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Attorneys for Petitioners Millard County, Utah and Juab County, Utah

IN THE SEVENTH JUDICIAL DISTRICT COURT OF THE STATE OF NEVADA

IN AND FOR COUNTY OF WHITE PINE

WHITE PINE COUNTY and CONSOLIDATED CASES, et al., Petitioners, vs. JASON KING, P.E., Nevada State Engineer, STATE OF NEVADA, DIVISION OF WATER RESOURCES, and SOUTHERN NEVADA WATER AUTHORITY, Respondents	Case No. CV-1204049 (and consolidated cases) Dept. No. 1 **OPENING BRIEF OF MILLARD COUNTY, UTAH AND JUAB COUNTY, UTAH**

PRELIMINARY STATEMENT

This petition for judicial review is about the State Engineer's 2018 arbitrarily unequal and deficient treatment of petitioners Millard and Juab Counties ("the Counties") when compared to the Engineer's 2006 extensive protection provided for the National Park Service's Great Basin National Park ("GBNP"). Both the Counties and GBNP protested to protect resources in *Snake Valley* that stood to be harmed by SNWA's subject Spring Valley groundwater applications. In 2006 Department of the Interior on behalf of GBNP resolved its protests by entering into a Stipulated Agreement with SNWA, which the State Engineer wholly approved.[1]

The 2006 Stipulated Agreement spells out extensive and detailed protections for GBNP in the form of a hydrologic and biologic 3M plan with monitoring, management and mitigation provisions *ranging north and south throughout the extent of Snake Valley (both the Nevada and Utah portions) and beyond.* Yet for the Utah Counties of Millard and Juab, the State Engineer's August 17, 2018 administrative order #6446 refused, denied and overruled without comment the Counties' request to provide them with the same protection that the Engineer voluntarily provided to GBNP in approving the 2006 Stipulation. Instead, at the urging of SNWA (the very party who stipulated to the contrary with GBNP), the Engineer ordered a 3M plan with Snake Valley monitoring, management and mitigation activities *confined to a very limited and confined area in Nevada where Spring Valley interfaces with Hamlin Valley and the extreme southern part of Snake Valley*.

[1] A copy of the 2006 Spring Valley Stipulated Agreement is part of the administrative record already on file with this court from the 2011 appeal in this case, Case No. 1204049, at AR 2682-2728. An extra copy is attached as Exhibit A hereto.

This arbitrary distinction between GBNP and the Counties is the reason that the Counties seek judicial review. The Counties are aggrieved by this unequal treatment in two related and somewhat overlapping respects:

1. Ruling #6446 holds that SNWA's 2017 Monitoring Management and Mitigation Plan for Spring Valley (hereafter "the 3M Plan" or "the 2017 3M Plan) properly included and protected the Petitioners' interests, even though the 3M Plan requires groundwater and spring monitoring only in the localized vicinity of the groundwater flow path between Spring and Snake Valleys in the tightly drawn region where Spring Valley interfaces with Southern Snake and Northern Hamlin Valley, when it is undisputed that SNWA officials already routinely follow, store and analyze all groundwater and spring monitoring data maintained by the State of Utah and the United States Geological Survey *for the entire network of such monitoring stations up and down Utah side of Snake Valley* and have expressed an admitted willingness to respond should such Utah side monitoring data indicate that Utah side groundwater has been unreasonably impacted by SNWA's Spring Valley pumping should it ever occur.

2. Ruling #6446 re-recognizes and re-approves the validity of the 2006 Stipulated Agreement for the withdrawal of GBNP protests, including the monitoring, management and mitigation plans referenced thererin, all entered into by SNWA and the National Park Service for GBNP; yet the Ruling arbitrarily refuses Petitioners' request to apply the same scope and protections of the 2006 Stipulated Agreement to the Petitioners.

FACTS

1. The undisputed evidence at the 2011 administrative hearing, namely the testimony of the Applicant's then General Manager Patricia Mulroy that the Applicant still supports and is committed to the promises and commitments made in the September 8, 2006 Spring Valley Stipulation for Withdrawal of Protests between the Applicant and the Federal

Protestants (hereafter "2006 Spring Valley Stipulation"), was reaffirmed at the 2017 remand hearing through Applicant's Zane Marshall, who testified:

> MR. MARSHALL: So due to the District Court's remand, we have developed this approach, this 3M Plan, wholly separate from the stipulation. There is overlap for sure, and there is data that we would collect as part the 3M Plan that's consistent with the stipulation, but these are two separate agreements now, or contracts or programs, and we intend to implement the stipulated agreements with the Department of Interior Federal agencies as well as implement this 3M Plan as we've proposed.

Transcript of Administrative Remand Hearing Before the State Engineer Vol. 3, September 27, 2017 (AR 54164-54881) (hereafter "*Transcript Vol. 3*") at pp. 738-739.

2. The State Engineer approved the 2006 Spring Valley Stipulation.

3. The 2006 Spring Valley Stipulation provides for an extensive hydrologic and biologic monitoring, management and mitigation throughout a geographic region known as the "Area of Interest," which covers all of Snake Valley, Utah as well as several basins and ranges within the geographic boundaries of Protestants Millard and Juab Counties according to the area mapped and shown in Figure 1 to the 2006 Spring Valley Stipulation.

4. The plain language of the 2006 Spring Valley Stipulation demonstrates that the parties intended to apply the hydrologic and biologic monitoring, management and mitigation plan to the entire "Area of Interest" shown on the map in Figure 1 to the 2006 Spring Valley Stipulation, including

(a) All of the hydrologic monitoring, management and mitigation provisions set forth in Exhibit A to the 2006 Spring Valley Stipulation; and

(b) All of the biologic monitoring, management and mitigation provisions set forth in Exhibit B to the Spring Valley Stipulation.

5. Based on the undisputed testimony of SNWA's Mr. Prieur, SNWA is aware of and familiar with the network of groundwater monitoring wells that the State of Utah has

developed. *Transcript* Vol 3. at 754-755. Specifically SNWA is aware of monitoring performed by Utah Geological Survey all up and down Snake Valley along the Utah border. *Id.* SNWA has a joint funding agreement with U.S. Geological Survey Salt Lake City, Utah branch to monitor 73 wells in western Utah in both Millard and Juab Counties. *Id.* SNWA provides a link to this Utah Geological Survey data as part of its annual reports. *Id.* The same goes for the Utah Geological Survey's monitoring of springs throughout Snake Valley. *Id.* at 755, some of which SNWA has entered into a joint funding agreement. *Id.* SNWA collects data from these Snake Valley, Utah groundwater and spring monitoring stations pursuant to an agreement with the U.S.G.S. *Id.* at 756. SNWA also collects independent separate data like the water chemistry in the springs in Snake Valley, Utah. *Id.* SNWA did geophysical surveys and stream gauging to some springs that reaches into Utah including the Deep Creek Range (which is as far north as northern Snake Valley, Utah in Juab County). *Id.* Mr. Prieur's work includes summarizing all the data and provide specific hydrogeologic setting data on a number of springs on the Utah side of Snake Valley. *Id.* at 757. It is an ongoing effort for SNWA to collect and utilize the data off of all groundwater monitoring and spring monitoring stations in Snake Valley, Utah. *Id.* If a change occurred in one of these wells on the Utah side, the State Engineer could require SNWA to do an investigation that would be exactly the same as a trigger in interbasin zone. *Id.* at 764-765. According to Mr. Prieur's undisputed testimony, SNWA is absolutely amenable to paying close attention to those Utah groundwater monitoring sites and spring stations and be ready to apply its planned monitoring investigation, management and mitigation action if deemed appropriate, and would very much work with Utah Geological Survey and the Utah office of the U.S. Geological Survey. *Id* at 766-767.

ARGUMENT

From the foregoing facts, four main points inform Millard and Juab Counties' closing argument:

(a) The State Engineer has already approved the 2006 Spring Valley Stipulation and is overseeing the enforcement and performance of that stipulation;

(b) The Area of Interest covered by the 2006 Spring Valley Stipulation includes all of Snake Valley Utah and beyond;

(c) The expert testimony is mixed at best and includes two credible views (Jones and Mayo) that SNWA pumping in Spring Valley could actually reverse the groundwater flow from Snake Valley, and

(d) Including the U.S.G.S. and U.G.S. monitoring network stations in the State Engineer's 3-M plan would not be inconvenient and only makes sense for two reasons:

(1) Not only would that match the 2006 Spring Valley Stipulation's monitoring effort and reach throughout all of Snake Valley, Utah (a Stipulation which SNWA not only entered into and actively supports, but which the State Engineer expressly approved), and

(2) SNWA's Mr. Prieur's undisputed testimony is that SNWA already voluntarily, willingly and systematically includes, records, follows, collects and studies *all available data* from the groundwater and spring monitoring network for *all such* U.S.G.S. and U.G.S. stations in Snake Valley, Utah anyway.

CONCLUSION

The Court should rectify this arbitrary mistreatment of the Counties when compared to the protection provided GBNP, by partially reversing and modifying State Engineer's August 17, 2018 Ruling #6446 to require that SNWA's 3M Plan:

(a) Matches the geographic scope of SNWA's 3M Plan to that of the hydrological and biological monitoring, management and mitigation program throughout Snake Valley, Utah as provided in the 2006 State Engineer and SNWA Spring Valley Stipulated Agreement; and

(b) Includes, incorporates and appropriately responds to triggers signaled by all known groundwater monitoring, spring monitoring and biologic monitoring stations and sites maintained by Federal and Utah State agencies throughout the entire portion of Snake Valley Utah, data which SNWA has and is already recording and storing anyway pursuant to the 2006 Stipulated Agreement.

Respectfully submitted this 1st day of April 2019.

/s/ J Mark Ward
J. Mark Ward
Balance Resources
Admitted *Pro Hac Vice*
Utah State Bar #4436
Out of State Counsel ID: 31694
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Kirsty Pickering
Nevada Bar No. 9295
457 5th Street
Ely, NV 89301

CERTIFICATE OF SERVICE

I certify that on April 1, 2019, I served counsel of record with an electronic copy of the foregoing **OPENING BRIEF OF MILLARD COUNTY, UTAH AND JUAB COUNTY, UTAH** via email pursuant to stipulation, as follows:

Office of the Nevada State Engineer
901 South Stewart Street, Suite 2002
Carson City, NV 89701
c/o Nevada Attorney General's Office, James N. Bolotin, Senior Deputy Attorney General
100 N. Carson Street
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dwright@ag.nv.gov

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/s/ J Mark Ward

EXHIBIT A

STIPULATION FOR WITHDRAWAL OF PROTESTS

This Stipulation is made and entered into between the Southern Nevada Water Authority (SNWA) and the United States Department of the Interior on behalf of the Bureau of Indian Affairs, the Bureau of Land Management, the National Park Service, and the Fish and Wildlife Service (collectively the "DOI Bureaus"). Collectively, SNWA and each of the DOI Bureaus are referred to as the "Parties."

RECITALS

A. In October 1989, the Las Vegas Valley Water District (SNWA's predecessor-in-interest) filed Applications 54003 through 54021, inclusive, (hereinafter referred to as the "SNWA Applications") for a combined 126 cfs of groundwater withdrawals in the Spring Valley Hydrographic Basin ("Spring Valley HB"). SNWA intends to pump up to 91,224 acre-feet of groundwater annually from the Spring Valley HB for municipal purposes with concurrent monitoring, management, and mitigation as specified in Exhibits A and B. In the future, SNWA may seek to change the points of diversion within the Spring Valley HB for any quantities of groundwater permitted pursuant to the SNWA Applications.

B. The DOI Bureaus filed timely protests to the granting of the SNWA Applications pursuant to the DOI Bureaus' responsibilities to protect their state and federal water rights ("Federal Water Rights") and other water-dependent resources ("Federal Resources") of the DOI Bureaus in the Area of Interest (depicted in Figure 1). The DOI Bureaus are required by law to manage, protect, and preserve all Federal Water Rights and Federal Resources that fall under their jurisdiction. A number of these Federal Water Rights and Federal Resources occur within the Area of Interest. As of the date of this Stipulation, those Federal Water Rights that are based upon the application of federal law have not been quantified pursuant to an adjudication that complies with the requirements

of the McCarren Amendment, 43 U.S.C. § 666. SNWA expressly reserves the right to contest any and all claims of the DOI Bureaus to such Federal Water Rights as are based upon the application of federal law in any proceeding that conforms to the requirements of the McCarren Amendment, 43 U.S.C. § 666.

C. The DOI Bureaus are concerned that the proposed groundwater withdrawals from the Spring Valley HB may injure Federal Water Rights and and/or affect Federal Resources, including but not limited to those associated with the refugia located at the Shoshone Ponds, or may affect Federal Resources within the boundaries of Great Basin National Park and are desirous of working in a cooperative manner with the SNWA to protect these Federal Water Rights and Federal Resources.

D. The Parties acknowledge that Nevada Water Law provides pursuant to NRS 534.110(4) that "[i]t is a condition of each appropriation of groundwater acquired under this chapter [534] that the right of the appropriator relates to a specific quantity of water and that the right must allow for a reasonable lowering of the static water level at the appropriator's point of diversion." Further, pursuant to NRS 534.110(5), Nevada Water Law "does not prevent the granting of permits to applicants later in time on the ground that the diversions under the proposed later appropriations may cause the water level to be lowered at the point of diversion of a prior appropriator, so long as the rights of holders of existing appropriations can be satisfied under such express conditions." It is the intent of the Parties that this Stipulation provides the initial "express conditions" to allow development of the SNWA Applications to proceed; however, such future conditions may be adjusted based on implementation of the monitoring, management, and mitigation plans specified in Exhibits A and B, which are attached to this Stipulation and made a part hereof.

E. The State Engineer has set an administrative hearing on the protests of the DOI Bureaus and other protestants commencing September 11, 2006.

F. The Parties acknowledge that other entities and individuals have lodged protests to the SNWA Applications, but such additional protestants are not Parties to or in any way bound or prejudiced by this Stipulation. Further, these protestants may enter into stipulations with SNWA concerning the SNWA Applications. Such stipulations shall not require the participation of the DOI Bureaus nor modify in any way the intent or content of this Stipulation, nor shall the DOI Bureaus be bound or prejudiced by such stipulations.

G. The common goals of the Parties are 1) manage the development of groundwater by SNWA in the Spring Valley HB without causing injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources in the Area of Interest, 2) accurately characterize the groundwater gradient from Spring Valley HB to Snake Valley HB via Hamlin Valley, and 3) to avoid any effect on Federal Resources located within the boundaries of Great Basin National Park from groundwater withdrawal by SNWA in the Spring Valley HB. The Parties agree that the preferred conceptual approach for protecting Federal Water Rights from injury and Federal Resources from unreasonable adverse effects within the Area of Interest and for avoiding any effect on Federal Resources located within the boundaries of Great Basin National Park that may be caused by groundwater withdrawals by SNWA in the Spring Valley HB is through the development of such groundwater in conjunction with the implementation of the monitoring, management, and mitigation plans described in Exhibits A and B. The effects of groundwater withdrawals pursuant to the development of any or all of the SNWA Applications and any future changes in points of diversion and/or rates of

withdrawal need to be properly monitored and managed to avoid any injury to Federal Water Rights and unreasonable adverse effects to Federal Resources within the Area of Interest and any effect on Federal Resources located within the boundaries of Great Basin National Park. There is a need to better understand the response of the aquifers and associated discharge points, such as artesian wells, springs, streams, wetlands, and playas, to pumping stresses from development of permitted quantities of groundwater in accordance with the monitoring, management, and mitigation plans set forth in Exhibits A and B to this Stipulation. The Parties have determined that it is in their best interests to cooperate in the collection and analysis of additional hydrologic, hydrogeologic, and water chemistry information. The Parties shall cooperate in the development of a regional groundwater-flow numerical model, for assessing the effects of groundwater withdrawals by SNWA in the Spring Valley HB.

H. The common goals of the Parties are 1) to manage the development of groundwater by SNWA in the Spring Valley HB in order to avoid unreasonable adverse effects to wetlands, wet meadow complexes, springs, streams, and riparian and phreatophytic communities (hereafter referred to as Water-dependent Ecosystems) and maintain the biological integrity and ecological health of the Area of Interest over the long term, and 2) to avoid any effects to Water-dependent Ecosystems within the boundaries of Great Basin National Park. The Parties agree that the preferred conceptual approach is development of groundwater by SNWA in conjunction with the implementation of the monitoring, management, and mitigation plans described in Exhibits A and B to this Stipulation. The Parties further agree that there is a need to better understand: 1) the response of aquifers and associated discharge areas, such as artesian wells, springs, streams, wetlands, playas, and riparian and phreatophytic communities to pumping

stresses, and 2) the response of aquatic and terrestrial organisms to changes in water-dependent habitats caused by groundwater withdrawals by SNWA in the Spring Valley HB. The Parties have determined that it is in their best interests to cooperate in data collection and analysis related to groundwater levels and the long-term maintenance of Water-dependent Ecosystems within the Area of Interest.

I. The common goal of the Parties is to manage the development of groundwater by SNWA in the Spring Valley HB to avoid an unreasonable degradation of the scenic values of, and visibility from Great Basin National Park due to a potential increase in airborne particulates and loss of surface vegetation which may result from groundwater withdrawals by SNWA in the Spring Valley HB. The Parties agree that the preferred conceptual approach for protecting existing visibility from unreasonable degradation is through the implementation of appropriate monitoring, management, and mitigation activities in conjunction with SNWA's groundwater development. The purpose of this goal is to support the "significant ... scenic values" of Great Basin National Park, as recognized by Congress in establishing the park. 16 U.S.C. § 410mm(a). The NPS has interpreted this mandate in its Great Basin National Park General Management Plan to be "the ability to view broad areas of basin and range topography and distant mountains is central to interpreting the entire Great Basin region." Additionally, a goal of the Parties for SNWA's Clark/Lincoln/White Pine Counties Ground-water Development Project also includes managing the construction and operation activities related to any wells and water delivery pipelines and support structures associated with the use of water under the SNWA Applications to avoid unreasonable degradation of the scenic values of and the visibility from Great Basin National Park. Further, it is in the Parties' best interests to cooperate in the collection and analysis of additional information regarding the

relationship between the development of groundwater resources, loss of surface vegetation, drying of surface soils, increased susceptibility of land surfaces to wind erosion, and the long-term avoidance of unreasonable degradation of the scenic values of, and visibility from, Great Basin National Park.

J. The Parties desire to resolve the issues raised by the protests according to the terms and conditions contained herein.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, the Parties do agree as follows:

1. The DOI Bureaus hereby expressly agree to withdraw their protests to the SNWA Applications and agree that the Nevada State Engineer may rule on the SNWA Applications based upon the terms and conditions set forth herein. It is expressly understood that this Stipulation is binding only upon the Parties hereto and their successors, transferees and assignees, and shall not bind or seek to bind or prejudice any other Parties or protestants, including any Indian Tribe.

2. The Parties agree to implement the Monitoring, Management and Mitigation Plans, attached hereto "Exhibits A and B," which are expressly incorporated into this Stipulation as if set forth in full herein, if and only if the Nevada State Engineer grants any of the SNWA Applications in total or in part; however, at any future date if all of the permits issued by the Nevada State Engineer pursuant to the SNWA Applications are cancelled, then this Stipulation shall be of no further force and effect among the Parties. To facilitate the implementation of the Monitoring, Management, and Mitigation Plans, the Parties shall establish a Technical Review Panel (TRP), a Biological Working Group (BWG), and an Executive Committee. The establishment, membership, conduct,

obligations and responsibilities of the TRP, BWG, and Executive Committee shall be as set forth in Exhibits A and B of this Stipulation.

3. SNWA recognizes that the DOI Bureaus are concerned that groundwater withdrawals from the existing point of diversion for Application No. 54019 may unreasonably adversely affect Shoshone Ponds. Prior to withdrawing any quantity of water for beneficial use at this point of diversion, SNWA shall in good faith work with the TRP to evaluate reasonable alternative point(s) of diversion for any water rights permitted pursuant to Application No. 54019. If the TRP and Executive Committee unanimously recommend that any such point(s) of diversion be pursued, then SNWA will file applications with the Nevada State Engineer to change the point of diversion as recommended by the TRP and Executive Committee.

4. SNWA may seek to change the points of diversion and rates of withdrawal within the Spring Valley HB for any quantities of groundwater permitted pursuant to the SNWA Applications. Prior to filing such change applications, SNWA shall consult with the TRP and the BWG about the potential effects of any proposed changes on Federal Water Rights and Federal Resources. If the consensus of the TRP and the BWG is that the proposed change(s) will not 1) increase the risk of injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources, 2) have any effect on Federal Resources and/or Water-dependent Ecosystems located within the boundaries of Great Basin National Park, 3) have unreasonable adverse effects on the biological integrity and ecological health of Water-dependent Ecosystems in the Area of Interest, or 4) cause unreasonable degradation of scenic values of, and the existing visibility from, Great Basin National Park, then the TRP and the BWG will recommend to the Executive Committee that protests not be filed to the proposed change(s). If there is no such

consensus between the TRP and the BWG, or within the Executive Committee, then the DOI Bureaus shall be free to file such protests as they deem necessary.

5. To meet the common goal specified in Recital I above, the Parties agree to 1) assess the potential impacts of both groundwater withdrawals and construction and operation activities on the scenic values of, and visibility from, Great Basin National Park in the Environmental Impact Statement for the Clark/Lincoln/White Pine Counties Groundwater Development Project ("Groundwater Development Project"); and 2) implement appropriate monitoring, management, and mitigation actions needed to avoid unreasonable degradation of scenic resources, including maintaining visibility. The Parties agree to cooperate in good faith in the right-of-way permitting process associated with the Groundwater Development Project to produce monitoring, management, and mitigation requirements consistent with the above stated goal.

6. This Stipulation does not waive any authorities of the DOI Bureaus or the United States, including any other agency or bureau not specified in this Stipulation. Further, this Stipulation does not override or relieve the Parties from complying with applicable federal laws, including, but not limited to, the National Environmental Policy Act, the Endangered Species Act, the Federal Land Policy and Management Act, and any and all rules and regulations thereunder.

7. It is the expressed intention of the Parties that by entering into this Stipulation, the DOI Bureaus, the United States, and SNWA are not waiving legal rights of any kind, except as expressly provided herein. Nor is this Stipulation intended to modify any legal standard by which Federal Water Rights, Federal Resources, and Water-dependent Ecosystems are protected.

8. The Parties expressly acknowledge that the Nevada State Engineer has, pursuant to both statutory and case law, broad authority to administer groundwater resources in the State of Nevada and, furthermore, that nothing contained in this Stipulation shall be construed as waiving or in any manner diminishing such authority.

9. The Parties agree that a copy of this Stipulation shall be submitted to the Nevada State Engineer at the commencement of the administrative proceedings scheduled to begin on September 11, 2006. At that time, the Parties shall request on the record at the beginning of the scheduled proceeding that the State Engineer include this Stipulation and Exhibits A and B as part of the permit terms and conditions in the event that he grants any of the SNWA Applications in total or in part. Following the submission of this Stipulation and Exhibits A and B to the State Engineer, then the DOI Bureaus, at their option, may attend the hearing, but shall not present a case, witnesses, exhibits, or statements, nor assist any other party or protestant in presenting a case, witnesses, exhibits or statements, except as expressly provided herein. SNWA agrees that the DOI Bureaus may, without objection, introduce the exhibits identified in Attachment 1 to this Stipulation into evidence. The DOI Bureaus and SNWA shall jointly explain or defend this Stipulation and Exhibits A and B to the State Engineer. Furthermore, the National Park Service, during the public comment period for the hearing described above in Recital E, may have David Prudic of the U.S. Geological Survey comment for the record regarding the purpose, methodologies, and conclusions of a U.S.G.S. report entitled "Characterization of Surface-Water Resources in the Great Basin National Park Area and Their Susceptibility to Ground-Water Withdrawals in Adjacent Valleys, White Pine County, Nevada" (Scientific Investigations Report 2006-5099) and any testimony that was presented regarding said report during the hearing.

10. SNWA shall submit a copy of this Stipulation and Exhibits A and B to the Bureau of Land Management and request that it be included in any Environmental Impact Statement prepared for the "Clark/Lincoln/White Pine Counties Groundwater Development Project", or any other project related to the development of the SNWA Applications.

11. Notices. If notice is required to be sent by the Parties, the addresses are as follows:

If to DOI Bureaus:

Regional Director
Western Regional Office
Bureau of Indian Affairs
400 North 5th Street
Phoenix, AZ 85004

State Director
Nevada State Office
Bureau of Land Management
1340 Financial Blvd.
Reno, NV 89502

Field Supervisor
Nevada Field Office
Fish and Wildlife Service
1340 Financial Blvd., #234
Reno, NV 89502

Branch Chief
Water Rights Branch
National Park Service
1201 Oak Ridge Drive, Suite 250
Fort Collins, CO 80525

If to SNWA:

General Manager
Southern Nevada Water Authority
1900 E. Flamingo Road
Las Vegas, NV 89153

12. Any Party hereto may transfer or assign its interest, if any, in the water rights here involved. Any and all transferees and assignees shall be bound by the terms and conditions of this Stipulation. As a condition to any such transfer or assignment, the

transferee and/or assignee shall execute a stipulation expressly stating it is bound to all of the terms and conditions of this Stipulation.

13. This Stipulation shall be governed in accordance with the laws of the State of Nevada to the extent not inconsistent with federal law.

14. Copies of all correspondence between and data gathered by the Parties pertinent to the SNWA Applications and the Area of Interest shall be submitted to the Nevada State Engineer. It is the intentions of the Parties hereto that the Nevada State Engineer shall be kept informed of all activities in the same fashion as are the Parties hereto; however, the Executive Committee, in consultation with the Nevada State Engineer, may specify the types of data and documents that shall be submitted to the Nevada State Engineer.

15. By entering into this Stipulation, the DOI Bureaus do not become a party to any proceeding other than the protest proceeding referenced above or waive its immunity from suit or consent to or acknowledge the jurisdiction of any court or tribunal. Nothing in the Stipulation shall affect any federal reserved water rights of the DOI Bureaus or the United States on behalf of any Indian Tribe and the DOI Bureaus by entering into this Stipulation do not waive or prejudice any such rights. The DOI Bureaus reserve all legal rights, of any kind, they possess pursuant to or derived from Executive Orders, acts of Congress, judicial decisions, or regulations promulgated pursuant thereto. The Parties do not waive their rights to seek relief in any appropriate forum not expressly prohibited by this Stipulation.

16. Any commitment of funding by the DOI Bureaus or the SNWA in this Stipulation, including specifically any monitoring, management, and mitigation actions provided for in Exhibits A and B is subject to appropriations by Congress or the governing body of the SNWA as appropriate.

17. This Stipulation may be amended by mutual written agreement of the Parties.

18. This Stipulation sets forth the entire agreement of the Parties and supercedes all prior discussions, negotiations, understandings or agreements. No alteration of variation of this Stipulation shall be valid or binding unless contained in an amendment in accordance with paragraph 17.

19. This Stipulation is entered into for the purpose of resolving a disputed claim and establishing the monitoring, management, and mitigation plans contained in Exhibits A and B. Except as expressly provided herein, the Parties agree that the Stipulation shall not be offered as evidence or treated as an admission regarding any matter herein and may not be used in proceedings on any other application or protest whatsoever, except that the Stipulation may be used in any future proceeding to interpret and/or enforce its terms. Further, the Parties agree that neither the Stipulation nor any of its terms shall be used to establish precedent with respect to any other application or protest in any water rights adjudication or water rights permitting proceeding, including but not limited to any hearing regarding the SNWA Applications in the Snake Valley HB, before the Nevada State Engineer or in any other administrative or judicial proceeding.

20. The terms and conditions of this Stipulation shall be binding upon and inure to the benefit of the Parties hereto and their respective agents, officers, employees, personal representatives, successors, transferees and assigns.

21. Each Party agrees to bear its own costs and attorney fees.

22. This Stipulation shall become effective as between the Parties upon all Parties signing this Stipulation. The Parties may execute this Stipulation in two or more counterparts, which shall, in the aggregate, be signed by all Parties; each counterpart shall be deemed an original as against any Party who has signed it.

23. Other entities may become Parties to this Stipulation by mutual assent of the Parties.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement on the dates written below.

Date: 9/8/06

UNITED STATES DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

By Catherine Wilson

Acting Regional Director

Title: _____

Date: SEP 0 8 2006

UNITED STATES DEPARTMENT OF THE INTERIOR

Bureau of Land Management

By Ron Wenker

Title: State Director

Date: 9-8-2006

UNITED STATES DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

By _____

Title: Deputy Manager, CWO

Date: 9/8/06

UNITED STATES DEPARTMENT OF THE INTERIOR

National Park Service

By Jonathan B. Jarvis

Title: Regional Director

Date: 9-8-2006

SOUTHERN NEVADA WATER AUTHORITY

By P Mulroy

Title: General Manager

ATTEST:

John J. Entsminger

Deputy General Counsel

Attachment 1- Exhibits Offered into Evidence by the DOI Bureaus in the Matter of Protested Applications 54003-54021, Before the State Engineer of the State of Nevada, September 11-29, 2006

NPS-2501 Written report for Tod Williams, Chief of Resources Management, Great Basin National Park (*This Exhibit is submitted without Attachments 1, 2, and 3)*

FWS-2035 Hershler, R. 1998. A systematic review of the Hydrobiid snails (Gastropoda: Rissooidea) of the Great Basin, western United States. Part I. Genus *Pyrgulopsis*. The Veliger 41, pages 1-3, 11-14, 56-57, 99-132.

FWS-2036 Hershler, R. and D.W. Sada. 2002. Biogeography of Great Basin aquatic snails of the Genus *Pyrgulopsis*. Pages 255-276 *in* R. Hershler, D.B. Madsen, and D.R. Curvey, eds. Great Basin Aquatic Systems History. Smithsonian Contributions to the Earth Sciences, Number 33.

FWS-2049 *Attachment 2:* Bailey, C., K. W. Wilson and M. E. Andersen. 2005. Conservation Agreement and Strategy for Least Chub (*Iotichthys phlegethontis*) in the State of Utah. Utah Division of Wildlife Resources Pub No. 05-24.

FWS-2049 *Attachment 3:* Bailey, C., K. W. Wilson and M. E. Andersen. 2006. Conservation Agreement and Strategy for Columbia Spotted Frog (*Rana luteiventris*) in the State of Utah. Utah Division of Wildlife Resources Pub No. 06-01.

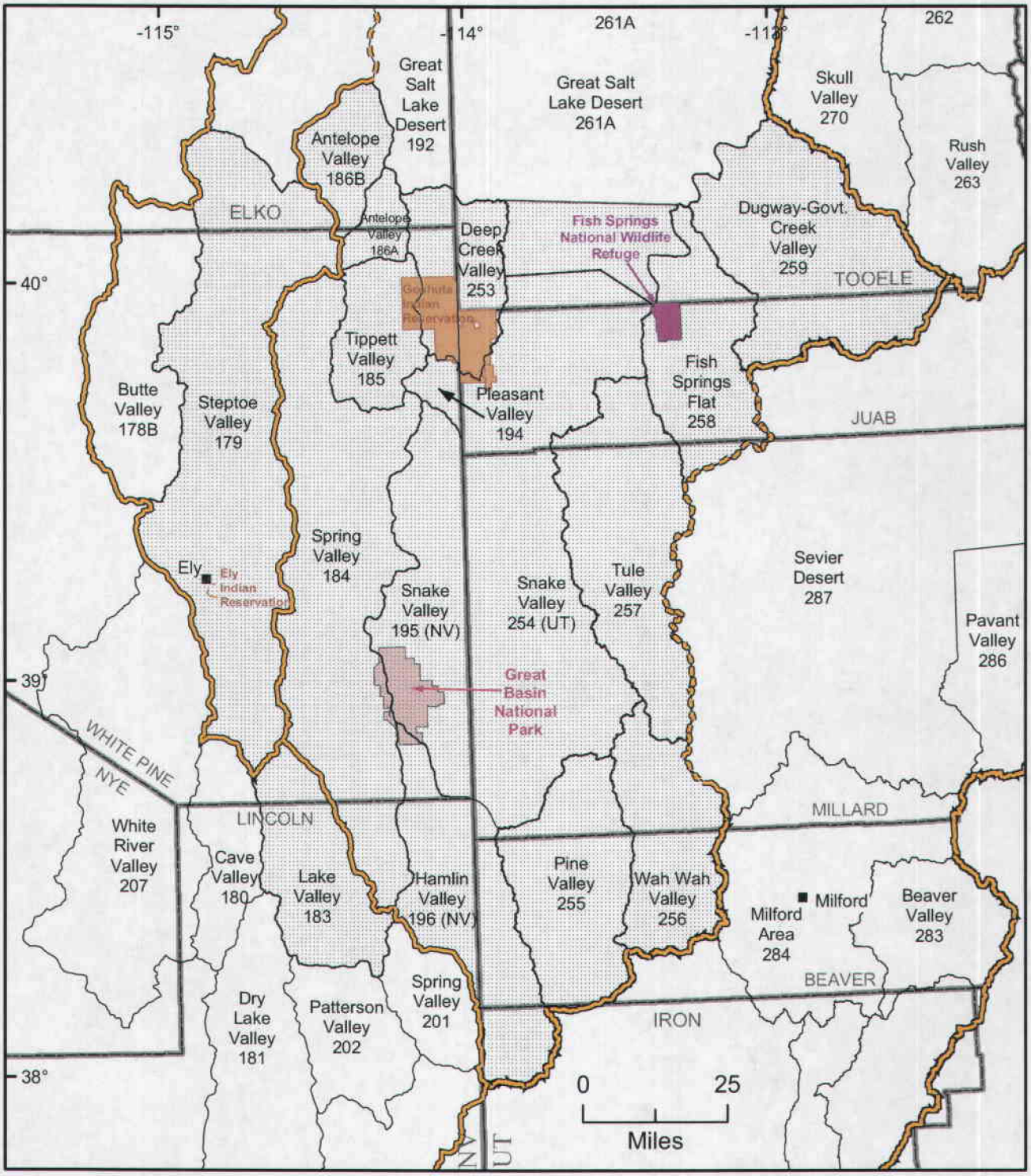
FWS-2060 Sage Grouse Conservation Team. 2004. Greater Sage-Grouse Conservation Plan for Nevada and Eastern California. First Edition. Prepared for Nevada Governor Kenny C. Guinn. Nevada. Title page, table of contents, Executive Summary, acknowledgements, Pages 1-108, Appendix Q- White Pine County Sage-Grouse Conservation Plan, Appendix R- Lincoln County Sage-Grouse Conservation Plan.

FWS-2063 Mr. Shawn Goodchild's factual witness report entitled "Witness Report: Pahrump poolfish and Shoshone Ponds."

FWS-2086 Mr. Shawn Goodchild's factual witness report entitled "Witness Report: Relict dace and Shoshone Ponds."

FWS-2106 Skudlarek, E., ed. 2006. Nevada wetlands priority conservation plan, technical review draft. Nevada Natural Heritage Program, Department of Conservation and Natural Resources, Title Page and pages 1-11, 1-20, 1-22, 1-25, 3-3, 3-7, 3-8, 3-9, 4-26, 4-31, 4-32, 4-34, 4-35.

FWS-2111 Bat Field Survey Reports at Shoshone Ponds, 1997 and 2003, Nevada Division of Wildlife.



Flow systems modified from Harrill and Prudic (1998).

Base modified from USGS digital data, and other sources.

EXPLANATION

Boundary of major flow system --Dashed where uncertain

Hydrographic Areas

County Boundaries

Area of Interest (Upper Great Salt Lake Desert Flow System and vicinity)

N

Figure 1.—Map showing the location of the Area of Interest.

EXHIBIT A

HYDROLOGIC MONITORING, MANAGEMENT AND MITIGATION PLAN FOR DEVELOPMENT OF GROUNDWATER IN THE SPRING VALLEY HYDROGRAPHIC BASIN PURSUANT TO APPLICATION NOS. 54003 THROUGH 54021 BY THE SOUTHERN NEVADA WATER AUTHORITY

1. Introduction

This hydrologic monitoring, management and mitigation plan (Plan) is a component of a Stipulation between the Southern Nevada Water Authority (hereinafter referred to as "SNWA") and the U.S. Department of the Interior bureaus, including the Bureau of Indian Affairs, the Bureau of Land Management, the Fish and Wildlife Service, and the National Park Service (hereinafter referred to as the "DOI Bureaus"). Collectively, SNWA and each of the DOI Bureaus are hereinafter referred to as the "Parties."

This Plan describes the Parties' obligations regarding the development, monitoring, management, and mitigation related to SNWA's applications 54003 through 54021 ("SNWA Applications") to withdraw groundwater from points of diversion in the Spring Valley Hydrographic Basin ("Spring Valley HB"). The Plan consists of three principal components:

Monitoring Requirements - including, but not limited to monitoring wells, spring flow measurements, water chemistry analyses, quality control procedures, and reporting requirements; and

Management Requirements – including, but not limited to the creation of a Technical Review Panel ("TRP") to review information collected under this Plan and advise the Executive Committee (a group consisting of one management-level person from each Party, as described below in Management Requirements), the use of an agreed-upon regional groundwater flow system numerical model(s) to predict effects of groundwater withdrawals by SNWA in the Spring Valley HB, and the establishment of a consensus-based decision-making process; and

Mitigation Requirements – including, but not limited to the modification, relocation or reduction in points of diversion and/or rates and quantities of groundwater withdrawals or the augmentation of Federal Water Rights and/or Federal Resources as well as measures designed and calculated to rehabilitate, repair or replace any and all Federal Water Rights and Resources if necessary to achieve the goals set forth in Recital G of the Stipulation.

A. Common Goals

The common goals of the Parties are 1) manage the development of groundwater by SNWA in the Spring Valley HB without causing injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources in the Area of Interest as defined in Recital B of the

Stipulation that this Exhibit A is attached to and incorporated therein, 2) accurately characterize the groundwater gradient from Spring Valley HB to Snake Valley HB via Hamlin Valley, and 3) to avoid any effect on Federal Resources within the boundaries of Great Basin National Park from groundwater withdrawals by SNWA in the Spring Valley HB. The Parties, through the TRP and BWG (as described in Exhibit B that is attached to and incorporated in the Stipulation), shall collaborate on data collection and technical analysis and shall rely on the best scientific information available in making determinations and recommendations required by the Plan.

2. Monitoring Requirements

A. General

The Parties agree to cooperatively implement a monitoring plan sufficient to collect and analyze data to assess the effects, if any, of SNWA's proposed groundwater withdrawals in the Spring Valley HB on Federal Water Rights and Federal Resources. The monitoring network shall be comprised of SNWA exploratory wells, SNWA production wells, existing monitoring wells selected by the TRP, new monitoring wells, the springs selected by the TRP and the BWG listed in Table 1, and certain selected stream discharge sites. Some of the wells within the monitoring network shall be designed and constructed to detect any potential change in the groundwater gradient from Spring Valley HB to Snake Valley HB via Hamlin Valley HB. Other wells in the monitoring network shall be located throughout Spring Valley to provide early warning of the spread of drawdown toward Federal Water Rights and Federal Resources as well as data for future groundwater model calibration. Shallow piezometers and wells shall be used to evaluate the effects of groundwater withdrawals near discharge areas that are within areas the Parties are seeking to protect and preserve.

The cost of the monitoring plan shall be borne primarily by SNWA. The DOI Bureaus shall provide staffing to the TRP and shall seek funding to contribute to monitoring efforts. Except as otherwise provided in this Plan, each DOI Bureau is responsible for monitoring its own Federal Water Rights and Federal Resources, and for sharing this information with the other Parties within 90 days of its collection.

Any requirement of SNWA to continuously monitor wells, piezometers, and surface water sites pursuant to the Plan shall require SNWA to install all equipment necessary to continuously record discharge and/or water levels at all monitoring sites and shall, unless prevented by circumstances beyond its control, ensure that all such discharge and/or water level data is recorded on a continuous basis.

B. Exploratory and Production Well Monitoring

SNWA shall record discharge and water levels in all SNWA production wells on a continuous basis.

SNWA shall record water levels in all SNWA exploratory wells at least quarterly. Following the beginning of the groundwater withdrawals pursuant to any permits issued for the SNWA

Applications, the TRP shall select a representative number of exploratory wells for which SNWA shall thereafter continuously record water levels.

C. Existing Monitoring Wells

SNWA shall monitor groundwater levels quarterly in 10 representative monitoring wells and continuously monitor groundwater levels in 15 representative monitoring wells in the Spring Valley HB and the Hamlin Valley HB. These wells shall be selected by the TRP from the wells listed in Table D.1-1 in SNWA exhibit 509 ("Water Resources Assessment for Spring Valley, June 2006"), which was submitted to the Nevada State Engineer on June 30, 2006. The wells shall include as many existing carbonate wells as is possible and the wells shall be selected to: (1) serve as monitoring points between SNWA's pumping and Federal Water Rights and Federal Resources; and (2) obtain hydrologic information throughout the Spring Valley HB in order to produce annual groundwater level contour and water-level change maps, calibrate the groundwater flow model(s), and evaluate the effects of SNWA's groundwater withdrawals.

Modification of this monitoring requirement, including any addition, subtraction or replacement of the wells initially selected by the TRP or the frequency of monitoring for these wells may be made through consensus recommendations from the TRP as set forth in Section 3 of this Plan.

D. New Monitoring Wells

The DOI Bureaus agree to expedite NEPA and other clearances, within the limits of applicable laws, to help meet the monitoring requirement of this Plan. The construction of the new monitoring wells is contingent upon accessibility and issuance of appropriate rights-of-way by various Federal and State agencies.

SNWA shall begin continuous measurement of water levels at all new monitoring wells upon their completion, contingent upon accessibility and issuance of appropriate rights-of-way by various Federal and State agencies. SNWA shall purchase and install all necessary water-level measuring equipment.

I. New Monitoring Wells located within the Interbasin Groundwater Monitoring Zone ("Zone")

The Parties agree to collect data to accurately characterize the groundwater gradient from Spring Valley HB to Snake Valley HB via Hamlin Valley. In doing so, the Parties agree to establish an Interbasin Groundwater Monitoring Zone ("Zone") having the initial boundaries as depicted on Figure A1 which is attached hereto.

SNWA, in consultation with the TRP, shall construct and equip four monitoring wells in the carbonate-rock aquifer and two monitoring wells in the basin-fill aquifer within the Zone. SNWA may substitute existing wells for the monitoring wells required to be constructed pursuant to this paragraph if agreed upon by the TRP. The Parties, through the TRP, shall work together on the design and location of the wells to be constructed to monitor potential changes in the groundwater gradient in the Zone. Such wells shall be located, designed, and constructed to achieve the monitoring goals and requirements of this Plan.

SNWA shall not file any applications with the Nevada State Engineer to change the points of diversion of any permits granted pursuant to the SNWA Applications to a point of diversion within the Zone for a period of five years following the completion of the six (6) monitoring wells within the Zone or ten (10) years from the date of the execution of this Stipulation, whichever is shorter.

II. New Monitoring Wells located outside the Zone that are adjacent to SNWA Production Wells

SNWA, in consultation with the TRP, shall construct and equip two monitoring wells in conjunction with the two SNWA production wells in the Spring Valley HB proposed to be constructed closest to the boundary of the Zone, unless alternative monitoring sites are recommended by the TRP and approved by the Executive Committee. The TRP shall determine the location and aquifer in which these wells will be completed. Both these near-field monitoring wells shall have their water levels monitored continuously. To ensure baseline aquifer conditions are established, SNWA shall use its best efforts to construct, begin monitoring, and make available for sampling the two monitoring well described in this paragraph at least two years prior to any groundwater withdrawals, other than for aquifer tests and construction water, from the two SNWA production wells described in this paragraph.

III. New Monitoring Wells located outside the Zone that are in the vicinity of Shoshone Ponds

SNWA, in consultation with the TRP, shall construct and equip two monitoring wells in the vicinity of Shoshone Ponds. One of these shall be located in the basin-fill aquifer near the SNWA carbonate-rock aquifer production well that is closest to Shoshone Ponds. The other monitoring well shall be located in the carbonate-rock aquifer near the SNWA carbonate-rock aquifer production well closest to the Shoshone Ponds. The Parties, through the TRP, shall work together on the design and location of the wells to be constructed to monitor potential changes in the basin-fill and carbonate-rock aquifers near Shoshone Ponds. Such wells shall be located, designed, and constructed to achieve the monitoring goals and requirements of this Plan. SNWA shall continuously monitor the water levels in each of the wells. SNWA may substitute existing wells for the monitoring wells required to be constructed pursuant to this paragraph if agreed upon by the TRP. SNWA shall not withdraw any quantity of groundwater for beneficial use in accordance with any permit issued pursuant to SNWA Application No. 54019 for a period of three years from the completion of the last of the two monitoring wells referred to in this paragraph or four years from the issuance of the permit for the SNWA carbonate-rock aquifer production well constructed closest to the Shoshone Ponds.

IV. New Monitoring Wells located outside the Zone that are adjacent to Federal Water Rights and Federal Resources

SNWA shall install, equip, and maintain at least one shallow well or piezometer near twelve (12) of the springs listed in Table 1 in order to measure water-level changes nearby. While the TRP, in coordination with the BWG, shall determine which sites are to be monitored, and may increase or decrease the total number of sites, the following seven (7) sites should be monitored because of their location and/or the habitat or species associated with the site

unless the TRP determines other sites are better suited. The basis for the selection of any site and the total number of sites selected shall be to meet the goals and objectives of this Plan.

Number	Latitude	Longitude	Name	Township/Range/Sec
58134	38.936493	-114418228	Shoshone Ponds	12N 67E 02 SW NE
54109	38.842444	-114.366388	Swallow Spring	11N 68E 5 SE NW
R05276	38.611113	-114.429845	Deer Spring	09N 67E 26 NE SW
	39.159833	-114.352416	Turnley Spring	15N 68E 16 SW SW
	39.1075	-114.453305	Layton Spring	14N 67E 04 NW SE
R05289	39.22918	-114.543761	Unnamed	16N 66E 22 SW SW
R05294	39.204746	-114.462256	Unnamed	16N 67E 32 NE SW

Table 1 – List of Springs to be Monitored

Number	Latitude	Longitude	Name	Township/Range/Sec
R05269	38.878515	-114.495421	4WD Spring	15N 67E 30 SE NW
R05272	38.878053	-114.496272	Unnamed	15N 67E 30 SE NW
R05273	38.957224	-114.488871	Spring Creek Springs	13N 67E 30 SE SE
R05274	38.979402	-114.404312	Unnamed	13N 67E 24 SE NW
R05276	38.611113	-114.429845	Deer Spring	09N 67E 26 NE SW
R05278	39.139732	-114.496816	Unnamed	15N 67E 30 NW NW
R05279	39.195582	-114.457849	Unnamed	15N 67E 04 SE NW
R05280	39.187502	-114.464393	Unnamed	15N 67E 04 SW SW
R05281	39.181658	-114.37323	Rock Spring	15N 68E 08 SW NW
R05282	39.178682	-114.358414	Unnamed	15N 68E 08 NW SE
R05283	39.183993	-114.35807	Unnamed	15N 68E 08 NE NE
R05284	39.1852	-114.3563	Unnamed	15N 68E 08 SE NE
R05285	39.177372	-114.37053	Unnamed	15N 68E 08 NW SW
R05286	39.171858	-114.368555	Unnamed	15N 68E 17 NW NW
R05287	39.243687	-114.535882	Unnamed	16N 66E 22 NE NW
R05288	39.244052	-114.542418	Unnamed	16N 66E 22 NW NW
R05289	39.22918	-114.543761	Unnamed	16N 66E 22 SW SW
R05290	39.246442	-114.522184	Indian Spring	16N 66E 14 SW SW
R05291	39.255056	-114.430904	Unnamed	16N 67E 15 NW NW
R05292	39.203392	-114.461555	Unnamed	16N 67E 32 SE SW
R05293	39.214819	-114.45982	Unnamed	16N 67E 32 NE NW
R05294	39.204746	-114.462256	Unnamed	16N 67E 32 NE SW
R05295	39.228372	-114.38669	Unnamed	16N 67E 25 NE NW
58134	38.936493	-114418228	Shoshone Ponds	12N 67E 02 SW NE
	39.159833	-114.352416	Turnley Spring	15N 68E 16 SW SW
	39.1075	-114.453305	Layton Spring	14N 67E 04 NW SE
	39.135611	-114.473305	South Bastian Spring	15N 67E 29 NW SE
	38.801888	-114.411388	Blind Spring	11N 67E 23 NE SE
	38.842444	-114.366388	Swallow Spring	11N 68E 5 SE NW

SNWA shall continuously monitor the water level in each well or piezometer using a pressure transducer/data logger. SNWA shall use its best efforts to construct, begin monitoring, and make available for sampling the 12 shallow wells and piezometers selected by the TRP and the BWG as described in this paragraph at least two years prior to the withdrawal of any groundwater permitted by the State Engineer pursuant to the SNWA Applications for beneficial use, other than for aquifer tests and construction.

E. Constant Rate Aquifer Tests

An understanding of aquifer properties is necessary in order to make predictions regarding changes in groundwater levels and flows and facilitate the modeling of the groundwater flow systems. Furthermore, constant-rate aquifer tests are needed to help determine such aquifer properties. As such, two constant-rate aquifer tests shall be performed. The TRP shall examine the distribution of aquifer property data and determine the need for specific parameters, such as duration, depth, and monitoring points, for such tests. One constant-rate aquifer test shall be performed by pumping the SNWA basin-fill aquifer production well located closest to the boundary between the Spring Valley HB and the Hamlin Valley HB. Similarly, one constant-rate aquifer test shall be performed by pumping the SNWA carbonate production well located closest to the boundary between the Spring Valley HB and the Hamlin Valley HB. In the event that SNWA constructs a production well at the point of diversion specified in Application No. 54019, SNWA shall perform one constant-rate aquifer test pursuant to the parameters determined by the TRP.

F. Water Chemistry Sampling Program

SNWA shall collect and analyze water chemistry for the parameters set forth in Table 2 for the wells, piezometers, and surface water sites in the monitoring network. An initial sampling of 40 wells, piezometers, and surface water sites selected by the TRP from the monitoring network, excluding however all SNWA production wells, shall be conducted three times at six-month intervals pursuant to a schedule determined by the TRP, but completed by no later than five years from the date of the execution of the Stipulation, unless prevented by circumstances beyond SNWA's control. Thereafter, sampling of the 40 wells, piezometers, and surface water sites selected by the TRP shall be conducted once every five years following the start of groundwater withdrawals by SNWA. The TRP, in consultation with the BWG, may change any aspect of this water chemistry sampling program, including but not limited to the addition and/or deletion of sampling sites, the addition and/or deletion of water chemistry parameters, and an increase or decrease in sampling frequency, if deemed appropriate by the TRP. SNWA may subcontract this obligation to a third party, such as but not limited to the U.S. Geological Survey (USGS), the Desert Research Institute (DRI), etc., if approved by the TRP.

Table 2 - Water Chemistry Parameters

Field Parameters	**Major Ions**	**Isotopes**	**Metals**
Water temperature	TDS	Oxygen-18	Arsenic
Air temperature	Calcium	Deuterium	Barium
pH	Sodium	Tritium	Cadmium
Electrical conductivity	Potassium	Chlorine-36	Chromium
Dissolved oxygen	Chloride	Carbon-14	Lead
	Bromide	Carbon-13	Mercury
	Fluoride		Selenium
	Nitrate		Silver
	Phosphate		
	Sulfate		

	Carbonate alkalinity Alkalinity Silica Manganese Magnesium Aluminum Iron		

All analyses shall be conducted and reported in accordance with standard EPA listed methods.

SNWA shall make the monitoring wells available to the DOI Bureaus for additional data collection.

G. Spring and Stream Discharge Measurements

SNWA shall either directly or through funding of the USGS, DRI or another mutually agreed to third party operate and maintain a discharge monitoring site on Big Springs Creek and report such measurements over the Internet via the USGS NWIS or other appropriate publicly available website throughout the duration of this Plan.

SNWA shall either collect or fund the collection of at least two sets of synoptic-discharge measurements (a/k/a "gain/loss runs") for the Big Springs Creek surface water system from the spring orifice to Preuss Lake. These data shall be collected during the irrigation and non-irrigation seasons at least one year prior to the start of groundwater withdrawals by SNWA and again during the irrigation and non-irrigation seasons every five years following the start of groundwater withdrawals by SNWA. Through consensus, the TRP shall recommend the number of measurement sites during the discharge study. Measurements at each site shall include discharge, water temperature, and electrical conductivity.

SNWA shall work with the TRP to collect data in order to investigate the relationship between discharge at Big Springs and hydraulic head in the basin-fill and regional carbonate-rock aquifers, including but not limited to the installation, equipping, and maintenance of one or more monitoring wells located in the immediate vicinity of Big Springs.

SNWA shall either directly or through funding of the USGS, DRI, or another mutually agreed to third party continue to operate and maintain a discharge monitoring site on Cleve Creek and report such measurements over the Internet via the USGS NWIS or other appropriate website throughout the duration of this Plan.

H. Precipitation Stations

The coverage of existing precipitation stations shall be reviewed by the TRP, and, if necessary, the TRP may recommend that additional precipitation stations be established. SNWA shall fund the construction, operation, and maintenance of any such additional stations.

I. Elevation Control

SNWA shall conduct a detailed elevation survey of all production wells and monitoring sites that are used in this Plan.

J. Quality of Data

SNWA and the DOI Bureaus shall ensure that all measurement and data collection is done according to USGS established protocols, unless otherwise agreed-upon by the TRP.

K. Reporting

All data collected pursuant to this Plan shall be fully and cooperatively shared among the Parties.

Using data derived from groundwater level measurements of all production and monitoring wells used in this Plan, SNWA shall produce groundwater contour maps and water-level change maps for both the basin-fill and carbonate-rock aquifers at the end of baseline data collection, and annually thereafter at the end of each year of groundwater withdrawals by SNWA, or at a frequency agreed-upon by the TRP.

Water level and water production data shall be made available to the other Parties within 90 calendar days of collection using a shared data-repository website administered by SNWA. Water quality laboratory reports shall be made available to the other Parties within 90 calendar days of receipt using a shared data-repository website administered by SNWA.

SNWA shall report the results of all monitoring and sampling pursuant to this Plan in an annual monitoring report that shall be submitted to the TRP and the Nevada State Engineer's Office by no later than March 31 of each year that this Plan is in effect. SNWA shall submit as part of its annual report a proposed schedule of groundwater withdrawals (testing and production) for the immediately succeeding two calendar years. The DOI Bureaus may, at their option, provide comments to the Nevada State Engineer's Office on the annual report.

3. Management Requirements

A. General

Through the TRP, described below, the Parties shall collaborate on data collection and technical analysis to ensure decisions are consistent with the common goals as stated in Section 1.A. of this Exhibit A. Decisions must be based on the best scientific information

available and the Parties shall collaborate on technical data collection and analysis. The Parties shall use existing data, data collected under this Plan, and an agreed-upon regional groundwater flow system numerical model(s) as tools to evaluate the effects of groundwater development on Federal Water Rights and Federal Resources in the Area of Interest. The Parties agree that a model(s) shall be used to inform the Executive Committee about the potential for effects of groundwater withdrawals to spread through the basin-fill and the regional carbonate-rock aquifers, as well as the effectiveness of the potential mitigation actions.

B. Executive Committee

The Parties shall create and convene an Executive Committee, to include one manager from each of the Parties, within 30 days of a State Engineer Office decision granting any of the SNWA Applications in total or in part. The purpose of the Executive Committee is to: 1) review agreed-upon TRP recommendations for actions to reduce or eliminate an injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources in the Area of Interest and/or any effect on Federal Resources within the boundaries of Great Basin National Park from groundwater withdrawals by SNWA in the Spring Valley HB and 2) negotiate a resolution in the event that the TRP cannot reach consensus on monitoring requirements/research needs, technical aspects of study design, interpretation of results, and/or appropriate actions to minimize or mitigate unreasonable adverse effects or to avoid any effects on Federal Resources located within the boundaries of Great Basin National Park from groundwater withdrawals by SNWA in the Spring Valley HB.

The Executive Committee shall meet within 21 calendar days of being notified by the TRP of a need for action. The Executive Committee shall strive for consensus in all decisions and work to begin implementation of TRP recommendations or other mutually acceptable course(s) of action as negotiated by the Executive Committee within 60 calendar days of TRP notification. If any Party disagrees on recommended courses of action, then the Executive Committee shall refer the issue to a neutral third party, as described below in Section E.II.

C. Technical Review Panel (TRP)

The Parties shall create and convene a Technical Review Panel within 30 days of a State Engineer Office decision granting any of the SNWA Applications in total or in part, or at such earlier date as mutually agreed-upon by the Parties. The purpose of the TRP is to carry out the functions required of it under this Plan, including reviewing, analyzing, and interpreting information collected under this Plan, evaluating the results of the model(s), and making recommendations to the Executive Committee. Membership shall include one representative from SNWA and one representative from each of the DOI Bureaus. Each Party at its sole discretion may invite such additional staff or consultants to attend, as each deems necessary. To assist the TRP, the Parties mutually agree to invite a representative of the State Engineer's Office to participate in the TRP. Furthermore, the Parties may mutually agree to invite other non-Party entities to assist and participate in the TRP as deemed necessary or appropriate.

The TRP shall meet annually through the first ten years of SNWA production pumping in the Spring Valley HB and then as often as mutually agreed upon by the Parties.

The TRP shall:

1. strive for consensus in all determinations and recommendations;
2. disseminate data and provide a scientific and technical forum to evaluate data and analyses, including hydrologic parameters of a model(s) and model(s) results;
3. review data collection and quality assurance procedures;
4. identify needs for additional data collection and scientific investigations;
5. review and consider any and all data and analysis resulting from the ongoing USGS "Basin and Range Carbonate Aquifer System Study";
6. consider from time to time whether the modification of the initial boundaries of the Interbasin Groundwater Monitoring Zone is warranted as new data become available;
7. review SNWA proposed or ongoing pumping schedules (testing and production);
8. provide a forum for discussion to help develop agreement for prescribed courses of action on technical issues and make recommendations to the Executive Committee; and,
9. form recommendations about monitoring, modeling, groundwater management, and mitigation, including but not limited to the addition, deletion, or replacement of monitoring wells, the frequency of data collection, and the types of monitoring, sampling, and testing to be conducted; and,
10. other responsibilities as delegated by the Executive Committee.

D. Regional Groundwater Flow Numerical Modeling

The Parties agree that regional groundwater flow system numerical modeling is a useful tool in the prudent management of basin-fill and regional carbonate-rock aquifer systems. Therefore, the Parties agree that this Plan must include a well calibrated regional groundwater flow system numerical model(s). The Parties acknowledge that model results must be qualified based on a comparison of the accuracy of the model(s) and the capability of the model(s) to predict actual conditions. As the effects of SNWA's groundwater withdrawals in the Spring Valley HB on groundwater levels and spring flows are measured, refinement of the model(s) shall be necessary to achieve better agreement with the actual field measurements. Furthermore, the collection of additional hydrologic, geologic, geophysical, and/or geochemical data may indicate that modification of the conceptual and numerical model(s) of the regional groundwater flow system is warranted.

The Parties shall share all geologic, geophysical, hydrologic, and geochemical information collected in the Spring Valley HB and adjacent hydrographic basins. This data shall be evaluated by the TRP for inclusion into the regional groundwater flow system numerical model(s).

SNWA shall maintain, update, and operate an agreed-upon regional groundwater flow system numerical model(s), in cooperation with the TRP. SNWA may subcontract this obligation to a third party, such as but not limited to the USGS or DRI, if approved by the TRP. The cost of all modeling described herein shall be borne by SNWA.

SNWA shall provide model output in cooperation with the TRP for evaluation by the TRP in the form of input files, output files, drawdown maps, tabular data summaries, and plots of simulated water levels through time for the aquifer system, unless otherwise recommended by the TRP.

E. Criteria Initiating TRP Consultation and Management or Mitigation Actions

The Parties recognize that the establishment of accurate early-warning indicators to meet the goals stated in Section 1.A. of this Exhibit A is difficult until adequate monitoring data are developed during a period of groundwater withdrawals by SNWA and the model is calibrated to actual pumping effects. The TRP shall be responsible for determining the sufficiency of monitoring data and recommending changes to established specific early warning indicators, based on actual hydrologic effects of groundwater withdrawals, to the Executive Committee. The TRP shall review water-level responses and model results to determine if potential injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources and if any effect on Federal Resources within the boundaries of Great Basin National Park are occurring or are predicted to occur due to ongoing or proposed groundwater withdrawals by SNWA in the Spring Valley HB. Criteria for the initiation of consultation, management, and/or mitigation actions are as follows:

I. TRP Consultation Initiation Criteria

Any Party may initiate a TRP consultation when that Party is concerned that there may be 1) an injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources, and 2) any effect on Federal Resources within the boundaries of Great Basin National Park as the result of:

a) a change in surface water and/or groundwater level and/or discharge measured by one or more of the monitoring wells included in this Plan, or
b) a change in groundwater level predicted by the agreed-upon regional groundwater flow system model(s),

that is due to groundwater withdrawals by SNWA in the Spring Valley HB.

Any Party may also initiate a TRP consultation when that Party is concerned about a possible change in a regional groundwater gradient as the result of:

c) change in surface water and/or groundwater level and/or discharge measured by one or more of the monitoring wells included in this Plan, or
d) a change in groundwater level predicted by the agreed-upon regional groundwater flow system model(s),

that is due to groundwater withdrawals by SNWA in the Spring Valley HB.

If TRP consultation is initiated pursuant to Section E. I.a) or c) above, the following TRP consultation process shall apply:

1) Parties shall notify each other and the TRP shall confer by teleconference or in person within 30 calendar days;

2) The TRP shall evaluate the water level and/or discharge measurement data. The TRP objective for the consultation is to determine if the change in water level and/or discharge may be due to groundwater withdrawals by SNWA in the Spring Valley HB.

i. The TRP shall compare the observed field data with model predictions to evaluate how well the model predictions match observed drawdown and shall discuss potential changes to the model(s) as agreed to by consensus of the TRP.

ii. Based on observed data, the model(s) shall be recalibrated and sensitivity analysis applied if necessary, and the model(s) shall be rerun to evaluate the effects of groundwater withdrawals by SNWA in the Spring Valley HB on Federal Water Rights and Federal Resources and on regional groundwater gradients.

iii. If the TRP agrees the measured change in water level and/or discharge is not attributable to groundwater withdrawals by SNWA in the Spring Valley HB, no further management actions shall be taken at that time. The TRP may conduct further investigation into the cause(s) of such changes.

iv. If any member of the TRP is concerned that the measured change in water level and/or discharge is attributable to groundwater withdrawals by SNWA in Spring Valley HB and is causing or has the potential to cause injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources and/or an effect on Federal Resources within the boundaries of Great Basin National Park, then the TRP shall work to develop consensus-based courses of action to address the concern and/or that manage or mitigate any injury or unreasonable adverse effect(s) or affect on Federal Resources within the boundaries of Great Basin National Park. The TRP may use the model(s) to evaluate the effects of various courses of action outlined in the Section 4 to manage or mitigate such injury, unreasonable adverse effect(s) and/or effects on Federal Resources within the boundaries of Great Basin National Park. The TRP shall convey all recommended courses of action to the Executive Committee, and the Parties shall proceed to Section E.II.1.

v. If the water level and/or discharge measurement data indicates that there is injury or the potential for injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources and/or effect Federal Resources within the boundaries of Great Basin National Park, and the TRP is unable to develop a consensus-based course of action, the TRP shall notify the Executive Committee, and the Parties shall proceed to Section E.II.2.

If TRP consultation is initiated pursuant to Section E.I.b) or d) above, the following TRP consultation process shall apply:

1) Parties shall notify each other and the TRP shall confer by teleconference or in person within 30 calendar days;

2) The TRP shall evaluate the modeling parameters, variances to water level changes relative to modeling predictions, the translation of modeling variances to areas of interest and variables influencing the model results. The TRP objective for the consultation is to determine if the response may be due to groundwater withdrawals by SNWA in the Spring Valley HB.

i. The TRP shall compare the observed field data with model predictions to evaluate how well the model predictions match observed drawdown and shall discuss potential changes to the model(s) as agreed to by consensus of the TRP. All Parties recognize that future modeling of predicted effects for the verification of the model(s) shall be a necessary component to determine the validity of the modeling results and any course of action.

ii. Based on observed data, the model(s) shall be recalibrated as necessary, and shall be rerun to evaluate the effects of groundwater withdrawals by SNWA in the Spring Valley HB on Federal Water Rights and Federal Resources and on regional groundwater gradients.

iii. If the TRP agrees the recalibrated model(s) does not predict a potential injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources and/or an effect on Federal Resources within the boundaries of Great Basin National Park, no further management actions shall be taken at that time.

iv. If any member of the TRP is concerned that the recalibrated model(s) predicts a potential injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources and/or an effect on Federal Resources within the boundaries of Great Basin National Park, then the TRP shall develop consensus-based actions to address the concern and/or that manage or mitigate those effect(s). The TRP shall also use the model(s) to evaluate the effects of different courses of action to manage or mitigate those effect(s) outlined in the Section 4. The TRP shall convey all recommended courses of action to the Executive Committee, and the Parties shall proceed to Section E.II.1.

v. If the recalibrated model(s) predicts a potential injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources and/or an effect on Federal Resources within the boundaries of Great Basin National Park, and the TRP is unable to develop a consensus-based course of action, the TRP shall notify the Executive Committee, and the Parties shall proceed to Section E.II.2.

II. <u>Actions to Manage or Mitigate Injury, Unreasonable Adverse Effects, and/or Effects to Federal Resources within the boundaries of Great Basin National Park</u>

1) If the TRP determines, by consensus, that a predicted or measured change in groundwater levels would result in injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources and/or an effect on Federal Resources within the boundaries of Great Basin National Park, the Executive Committee shall consider the TRP's recommended courses of action. Upon receiving any consensus-based TRP recommendation, the Parties, through the Executive Committee (with input from the TRP as necessary), may seek a negotiated resolution of a course of action to reduce or eliminate the injury, unreasonable adverse effect, and/or effects to Federal Resources within the boundaries of Great Basin National Park, through the management of

groundwater withdrawals and/or the mitigation of the injury, unreasonable adverse effect, or effects. If the Executive Committee cannot reach consensus, any Party may refer the issue to the Nevada State Engineer or other agreed-upon third party after notifying all other Parties of its intent to refer the matter to the Nevada State Engineer or other agreed-upon third party.

2) If the TRP notifies the Executive Committee that it is unable to make a determination by consensus that a predicted or measured change in groundwater levels would result in injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources and/or effects to Federal Resources within the boundaries of Great Basin National Park, or that the TRP is unable to obtain consensus on a recommended course of action, the Executive Committee shall attempt to negotiate a mutually acceptable course(s) of action. If that is not successful, any Party may refer the issue to the Nevada State Engineer or other agreed-upon third party after notifying all other Parties of such actions.

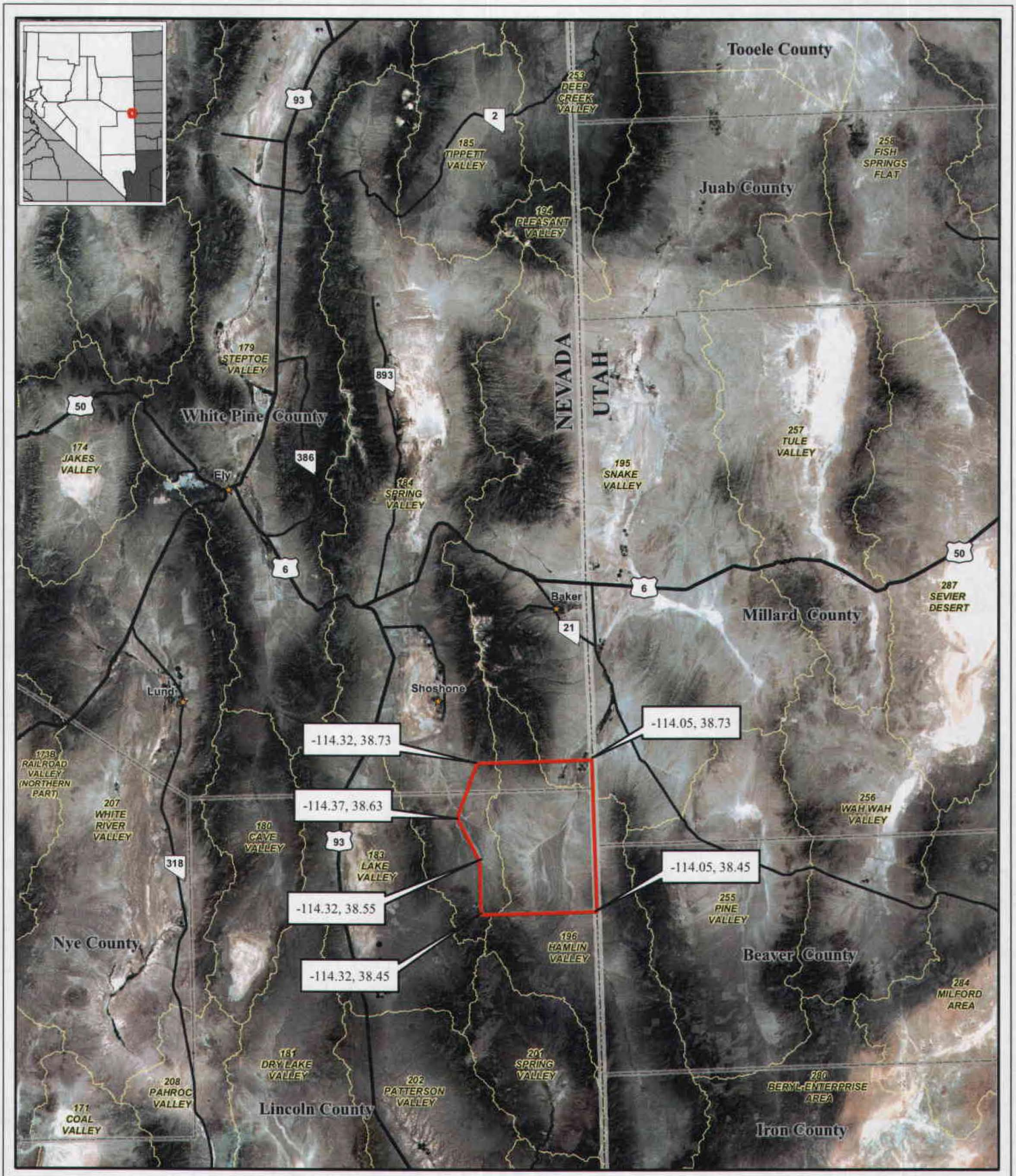
4. Mitigation Requirements

SNWA shall mitigate any injury to Federal Water Rights and/or unreasonable adverse effects to Federal Resources and/or effects to Federal Resources within the boundaries of Great Basin National Park agreed upon by the Parties as determined through the process described in Section 3.E.II. above or after the Nevada State Engineer determines whether there are any such effects due to groundwater withdrawals by SNWA in the Spring Valley HB. The Parties shall take all necessary steps to ensure that mitigation actions are feasible and are timely implemented. Mitigation measures may include, but are not limited to one or more of the following:

1. Geographic redistribution of groundwater withdrawals;
2. Reduction or cessation in groundwater withdrawals;
3. Provision of consumptive water supply requirements using surface and groundwater sources;
4. Augmentation of water supply for Federal Water Rights and Federal Resources using surface and groundwater sources; and
5. Other measures as agreed to by the Parties and/or required by the State Engineer that are consistent with the Stipulation

5. Modification of the Plan

The Parties may modify this Plan by mutual written agreement.



Legend

- Town
- Interstate
- US Highway
- State Route
- County Boundary
- State Boundary
- Hydrographic Basin
- Interbasin Groundwater Monitoring Zone

Figure A1. Interbasin Groundwater Monitoring Zone

Grid based on Universal Transverse Mercator projection, North American Datum 1983, Zone 11 meters.

N W E S

0 2.5 5 10 15 20 25

Miles

Scale 1:1,000,000

Map ID # 12866 9/7/06 RH

EXHIBIT B

BIOLOGIC MONITORING, MANAGEMENT AND MITIGATION PLAN FOR DEVELOPMENT OF GROUNDWATER IN SPRING VALLEY HYDROGRAPHIC BASIN PURSUANT TO APPLICATION NOS. 54003 THROUGH 54021 BY THE SOUTHERN NEVADA WATER AUTHORITY

1. Introduction

This biologic monitoring, management, and mitigation plan (Plan) is a component of a stipulation between the Southern Nevada Water Authority (hereinafter referred to as "SNWA") and the U.S. Department of the Interior bureaus, including the Bureau of Indian Affairs, the Bureau of Land Management, the Fish and Wildlife Service, and the National Park Service (hereinafter referred to as the "DOI Bureaus"). Collectively, SNWA and each of the DOI Bureaus are hereinafter referred to as the "Parties".

This Plan describes the Parties' obligations regarding biologic monitoring, management, and mitigation related to SNWA's applications 54003 through 54021, inclusive, ("SNWA Applications") to withdraw groundwater from points of diversion in the Spring Valley Hydrographic Basin ("Spring Valley HB"). The Plan consists of three principal components:

Management Requirements – including, but not limited to the creation of a Biological Work Group ("BWG") and an Executive Committee to review information collected under this Plan; coordinate with the hydrology Technical Review Panel (TRP), as described in Exhibit A attached to the Stipulation and made a part thereof; determine the appropriate course of action to avoid and/or mitigate any effects to Water-dependent Ecosystems, as defined in Recital H of the Stipulation, within the boundaries of Great Basin National Park and unreasonable adverse effects to Water-dependent Ecosystems, also as defined in Recital H of the Stipulation, within the Area of Interest, as defined in Recital B to the Stipulation, resulting from SNWA's withdrawal of groundwater from the Spring Valley HB; and the establishment of a consensus-based decision-making process.

Monitoring Requirements - including, but not limited to assembling known (baseline) information on biological resources; identifying baseline data gaps and implementing supplemental baseline data collection; identifying research needs and implementing studies to determine potential indicator species and appropriate parameters to monitor for early warning of unreasonable adverse effects and of any effect within the boundaries of Great Basin National Park; developing and implementing a plan that monitors the response of Water-dependent Ecosystems in the Area of Interest to hydrological changes resulting from SNWA's withdrawal of groundwater from the Spring Valley HB; identifying research needs related to understanding this response; and monitoring the success of mitigation actions; and

Mitigation Requirements – including, but not limited to the modification, relocation or reduction in points of diversion and/or rates and quantities of groundwater withdrawals to

achieve the goals set forth in Recital H of the Stipulation.[1] Mitigation may also include the restoration of degraded Water-dependent Ecosystems adversely affected by groundwater withdrawals, grazing, or other factors, and/or establishment of new habitat in a mutually agreed upon location that is comparable in ecological function to that which was affected or lost.

A. Common Goal

The common goals of the Parties are to 1) manage the development of groundwater by SNWA in the Spring Valley HB in order to avoid unreasonable adverse effects caused by such groundwater development to Water-dependent Ecosystems and maintain and/or enhance the baseline biological integrity and ecological health of the Area of Interest over the long term and 2) avoid any effects to Water-dependent Ecosystems within the boundaries of Great Basin National Park from groundwater withdrawals by SNWA in the Spring Valley HB. The terms "unreasonable adverse effect(s) to Water-dependent Ecosystems within the Area of Interest" and "any effect(s) to Water-dependent Ecosystems within the boundaries of Great Basin National Park" are hereinafter collectively referred to as "Water-dependent Ecosystem Effects" or "a Water-dependent Ecosystem Effect" in this Exhibit B. The Parties agree that the preferred conceptual approach is the development of groundwater by SNWA in conjunction with the implementation of the monitoring, management, and mitigation plans described in Exhibits A and B to this Stipulation. The Parties further agree that there is a need to better understand: 1) the response of aquifers and associated discharge areas, such as artesian wells, springs, streams, wetlands, playas, riparian and phreatophytic communities to pumping stresses, and 2) the response of aquatic and terrestrial organisms to changes in Water-dependent Ecosystems due to pumping-induced groundwater declines through the preferred conceptual approach described above. The Parties have determined that it is in their best interests to cooperate in data collection and analysis related to groundwater levels and the long-term maintenance of Water-dependent Ecosystems within the Area of Interest.

Determination of what constitutes a Water-dependent Ecosystem Effect that requires an action as described in Section 4. B shall be made by the Executive Committee with recommendations from the BWG, as described below.

2. Management Requirements

A. General

Through the BWG, described below, the Parties shall collaborate on data collection and technical analysis to ensure decisions meet the common goals as defined in Section 1.A. above. Decisions must be based on the best scientific information available. The Parties shall use existing data, data collected under this Plan, and modeling and/or other management tools, to evaluate the effects of groundwater development by SNWA in the Spring Valley HB upon Water-dependent Ecosystems in the Area of Interest.

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[1] Included in Karr (1991), these terms were defined as the ability to support and maintain "a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat of the region;" and "a biological system... can be considered healthy when its inherent potential is realized, its condition is stable, its capacity for self-repair when perturbed is preserved, and minimal external support for management is needed."

B. Executive Committee

The Parties shall create and convene an Executive Committee, to include one manager from SNWA and from each of the DOI Bureaus, within 30 days of a State Engineer Office decision granting any of the SNWA Applications in total or in part. The purpose of the Executive Committee is to: 1) review agreed-upon BWG recommendations for actions to avoid Water-dependent Ecosystem Effects from groundwater development by SNWA in the Spring Valley HB, seek a negotiated resolution of a course of action, and implement the action, and 2) negotiate a resolution in the event that the BWG cannot reach consensus as to any of the BWG's responsibilities as set forth in this Exhibit B.

The Executive Committee shall meet within 21 calendar days of being notified by the BWG of a need for action. The Executive Committee shall strive for consensus in all decisions and work to begin implementation of BWG recommendations or other mutually acceptable course(s) of action as negotiated by the Executive Committee within 60 calendar days of BWG notification. If any Party disagrees on recommended courses of action, then the Executive Committee shall refer the issue to a neutral third party, as described below in Section 4. B.

C. Biological Work Group

The Parties shall create and convene a BWG within 30 days of a State Engineer Office decision granting any of the SNWA Applications in total or in part, or at such earlier date as mutually agreed upon by the Parties. The purpose of the BWG is to carry out the management, monitoring, and mitigation requirements of the Plan. Membership in the BWG shall include one representative of SNWA and one representative of each of the DOI Bureaus; these members shall have responsibility for providing recommendations to the Executive Committee. Each Party at its sole discretion may invite such additional staff or consultants to attend as each deems necessary. To assist the BWG, the Parties shall invite a representative of the Nevada Department of Wildlife and the Utah Division of Wildlife Resources, and, upon mutual agreement of the Parties, shall invite the participation of other non-Party entities, to assist the BWG by providing technical expertise. These entities, as well as any additional staff or consultants, shall not be members of the BWG and shall not be involved in formulating final recommendations to the Executive Committee.

The BWG shall strive for consensus in all determination and recommendations. If any Party disagrees on the need for a particular study or disagrees on technical aspects of ecological monitoring/studies (e.g., study design, analyses, etc.), then the BWG shall submit the studies in question to one or more mutually acceptable, disinterested parties for scientific or technical opinion. The cost of this review shall be borne by the requesting Party or Parties. The BWG shall consider the recommendation(s) of the neutral reviewer and determine whether to adopt the recommendation(s) in full or in part. If the BWG is still unable to reach consensus on the technical aspect(s) in question, then the concern will be elevated to the Executive Committee.

If the BWG determines that a Water-dependent Ecosystem Effect is occurring or will occur as a result of SNWA's groundwater development in the Spring Valley HB, the BWG shall develop a recommended course of action and refer this to the Executive Committee, as described below in Section 4. B.

The BWG's responsibilities shall include the following:

1. Within 12 months of the Nevada State Engineer's decision granting any of the SNWA Applications, in total or in part, the BWG shall develop and recommend to the Executive Committee a monitoring plan, to include baseline condition assessment (i.e., assembling and reviewing existing baseline data and collecting additional baseline data as appropriate); collection of data at appropriate regional reference sites; species and parameters to monitor; and protocols and techniques to use (i.e., spatial analyses, ecosystem modeling, etc.). The monitoring plan will be for specified Water-dependent Ecosystems within the following area, hereafter referred to as the Initial Biologic Monitoring Area (IBMA): Spring Valley HB, northern Hamlin Valley HB north of the southern boundary of the Zone as defined in Exhibit A, and the Big Springs Creek sub-watershed in southern Snake Valley HB, as depicted on figure 2, attached to this Exhibit B.
2. oversee implementation of the monitoring plan;
3. review and recommend revisions to the Executive Committee on the monitoring plan as needed, including additional baseline data collection and/or monitoring to sites outside the IBMA but within the Area of Interest;
4. discuss values for particular parameters (e.g., *composition, diversity, density, vigor, invasive species, soil stability*, etc.) that may be of concern to the Parties and make recommendations to the Executive Committee on what constitutes a Water-dependent Ecosystem Effect in any particular circumstance;
5. identify indicators that can best predict Water-dependent Ecosystem Effects and periodically review and revise as needed;
6. review data collection (Quality Assurance/Quality Control);
7. identify and recommend to the Executive Committee data collection and scientific research needs for investigating the response of Water-dependent Ecosystems to hydrologic changes resulting from SNWA's withdrawal of groundwater from the Spring Valley HB;
8. disseminate data and provide a scientific and technical forum to evaluate data and analyses and review models and model results, as may be deemed necessary;
9. meet with the TRP at least annually or as needed to exchange information and discuss monitoring of potential impacts and courses of action;
10. review annual activity report;
11. develop criteria and make recommendations to the Executive Committee on when a course of action shall be taken to avoid Water-dependent Ecosystem Effects and on the success of such actions;
12. oversee implementation of management and mitigation actions as approved by the Executive Committee;
13. solicit the scientific or technical opinion of one or more mutually acceptable, disinterested parties if consensus cannot be reached;
14. meet at least annually through the first ten years of SNWA groundwater withdrawals in the Spring Valley HB, and then as mutually agreed upon by the Parties, to evaluate monitoring/research progress, needs, results, and mitigation, if required; and
15. other responsibilities as delegated by the Executive Committee.

3. Monitoring Requirements

A. General

SNWA, in coordination and collaboration with the BWG, shall implement the monitoring plan for the IBMA prior to SNWA's proposed groundwater production in the Spring Valley HB. Within twelve months from the date that the Nevada State Engineer issues any water rights pursuant to the SNWA Applications, the BWG shall recommend the monitoring plan for the IBMA to the Executive Committee. Notwithstanding any other provisions of this Exhibit B, if the BWG is unable to recommend a consensus-monitoring plan within this timeframe, then the BWG shall submit to the Executive Committee any alternative monitoring plans for the IBMA. If the Executive Committee cannot agree by consensus to one alternative or a combination of alternatives recommended by the BWG within 90 days, then the Parties agree that each of the alternatives submitted to the Executive Committee by the BWG shall be submitted to a mutually-agreeable third party for final selection among the submitted alternatives or a combination thereof. The alternatives selected by the third party shall be binding on the Parties. In the event that the third party does not make a final selection within twelve months of submittal, then SNWA shall select and implement a monitoring plan from among the alternatives proposed by the BWG.

The cost of the monitoring plan shall be primarily borne by SNWA. The DOI Bureaus shall provide staffing to the BWG and shall seek funding to contribute to monitoring efforts.

B. Determining Monitoring Parameters and Techniques

The monitoring plan shall be designed to determine the response of Water-dependent Ecosystems to hydrologic changes resulting from SNWA's withdrawal and export of groundwater from the Spring Valley HB. Development of the monitoring plan and subsequent modifications shall be coordinated with hydrologic monitoring by the Technical Review Panel (TRP) established in Exhibit A. The BWG shall choose species and parameters for monitoring that will be the best indicators of biologic and hydrologic change resulting from pumping. This process may require the design and implementation of research projects to determine the most appropriate early-warning indicators of Water-dependent Ecosystem Effects.

Monitoring may include both landscape-scale ecological monitoring and site-specific monitoring, as recommended by the BWG. The overall monitoring plan and any site-specific monitoring plans shall be designed to detect and track changes in Water-dependent Ecosystems resulting from SNWA's groundwater pumping in Spring Valley HB, monitor the effectiveness of mitigation measures, and differentiate the effects of other sources of ecosystem stress.

The BWG shall consider whether to include monitoring and research on the following parameters in its recommendations to the Executive Committee:

1. vegetation community extent and composition, diversity, density, structure, and/or vigor, including tracking non-native, invasive species;
2. faunal community composition, diversity, density, health (body condition, disease, parasitism, reproductive success, etc.), potentially including monitoring of the following taxonomic groups: invertebrates; migratory, wintering, and breeding birds; bats; rodents; medium and large mammals; amphibians; and/or fish;

3. forage and prey base extent and condition;
4. nesting, wintering, and migratory area extent and condition;
5. competition and predation;
6. aquatic habitat structure (water depth and velocity; substrate; spawning, nursery, and hiding places; stream cover and shading; stream diversity, i.e., pools, runs, and riffles; woody debris input; etc.)
7. soil stability, erosion, sedimentation; and
8. physical and chemical water quality parameters.

The BWG shall recommend techniques for monitoring, and shall include a spatial analysis using remote-sensing (multi-spectral or hyper-spectral image analysis) and/or high resolution aerial surveys such as Very Large Scale Aerial (VLSA) imaging, with ground-truthing and/or the collection of complementary ground data as appropriate. Collection and interpretation of these images shall be used in order to track changes in Water-dependent Ecosystems caused by groundwater withdrawals by SNWA in the Spring Valley HB. Determination of techniques to use will take into account compatibility with on-going and/or planned monitoring of the Parties or any other entity in the Area of Interest.

C. Ecological Models

As mentioned above, developing a landscape-scale ecological model is one of several potential methods that the BWG may use to evaluate the effects of SNWA groundwater development upon Water-dependent Ecosystems in the IBMA and/or Area of Interest if data collected during monitoring in comparison to baseline conditions is not sufficient to understand the effects of groundwater development by SNWA in the Spring Valley HB. The Parties agree that modeling is a useful tool in understanding the potential for such groundwater withdrawals to adversely affect Water-dependent Ecosystems in the IBMA and/or Area of Interest, informing management decisions, and evaluating the effectiveness of potential mitigation action.

If the BWG determines that ecological modeling is a necessary and appropriate tool for monitoring, SNWA shall maintain, update, and operate a BWG agreed-upon ecosystem model, in cooperation with the BWG. The cost of this work shall be borne primarily by SNWA. SNWA may subcontract this obligation to a third party, if approved by the BWG. The actual domain of the model, data input, and timeframe for model development shall be recommended by the BWG. The Parties acknowledge that such models are not static and that their accuracy would be improved by refinement and modification as additional biological data is collected and the effects of groundwater withdrawals by SNWA in the Spring Valley HB on Water-dependent Ecosystems in the IBMA and/or Area of Interest are measured.

D. Quality of Data

All data collection shall be according to established, standardized protocols, unless otherwise recommended by the BWG. All data will undergo Quality Assurance/Quality Control.

E. Reporting

All information collected or described in this plan shall be fully and cooperatively shared among the Parties. SNWA shall report the results of all activities pursuant to this Plan in an annual report that shall be submitted to the BWG by no later than March 31 of each year that this Plan is in effect.

Biological monitoring data shall be made available to the other Parties within 60 calendar days of collection using a shared data-repository website administered by SNWA. Annual reports and monitoring data that have undergone Quality Assurance/Quality Control shall be made available to the general public through the website or another mutually agreed upon manner.

4. Criteria Initiating BWG Consultation and Management or Mitigation Actions

The Parties recognize that establishing early-warning indicators to predict and avoid Water-dependent Ecosystem Effects may not be possible until sufficient monitoring data has been obtained to document the effects of such groundwater withdrawals in the Spring Valley HB, and/or an agreed-upon model is calibrated to the actual changes in Water-dependent Ecosystems caused by such ground water withdrawals. The BWG shall be responsible for evaluating the sufficiency of monitoring data and determining specific early-warning indicators, based on the responses of Water-dependent Ecosystems to changes in groundwater levels due to groundwater development by SNWA in the Spring Valley HB. Until the BWG agrees on specific indicators, the BWG shall review water-level data and landscape-scale floral and faunal responses as revealed through spectral imaging and other BWG-recommended tools (e.g., ecosystem modeling) to determine if Water-dependent Ecosystem Effects are occurring due to groundwater withdrawals by SNWA in the Spring Valley HB.

Criteria for initiation of consultation, management, and/or mitigation actions are as follows:

A. BWG Consultation Initiation Criteria

Any Party may initiate a BWG consultation if that Party is concerned that there may be a Water-dependent Ecosystem Effect as the result of:

1) a change in a measured biological parameter in a Water-dependent Ecosystem in the Area of Interest, or
2) a predicted change in a biological parameter in a Water-dependent Ecosystem in the Area of Interest

that can be ascribed to the withdrawal of groundwater pursuant to one or more of the permitted SNWA Applications in the Spring Valley HB.

If BWG consultation is initiated pursuant to Section 4. A. 1) above, then the following BWG consultation process shall apply:

a) Parties shall notify each other and the BWG shall confer by teleconference or in person within 30 calendar days;

b) The BWG shall evaluate the biological data and confer with the TRP regarding measured hydrological data and predicted hydrological changes. The BWG

objective for the consultation is to determine if the change in the measured biological parameter may be due to groundwater withdrawals by SNWA in the Spring Valley HB.

i. The BWG shall compare observed changes in biological parameters to changes in hydrologic conditions evaluated by the TRP and/or predicted by a TRP model and ascribed to groundwater withdrawal by SNWA in the Spring Valley HB.

ii. If a landscape-scale ecological model is available, the BWG shall compare how well observed field data fit model predictions and shall discuss potential changes to the ecological model as agreed to by consensus of the BWG. Should such consensus be obtained, the model shall be recalibrated based on observed data and the model shall be rerun to evaluate the effects of groundwater withdrawals of any of the SNWA Applications in the Spring Valley HB on Water-dependent Ecosystems in the Area of Interest.

iii. If the BWG agrees the change in a measured biological parameter is not attributable to the withdrawal of groundwater by SNWA in the Spring Valley HB, no further management actions shall be taken at that time. The BWG may conduct further investigation into the cause(s) of such changes.

iv. If any member of the BWG is concerned that the change in a measured biological parameter is attributable to the withdrawal of groundwater by SNWA in Spring Valley HB and is causing or has the potential to cause a Water-dependent Ecosystem Effect, then the BWG shall work to develop consensus-based courses of action to address the concern and/or manage or mitigate Water-dependent Ecosystem Effect(s), as appropriate. The BWG may use an ecological model to evaluate the effects of various courses of action outlined in Section 5 of this Exhibit B to manage or mitigate such adverse effect(s). The BWG shall convey all recommended courses of action to the Executive Committee, and the Parties shall proceed to Section 4. B. 1).

v. If the biological data indicate that there is, or is a potential for, a Water-dependent Ecosystem Effect attributable to the withdrawal of groundwater by SNWA in Spring Valley HB and the BWG is unable to develop a consensus-based course of action, the BWG shall notify the Executive Committee, and the Parties shall proceed to Section 4. B. 2).

If an ecological model has been developed, and BWG consultation is initiated pursuant to Section 4. A. 2) above, then the following BWG consultation process shall apply:

1) Parties shall notify each other and the BWG shall confer by teleconference or in person within 30 calendar days;

2) The BWG shall evaluate the Ecological modeling parameters, variances in biological parameters relative to modeling predictions, and variables influencing the ecosystem model results. The BWG objective for the consultation is to determine if the response may be due to groundwater withdrawals by SNWA in the Spring Valley HB.

i. The BWG shall compare how well observed field data fit model predictions and shall discuss potential changes to the ecological model as agreed to by consensus of the BWG. All Parties recognize that should a model be used to predict effects, future modeling for the verification of the ecosystem model is a necessary component to determine the validity of the modeling results.

ii. Based on observed data, the Ecological model shall be recalibrated as necessary, and shall be rerun to evaluate the effects of groundwater withdrawals pursuant to any of the SNWA Applications in the Spring Valley HB on Water-dependent Ecosystems in the Area of Interest.

iii. If the BWG agrees the recalibrated Ecological model does not predict a Water-dependent Ecosystem Effect as a result of SNWA groundwater withdrawals in the Spring Valley HB, no further management actions shall be taken at that time.

iv. If any member of the BWG is concerned that the recalibrated Ecological model predicts a Water-dependent Ecosystem Effect as a result of SNWA groundwater withdrawals in the Spring Valley HB, then the BWG shall work to develop consensus-based recommendations for courses of action to address the concern and/or manage or mitigate those effect(s), as appropriate. The BWG shall also use the ecosystem model to evaluate the effects of various courses of action to manage or mitigate those effect(s) outlined in Section 5. The BWG shall convey all recommended courses of action to the Executive Committee, and the Parties shall proceed to Section 4. B. 1.

v. If the recalibrated Ecological model predicts a Water-dependent Ecosystem Effect as a result of SNWA groundwater withdrawals in the Spring Valley HB and the BWG is unable to develop a consensus-based course of action, the BWG shall notify the Executive Committee, and the Parties shall proceed to Section 4. B. 2.

B. <u>Actions to Manage or Mitigate Water-dependent Ecosystem Effects</u>.

1) If the BWG determines, by consensus, that a predicted or measured change in a biological parameter would result in a Water-dependent Ecosystem Effect as a result of SNWA groundwater withdrawals in the Spring Valley HB, it shall forward its concerns and agreed-upon recommendations for action to the Executive Committee for consideration. Upon receiving any consensus-based BWG recommendation, the Executive Committee shall seek a negotiated resolution of a course of action to eliminate or reduce the Water-dependent Ecosystem Effect through the management of SNWA's groundwater

withdrawals in the Spring Valley HB and/or the mitigation of the Water-dependent Ecosystem Effect. If the Executive Committee cannot reach consensus, then the matter will be elevated to a neutral third-party to provide advice on a course of action. If, upon considering the neutral party's advice, the Executive Committee is still unable to come to resolution, then any Party may refer the issue to the Nevada State Engineer or an appropriate forum after notifying all other Parties of its intent to do so.

2) If the BWG notifies the Executive Committee that it is unable to make a determination by consensus that a predicted or measured change in a biological parameter would result in a Water-dependent Ecosystem Effect as a result of SNWA groundwater withdrawals in the Spring Valley HB or that it is unable to obtain consensus on a recommended course of action, the Executive Committee shall attempt to negotiate a mutually acceptable determination and/or course(s) of action. If that is not successful, then the matter will be elevated to a neutral third-party to provide advice on any such determination and/or a course of action. If, upon considering the neutral party's advice, the Executive Committee is still unable to come to resolution, then any Party may refer the issue to the Nevada State Engineer or an appropriate forum after notifying all other Parties of its intent to do so.

The Executive Committee shall act within the timeframes stated above in Section 2.B.

5. Mitigation Requirements

The goal of the Parties shall be to avoid Water-dependent Ecosystem Effects. The Parties shall make all reasonable efforts to achieve this goal. In the event that this goal is not achieved, SNWA shall mitigate any Water-dependent Ecosystem Effects so as to ensure that the baseline biological integrity and ecological health of Water-dependent Ecosystems are maintained and/or enhanced over the long term, either as agreed upon by the Parties as determined through the process described in Section 4.B. above or after the State Engineer determines that there are any such effects due to groundwater withdrawals by SNWA in the Spring Valley HB. The Parties shall take the necessary steps to ensure that such mitigation actions are feasible and are implemented in a timely manner. Avoidance and/or mitigation measures may include, but are not limited to one or more of the following:

1. Geographic redistribution of pumpage;
2. Reduction or cessation in pumpage;
3. Restoration/modification of existing habitat;
4. Acquiring and/or using alternative surface and/or groundwater for the purposes of augmenting existing water resources and protecting/restoring habitat;
5. Establishment of new habitat in a mutually agreed upon location that is comparable in ecological function to that which was affected or lost; and
6. Other measures as agreed to by the Parties and/or required by the State Engineer, to the extent not inconsistent with this agreement.

Clearly defined and measurable criteria will be developed by the BWG to evaluate the success of these actions.

6. Modification of the Plan

The Parties may modify this Plan by mutual written agreement.

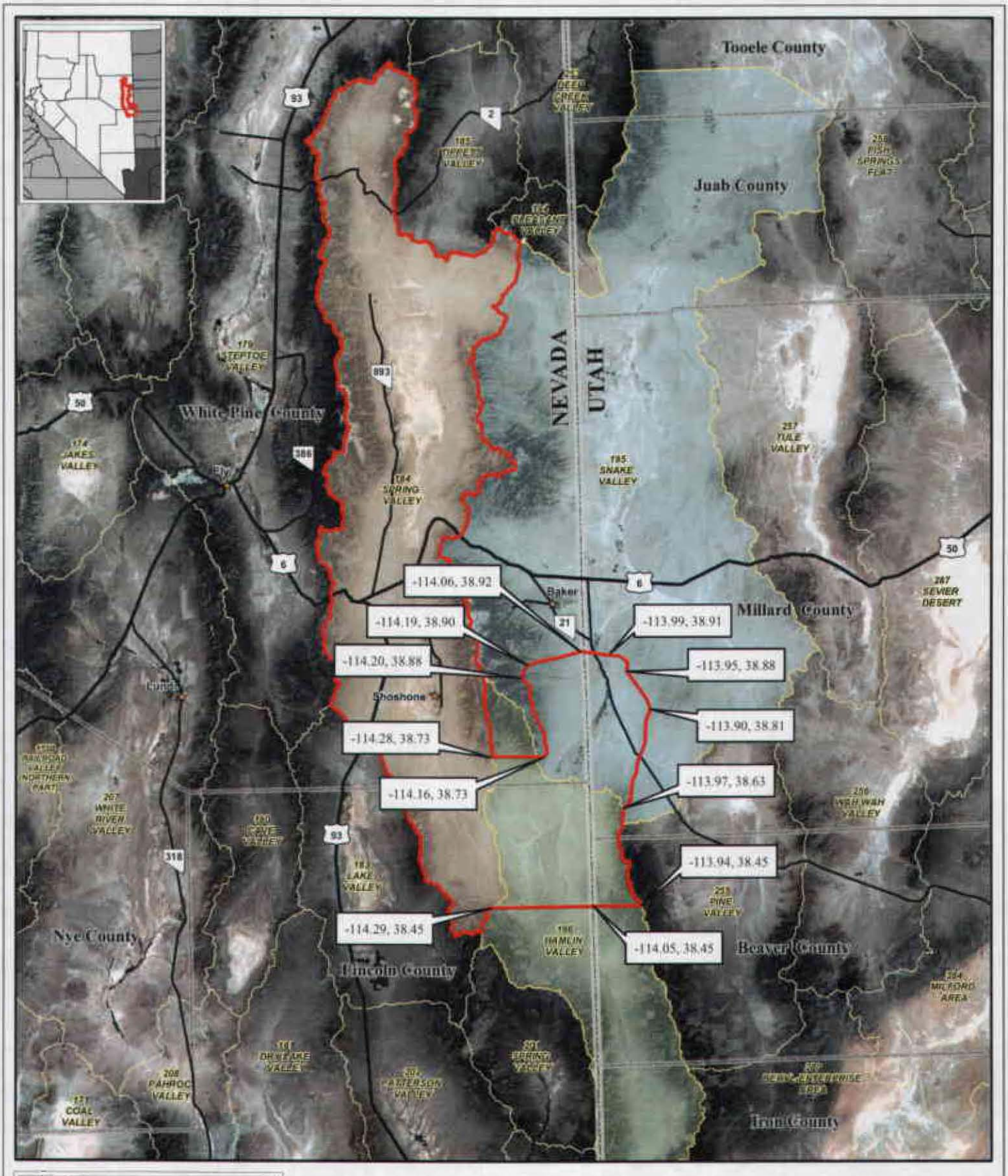

Figure 2. Initial Biologic Monitoring Area