous provisions that reduce the potential impacts on junior water users in the San Juan River Basin.

The Settlement Documents are consistent with U.S. public policy and applicable law.