STATE OF CALIFORNIA - THE NATURAL RESOURCES AGENCY ARNOLD SCHWARZENEGGER, Governor

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August 21, 2009

Mr. Bill Ruth
Commissioner
International Boundary and Water Commission
4171 North Mesa Street
El Paso, TX 79902-1441

Dear Commissioner Ruth:

The Principal Engineers of the International Boundary and Water Commission (IBWC), United States and Mexico signed a Joint Report on August 19, 2009 regarding the Transboundary Aquifer Program. The Joint Report makes recommendations regarding the Joint Cooperative Process between the United States and Mexico to implement an assessment program for the transboundary aquifers shared by the two countries.

The Joint Report indicates that the recommendations are within the framework of the United States-Mexico Transboundary Aquifer Assessment Act (Act) of 2006 (P.L. 109-448). The purpose of this letter is to remind you that the Act specifically excludes aquifers shared by California and Mexico from the program. As such, the Joint Report recommendations should apply only to the legislative authority of the P.L. 109-448.

Should you have any questions, please do not hesitate to call me at (818) 500-1625.

Sincerely,

Gerald R. Zimi nnan
Ex irector

BENEFITS OF A UTAH/NEVADA AGREEMENT ON THE ALLOCATION AND MANAGEMENT OF THE SNAKE VALLEY AQUIFER

I. INTRODUCTION

Snake Valley includes a large area in southwestern Utah and southeastern Nevada. Water use in the Snake Valley aquifer has developed slowly in both States. In 1989, however, the Southern Nevada Water Authority (SNWA) filed applications with the Nevada State Engineer to appropriate approximately 50,000 acre-feet of water from Snake Valley in Nevada to be piped to Clark County (Las Vegas) as part of a system of pipelines in central and eastern Nevada intended to transport rural groundwater to municipal uses.

There is little doubt that some unappropriated water exists in Snake Valley. One issue is how much water is available and how that unappropriated water should be divided between the two States. Some water "belongs" to Nevada and some "belongs" to Utah. Another issue is how to ensure, as much as possible, that the additional withdrawals in Nevada do not unreasonably impact existing rights and sensitive ecosystems in Utah. A third issue is how generally the two States should manage this interstate aquifer.

A federal statute creating easements for the SNWA project pipelines requires the States to settle these issues before SNWA pumps Snake Valley water. Thus, Utah and Nevada officials have for the last three years actively negotiated an agreement for the allocation and management of the aquifer. A draft of that Agreement is now ready for public review and comment.

This document outlines the Utah/Nevada Snake Valley Water Agreement ("Agreement") and describes the legal and practical consequences if no agreement is executed or implemented.

IL NATURE OF THE PROBLEM

A. Allocating the Snake Valley aquifer requires dividing a natural resource shared between two sovereign States: It is not the same as a traditional water dispute between private parties and is governed by different considerations. including these:

1. The "equal footing doctrine," which provides that as a matter of federal constitutional law all States admitted to the Union stand on the same footing as the original States.

2. Each State therefore owns and regulates its own water resources and cannot dictate to another how to manage its resources. Further, the jurisdiction of the Utah State Engineer and Utah's courts do not extend into Nevada, and *vice versa.*

3. Where a groundwater aquifer is located in two States, each receives an equitable share so long as the right of the other to its share is not unduly infringed. When one State takes what it believes is its share and a controversy arises, three possible solutions arise: (1) a negotiated settlement; (2) an interstate compact; or (3) an original action in the U.S. Supreme Court seeking equitable apportionment of the joint resource.

4. Priorities of existing water rights and the areas of water origin are key elements in an equitable apportionment analysis, although the U.S. Supreme Court may consider many other things. In the Snake Valley Aquifer, the majority of the recharge occurs in Nevada and flows down gradient into Utah, while the majority of historic discharge (use) has occurred in Utah.

Some have argued that any water SNWA takes "steals" Utah's water. This is incorrect, since Nevada is legally entitled to an equitable portion of the Snake Valley water.

5. A recent Act of Congress, Public Law 108-424, authorizing pipeline rights-of-way for the SNWA Project, provides that, prior to SNWA pumping Snake Valley water, Utah and Nevada must divide the Snake Valley groundwater. The Act further requires that the Agreement allow for maximum sustainable beneficial use of the water resource and protection for existing water rights. This is the Agreement Utah and Nevada have negotiated.

6. Utah and Nevada have some disagreement over the aquifer's long-term safe yield, because studies differ as to the amount of water available. The aquifer has unique characteristics, and the use has been relatively small. The most recent USGS "BARCASS" Study finds the aquifer discharges more water than did prior studies. Utah has not been comfortable with the BARCASS figures and has urged the use of more conservative estimates.

7. The concept of "sustainable beneficial use" is common to Utah and Nevada law, meaning that aquifer diversions cannot exceed long-term recharge.

8. Some Utah water legal concepts, such as "reasonable use," described below, which governs Utah groundwater along with the prior appropriation doctrine, are relevant.

III. COMPONENTS OF THE AGREEMENT

One benefit of the Agreement is that it allows the States rather than the U.S. Supreme Court[2] to divide the water in the aquifer. While neither party gets everything it wants, the parties have control over and flexibility regarding their respective interests and how to protect them.

[2] The only forum in which one state may sue another in the U.S. Supreme Court.

The Agreement protects the interests of Utah and its water users, provides mitigation if harm occurs, and creates a system for the protection of sensitive ecosystems and species.

1. Allocation of the Long-Term Safe Yield

The Agreement allocates the Snake Valley water resources using three categories of water which, in total, give each State half of the water in the Snake Valley aquifer. This concept protects water rights in place prior to 1989, allocates additional water to Utah and Nevada, and relies on conservative water estimates.

CATEGORY 1
ALLOCATED WATER: Totals 67,000 acre-feet and protects all existing Utah and Nevada water rights with a priority date prior to October 17, 1989. Utah is allocated 55,000 acre-feet and Nevada 12,000 acre-feet in this category

CATEGORY 2
UNALLOCATED WATER: Totals 41,000 acre-feet of unappropriated water which, when added to Category 1, totals 108,000 acre-feet. This is a more conservative amount than identified in the BARCASS study as potentially available for use in Snake Valley. In Category 2, Utah is allocated 5,000 acre-feet and Nevada 36,000 acre-feet. This means that any approval of SNWA applications by the Nevada State Engineer must be limited as a consequence of the

Agreement to no more than 36,000 acre-feet—rather than the 50,000 acre-feet SNWA applied for.3

CATEGORY 3 RESERVED WATER: Totals 24,000 acre-feet of water which may eventually be available for appropriation without exceeding the long-term safe yield of the aquifer, depending on the impact of Categories 1 and 2 development. Utah is allocated 6,000 feet of the Reserved Water and Nevada 18,000 acre-feet. The Agreement provides that neither State Engineer may allow appropriations of Reserved water unless both agree that data demonstrate the water can be sustainably withdrawn without impacting uses under Categories 1 and 2 and/or over-drafting the aquifer. Further testing and data-gathering must take place before any Reserved water can be diverted. The total of all three Categories is the amount of ground water BARCASS estimates is consumed annually through evapotranspiration in Snake Valley.

2. Monitoring and Data Gathering.

The Agreement requires the States to jointly identify on-going areas of concern, including available groundwater supplies, groundwater levels, and effects of additional pumping

[3] Further, under Nevada law, when water is exported out of the basin of origin, a reasonable amount of unappropriated water must be left in the basin of origin — 10% was left when the Nevada State Engineer approved SNWA's Spring Valley application.

on existing water rights, wetlands, springs and riparian areas. All such data will be shared and publicly available. Further, the States agree that the sustainable groundwater supply includes a prohibition on "groundwater mining" (use that exceeds long-term recharge), degradation of water quality, and harm to the physical integrity of the Snake Valley groundwater basin.

A critical provision of the Agreement provides that the Nevada State Engineer will hold SNWA's Snake Valley Applications in abeyance for ten years to allow both states and the USGS to conduct further studies and data gathering in an effort to obtain more information on the Snake Valley aquifer and the quantity of water available for appropriation without causing unreasonable adverse impacts to the aquifer, including effects on current water rights and environmental concerns. This means that SNWA will not have any Snake Valley water rights and therefore will not pump any Snake Valley water until at least 2019. If when the SNWA applications come before the Nevada State Engineer for consideration, all data gathered during the ten year abeyance period may be submitted to and considered by the Nevada State Engineer. Without this ten year abeyance period, the SNWA applications are currently scheduled to be heard in the fall of 2011.

3. <u>Identification and Mitigation of Adverse Impacts</u>

Under Utah law, the rule of reasonableness requires that a prior groundwater user cannot demand that groundwater levels remain the same as when he first made his appropriation. But, any drop in groundwater levels must be "reasonable." It is contrary to public interest to keep the aquifer completely full just to support existing water levels. Impaii went issues are typically addressed through costly litigation, and the issues are more problematic when diversions are in an adjoining State.

As a special protection for Utah water users, the Agreement provides a process to identify and mitigate adverse impacts from SNWA pumping on existing water rights. SNWA must respond within ten days to any written complaint by a water user that SNWA's pumping impairs his rights. If acceptable mitigation cannot be agreed upon, the matter is referred to an interstate panel comprised of both State Engineers. As long as SNWA pumps from Snake Valley it must maintain a S3 million mitigation fund, which may be used to deepen wells, reimburse pumping costs or provide other mitigation measures. This process will be simpler and less costly than litigating an impaiii_lent case with SNWA in Nevada courts, although such litigation by an affected water user is not precluded. The Agreement's monitoring and mitigation provisions protect Utahns in Snake Valley more than water users in any other part of Utah.

4. ENVIRONMENTAL MONITORING AND MITIGATION

The Agreement requires extensive monitoring and mitigation to address environmental concerns, including potential impacts on sensitive species and damage to wetlands and air quality. The details of this process is set forth in a separate agreement between Utah and SNWA which will be attached to the primary Agreement. A significant focus of providing for environmental mitigation is that it intends to prevent the listing of certain species under the Endangered Species Act, which could cause the U.S. Fish and Wildlife Service to exert control over Snake Valley water to protect critical habitats.

In summary, among other things the Agreement:

- fairly apportions Snake Valley water 50/50 to each State;
- places outside limits on how much water SNWA can pump;

- provides for a ten year delay on the consideration of the SNWA Snake Valley Applications to allow for further data-gathering and the strict monitoring of the potential effects of SNWA pumping;
- protects all existing Utah and Nevada water rights;
- provides several measures to mitigate adverse impacts to Utah water users without litigation and establishes a mitigation fund;
- addresses many of environmental concerns; and
- gives Utah and Nevada joint management authority over the Snake Valley aquifer rather than relying on uncoordinated actions in each state.

IV. IS THE AGREEMENT BETTER THAN NO AGREEMENT?

For political, environmental, and even cultural reasons, the Snake Valley component of the SNWA project has generated tremendous opposition throughout Utah. The intensity of these feelings leads some observers to believe Utah simply cannot reach an acceptable agreement with Nevada dividing the Snake Valley aquifer — in other words, no Agreement would be better than the Agreement outlined here. That view is misguided.[4]

[4] Utah and Nevada officials have been in negotiations concerning the Agreement for three years. During that time, confidentiality restrictions have prevented Utah officials from responding to the consistent negative reports concerning Snake Valley issues. Now that it is possible to provide a response, Utah officials hope that interested parties will consider the Agreement, and the reasoning behind it, objectively and impassionately.

Similarly, some observers believe that P.L. 108-424 gives Utah a "veto" over the project, and Utah should use that veto. But this view is incorrect because the statute specifies no such veto. Utah must, at the least, negotiate in good faith toward an agreement. Failure to do so could mean BLM looks for alternative ways to interpret the law or, more likely, Congress repeals it.5

Without an Agreement, Utah's only legal remedy if Nevada's development of Snake Valley water harms Utah interests is an original action in the U.S. Supreme Court seeking a decree apportioning the aquifer. Bringing such an action is fraught with challenges and uncertainty, in addition to the cost of the litigation (which could be very high). For example, a plaintiff in an original action must have permission from the Supreme Court to file the lawsuit based on the showing of actual, present harm. The size of SNWA's project means certain areas can be pumped while others rest. In the future, when and if SNWA's Snake Valley pumping appears to create the haiiii necessary for Utah to get the Supreme Court's pelinission for a lawsuit, Nevada could cease pumping from Snake Valley for a time and, depending on many factors, Utah may or may not be able to proceed. Further, the equitable apportionment doctrine is so complex and unpredictable that it is impossible to predict Utah's odds of prevailing in such a lawsuit. Another example: even if Utah were to prevail in an equitable apportionment suit, there is no guarantee the U.S. Supreme Court would address adverse impacts on specific water rights or provide "mitigation" for such impacts or the environmental harm SNWA pumping could cause. This consideration is especially important because the mitigation the Agreement

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[5] Absent the unusual P.L. 108-424 provisions, Utah would have no say in Nevada's use of Snake Valley water. Utah could do nothing to prevent that use until impairment occurs to Utah water rights, likely years from now.

provides to holders of Utah water rights in Snake Valley is more protection than Utah law requires. Such protection could be lost in a lawsuit.

In short, Utah's top water officials have, in conjunction with their lawyers, considered the related facts, issues, and law and determined that a negotiated agreement is preferable to pursuing long and costly litigation at some future time. The proposed Agreement is a better way to address and mitigate potential adverse effects of the SNWA project in Snake Valley than a lawsuit would be. And it is much better than no agreement or having Utah try to "veto" the Nevada project when Utah has no authority to exercise such a veto. This point is critical in a broader sense, because Utah officials would resist the involvement of Nevada officials in Utah water policy decisions. And, indeed, there may be Utah projects for which Nevada's support would be helpful. Further, failure to reach an agreement could increase tensions related to other water issues, such as management of the Colorado River. Finally, the Agreement gives Utah an important opportunity, mandated by Federal law, to address the numerous and complex issues involved with the development and future management of Snake Valley water resources. Utah should respond wisely and take full advantage of that opportunity. In this regard, the Agreement fairly divides the Snake Valley aquifer whether or not the SNWA project is built.

AGREEMENT FOR MANAGEMENT
OF THE SNAKE VALLEY GROUNDWATER SYSTEM

This State-to-State Agreement concerns the establishment of a cooperative relationship between the States of Utah and Nevada regarding the mana gement of interstate groundwater resources. The Southern Nevada Water Authority is signatory to this Agreement for the limited purposes outlined in Sections 6.1 through 6.6. inclusive, and 7.2 of this ALTreement.

In 2004, the United States Congress passed Pub. L. 108-424 (Appendix A) establishing, among other things, the requirement that the States of Utah and Nevada reach an agreement regarding the division of water resources, protection of existing water rights and the maximum sustainable use of the waters prior to any interbasin transfer from groundwater basins located within both States. It is the express intention of Utah and Nevada to satisfy the requirements of Pub. L. 108-424 with respect to the Snake Valley Groundwater Basin by executing this Agreement.

This Agreement is intended to define the water resource management responsibilities of the States of Nevada and Utah regarding the Snake Valley Groundwater Basin (Appendix B) and define a framework for cooperation between the states on natural resource issues of mutual interest. This Agreement is not intended to be an interstate compact, entered pursuant to the Compact Clause of the U.S. Constitution, Art. I, Section 10, Cl. 3. This Agreement is entered into between the States with the intention of avoiding an equitable apportionment action regarding the Snake Valley Groundwater Basin in the United States Supreme Court.

In consideration of the mutual covenants, terms and conditions herein contained, the States of Utah and Nevada hereto do agree as follows:

1.0 <u>Definitions</u>

As used in this Agreement:

1.1 "Adverse Impact to an Existing Permitted Use" or "Adverse Impact" means:

a. In the case of an Existing Permitted Use of Groundwater, a lowering of the water level that is caused by withdrawals of Groundwater by a junior, permitted Groundwater right, and that can be demonstrated to negatively affect that well's ability to produce Groundwater in a manner substantially similar to the well's historical production; or
b. In the case of Existing Permitted Uses for which the point of diversion is a spring, a reduction in spring flow to an amount less than the Existing Permitted Use, and that can be demonstrated to be less than the spring's historical supply.

1.2 "afy" means acre-feet per year

1.3 "Available Groundwater Supply" means that total amount of Groundwater available for appropriation and use on an annual basis from the Snake Valley

Groundwater Basin as deteimined by this Agreement or subsequently through further study and agreement of the State Engineers of Utah and Nevada.

1.4 "Beneficial Use" means the use of water for one or more recognized purposes including, but not limited to, municipal, domestic, irrigation, hydropower generation, industrial, commercial, recreation, fish and waterfowl propagation, and stock-watering; it is the basis, measure and limit of a water right.

1.5 "Consumptive Use" means the amount of water permanently removed from the Snake Valley Groundwater Basin for the permitted Beneficial Use. Consumptive Use is equivalent to depletion.

1.6 "Existing Permitted Uses" means Consumptive Use of Groundwater in the Snake Valley Groundwater Basin pursuant to water rights granted or recognized by the State Engineers of Utah and Nevada as of the date of this Agreement, and Utah water right numbers 18-51, 18-59, 18-66, 18-215, and 18-331 for water rights at the Fish Springs National Wildlife Refuge.

1.7 "Groundwater" means water underlying the surface of Snake Valley including water percolating therefrom via artesian springs rising from underground waters.

1.8 "Nevada" means the State of Nevada.

1.9 "Snake Valley" or "Snake Valley Groundwater Basin" means the hydrologic and geographical area subject to this Agreement. It is delineated by the surface water drainage divide, except on the north, as shown on the map in Appendix B, appended hereto and incorporated herein by this reference.

1.10 "SNWA" means the Southern Nevada Water Authority.

1.11 "States" means the State of Nevada and the State of Utah.

1.12 "State Engineers" means the State Engineer of Nevada and the State Engineer of Utah.

1.13 "Utah" means the State of Utah.

2.0 <u>Findings</u>

2.1. The States have a long history of resolving issues of concern to each state's citizens in a cooperative and mutually beneficial manner.

2.2 The States share a common border that divides several surface and subsurface watersheds.

2.3 Snake Valley Groundwater Basin is divided by the border between the States.

2.4 Although a substantial amount of information exists regarding the aquifer system that underlies Snake Valley in the form of reports and studies compiled by the United States Geological Survey ("USGS"), the States and other parties. the States acknowledge that such information is insufficient to determine with precision the Available Groundwater Supply.

Evaluating the Available Groundwater Supply within the Snake Valley Groundwater Basin with certainty depends upon the evolving trends in data collection regarding precipitation and recharge, characterization of the underground physical environment, and the sophistication of hydrologic estimation.

2.6 Recharge of the Groundwater supply in the Snake Valley Groundwater Basin occurs primarily within Nevada. Groundwater discharge and Consumptive Use has historically occurred primarily in Utah.

2.7 The States desire to incorporate both presently available, ongoing and future studies and other information into the process for administering and managing Groundwater development in Snake Valley.

2.8 Utah acknowledges that the safe yield doctrine that governs Groundwater appropriation in Utah generally allows for the appropriation of Groundwater in a manner that is sustainable and results in a reasonable amount of drawdown in the Groundwater aquifer. Such appropriations necessarily impact the existing hydrologic system and captures discharge available to phreatophytes, streams and natural lakes.

2.9 Nevada acknowledges that the perennial yield doctrine that governs Groundwater appropriation in Nevada generally allows for the appropriation of Groundwater that is discharged through natural evapotranspiration processes and/or some portion of the subsurface flow to adjacent basins. The majority of Groundwater appropriation within Nevada throughout the state's history has been premised upon the capture of Groundwater naturally discharged as phreatophytic evapotranspiration.

2.10 The States desire to allow for the development of the maximum sustainable Beneficial Use of water resources within each state through the establishment of procedures to administer the development of shared interstate water resources in a cooperative and equitable manner.

2.11 The States desire to incorporate monitoring data from measured Groundwater withdrawals into a publicly available database, which will assist the State Engineers in managing the Available Groundwater Supply.

2.12 SNWA has filed Application Nos. 54022 through 54030, inclusive, (hereinafter "SNWA Applications") with the Nevada State Engineer to appropriate Groundwater in Snake Valley with points of diversion within the State of Nevada.

3.0 Available Groundwater Supply

3.1 The States recognize that, in addition to ongoing studies and data collection activities, the USGS has completed what is generally known as the Basin and Range Carbonate Aquifer System Study ("BARCASS") as required by Section 301(e)(1) of Pub. L. 108-424. SNWA is working to collect and compile additional water level, spring flow, evapotranspiration and other hydrologic and biologic data. The States agree that BARCASS and other scientifically reliable reports, studies, or data collection efforts are valuable tools in determining the Available Groundwater Supply of Snake Valley and further agree that such additional information shall be examined in conjunction with actual monitoring data as part of the process of revising estimates of the Available Groundwater Supply of Snake Valley. All data used or proposed to be used to revise estimates shall be shared between the States and be publically available for review.

3.2 Based on the best currently available data, the States agree that the Available Groundwater Supply as of the date of this Agreement is 132,000 afy.

4.0 Allocation and Management of Available Groundwater Supply

4.1 The State Engineer of Utah shall exercise exclusive jurisdiction over that portion of the Available Groundwater Supply listed in Table 1 as available to Utah.

4.2 The State Engineer of Nevada shall exercise exclusive jurisdiction over that portion of the Available Groundwater Supply listed in Table 1 as available to Nevada.

Table 1 — Allowed Amounts of Consumptive Use of Groundwater

Allocated	Utah: Nevada:	55,000 afy 12,000 afy
Unallocated	Utah: Nevada:	5,000 afy 36,000 afv
Reserved	Utah: Nevada:	6,000 afy 18,000 afy

4.3 The States agree that, except as otherwise provided herein, the State Engineers are vested with the exclusive jurisdiction to administer the terms of this Agreement. The State Engineers shall make and enforce such regulations within their respective State as may be necessary to enable compliance with this Agreement.

4.4 The States agree to jointly identify areas of concern including, but not limited to, Available Groundwater Supply, points of diversion of existing water rights, wetlands, springs and other riparian dependant resources that could be affected by the Consumptive Use of Groundwater in Snake Valley.

4.5 The States agree that it is critical to incorporate monitoring data from measured Groundwater withdrawals into a database from which Available Groundwater Supply is determined. Both States agree to cooperate on data gathering and data sharing to better understand the geology and hydrogeology and the Available Groundwater Supply of Snake Valley. The States agree that all monitoring data collected will be shared and made available to the public.

4.6 The State Engineers shall cooperate to ascertain and make public the annual Groundwater withdrawal and actual Consumptive Use occurring under water rights of record in Snake Valley and any other information upon which they may mutually agree from time to time. The State Engineers shall either arrange for the annual publication of, or make public on a publicly available website, a report giving the diversions and depletions from the water resource under the water rights and the changes in aquifer water levels in the respective States during the preceding calendar year. The State Engineers shall meet as needed to review and assess the collected data, evaluate compliance with this Agreement, and determine the necessity of additional data gathering. The State Engineers may elect to also hold a joint annual public meeting with Nevada and Utah water users in the Snake Valley area to receive public input as to use and management of the water resource.

4.7 The State Engineers shall meter, or cause to be metered, the withdrawal of Groundwater pursuant to any water right with a duty or diversion quantity that exceeds 100 (one hundred) acre-feet per year and report said diversions on a calendar year basis.

4.8 The States agree to work cooperatively to (a) resolve present or future controversies over the Snake Valley Groundwater Basin; (b) assure the quantity and quality of the Available Groundwater Supply, (c) minimize the injury to Existing Permitted Uses; (d) minimize environmental impacts and prevent the need for listing additional species under the Endangered Species Act, (e) maximize the water available for Beneficial Use in each State, and (f) manage the hydrologic basin as a whole.

5.0 <u>Categories of Available Groundwater Supply</u>

5.1 Allocated - Allocated Groundwater is solely for satisfaction of water rights in Snake Valley and at Fish Springs National Wildlife Refuge with a priority date prior to October 17, 1989. Recognition of unrecorded diligence claims shall be accounted for as Allocated. Change applications which seek to move existing spring or surface water rights to Groundwater may be allowed for under the Allocated category, but no new appropriations will be allowed.

5.2 Unallocated - The State Engineers shall grant permits to withdraw, appropriate, or otherwise permit the use of, Groundwater from Unallocated Groundwater pursuant to the law of their respective States. Those rights with a priority date on or after October 17, 1989 shall be accounted for in this category. The State Engineers shall condition permits to appropriate Unallocated Groundwater issued after the date of this Agreement so as to:

a. For appropriation approvals in excess of 1,000 at', require a Hydrologic Monitoring and Management Plan be developed.

b. Require that all wells be equipped with access ports of sufficient diameter to allow the measurement of the water levels therein.

5.3 Reserved - The State Engineers shall not grant any Groundwater withdrawal permits to extract Reserved Groundwater until the State Engineers agree information reasonably demonstrates that additional Groundwater can be safely and sustainably withdrawn from Snake Valley and that Allocated and Unallocated uses will not be unreasonably affected.

5.4 The States agree that "maximization of sustainable Beneficial Use of the water resources while protecting existing rights," as intended by Public Law 108-424, requires that Consumptive Use from the Snake Valley Groundwater Basin be reasonably related to the Available Groundwater Supply within the Snake Valley Groundwater Basin, and as such, prohibits 1) the mining (or overdrafting) of Groundwater; 2) the degradation of water quality; and 3) the diminishment of the physical integrity of the Groundwater basin. The States agree to re-consult, at the request of either of them, regarding the Available Groundwater Supply, and adopt such measures as may later be agreed upon to redetermine the Available Groundwater Supply or otherwise maintain the maximum sustainable Beneficial Use of the water resources of the Snake Valley Groundwater Basin. In the event these consultations conclude that withdrawals exceed the redetermined Available Groundwater Supply, the State Engineers are to take action to reduce withdrawals by priority such that Consumptive Use in each state is limited to the redetermined Available Groundwater Supply.

6.0 Identification and Mitigation of Adverse Impacts to Existing Permitted Uses

6.1 In the event SNWA is granted any permits pursuant to the SNWA Applications, SN WA agrees to provide public notice, at least one year prior to the export of Groundwater from Snake Valley and at least once each quarter following the commencement of such export, that any owner of an Existing Permitted Use may notify SNWA of a claim to an Adverse Impact to its water right due to Groundwater withdrawals by SNWA. Such public notice shall be published in any newspapers of general circulation in Snake Valley, SNWA's website and such other reasonable means of publication as may be requested by the State Engineers.

6.2 Any owner of an Existing Permitted Use who believes that development or withdrawal of Groundwater by SNWA has caused an Adverse Impact to its Existing Permitted Use may notify SNWA that the permit owner claims an Adverse Impact and shall provide any pertinent information that supports their claim of Adverse Impact. Whenever such notification is made, SNWA shall assess the claimed Adverse Impact, verify that an Adverse Impact has occurred or is likely to occur, and propose options to mitigate any verified Adverse Impact. Upon receipt of notice of a claimed Adverse Impact, SNWA shall:

a. Within I 0 business days of receipt of notice, provide qualified staff to meet in person with the permit owner if the well(s) or spring(s) that are the point of diversion of the Existing Permitted Use are not currently producing sufficient water to meet the immediate needs of the permit owner. The location of such meeting shall be the point of diversion of the Existing Permitted Use unless otherwise agreed by both parties. If an Adverse Impact is determined by SNWA to have occurred or be likely to occur, SNWA shall make an offer, binding on SNVv'A, to the owner of an Existing Permitted Use to mitigate the Adverse Impact; or

b. If the well(s) or spring(s) that are the point of diversion of the Existing Permitted Use are currently producing sufficient water to meet the immediate needs of the permit owner, within 30 days of receipt of notice SNWA shall determine whether either an Adverse Impact has occurred based upon information provided by the permit owner or whether a site visit or other additional information is necessary to make such a determination. If an Adverse Impact is determined by SNWA to have occurred or be likely to occur, it shall make an offer, binding on SNWA, to the owner of the Existing Permitted Use to mitigate the Adverse Impact.

Mitigation options that may be offered shall include, but shall not be limited to:

1. Redistributing Groundwater withdrawals geographically;
2. Reducing or ceasing Groundwater withdrawals at specific points of diversion;
3. Deepening of well(s), repairing or replacing pumps and other infrastructure, and reimbursing for increased pumping costs;
4. Providing alternate water supplies;
5. Augmenting water supply for senior rights and resources using surface and Groundwater sources; and
6. Other measures as agreed to by SNWA and the owner of the Existing Permitted Use.

c. Within 10 business days from either: 1) a determination that no Adverse Impact has occurred or will occur; or 2) a rejection by any owner of an Existing Permitted Use of SNWA's final offer to mitigate any claimed Adverse Impact, SNWA shall notify both State Engineers of such determination or rejection and shall provide all pertinent details in writing.

6.3 The States agree to establish an Interstate Panel composed of the State Engineers or their designees and such members of each State Engineer's staff as they deem appropriate to hear disputes arising between an owner of an Existing Permitted Use in Utah and SNWA. Whenever the owner of the Existing Permitted Use and SNWA, cannot agree regarding the occurrence of an Adverse Impact or upon the appropriate mitigation for an Adverse Impact, the Interstate Panel shall consider the matters in dispute. The Interstate Panel shall not consider and shall have no jurisdiction over claims of Adverse

Impacts from SNWA's Groundwater development and withdrawal in Snake Valley for an Existing Permitted Use in Nevada. Any issues regarding claims of Adverse Impacts to Nevada water rights shall continue to be overseen by the Nevada State Engineer pursuant to the laws of Nevada.

a. When considering whether pumping from a SNWA Groundwater well is having an Adverse Impact upon a water right in Utah, the Interstate Panel may consider the following:

1. The construction of respective wells, including:
   a. Depth of the well
   b. Diameter of the well
   c. Screen intervals
   d. Slot size
   e. Age of the well
   f. Location of saturated strata
   g. Pump location
   h. Maintenance history
2. The distance between the respective wells
3. Priority dates of the respective water rights
4. Baseline data for the respective wells, including
   a. Pumping history
   b. Water level history
5. Baseline data for the area, including:
   a. Pumping history and distribution
   b. Water levels and water level variability
6. Groundwater gradient
7. Water quality
8. Locations of other wells in the area and their associated amounts and frequency of pumping
9. Climatic conditions, e.g. drought year
10. Geology
11. Likelihood of hydrologic connectivity between the respective wells
12. Occurrence of impact to or from other wells in the area
13. Recent seismic activity
14. Any other information determined relevant to the situation

b. When considering whether pumping from a SNWA Groundwater well is having an Adverse Impact on the spring supply of a water right in Utah, the Interstate Panel may consider the following:

1. Distance between the well and the spring
2. Geology
3. Likelihood of hydrologic connectivity between the well and the spring
4. Baseline flow rates
5. Groundwater gradient

6. Water quality
7. Recent seismic activity
8. Recent manmade activity
9. Locations of other wells in the area and their associated amounts and frequency of pumping
10. Occurrence of impact to or from other wells in the area
11. Climatic conditions
12. Any other information determined relevant to the situation.

6.4 In the event that any permits are issued to SNWA pursuant to the SNWA Applications, SNWA shall establish a mitigation fund sufficient to accomplish the mitigation of any reasonably anticipatable Adverse Impact, which shall be maintained throughout the tenure of the permit. In no event will the balance of the mitigation fund be reduced below $3,000,000 while SNWA maintains Groundwater development and withdrawal facilities in Snake Valley.

6.5 The Interstate Panel shall determine whether an Adverse Impact has occurred. In the case of the occurrence of an Adverse Impact, the Interstate Panel shall determine the appropriate mitigation. The determination of the Interstate Panel shall be administered by the Nevada State Engineer. The process for any challenge or review of an order of the Nevada State Engineer shall be determined by the laws of Nevada.

6.6 The processes described in subsections 6.2 to 6.5 of this section may be exercised at the election of the owner of an Existing Permitted Use and shall not preclude such person's right to pursue any and all other remedies available to any party in law or in equity.

6.7 Nevada agrees to hold the SNWA Applications in abeyance through September 1, 2019, to allow additional hydrologic, biologic, and other data to be collected in Snake Valley for use by the Nevada State Engineer and for use in other processes. Prior to September 1, 2019, the Nevada State Engineer will not hold a hearing or grant a permit pursuant to the SNWA Applications.

6.8 At least nine months prior to any hearing conducted by the Nevada State Engineer in regard to the SNWA Applications, Utah and Nevada will confer regarding which employees of the State of Utah have knowledge and expertise regarding the hydrologic and biologic resources of Snake Valley. Any employees of the State of Utah that the States agree have relevant infoimation regarding the hydrologic and biologic resources of Snake Valley will be invited by Nevada to present such information during the hearing on the SNWA Applications.

7.0 <u>Environmental Programs</u>

7.1 The Director of the Nevada Department of Conservation and Natural Resources shall designate a representative to participate in the Columbia Spotted Frog Conservation Team as created by Article VI of the Conservation Agreement and Strategy for Columbia

Spotted Frog *(Rana Luteiventris)* in the State of Utah, Utah Department of Natural Resources, Division of Wildlife Resources—Native Aquatic Species, Publication Number 06-01, and the Least Chub Conservation Team, as created by Article VII of the Conservation Agreement and Strategy for Least Chub *(Iotichthys Phlegethontis)* in the State of Utah, Utah Department of Natural Resources, Division of Wildlife Resources—Native Aquatic Species, Publication Number 05-24.

7.2 Concurrently with the execution of this Agreement, Utah and SNWA have entered into an agreement entitled the *Snake Valley Environmental Monitoring and Management Agreement* ("Environmental Agreement") attached hereto as Appendix C. The Parties agree to work together to coordinate management activities conducted pursuant to this Agreement and monitoring and management activities conducted pursuant to the Environmental Agreement in order to make informed determinations as to whether Groundwater withdrawals have caused an Adverse Impact to an Existing Permitted Use.

8.0 General Provisions

8.1 Nothing in this Agreement shall be deemed to alter, amend or supersede the respective statutory or administrative authority of the State Engineers in administering the waters of the Snake Valley Groundwater Basin in their respective States.

8.2 Should any claim or controversy arise between the States; (a) with respect to any water resource not specifically addressed by the terms of this Agreement; (b) over the meaning or performance of any of the terms of this Agreement; (c) as to the allocation of the burdens incident to the performance of any provision of this Agreement; or (d) regarding the delivery of waters herein provided; the signatories of this Agreement, or their successors, upon the request of one of them, shall forthwith instruct the State Engineers, to consider, resolve and adjust such claims or controversy. If the State Engineers fail to resolve said dispute, the signatories shall select a neutral mediator agreeable to both States who shall mediate the dispute. The States shall share the cost of the mediator equally.

8.3 This Agreement shall become effective immediately upon execution by the States.

8.4 Nothing in the Agreement is intended to provide any contract for the benefit of third parties, and no such persons or entities shall have any cause of action as against the States arising from this Agreement, nor shall such third parties have any cause of action to enforce any provisions of this Agreement.

8.5 Any modification, amendment, or termination of this Agreement shall be binding only if evidenced in writing and signed by each State.

8.6 Each individual executing this Agreement hereby represents that he is duly authorized to sign the Agreement in the capacity set forth.

8.7 Any notice concerning this Agreement shall be given by sending such notice via U.S. Mail to the State Engineers.

IN WITNESS WHEREOF, Utah and Nevada have fully executed this Agreement on this _____ day of _____, 2009.

_____
Utah Department of Natural Resources
Michael R. Styler
Executive Director

_____
Nevada Department of Conservation and Natural Resources
Allen Biaggi
Director

For the purposes of Sections 6.1 through 6.6, inclusive, and 7.2 only of this agreement:

_____
Southern Nevada Water Authority
Patricia Mulroy
General Manager

APPENDIX A

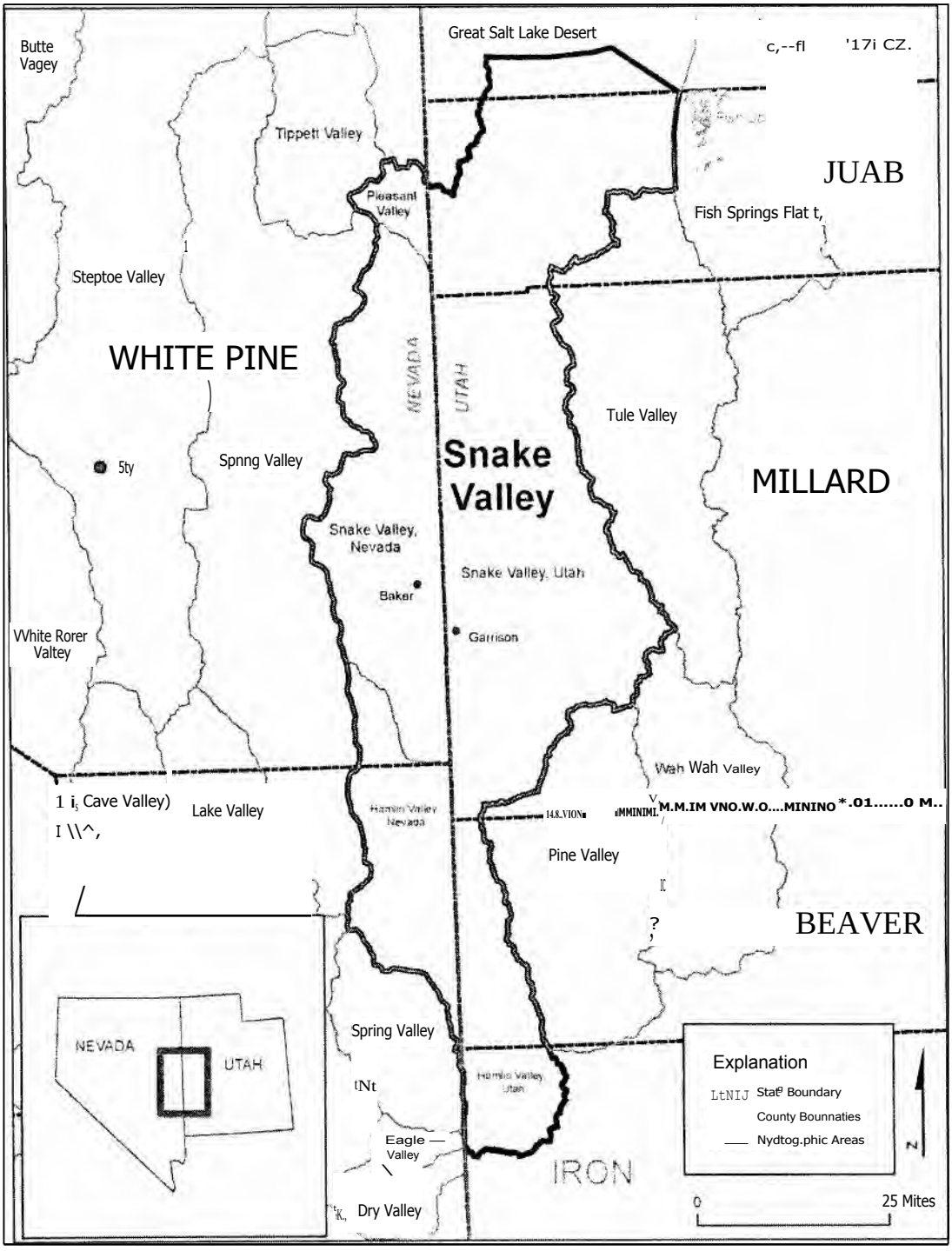
PUBLIC LAW 108-424

Section 301 (e) (3)

Prior to any transbasin diversion from ground-water basins located within both the State of Nevada and the State of Utah, the State of Nevada and the State of Utah shall reach an agreement regarding the division of water resources of those interstate ground-water flow system(s)from which water will be diverted and used by the project. The agreement shall allow for the maximum sustainable beneficial use of the water resources and protect existing water rights.

APPENDIX B

APPENDIX a SNAKE VALLEY GROUND TER *BASIN, NEVADA a*nd UTAH



APPENDIX C

Snake Valley Environmental Monitoring and Management Agreement

SNAKE VALLEY ENVIRONMENTAL MONITORING AND MANAGEMENT AGREEMENT

This Snake Valley Environmental Monitoring and Management Agreement (Agreement) is made and entered into between the State of Utah (Utah) and the Southern Nevada Water Authority (SNWA), a political subdivision of the State of Nevada. For convenience, at times herein Utah and SNWA are referred to individually as Party and collectively as Parties.

RECITALS

A. In October 1989, the Las Vegas Valley Water District (SNWA's predecessor-in-interest) filed Applications 54022 through 54030, inclusive, (hereinafter referred to as the "SNWA Applications") to appropriate the public groundwater of the State of Nevada in the Snake Valley hydrographic basin with points of diversion within the State of Nevada. S.NWA proposes to develop and utilize these groundwater resources for municipal purposes outside of the Snake Valley hydrographic basin.

B. The Snake Valley hydrographic basin (Snake Valley or Snake Valley HB) lies within the boundaries of both the State of Utah and the State of Nevada.

C. In 2004, the United States Congress passed Pub. L. 108-424 establishing, among other things, the requirement that the States of Utah and Nevada reach an agreement regarding the division of water resources prior to any interbasin transfer from groundwater basins located within both States.

D. Concurrent with the execution of this Agreement, the States of Utah and Nevada have entered into an Agreement for Management of the Snake Valley Groundwater System (Utah-Nevada Agreement) in satisfaction of the requirements of Pub. L. 108-424 with respect to Snake Valley. The Utah-Nevada Agreement defines the water resource management responsibilities of the States of Nevada and Utah regarding the Snake Valley HB, and defines a framework for cooperation between the states on natural resource issues of mutual interest.

E. Prior to the execution of this Agreement, SNWA became a signatory party to the Conservation Agreement and Strategy for Least Chub (Bailey et al 2005) and the Conservation Agreement and Strategy for Columbia Spotted Frog (Bailey et al 2006) attached hereto as Appendixes 4 and 5, respectively.

F. By entering into this Agreement, Utah and SNWA intend to define certain monitoring and management obligations that are complimentary to the obligations of the States of Utah and Nevada as set forth in the Utah-Nevada Agreement.

G. The Parties desire to establish a consultative process by which to manage the development of groundwater by SNWA within Snake Valley which the Parties agree will result in changes to the existing hydrologic and biologic conditions and may potentially effect the air resources of Snake Valley and the defined Area of Interest, and that the consultative process envisioned and established by this Agreement will provide for monitoring the effects of any

development by SNWA on the hydrologic, biologic and air resources, detellnining early warning indicators for decisions concerning potential management response actions, instituting a measured management response action, if necessary, and monitoring the effects of the response action to determine its efficacy and sufficiency or the need for further response actions.

H. Utah acknowledged at section 2.8 of the Utah-Nevada Agreement that the safe yield doctrine that governs groundwater appropriation in Utah generally allows for the appropriation of groundwater in a manner that is sustainable and results in a reasonable amount of drawdown in the groundwater aquifer. Such appropriations necessarily impact the existing hydrologic system and captures discharge available to phreatophytes, streams and natural lakes.

I. Nevada acknowledged at section 2.9 of the Utah-Nevada Agreement that the perennial yield doctrine that governs groundwater appropriation in Nevada generally allows for the appropriation of groundwater that is naturally discharged as phreatophytic evapotranspiration and/or some portion of the subsurface discharge. The majority of groundwater appropriation within Nevada throughout the state's history has been premised upon the capture of groundwater naturally discharged as phreatophytic evapotranspiration.

J. The Parties acknowledge that not all effects caused by the development of groundwater in Snake Valley are unreasonable, and that the process identified in this Agreement will evaluate the severity and relative importance of the identified effect in the consideration of the appropriate management response action, if any. The Parties also recognize that management actions will need to be coordinated with determinations made under the Utah-Nevada Agreement, though determinations made under each Agreement may have independent validity and effect.

K. The Parties intend, through the Management Committee and the Technical Working Group established herein, to collaborate on data collection and technical analysis, and shall rely on the best scientific infoiniation available in making determinations and recommendations required by, and necessary for, the implementation of this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants, terms and conditions herein contained, Utah and SNWA do agree as follows:

1. Statement of Intent.

In order to accomplish the purposes of this Agreement, the Parties agree, as more specifically set forth in this Agreement, to 1) establish monitoring plans to detennine the hydrologic, biologic and air resources of the state of Utah which may be affected by SNWA's development of Nevada state groundwater rights within the Snake Valley HB, 2) set out a process to define, subsequently review and, if necessary revise, early warning indicators of sufficient scope and diversity to indicate effects to the hydrologic, biologic and air resources caused by SNWA's groundwater development in Snake Valley, and to 3) establish reasoned and effective management response mechanisms to counter the effects through, initially, avoiding the actions leading to the effect, secondly, minimizing the effect, or thirdly, mitigating the effect. In order to accomplish these tasks the Parties agree to utilize the following tools:

1. Hydrologic Monitoring
2. Groundwater Chemical Monitoring
3. Regional Groundwater Flow Numerical Modeling
4. Ecological Modeling
5. Biological Monitoring Plan
6. Management Response and Operation Plan
7. Air Quality Protection Plan

2. Definitions. As utilized in this Agreement the following terms shall have the followinL, meanin(2:

2.1. Initial Period. "Initial Period" shall mean the time period from the Effective Date of this Agreement through the first day of the Baseline Period, as defined herein.

2.2. Baseline Period. "Baseline Period" shall mean a time period of not less than five years immediately preceding the export of any groundwater by SNWA from Snake Valley. The Baseline Period will begin when SNWA provides notice to Utah.

2.3. Operational Period. "Operational Period" shall mean the time period beginning immediately following the export of any groundwater by SNWA from Snake Valley and lasting for so long as SNWA holds Nevada state groundwater rights with a point of diversion within Snake Valley.

2.4. Effective Date. "Effective Date" means the date that this Agreement is executed by and binding upon each of the Parties hereto.

3. Management Requirements.

3.1. Management Committee.

3.1.1 Creation and Purpose. The Parties shall create a Management Committee, to include two executive level principals from each of the Parties, within 30 days of the beginning of the Initial Period. The first purpose of the Management Committee is to review and approve, disapprove or modify recommendations from the Technical Working Group (TWG) constituted pursuant to section 3.2 of this Agreement. The Management Committee will convene as necessary upon the request of any member of the Management Committee. The second purpose is to negotiate a resolution in the event that the TWG cannot reach consensus on a recommendation concerning monitoring requirements, resource or other research needs, technical aspects of study design, interpretation of results, or appropriate management response actions.

The Utah representatives to the Management Committee shall coordinate efforts with the Snake Valley Aquifer Research Team established pursuant to Section 63C-12-101, *et seq.* of the Utah Code.

3.1.2 Operation. The Management Committee shall meet within 21 calendar days of notification from the TWG of a need for action, or notification from any member of the Committee, and shall reach a decision within 60 calendar days of TWG notification. If the

3.2. Technical Working Group

3.2.1 Creation and Purpose. The Parties shall create and convene a multi-disciplinary Technical Working Group (TWG) within 60 days of the beginning of the Initial Period. The purpose of the TWG is to carry out the functions required of it under this Agreement, including reviewing, analyzing, and interpreting information collected under this Agreement, evaluating the results of related analyses, and making recommendations for management response actions and other items to the Management Committee. Membership of the TWG shall include two representatives from SNWA (Groundwater Resources Division, Environmental Resources Division) and three representatives from the State of Utah (Utah Geological Survey, Utah Division of Air Quality, Utah Division of Wildlife Resources). Each Party, at its sole discretion and cost, may invite such additional staff or consultants to attend, as each deems necessary. To assist the TWG, the Parties may mutually agree to invite a representative of the Nevada and Utah State Engineer's Office to participate in the TWG. Furthermore, the Parties may mutually agree to invite other non-Party entities to assist and participate in the TWG as deemed necessary or appropriate.

3.2.2 Operation. The TWG shall meet as needed to carry out the tasks set forth for completion in this Agreement or as otherwise requested by any member of the TWG or as directed by the Management Committee.

The TWG shall strive for consensus in all determinations and recommendations. Specific tasks assigned to the TWG pursuant to this Agreement include:

1. Implementation and modification, as deemed necessary, of the biologic, hydrologic and air quality monitoring plans set forth in Appendixes 1, 2 and 3, respectively;

2. Make recommendations to the Management Committee regarding the formulation, implementation and modification of the Management Response and Operation Plan set forth in section 5 of this Agreement;

3. Review data collection and quality assurance procedures, disseminate data and provide a scientific and technical forum to evaluate data and analyses, including hydrologic and ecologic parameters of the appropriate models and the results of model analysis;

4. Identify needs for additional data collection and scientific investigations;

5. Consider, as necessary, whether the modification of the initial boundaries of the monitoring areas is warranted as new data become available;

6. During the Operation Period, review SNWA proposed or ongoing pumping schedules in Snake Valley for both testing and production purposes;

7. Provide a forum for discussion to help develop agreement for prescribed courses of action on technical issues and make recommendations to the Management Committee;

Develop recommendations about monitoring, modeling, groundwater mana ᵍement, 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;

9. If appropriate, oversee development and use of a regional ecological model to track biotic community response to SNWA's ᵍroundwater withdrawal from Snake Valley; and

10. Other responsibilities as delegated by the Management Committee.

4. Monitoring Objectives.

The objectives of the monitoring program are to assemble, collect and analyze biological, hydrologic and air-quality data that improve the current understanding of baseline conditions and natural variation, and provide early detection of effects from SNWA and Existing Permitted User (EPU) groundwater withdrawals in Snake Valley. Data collected by this program will: 1) support assessments of groundwater-influenced ecosystems inhabited by sensitive or special-status species; 2) include measurements of groundwater-levels and spring discharges where effects may be attributed to groundwater development within Snake Valley; 3) include certain water quality parameters that may be affected by groundwater development within Snake Valley; and. 4) include certain air quality parameters that may be affected by groundwater development within Snake Valley.

4.1. Monitoring Area Description.

The monitoring areas associated with this Agreement occur within a larger Area of Interest that includes the Upper Great Salt Lake Desert Flow System (GSLDFS). Within this Area of Interest, two specific areas have been delineated in which biological, hydrologic, and air-quality monitoring will be conducted. These areas are named "Tier I" and "Tier II" Monitoring Areas, respectively, and are depicted on Figure 1. Within the Tier I and Tier II Monitoring Areas are Key Areas of Biological Concern (KABCs), also depicted on Figure 1. These KABCs were identified to focus the monitoring approach, and were based on the presence of groundwater-influenced ecosystems inhabited by Species of Greatest Conservation Need identified in the Utah Comprehensive Wildlife Conservation Strategy (CWCS 2005) or contain phreatoplaytic vegetation susceptible to effects resulting from groundwater development.

4.1.1 The Tier I Monitoring Area includes a large part of the Snake Valley hydrographic area, extending from Miller Spring at the northern end of Snake Valley to the southern boundary of the Snake Valley hydrographic area. The Tier I Monitoring Area includes parts of Nevada and Utah adjacent to the SNWA proposed points of diversion, areas of current agricultural use, and KABCs. The Parties anticipate that effects to groundwater levels and groundwater-influenced ecosystems that may result from groundwater pumping by SNWA will first occur within the Tier I Monitorinᵍ Area. Therefore. monitoring efforts will be greatest in the Tier I Monitoring Area and will include a higher density of monitoring sites, and greater scope

and frequency of data collection to ensure early detection of effects resulting from SNWA groundwater withdrawals in Snake Valley.

Biologic, hydrologic, and air-quality monitoring requirements for the Tier I Monitoring Area are specified in this Appendixes 1, 2 and 3. Specific biologic, hydrologic, and air-quality parameters were selected for monitoring based on their susceptibility to be influenced by changing groundwater conditions.

4.1.2 The Tier II Monitoring Area extends to the east, north and south from the Tier I Monitoring Area, to adjacent areas including the northern part of Snake Valley (north of Miller Spring) and the hydrographic areas of Fish Springs Flat, Tule Valley, Pine Valley, and Wah Wah Valley. Because virtually no groundwater development has occurred in these areas and they are distant from the proposed SNWA points of diversion, monitoring in the Tier II Monitoring Area will be less intense with respect to the frequency of data collection and the density of monitoring sites. Tier II monitoring will be focused on Fish Springs Flat and Tule Valley which are thought to be hydraulically connected and potentially down-gradient from Snake Valley, where the proposed SNWA and current/future EPU pumping centers are located. Because these areas contain KABCs, biological monitoring will be included here, albeit at a lower level of intensity than in the Tier I Monitoring Area. Hydrologic monitoring efforts in these areas and in northern Snake Valley, Pine Valley, and Wah W, Tah Valley will be perfoinied to establish background hydrologic conditions within the Upper GSLDFS.

Biologic, hydrologic, and air-quality monitoring requirements for the Tier II Monitoring Area are specified in Appendixes 1, 2 and 3.

4.2. General Monitoring Requirements.

The TWG is responsible for developing and implementing the monitoring plan. The Parties agree to work cooperatively in designing the specific biological, hydrologic, and air-quality monitoring networks set forth in Appendixes 1, 2 and 3 needed to achieve the Statement of Intent and complete the tasks set forth in section 3.2.2 of this Agreement.

5. Management Response and Operation Plan.

5.1 Creation of Operation Plan. Prior to the beginning of the Operational Period, the Management Committee, upon the recommendation and advice of the TWG, shall approve an initial written Management Response and Operation Plan ("Operation Plan"). The Parties recognize that the scope, terms and conditions of the initial Operation Plan will necessarily be based upon the data available at the beginning of the Operational Period. In particular, the Parties recognize that the predictive capabilities of any groundwater or ecological models will improve as data and information is obtained through the development of groundwater over a period of years, and that early warning indicators may need to be refined or amended as this data becomes available. The Parties agree that the Operation Plan shall contain a defined process for the Management Committee to approve, as appropriate, updates to the Operation Plan as necessary to ensure the early warning indicators and management response actions are consistent with the Recitals and Statement of Intent set forth above, and reflect the most current data and analysis available.

5.1.1 The Operation Plan shall include:

1. Identification and definition of early warning indicators for effects to hydrologic, biologic and air resources in the Area of Interest;

   A defined range of specific management response actions designed to avoid the indicated effects;

3. A defined range of specific management response actions designed to minimize the indicated effects;

4. A defined range of specific management response actions designed to mitigate the indicated effects;

5. A process for the TWG and Management Committee to review the early warning indicators when observed, review the criteria, and determine the appropriate management response action; and

6. A defined process to evaluate and monitor the success of all management response actions.

5.1.2 Early warning indicators and the range of specific avoidance, minimization and mitigation management response actions identified in the Operation Plan will be based on all relevant and available data.

5.1.3 Notwithstanding anything to the contrary contained in this Agreement, nothing contained in the Operation Plan shall mandate or otherwise require that any specific management response action be implemented based upon an early warning indicator or otherwise. The task of initiating any and all management response actions shall be within the sole discretion of the Management Committee.

5.1.4 The Parties agree that if, during the Term of this Agreement, the State of Utah permits any Utah water rights with a point of diversion in Snake Valley to be exported and placed to beneficial use outside of the hydrographic basin boundaries of Snake Valley, then Utah will require the holder of the export permit(s) to comply with an operation plan that is substantially similar to the Operation Plan agreed to by the Parties to this Agreement. If Utah permits an interbasin transfer of Utah water rights from Snake Valley without enforcement of this section 5.1.4, then this entire Agreement shall be subject to termination for breach of a material term. If at any time while this Agreement remains in effect SNWA believes that Utah has permitted an interbasin transfer of Utah water ri ghts from Snake Valley without enforcement of this section 5.1.4, the following process will be followed:

a. SNWA shall provide notice to Utah of all infoli iation in the possession of SNWA that forins the basis of SNWA's belief that a breach of section 5.1.4 has occurred;

b. Utah shall reply in writing to SNWA within 90 days of the receipt of notice and state whether Utah agrees or disagrees with SNW,A's belief that a breach of section 5.1.4 has occurred:

c. If Utah agrees that a breach of section 5.1.4 has occurred then Utah will have 120 days from the mailing of the notice to SNWA under section 5.1.4(b) to cure the breach;

d. If Utah disagrees that a breach of section 5.1.4 has occurred or if for any reason SNWA is not satisfied with any cure instituted by Utah under section 5.1.4(c), then the Parties shall proceed to the Dispute Resolution Process outlined in section 13 of this Agreement and thereafter to any remedy available in law or in equity available to either Party;

e. Non-enforcement by SNWA of the provisions of this section 5.1.4 for any period of years while this Agreement remains in effect shall not be deemed to waive SNWA's right to enforce this provision; and

f. Nothing in this section 5.1.4 shall effect any valid contractual rights or obligations of the Parties set forth outside of this Agreement.

5.2 Initiation of Management Response Actions Pursuant to the Operation Plan. During the Operational Period, the Management Committee shall utilize the Operation Plan to determine management response actions that are a measured and reasonable response to the scope, magnitude and extent of the identified effect caused by pumping from SNWA's groundwater production wells upon the hydrologic, biologic and air resources within or as a result of atmospheric transport from the Area of Interest.

Based upon the Parties understanding that development of groundwater by SNWA in the Snake Valley HB will result in changes to the existing hydrologic and biologic conditions and may potentially effect the air resources within or as a result of atmospheric transport from the defined Area of Interest, but that not all such changes are unreasonable, the Management Committee shall detellnine and execute management response actions that are a measured and reasonable response to the scope, magnitude and extent, large or small, of the identified effect. As part of the determination, the Management Committee shall take all necessary steps to ensure that management response actions are: 1) scientifically sound; 2) can be engineered and implemented in a reasonable manner; 3) are implemented in a timely manner.

However, the Parties agree that no management response action may be selected which has 1) the effect of violating the letter or the spirit of the Conservation Agreements and Strategies for the Least Chub and Columbia Spotted Frog, or any successor agreement, or 2) otherwise causes the existing viable population of a species to decline to an extent which necessitates the species come under the purview of the Endangered Species Act, (16 U.S.C. 1531, et. seq.) including Candidate Species provisions, or 3) causes or contributes significantly to a violation of an applicable National Ambient Air Quality Standard (NAAQS) standard or Prevention of Significant Deterioration (P SD) increment.

Available management response actions include, but are not limited to, the following:

- Geographic redistribution of groundwater withdrawals;
- Reduction or cessation in groundwater withdrawals;

- Provision of consumptive water supply requirements using surface andlor groundwater sources;
- Acquisition of real property and/or water rights dedicated to the recovery of the Special Status Species within the current and historic habitat range within the Tier I and/or Tier II Monitoring Areas;
- Augmentation of water supply and/or acquisition of water rights for using surface and groundwater sources: and
- Other measures as agreed to by the Management Committee, or required by the Nevada State Engineer.

5.3 Good Faith Effort to Finalize Operation Plan. SNWA and Utah shall in good faith pursue the creation the Operation Plan as set forth in section 5.1 of this Agreement within one year of the beginning of the Baseline Period. If the TWG is unable to recommend a consensus Operation Plan within this timeframe, then the TWG shall submit to the Management Committee any alternative versions of the Operation Plan developed by members of the TWG. If the Management Committee cannot agree by consensus to one alternative or a combination of alternatives recommended by the TWG within 90 days, then the Parties agree that each of the alternatives submitted to the Management Committee by the TWG shall be submitted to a mutually-agreeable third party, who shall have up to one year for final selection among the submitted alternatives or a combination thereof. The alternatives selected by the third party shall be binding on the Parties. Final payment to the third party shall be conditional upon completion within the allotted year. The provisions of this section 5.3 shall apply only to the first version of the Operation Plan and shall not apply to any subsequent revision, modification or amendment of the Operation Plan. If for any reason mutually agreed upon third party does not produce a final version of the Operation Plan within one year of the submission of the alternatives by the Parties, then either Party can invoke the provisions of section 13 of this A greement for resolution of the matter. The resolution of any dispute or disagreement concerning the revision, modification or amendment of the Operation Plan shall be governed by section 13 of this Agreement.

6. Data-Quality Requirements.

Data quality shall conform to applicable industry and scientific standard methods and protocols, unless otherwise agreed upon or defined by the TWG. All data will undergo Quality Assurance/Quality Control.

The TWG shall ensure that all measurement and data collection associated with the hydrologic monitoring networks is performed according to USGS established protocols, unless otherwise agreed-upon.

All air quality instrumentation shall be installed, calibrated and operated according to EPA established monitoring protocols (Quality Assurance Handbook for Air Pollution Measurement Systems, Vol. I, EPA-600/R-94/038a and Vol. II, EPA-454/13-08-003), unless otherwise agreed upon by the TWG. The collected air quality and meteorological data shall be reviewed and validated on a quarterly basis. Records of the audits. data quality and data completeness shall be maintained and available to the TWG.

7. Data Reporting Requirements.

All data collected pursuant to this Agreement shall be fully and cooperatively shared among the Parties. SNWA shall develop and maintain a shared-data repository for the storage and retrieval of data and information collected pursuant to this Agreement. The monitoring reports specified in section 7.1, 7.2 and 7.3 will be posted on SNWA's website within one week of their annual transmission to the Nevada and Utah State Engineers' Office.

7.1 Biologic Data Reporting.

SNWA shall report the results of all monitoring and sampling pursuant to this Agreement in an annual monitoring report that shall be submitted to the Parties and the Nevada and Utah State Engineers' Office by no later than March 31 of each year that this Agreement is in effect.

7.2 Hydrologic Data Reporting.

Using data derived from groundwater-level measurements of all production, exploratory, and monitor wells identified in this Agreement, 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 lesser frequency agreed-upon by the Parties.

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

SNWA shall report the results of all monitoring and sampling pursuant to this Agreement in an annual monitoring report that shall be submitted to the Parties and the Nevada and Utah State Engineers' Office by no later than March 31 of each year that this Agreement 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. Final monitoring and sampling data will be made available over the Internet via the USGS NWIS or other appropriate website throughout the duration of this Agreement.

7.3 Air-Quality Data Reporting.

Air quality and coincident meteorological parameters shall be sampled and reported continuously on an hourly average basis. The data collected shall be submitted hourly to Utah Division of Air Quality (UDAQ) and other interested Parties as deteimined by the TWG via cellular modern, satellite modem, radio or other electronic telemetry. Such data will be available on the UDAQ website in accordance with UDAQ's standard processes and procedures.

Quarterly reports of the quality assured air quality and meteorological data shall be submitted to the UDAQ. These reports shall include full electronic data sets of the quality assured air quality and meteorological data in a foiniat prescribed by the TWG. These reports shall also include summary tables and charts of: averaged air quality data comparable to the NAAQS, maximum

data. mean data, data quality and completeness, and other information deemed important by the TWG.

8. Analytical Models.

8.1 Regional Groundwater Flow Numerical Modeling.

The Parties agree that 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 Agreement must include a suitable 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 groundwater withdrawals in Snake Valley on groundwater levels and spring flows are measured, refinement of the model(s) may be necessary to achieve better agreement with actual field measurements. Furthei more, the collection of additional hydrologic, geologic, geophysical, and 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 Tier I and Tier II Monitoring Areas. These data shall be evaluated by the TWG for inclusion into the regional groundwater flow system numerical model(s).

SNWA shall maintain, update, and operate an agreed-upon groundwater flow system numerical model(s), in cooperation with the TWG. SNWA may subcontract this obligation to a third party. The cost of all modeling described herein shall be borne by SNWA.

Beginning at least one year prior to the end of the Baseline Period, SNWA shall provide model output in cooperation with the TWG for evaluation by the TWG 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 TWG.

8.2 Ecological Model.

The Parties agree that regional ecological model may be a useful tool in evaluating and predicting effects of SNWA groundwater development when coupled with a sufficiently resolved hydrologic model. Based upon the success of the ecological modeling effort being conducted by SNWA in Spring Valley, the TWG will evaluate the utility of an ecological model within Snake Valley during the Initial Period. If the TWG recommends and the Management Committee approves proceeding with an ecological modeling effort, the ecological model will be created in years one and two of the Baseline Period. During the remainder of the Baseline Period and throughout the Operational Period SNWA will maintain, update and operate an agreed-upon model in cooperation with the TWG.

Notwithstanding anything to the contrary contained in this Agreement, SNWA's contributed funding of the ecological model during the Baseline Period shall be limited to $500,000. Any funding commitment for ecological modeling during the Operational Period is subject to appropriation approval by SNWA's Board of Directors.

9. Change Applications.

In the future, SNWA may seek to change the points of diversion and rates of withdrawal within the Snake Valley HB for any quantities of groundwater permitted pursuant to the SNWA Applications. Prior to filing such change applications, SNWA shall consult with the TWG about the potential effects of any proposed changes.

10. Nevada State Engineer Proceedings.

The Parties agree that a copy of this Agreement shall be submitted by SNWA to the Nevada State Engineer at the commencement of any administrative proceedings regarding the SNWA Applications. At that time, SNWA shall request on the record that the State Engineer include the terms of this Agreement as part of the peilnit terms and conditions in the event that the Nevada State Engineer grants any of the SNWA Applications in total or in part.

11. Submission to Bureau of Land Management.

SNWA shall submit a copy of this Agreement 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.

12. Funding.

Except as otherwise specifically set forth in this Agreement, any commitment of funding by Utah or SNWA in this Agreement, including specifically any monitoring or management response actions are subject to appropriations by the Utah Legislature or the governing body of the SNWA, as appropriate.

13. Dispute Resolution Process.

In the event the Management Committee cannot agree on a mutually acceptable course of action upon request from the TWG, a Disputes Review Board (Board) will be established within thirty (30) days notice by either Party to review that disagreement. The Board shall be comprised of one member selected by Utah, one member selected by SNWA, and a third member selected by the first two members. The Board members shall show no partiality to either Utah or SNWA; or have any conflict of interest.

For any dispute that is brought before the Board, the Board shall provide a list of written recommendations to Utah and SNWA to assist in the resolution of the disagreement within thirty (30) days of the initial meeting of the Board. Although the recommendations of the Board should carry great weight for both Utah and SNWA, they are not binding on either party. However, the written recommendations shall be admissible as evidence to the extent permitted by law in any subsequent legal proceeding arising under this Agreement, including any administrative hearing before the Nevada State Engineer. Notwithstanding the foregoing or any contrary provision contained herein, either Party may bring an action in a court of competent jurisdiction to assert any claim arising out of this Agreement or otherwise. SNWA specifically agrees that SNWA will not assert that Utah lacks standing to bring any action related to the

enforcement of this Agreement before the Nevada State Engineer, or in any court of competent jurisdiction in the State of Nevada.

14. Notices.

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

If to Utah:
Executive Director
Utah Department of Natural Resources
594 West North Temple
PO Box 146300
Salt Lake City, UT 84114-6300

If to SNWA:
General Manager
Southern Nevada Water Authority
1001 S. Valley View Blvd.
Las Vegas, NV 89153

15. Modification of the Agreement.

The Parties may modify this Agreement by mutual written agreement.

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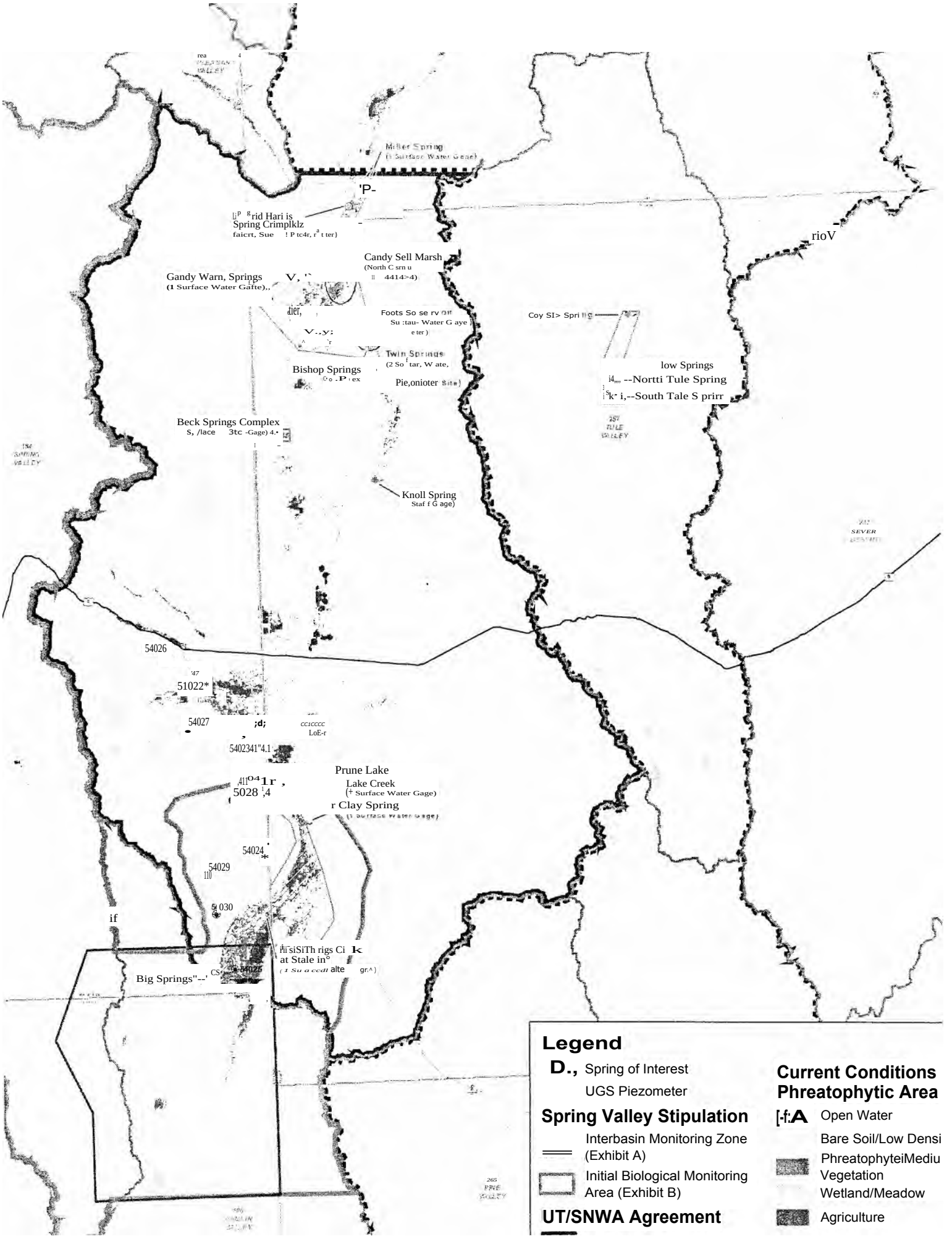
IN WITNESS WHEREOF, Utah and SNWA have fully executed this Agreement on this _____ day of _____, 2009.

_____
Utah Department of Natural Resources
Michael R. Styler
Executive Director

_____
Southern Nevada Water Authority
Patricia Mulroy
General Manager

Approved as to Form:

_____
John J. Entsminger
SNWA Deputy General Counsel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UGS Piezometer
Spring Valley Stipulation
Interbasin Monitoring Zone (Exhibit A)
Initial Biological Monitoring Area (Exhibit B)
UT/SNWA Agreement
Current Conditions
Phreatophytic Area
Open Water
Bare Soil/Low Densi
PhreatophyteiMediu
Vegetation
Wetland/Meadow
Agriculture

Appendix 1: Biological Monitoring

1.1. Biological Monitoring

The intent of the biological monitoring considered here, is to collect a suite of ecologically informative data, at Key Areas of Biological Concern (KABCs), for the purpose of providing an early-warning indication as to whether, in combination with the hydrologic monitoring component, SNWA groundwater development in Snake Valley is causing adverse effects. A detailed biological monitoring plan will be developed during the Initial Period and implemented and modified as appropriate throughout the Baseline Period and Operational Period. This plan will differentiate monitoring efforts in the Tier I and II monitoring areas, and identify data types and collection methods that: 1) contribute to the characterization of the current ("baseline") condition of groundwater-influenced ecosystems within the KABCs; 2) establish the range of variability for monitored parameters in the KABCs prior to groundwater withdrawal by SNWA; 3) assess the response of groundwater-influenced ecosystems in the KABCs to groundwater withdrawal by SNWA; 4) give early warning prior to adverse effects to groundwater-influenced ecosystems in the KABCs due to groundwater withdrawal by SNWA; 5) identify research needs; 6) develop criteria and make recommendations to the Management Committee (MC) when a course of action shall be taken to avoid adverse effects; and 7) prior to the end of the baseline data collection period, develop and recommend to the MC a refined biological monitoring plan.

SNWA and Utah Division of Wildlife Resources (UDWR) will work cooperatively to implement this plan in a cost effective and efficient manner. Collection of monitoring data shall be performed by UDWR, SNWA, or a mutually agreed to third party. Utah commits to fund monitoring of Columbia spotted frog and least chub in the Tier I and Tier II monitoring areas as is currently being conducted. It is the intent of the Parties that the capital and operating costs of implementing biological monitoring plan components beyond the current UDWR effort will be primarily borne by SNWA.

1.1.1 Biological Monitoring Plan Development

The TWG intends to use The Nature Conservancy's Conservation Action Planning (CAP) process, or a similar process, to develop a detailed biological monitoring plan. The CAP process was successfully utilized to develop the Spring Valley Stipulation Biological Monitoring Plan, and it is expected to be advantageous here. Specifically, this process will help the TWG to: 1) identify key ecological attributes (KEAs) essential to the long-term viability of the groundwater-influenced ecosystems within the KABCs; 2) identify indicators to assess each KEA, including those that may be used to predict potential adverse effects and/or show early warning of effects from SNWA's groundwater development; 3) integrate the existing UDWR monitoring into this plan; and 4) develop conceptual models of the groundwater-influenced ecosystems as necessary and appropriate.

1.1.2 Existing UDWR Monitoring

UDWR currently conducts annual monitoring for Columbia spotted frog and least chub in the Tier I and Tier II monitoring areas. Columbia spotted frog monitoring consists of Visual Encounter Surveys targeting egg masses to determine the breeding population size (number of

adults contributing to reproduction). Least chub monitoring consists of monitoring size class frequency within each population to assess health of population and determine success of recruitment of new individuals into the population. Northern leopard frog, sub-globose snake pyrg, and longitudinal gland pyrg are not currently monitored. California floater, longitudinal gland pyrg, and the five native fish species in the Big Spring complex will be monitored as part of the Spring Valley biological monitoring plan.

1.2. Tier I Biological Monitoring

The main objectives of biological monitoring in the Tier I monitoring area are to provide early warning of adverse effects to groundwater-influenced ecosystems and to track ecosystem response as management response actions are implemented. As stated above. KABCs were identified to focus the monitoring approach and were based on the presence of groundwater-influenced ecosystems, which support Species of Greatest Conservation Need (Utah Comprehensive Wildlife Conservation Strategy 2006) and/or contain phreatophytic vegetation having some potential to degrade air quality if significantly affected by groundwater development. Specific KABCs in the Tier I Monitoring Area, and their associated sensitive species, are identified in Table 1.1. Biological monitoring will augment existing UDWR efforts and will include population level monitoring of these sensitive species (Conservation Targets), or their surrogates, at representative locations within the KABCs. Monitoring of selected KEAs will coincide with the population level monitoring to track habitat condition relative to SNWA groundwater development. In the phreatophytic plant community south of Gandy Salt Marsh, a sufficient number of permanent transects will be established and annually sampled to track composition and cover at the alliance level. Monitoring sites or different species to track may be added or deleted based upon compelling scientific evidence regarding the ecosystem's response to SNWA groundwater development.

Table 1.1. Key areas of Biological Concern within the Tier I monitoring area and associated Species of Greatest Conservation Need.

Spring / Stream Name	**Columbia spotted** frog'	**Least chub'**	**Northern leopard frog'**	**California floater**	**Sub-globose snake** pyrg	**Longitudinal gland** pyrg	Five native **fishes: Spring Valley Mon. Plan**
Miller Spring	X	X					
Leland Harris Spring Complex	X	X					
Gandy Salt Marsh	X	X					
Bishop Springs Complex							
Foote Reservoir	X	X	X				
Twin Springs	X	X					
Central Springs	X	X					
Warm Springs at Gandy			X		X		
Beck Springs	X						

Spring / Stream Name	Columbia spotted frog'	Least chub'	Northern leopard frog'	California floater!' [3]	Sub-globose snake pyrgi	Longitudinal gland pyrg[1,2]	Five native fishes: Spring Valley Mon. Plan2
Lake Creek						X	X
Cla S rill!						X	X
Pruess Lake				X			
Phreatophytic Vegetation South of Gandy Salt Marsh4							

SGCN = Species of Greatest Conservation Need, Utah Comprehensive Wildlife Conservation Strategy. [2] Five native Bonneville Basin fish species and springsnail found in Big Spring complex and being monitored as part of the Spring Valley Biological Monitoring Plan. [3] California floater at Pruess Lake (terminus of Big Spring complex) being monitored as part of the Spring Valley Biological Monitoring Plan. This vegetation will be monitored to address air quality concerns.

1.3. Tier II Biologic Monitoring

The KABCs listed in Table 1.2 have been identified for monitoring based on the presence of Species of Greatest Conservation Need (Utah Comprehensive Wildlife Conservation Strategy 2006) (Table 1.2). UDWR currently conducts annual monitoring for Columbia spotted frog and least chub populations, where present, in KABCs in the Tier II monitoring area. Current monitoring methods for these species are consistent with those used in the Tier I monitoring area. Monitoring sites and different species may be added or deleted, and monitoring effort may be adjusted based upon compelling scientific evidence regarding the effects of SNWA groundwater development.

Table 1.2. Key Areas of Biological Concern within the Tier II Monitoring Area and associated Species of Greatest Conservation Need.

Spring / Stream Name	Columbia spotted frog]	Least chub'	Northern frog'	California floater'	Utah chub'
Fish Springs		X	X		X
Tule Valley					
Coyote	X				
Willow	X				
North Tule	X				
South Tule	X				
Redden Spring				X	X

Species of Greatest Conservation Need, Utah Comprehensive Wildlife Conservation Strategy.

Appendix 2: Hydrologic Monitoring

1.1. Hydrologic Monitoring

The hydrologic monitoring network shall be comprised of the monitoring sites in Table 1.1 and others to be selected by the TWG. Hydrologic data collection at these sites shall include measurements of groundwater production, depth-to-groundwater, spring discharge, stream flow, and water quality as applicable, or as otherwise agreed to and specified by the TWG.

The capital costs of establishing the hydrologic monitoring network shall be shared as stated in Sections 1.1.1 and Table 1.1. Maintenance and operation of these sites shall be performed by the Utah Geological Survey (UGS), SNWA, or a mutually agreed to third party. SNWA and UGS agree to work cooperatively to ensure data is reported in an electronic format agreed to by the TWG.

1.1.1. Tier I Hydrologic Monitoring

The objectives of the hydrologic monitoring program are to detect the potential effects of SNWA and EPU groundwater withdrawals in Snake Valley, and include collecting hydrologic data to 1) support assessments of groundwater-influenced ecosystems supporting sensitive/special-status species, 2) define the natural variation of groundwater parameters (groundwater levels, spring discharge), 3) detect declines in groundwater-levels and spring discharges attributable to groundwater development within Snake Valley, and 4) detect changes in water quality attributable to groundwater development within Snake Valley that may affect EPUs in Nevada and Utah.

The Parties recognize that some of these sites have already been established as part of existing programs, but that data collection at these sites will be incorporated as a component of this Agreement. SNWA shall fund the UGS, or a mutually agreed to third party, to perform data collection and processing at the sites for which UGS is responsible. SNWA shall perform, or fund a mutually agreed to third party to perform, data collection and processing at sites for which SNWA is responsible.

1.1.1.1. SNWA Exploratory and Production Wells

SNWA shall continuously record production data and water levels on all SNWA production wells in Snake Valley. SNWA shall measure depth-to-water in all SNWA exploratory wells in Snake Valley on a quarterly basis.

1.1.1.2. Existing Monitor Wells

Groundwater levels shall be monitored at a total of twenty-nine (29) monitor-well sites in Snake Valley, within both Nevada and Utah, including continuous monitoring at up to fourteen (14) existing UGS sites and quarterly monitoring at up to fifteen (15) other existing sites selected by the TWG. Each of the fourteen existing UGS sites scheduled for continuous monitoring includes one to three piezometers (2- or 2.5-inch-diamter PVC wells). All of these piezorneters are scheduled for continuous monitoring, unless otherwise agreed to and specified by the TWG. Currently, there are thirty-three (33) piezometers installed in the fourteen (14) existing UGS well

sites, all of which have been equipped with pressure transducers to record water levels twice daily. Downloading of the data loggers attached to these transducers shall be performed quarterly or at intervals deteimined by the TWG. The wells scheduled for quarterly monitoring are single-completion wells and will not be equipped with transducers.

The TWG, in its review of the existing monitor wells, shall strive to optimize the network to achieve the goals and objectives of the Agreement by eliminating redundant monitoring sites and/or increasing the spatial coverage as needed.

1.1.1.3. New Monitor Wells

SNWA shall install up to three (3) new monitor wells should the TWG determine that the "existing" monitoring network outlined in section 1.1.1.2 is insufficient for meeting the goals and objectives of this Agreement. If the TWG determines that new monitor wells are needed, the location of the wells shall be restricted to the Tier I Monitoring Area, and shall be selected by the TWG. The costs of well installation and subsequent monitoring shall be borne by SNWA.

1.1.1.4. Groundwater Production

As stated in Section 1.1.1.1, SNWA shall continuously record groundwater production rates and volumes in all SNWA production wells. The State of Utah, through the Utah Division of Water Rights (UDWRI), shall record all groundwater production data on groundwater production wells in Snake Valley, Utah used for irrigation, mining, and municipal and industrial purposes. At a minimum, these records shall report monthly production totals and the duration of pumping during the reporting period.

1.1.1.5. Springs and Surface Water

Nested piezometers at selected springs and regional discharge areas within the Tier I Monitoring Area shall be installed to monitor groundwater levels with the objective of measuring the hydraulic head potential contributing to the spring and/or diffuse groundwater discharge. The Parties recognize that the measured groundwater levels in these piezometers may or may not reflect the actual hydraulic head at the spring orifice, but that the measurements may be used as a surrogate to approximate hydraulic changes due to climate variability or pumping effects. At appropriate sites, these piezometers will be coupled with surface-water gages that shall be installed to measure spring discharge.

SNWA and UGS shall work cooperatively to establish monitoring sites at the selected springs and diffuse groundwater discharge areas listed in Table 1.1. The Parties shall share in the capital costs of establishing these monitoring sites as provided for in Table 1.1.

Table 1.1. Tier 1 Spring and Stream Monitoring Sites

Spring / Stream Name	Piezometer Sites	Surface-Water Gages	Agency Responsible for Installation	Agency Responsible for Monitoring
Miller Spring		1	UGS	UGS
Leland Harris Spring Complex				
North Complex	1	--	UGS	UGS
Gandy Salt Marsh				
North Complex	1	--	UGS	UGS
Bishop Springs Complex				
Foote Reservoir	--	2	UGS	UGS
Twin Springs			UGS	UGS
Warm Springs at Gandy			SNWA	SNWA
Beck Springs		1	UGS	UGS
Knoll Spring			SNWA	SNWA
Clay Springs			UGS	UGS
Lake Creek			SNWA	SNWA
Big Springs Creek (at Stateline)			UGS	UGS
Bi S rin s			SNWA	SNWA
TOTAL				

The Parties agree to cooperate in the data collection and record maintenance for the surface-water sites, including providing access to the measurement sections and gages, and sharing miscellaneous discharge measurements made at each respective site. The TWG will determine the appropriate measurement section at each site and determine the specific flow-measuring device to be installed after field reconnaissance has been performed to determine the optimal arrangement. The responsible monitoring agency will develop rating curves for the gaging stations listed in Table 1.1 using the miscellaneous discharge measurements collected at each site. The TWG will review and approve the rating curves used to compute the discharge records for the respective stations.

1.1.1.6. Precipitation Gages

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

1.1.1.7. Water Chemistry

The TWG shall compile all available water-chemistry data for the Tier I and Tier II Monitoring Areas. SNWA shall develop a database accessible to the TWG for storage and retrieval of these data. The TWG shall evaluate the dataset to determine if additional groundwater samples are needed to characterize the baseline condition for the specific water-quality parameters of concern that might be affected by groundwater pumping associated with SNWA and EPU production wells. The specific water-quality parameters of concern (e.g. salinity) and associated analytical

suite shall be defined by the TWG. Sample collection shall be limited to existing pumping wells or springs within the Tier I and Tier II Monitoring Areas, and shall be performed by SNWA for sample sites located in Nevada and by UGS for sample sites located in Utah.

Routine sample collection and analysis for the water-quality parameters of concern shall be perfoimed at up to four (4) representative existin g wells identified by the TWG. The selected wells shall be existing production wells within the Tier I Monitoring Area. The routine sample collection shall be performed annually, or as otherwise mutually agreed to by the TWG. SNWA shall perform the routine sampling at the selected wells in Nevada and fund the UGS, or a mutually agreed to third party, to perform the routine sampling at the selected wells in Utah.

1.1.2. Tier II Hydrologic Monitoring

The Parties agree that monitoring precipitation and groundwater levels within the undeveloped areas of the Tier II Monitoring Area is important for describing the natural variation of the underlying groundwater system(s) to discern the cause of changing groundwater levels, and whether the changes are attributable to natural variation or pumping effects.

1.1.2.1. Monitor Wells

Existing monitor wells within the Tier II Monitoring Area that are part of existing groundwater monitoring networks shall be evaluated by the TWG, and up to three (3) wells or well sites in each of the Tier II hydrographic areas will be selected for quarterly depth-to-water measurements. SNWA shall fund the USGS, or another mutually agreed to third party to perfoini these measurements and report the data to SNWA and the TWG.

1.1.2.2. Precipitation Gages

The covera ge of existing precipitation stations within the Tier II Monitoring Area shall be reviewed by the TWG and, if necessary, the TWG may recommend that additional precipitation stations be established.

Appendix 3: Air Quality Monitoring

1.1 Air-Quality Monitoring

The purpose of air-quality monitoring pursuant to this Agreement is to maintain compliance with the National Ambient Air Quality Standards (NAAQS) and Prevention of Significant Deterioration (PSD) increment ceilings established under Section 109 and Section 163 respectively, of the Clean Air Act. The Parties agree that the preferred approach for achieving this goal is through the implementation of appropriate monitoring and management response actions in conjunction with SNWA's groundwater development.

An air quality monitoring station shall be located within the Utah portion of the Tier I Monitoring Area at a site deemed representative of the Snake Valley airshed. Data from this station will be used to substantiate potential air quality impacts local to proposed groundwater withdrawals. In addition, the data from this monitor will be used, in conjunction with data collected from existing air quality stations along the Wasatch Front, to substantiate potential regional transport of pollutants generated local to proposed groundwater withdrawals.

The air quality monitoring equipment deployed at the site should be capable of sampling particulate matter smaller than 10 micrometers in aerodynamic diameter (PM10) and verifying compliance with the NAAQS and PSD increment ceilings for this air pollutant. Meteorological monitoring equipment will also be deployed at the site to provide data to support the air quality measurements. The monitoring equipment will collect air quality and meteorological data on a continuous basis.

The cost of equipment and installation, in addition to the on-going maintenance, data collection and reporting, shall be borne by the SNWA. SNWA shall perform. or fund a mutually agreed upon third party to perform, the installation, maintenance and reporting. The Utah Division of Air Quality (UDAQ) will be able to provide monitoring recommendations and expertise to support data collection and interpretation.

1.1.1. Tier 1 Air-Quality NIonitoring

SNWA, in consultation with the TWG, shall locate, construct and instrument a monitoring station for air quality and meteorological data within one year of the beginning of the Initial Period. This station shall be located in Utah at a site representative of the Snake Valley airshed and operated continuously for at least 5 years prior to and for the duration of the SNWA groundwater withdrawal. Air quality measurements shall consist of particulate matter smaller than 10 micrometers in aerodynamic diameter (PM10) using a continuous monitor. The meteorological parameters measured will include wind direction, wind speed, precipitation, temperature, relative humidity and solar radiation using a 10-meter tower.

The Parties, through the TWG, shall work together on the design and location of the site to be constructed to monitor potential changes in atmospheric concentrations of PM10 in the Tier 1 Monitoring Area. The site shall be located, designed, and constructed to achieve the monitoring goals and requirements of this Agreement.

1.1.2. Tier II Air-Quality NIonitoring

No Tier II air quality monitoring is currently planned but could be implemented if deemed necessary by the TWG in the future.