

**STATE OF NEW MEXICO
COUNTY OF SAN JUAN
ELEVENTH JUDICIAL DISTRICT**

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

Plaintiff,

v.

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

Defendants,

CV-75-184

**HON. JAMES J. WECHSLER
PRESIDING JUDGE**

**SAN JUAN RIVER
ADJUDICATION**

**Claims of Navajo Nation
Case No: AB-07-1**

**THE UNITED STATES' HYDROGRAPHIC SURVEY
OF NAVAJO LANDS IN THE SAN JUAN RIVER BASIN**

TABLE OF CONTENTS

- I. INTRODUCTION..... 3
- II. SUBJECT LANDS OF THE HYDROGRAPHIC SURVEY 3
- III. EXISTING AND HISTORIC WATER USES ON NAVAJO LANDS..... 6
 - A. Wells, Springs, and Impoundments..... 6
 - B. Domestic, Commercial, Municipal, and Light Industrial..... 6
 - 1. Navajo Land Population..... 6
 - 2. DDMI Water Supply on Navajo Land..... 7
 - C. Historic and Present Irrigation 7
 - 1. Lands Irrigated Through BIA Irrigation Projects Using Water from the Mainstem of the San Juan River9
 - 2. The Navajo Indian Irrigation Project10
 - 3. Tributary Irrigation Projects Using Water Sources Other Than the Mainstem of the San Juan River11
 - 4. Tributary Irrigation Non-Project Lands Using Water Sources Other Than the Mainstem of the San Juan River12
 - D. Heavy Industrial Activities..... 13
 - 1. Mineral Resource Development..... 14
 - 2. Power Plant Operation 15
 - 3. Additional Heavy Industrial Activities 15
 - E. Livestock 16
- IV. CONCLUSION 19

I. INTRODUCTION

Pursuant to the Orders of August 20, 2004 (“2004 Order”) and August 19, 2010 (“2010 Order”), the United States submits this hydrographic survey report of water uses in the San Juan River Basin of New Mexico (“hydrographic survey”).¹ As more fully described below, this hydrographic survey is the United States’ description of existing and historic water uses. This description is based exclusively on information assembled by the United States, reflects the sole work of the United States, and is not the hydrographic survey referenced in paragraph 4.2.1 of the Navajo Settlement Agreement.² The United States reserves the right to update this hydrographic survey in the future as needed based on additional analysis performed and information received.

II. SUBJECT LANDS OF THE HYDROGRAPHIC SURVEY

Pursuant to the 2004 and 2010 Orders, the United States has conducted a survey of existing and historic water uses on lands that are within the San Juan River Basin of New Mexico. The 2004 Order describes four categories of lands to be surveyed: 1) lands held in trust for the Navajo Nation by the United States; 2) lands held in trust for members of the Navajo Nation by the United States; 3) lands owned by members of the Navajo Nation subject to

¹ In its 2010 Order, the Court extended the deadline by which this hydrographic survey was due, from October 1, 2010 to December 31, 2010. *See* 2010 Order page 12, II.B.

² The settlement agreement concerning the water rights of the Navajo Nation in the San Juan River Basin of New Mexico (“Navajo Settlement Agreement”) was initially executed by the Navajo Nation and the State of New Mexico on April 19, 2005. On March 30, 2009 the President of the United States signed Public Law 111-11, which authorized the United States to enter into the settlement with the Navajo Nation and the State of New Mexico. On December 17, 2010, the Secretary of the Interior executed the Navajo Settlement Agreement and the United States became a settling party along with the Navajo Nation and the State of New Mexico.

restraint on alienation imposed pursuant to federal law;³ and 4) lands held in fee ownership by the Navajo Nation.

The United States estimates that within the San Juan River Basin of New Mexico 2,613,430 acres are held in trust by the United States, 294,628 acres are allotment lands, and 257,274 acres are held in fee by the Navajo Nation.⁴ Collectively, these lands will be referred to as “Navajo Lands” throughout this hydrographic survey. Materials concerning a description of Navajo Lands are contained within Appendix A. Appendix A contains the following information:

- a. Map A-1 depicts the Navajo Lands which are the subject of this hydrographic survey.⁵

In addition, in its 2010 Order, the Court described the nature and type of information that should be included in this hydrographic survey. The court described: 1) with respect to material concerning water rights described in the Appendix 1 decree, such information concerning existing or historic use shall be compiled from existing information (see subsections III.B,

³ For the purposes of this hydrographic survey, lands held in trust for members of the Navajo Nation by the United States and lands owned by members of the Navajo Nation subject to restraint on alienation imposed pursuant to federal law are treated as one-in-the-same. Whether land is held by an individual with an alienation restraint imposed by federal law or land is held by the United States on behalf of an individual, these lands are generally referred to as “allotments” or “allotment lands”, and the United States holds the same trust responsibility with respect to these lands. *See* Cohen’s Handbook of Federal Indian Law, 2005 ed. § 16.03[1].

⁴ In addition, the United States has identified 172.51 acres within the San Juan River Basin of New Mexico for which the exact legal status (fee, trust, or allotment) cannot be determined at this time. When the status of these acres is determined, the United States will update this hydrographic survey. Until then, the water use associated with these acres will not be included in this hydrographic survey.

⁵ All maps provided with this hydrographic survey report have been provided to the Court in paper and electronic format. For ease of reference, the paper maps provided the Court are provided on 11x17 paper. Parties have been provided this hydrographic survey in electronic format only.

III.C.1, III.C.2, and III.D, below);⁶ 2) one or more maps will be included depicting the existing or historically irrigated acreage associated with the Appendix 1 decree rights (see subsections III.C.1 and III.C.2, below, and Appendix E); 3) a good faith estimate (in acre-feet per year by type of use) of the water rights to be awarded pursuant to the proposed Appendix 2 decree (see subsections III.C.3, III.C.4, and III.E, below, and Appendices B, F, I, J, and M);⁷ and 4) an affirmative statement that the water rights to be awarded through the Appendix 2 decree are predicated upon existing and historic use and not future use (see subsections III.C.3, III.C.4, and III.E, below). *See* 2010 Order at page 13, subsection II.B.1.

By submitting this hydrographic survey, the United States informs the Court and all parties of the nature and extent of the known existing and historic water uses on Navajo Lands. The water uses identified in this hydrographic survey are based on the information available to the United States at this time and this hydrographic survey reflects the extent of the existing and historic water uses that the United States has been able to identify on Navajo Lands. Although this is an accurate description of existing and historic water uses on Navajo Lands, the United States continues to investigate existing and historic water uses and reserves the right to update this hydrographic survey based on additional information developed or received.

The sections below specifically describe the existing and historic water uses on Navajo Lands.

⁶ “Appendix 1” refers to the proposed Partial Final Judgment and Decree of the Water Rights of the Navajo Nation attached to the Navajo Settlement Agreement as Appendix 1. Generally, Appendix 1 describes the water rights of the Navajo Nation associated with surface water withdrawals from the San Juan River.

⁷ “Appendix 2” refers to the proposed Supplemental Partial Final Judgment and Decree of the Water Rights of the Navajo Nation attached to the Navajo Settlement Agreement as Appendix 2. Generally, Appendix 2 describes the water rights of the Navajo Nation based on existing or historic use and not described in Appendix 1.

III. EXISTING AND HISTORIC WATER USES ON NAVAJO LANDS

A. Wells, Springs, and Impoundments

In the course of completing this hydrographic survey, the United States has identified the location of numerous wells, springs, and ponds/impoundments/reservoirs (hereafter, “impoundments”) from which water has been historically or is presently used. As described in the subsections below and to the extent possible, the United States presents in tabular form the historic or present use associated with each well, spring, and impoundment identified on Navajo Lands. Additional materials concerning a description of historic and existing wells, springs, and impoundments on Navajo Lands are contained within Appendix B. Appendix B contains the following information:

- a. Table B-1 is an index of all maps in Appendix B; and
- b. Maps B-1 through Map B-134 depict the location of the wells, springs and impoundments identified in the appendices tables described in the subsections below.

B. Domestic, Commercial, Municipal, and Light Industrial

Navajo Lands are home to thousands. These individuals draw water from a variety of surface water and groundwater sources in the San Juan River Basin to serve domestic, commercial, municipal, and light industrial (DCMI) purposes.⁸

1. Navajo Land Population

Fundamentally, DCMI water demands are based upon population data. Of course, the population of persons living on Navajo Lands has varied widely over time. Current population

⁸ Water rights associated with past, present, and future DCMI demands are the subject of Appendix 1, described above.

estimates are that 55,052 individuals currently live on Navajo Lands.⁹ Materials concerning the current population on Navajo Lands are contained within Appendix C. Appendix C contains the following information:

- a. Table C-1 describes the current population estimates for Navajo Lands; and
- b. Map C-1 depicts the estimated geographic distribution of current population estimates for Navajo Lands.

2. DCMI Water Supply on Navajo Land

Water to meet DCMI demands has come from surface water and ground water sources on, bordering, and under Navajo Lands. Currently, two (2) surface water diversions exist on the mainstem of the San Juan River that have historically or presently serve DCMI demands of the Shiprock, New Mexico community. In addition, approximately 45 wells have been identified on Navajo Lands that serve DCMI demands. Finally, approximately 72 impoundments have been identified on Navajo Lands that are associated with meeting DCMI demands. Appendix D contains the following information:

- a. Table D-1 describes surface water diversions that have been or are being used to meet DCMI demands;
- b. Table D-2 describes wells identified as having been or being used to meet DCMI demands; and
- c. Table D-3 describes impoundments that have been or are being used to meet DCMI demands.

C. Historic and Present Irrigation

For centuries, the Navajo people farmed in the San Juan River Basin to grow a host of crops for subsistence, cultural, and other purposes. Most often, crops are grown with the assistance of irrigation by which water is manipulated and applied to crop acreage. To support

⁹ Population estimates are, in part, based on and projected from the available census data. The United States anticipates that it will revise its population estimates once the 2010 Census data becomes available in 2011.

farming practices, surface water and groundwater have been extensively manipulated on Navajo Lands to water crop fields.

In the course of completing this hydrographic survey, the United States identified the location of the numerous fields on which irrigation has historically been or is presently being performed. The United States Bureau of Indian Affairs (“BIA”) identified a cumulative total of more than 106,713 acres of Navajo Lands that have either been historically or are presently irrigated to grow crops. Of these lands, four distinct categories of irrigated lands have been identified: 1) lands irrigated through BIA irrigation projects using water from the mainstem of the San Juan River; 2) lands of the Navajo Indian Irrigation Project (“NIIP”); 3) tributary irrigation projects using water sources other than the mainstem of the San Juan River¹⁰; and 4) tributary irrigation non-project lands using water sources other than the mainstem of the San Juan River¹¹. Below are descriptions of each category of land subject to irrigation.

As described in the subsections below and to the extent possible, the United States presents in tabular form the historic or present irrigated acreage identified on Navajo Lands. In addition, the maps included in Appendix E identify the location of historic or present irrigated acreage on Navajo Lands. Maps E-1 through E-12 identify the location of historic or present irrigated acres associated with BIA irrigation projects (water from the mainstem of the San Juan River) and the NIIP. See subsections III.C.1 and III.C.2, below. Maps E-13 through E-64 identify the location of historic or present irrigated acres associated with tributary irrigation

¹⁰ A tributary irrigation project refers to an organized irrigation project (water source other than the San Juan River) that was operated by the BIA (or its predecessor the U.S. Indian Service) or another group that required significant investment in irrigation ditch construction, impoundment development, well development, and/or spring development.

¹¹ Tributary irrigation non-project land simply refers to land outside of identified tributary irrigation project areas that did not involve the significant investment and development associated with tributary irrigation projects. Tributary irrigation non-project lands may nonetheless be associated with ditch-irrigated field system(s), impoundment(s), well(s), and/or improved spring(s).

projects using water sources other than the mainstem of the San Juan River; and tributary irrigation non-project lands using water sources other than the mainstem of the San Juan River. See subsections III.C.3 and III.C.4, below.

Finally, in the course of completing this hydrographic survey, the United States has identified the location of the numerous wells, springs, and impoundments that have been historically or are presently used for irrigation purposes. As typically found for wells, springs, and impoundments, very few (if any) records exist associated with these wells, springs and impoundments; however, the location of these wells, springs, and impoundments have been identified on the maps provided in Appendix B (Maps B-1 through B-134). The United States also presents a description of these irrigation related wells, springs, and impoundments in tabular form. Appendix F contains the following information:

- a. Table F-1 describes wells identified as having been or being used to meet irrigation demands;
- b. Table F-2 describes springs identified as having been or being used to meet irrigation demands; and
- c. Table F-3 describes impoundments that have been or are being used to meet irrigation demands.

1. Lands Irrigated Through BIA Irrigation Projects Using Water from the Mainstem of the San Juan River

Over many years, the United States has funded and built large irrigation projects that utilize water from the mainstem of the San Juan River. Generally speaking, these irrigation projects have been identified as the Hogback-Cudei Irrigation Project and the Fruitland-Cambridge Irrigation Project.¹² Through the use of BIA records, aerial photography, and field inspection, the location and extent of irrigated acreage associated with these projects have been

¹² The irrigated acreage of both the Hogback-Cudei Irrigation Project and the Fruitland-Cambridge Irrigation Project are included in Appendix 1, described above.

identified. As a result, it has been determined that approximately 13,030 acres of Navajo Land have been irrigated through these projects.

Materials concerning a description the lands irrigated through BIA irrigation projects using water from the mainstem of the San Juan River are contained within Appendices E and G.

Appendix E contains the following information:

- a. Maps E-1 through E-12 depict the acreage associated with the Hogback-Cudei Irrigation Project and the Fruitland-Cambridge Irrigation Project.

Appendix G contains the following information:

- a. Table G-1 describes the acreage associated with the Hogback-Cudei Irrigation Project and the Fruitland-Cambridge Irrigation Project.

2. The Navajo Indian Irrigation Project

On June 13, 1962, Congress authorized the NIIP (Public Law 87-483) to furnish irrigation water to 110,630 acres of land with an average annual diversion of 508,000 acre feet of water.¹³ The initial 1962 project authorization allowed for development of 77,543 acres of land east and 33,087 acres west of the Chaco River. On September 25, 1970, following a re-evaluation of the project, the site descriptions authorized by the original 1962 Act were amended to exclude the proposed irrigated lands west of the Chaco River and include additional townships east of the river such that all proposed irrigated 110,630 acres were east of the Chaco River.

Public Law 91-416.

NIIP has developed in stages and by blocks; eleven (11) blocks of approximately 10,000 acres (each) were created. Today, the project is still under construction. Blocks 1 through 8 and the first six fields of Block 9 of NIIP have been completed and are operational. Since 1962, of

¹³ The water to serve NIIP was authorized to come from storage water of the Navajo Reservoir. The tunnel and canal infrastructure to deliver water from the Navajo Reservoir to NIIP acreage has been completed in stages over the years since 1962. The irrigated acreage of NIIP is included in Appendix 1, described above.

the acres authorized for development, 79,760 acres have been developed and are subject to project irrigation.

Materials concerning a description of these presently and historically irrigated NIIP lands are contained within Appendices E and H. Appendix E contains the following information:

- a. Maps E-1 through E-12 depict the historically and presently irrigated acreage associated with NIIP.

Appendix H contains the following information:

- a. Table H-1 describes the historically and presently irrigated acreage associated with the irrigated acreage of NIIP.

3. Tributary Irrigation Projects Using Water Sources Other Than the Mainstem of the San Juan River

Over many years, the United States and others have funded and built irrigation projects that utilize water from sources other than the San Juan River. Through government records, aerial photography, and field inspection, it has been determined that approximately 9,954 acres of Navajo Land have been or are currently being irrigated through these projects.

On August 19, 2010, the Court ordered the United States to articulate in this hydrographic survey an estimate of the rights associated with the Appendix 2 decree. 2010 Order at page 13, subsection II.B.1.c. The federally reserved water rights associated with the irrigated acreage of irrigation projects (other than NIIP, the Hogback-Cudei Irrigation Project, and the Fruitland-Cambridge Irrigation Project) are the subject of the Appendix 2 decree (section 3). Based on a crop-mix appropriate for the elevation and precipitation of these lands, the United States has calculated the water obligation for crops of these trust lands to the extent that water is available. The United States makes the good faith estimate that the reserved water right associated with these lands is 15,528 acre-feet of water per year (afy) depletion (57,922 afy

diversion) for irrigation.^{14 15} As the water rights associated with these lands and this use are based exclusively on historic or present water use, none of the water rights described here are predicated upon future uses.

Materials concerning a description of these presently and historically irrigated lands are contained within Appendices E and I. Appendix E contains the following information:

- a. Maps E-13 through E-64 depict the areas examined for tributary irrigation projects and the identified acreage associated with tributary irrigation project lands that utilize water from sources other than the Mainstem of the San Juan River.

Appendix I contains the following information:

- a. Table I-1 describes the acreage and water uses associated with tributary irrigation projects that utilize water from sources other than the Mainstem of the San Juan River.

4. Tributary Irrigation Non-Project Lands Using Water Sources Other Than the Mainstem of the San Juan River

In addition to the tributary irrigation projects described above, since time immemorial the Navajo have irrigated land and grown crops. These irrigated lands are typically smaller areas of land, are typically found along or near tributary drainages to the San Juan River, and are not associated with irrigation projects. To irrigate these lands, farmers utilize whatever surface water and groundwater sources that might be available. Through BIA records, aerial photography, and field inspection, at least 3,969 acres of Navajo Land, not otherwise associated with projects, have been identified as having been irrigated. The development of these acres has been accomplished mostly with water from surface water sources.

¹⁴ The water right described here is associated with the 8,426 acres (approximately) of irrigated land that is lands held by the United States in trust for the Navajo Nation.

¹⁵ Unless otherwise specified, the diversion and depletion quantities described in this document do not reflect water diversion and depletion from the San Juan River.

On August 19, 2010, the Court ordered the United States to articulate in this hydrographic survey an estimate of the rights associated with the Appendix 2 decree. 2010 Order at page 13, subsection II.B.1.c. The federally reserved water rights associated with tributary irrigated lands not associated with irrigation projects are the subject of the Appendix 2 decree (section 3). Based on a crop-mix appropriate for the elevation and precipitation of these lands, the United States has calculated the water obligation for crops of these lands to the extent the water is available. The United States makes the good faith estimate that the reserved water right associated with these lands is 6,273 afy depletion (10,465 afy diversion).¹⁶ As the water rights associated with these lands and this use are based exclusively on historic or present water use, none of the water rights described here are predicated upon future uses.

Materials concerning a description of these presently and historically irrigated lands are contained within Appendices E and J. Appendix E contains the following information:

- a. Maps E-13 through E-64 depict the areas examined for tributary irrigated lands and the identified acreage associated with tributary irrigated lands that utilize water from sources other than the Mainstem of the San Juan River.

Appendix J contains the following information:

- a. Table J-1 describes the acreage and water uses associated with tributary irrigated lands that utilize water from sources other than the Mainstem of the San Juan River.

D. Heavy Industrial Activities

On Navajo Lands, a number of heavy industrial activities have taken place that have an associated water use above that which is contemplated by population-based DCMI considerations (described in subsection III.B, above). These heavy industrial activities on

¹⁶ The water right described here is associated with the 3,734 acres (approximately) of irrigated land that is lands held by the United States in trust for the Navajo Nation.

Navajo Lands has centered on activities such as natural resource development, power generation, uranium milling, and other industrial park activities.

A variety of water sources exist to meet the demands of heavy industrial activity. Surface water, in the form of San Juan River and its tributaries, has been and will continue to be used for heavy industrial activities. Also, through the use of BIA records, aerial photography, and field inspection, the location and size of 25 impoundments and 1 spring that are associated with heavy industrial activities have been identified. Finally, the United States presents in tabular form a description of the heavy industrial related impoundments and springs. Appendix K contains the following information:

- a. Table K-1 describes impoundments identified as having been or being used to meet heavy industrial activity demands; and
- b. Table K-2 describes the spring identified as having been or being used to meet heavy industrial activity demands.

1. Mineral Resource Development

Under Navajo Lands, significant deposits of valuable minerals resources have been identified and developed (e.g., coal, uranium, helium, natural gas, and oil). Information collected from site visits, knowledgeable individuals, and an examination of materials such as government records and published reports reveal the known extent of past and present mineral resource development activities on Navajo Lands. The development of these mineral resources has been accomplished with water from groundwater and surface water sources.

Materials concerning a description of these present and historic mineral resource development activities are contained within Appendix L. Appendix L contains the following information:

- a. Table L-1 describes past and present water use associated with mineral resource development activities on Navajo Lands; and

- b. Maps L-1 through L-3 depict past and present mineral resource development activity areas.

2. Power Plant Operation

In connection with the development of coal resources, a 2040-megawatt coal fired power plant currently operates on Navajo Lands. The Four Corners Power Plant is a mine-mouth generating station located and presently operating in Fruitland, New Mexico. Information collected from site visits, knowledgeable individuals, and an examination of materials such as government records and published reports reveal the known extent of past and present power plant activities on Navajo Lands. The plant's water demands (including the demands associated with coal extraction to serve the plant) are served from the surface water of the San Juan River via a storage reservoir at Morgan Lake.

Materials concerning a description of this historic and present power plant activity is contained within Appendix L. Appendix L contains the following information:

- a. Table L-1 describes past and present water use associated with power plant activities on Navajo Lands; and
- b. Map L-1 depicts the location of the Four Corners Power Plant.

3. Additional Heavy Industrial Activities

On Navajo Lands, additional activities have taken or are currently taking place that involve heavy industrial activities. These additional heavy industrial activities have included: helium processing and transportation, uranium milling, operations at a fish hatchery, operations at a cattle feedlot, and other actions involving water uses beyond population-based DCMI calculations. Information collected from site visits, knowledgeable individuals, and an examination of materials such as government records and published reports reveal the known extent of past and present additional heavy industrial activities on Navajo Lands. These

additional heavy industrial activities have been substantially accomplished with water from surface water sources.

Materials concerning a description of these present and historic additional heavy industrial activities are contained within Appendix L. Appendix L contains the following information:

- a. Table L-1 describes past and present water use associated with additional heavy industrial activities on Navajo Lands; and
- b. Maps L-1 through L-3 depict past and present additional heavy industrial activity areas.

E. Livestock

The Navajo people have engaged in the practice of raising livestock at least since the introduction of livestock by the Spanish. Livestock grazing has been and is currently the largest land use on Navajo Lands. Generally, Navajo Lands have been divided into 10 range units (in whole or in part). The grazing burden on land is determined by the number of animal units (AU) that are engaged in grazing. From the number of animal units, a number of features can be estimated as well (*e.g.*, water-demand of livestock). Animal units can be defined for any livestock animal (cows, horses, sheep, etc.) and once determined converted to any other animal (*e.g.*, 1 AU = 1 cow; 0.25 AU = 1 sheep). For the use of water for livestock purposes on the Navajo Lands that are the focus of this hydrographic survey, the BIA estimates that 24,893 AU are currently exercised.

A variety of water sources exist to meet the demands of livestock. Surface water from the mainstem of the San Juan River and its tributaries has been and continues to be used for livestock purposes. In addition, groundwater sources are also utilized to meet livestock demands. There are 650 wells and 138 springs that have been identified as serving livestock purposes. Finally, in the arid southwest and on Navajo Land, stock impoundments have been

built or maintained to create an additional source of water for livestock. These stock impoundments are supplied with water and are filled and refilled annually to the extent that water is available. Through the use of BIA records, aerial photography, and field inspection, the location and size of 1729 stock impoundments have been identified.

On August 19, 2010, the Court ordered the United States to articulate in this hydrographic survey an estimate of the rights associated with the Appendix 2 decree. 2010 Order at page 13, subsection II.B.1.c. The federally reserved water rights associated with historic and present livestock use are the subject of the Appendix 2 decree (section 3). The United States has identified that the reserved water right associated with livestock grazed on the lands held in trust for the Navajo Nation is 304 afy of depletion (486 afy diversion). In addition, based on BIA records, aerial photography, and field inspection, the United States has calculated that stock impoundments on lands held in trust for the Navajo Nation have a collective storage capacity of 12,693 acre feet and that these stock impoundments are filled and refilled within a year to the extent that water is available. Therefore, the Navajo Nation water rights associated with these stock impoundments on trust lands amount to 12,693 acre-feet of storage with the associated right to fill and refill these stock impoundments as water is available.¹⁷ As the water rights associated with these livestock uses are based exclusively on historic or present water use, none of the water rights described here are predicated upon future uses.

The United States presents in tabular form a description of the livestock-related wells, springs, and impoundments. Appendix M contains the following information:

- a. Table M-1 describes wells that have been or are being used to meet livestock demands;

¹⁷ The water right described here is only associated with those stock-related impoundments located on lands held by the United States in trust for the Navajo Nation.

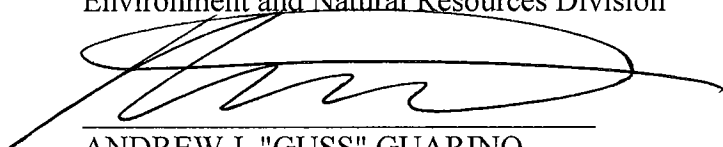
- b. Table M-2 describes springs that have been or are being used to meet livestock demands; and
- c. Table M-3 describes the impoundments that have been or are being used to meet livestock demands.

IV. CONCLUSION

The paragraphs above, along with the references and appendices described, constitute the hydrographic survey of the United States. This hydrographic survey describes the known historic and present water uses on Navajo Lands. As described, the United States reserves the right to update this hydrographic survey, as needed, with additional information developed or received.

Respectfully submitted by the United States this 29th day of December, 2010,

Ignacia S. Moreno
Assistant Attorney General
Environment and Natural Resources Division

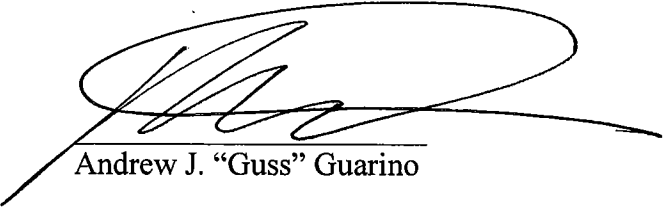


ANDREW J. "GUSS" GUARINO
Trial Attorney
U.S. Department of Justice
Environment & Natural Resources Division / Indian Resources Section
999 18th Street, South Terrace, Suite 370
Denver, Colorado 80202
(303) 844-1343
Fax (303) 844-1350
Guss.Guarino@usdoj.gov

COUNSEL FOR THE UNITED STATES

CERTIFICATE OF SERVICE

Pursuant to the Procedural Order (page 12, subsection II.A), I hereby certify that a true and accurate PDF copy of this *United States' Hydrographic Survey of Navajo Lands in the San Juan River Basin* was served this 29th day of December 2010 to counsel listed on Attachment "A."



Andrew J. "Guss" Guarino

Attachment A

Stanley M. Pollack
Bidtah N. Becker
Navajo Nation Department of Justice
Post Office Drawer 20 10
Window Rock, Navajo Nation (AZ) 86515
smpollack@nndoj.org
bbecker@nndoj.org

DL Sanders
Arianne Singer
Tracy L. Hofmann
Special Assistant Attorneys General
New Mexico Office of the State Engineer
P.O. Box 25102
Santa Fe, NM 87504-5102
Tracy.hofmann@state.nm.us
Arianne.singer@state.nm.us

John Utton
Special Assistant Attorney General
Sheehan, Sheehan & Stelzner, P.A
Post Office Box 271
Albuquerque, New Mexico 87103
jwu@sheehansheehan.com

Jolene L. McCaleb and Elizabeth Taylor
Attorneys for the San Juan Water
Commission
Taylor & McCaleb, P.A.
P.O. Box 2540
Corrales, NM 87048-2540
etaylor@taylormccaleb.com
jmccaleb@tay;lormccaleb.com

Victor R. Marshall
Attorneys for San Juan Agricultural
Water Users Association and Hammond
Conservancy District
12509 Oakland NE
Albuquerque, New Mexico 87122
victor@vrmarshall.com

Gary Horner
Bloomfield Irrigation District
P.O. Box 2497
Farmington, NM 87499
ghorner@zianet.com

Daniel Israel
Attorney for the Ute Mountain Ute Tribe
1315 Bear mountain Drive
Boulder, CO 80305
adamatronics@comcast.net

Richard B. Cole
Attorney for the Cities of Aztec,
Broomfield, and Farmington
Keleher and McLeod, P.A.
P.O. Box AA
Albuquerque, NM 87103
rbc@keleher-law.com

Herb Becker
Attorney for the Jicarilla Apache Tribe
2909 Renard Place S.E. Suite 200
Albuquerque, NM 87106
Herb.becker@jaassociatesnm.com

Gary Risley
Attorney for North Start Water Users Assn
The Risley Law Firm, Esq.
4991 North Butler Avenue
Farmington, NM 87401
gary@risleylaw.com

Maria O'Brien
Attorney for San Juan Coal Company (BHP)
Modrall Sperling
PO Box 2168
Albuquerque, New Mexico 87103
mobrien@modrall.com

Special Master Stephen Snyder
4 Manzano Road
Corrales NM 87048
sesnyder@q.com