ROSE STRICKLAND 619 ROBINSON CT. RENO, NV 89503

December 2, 2011

Jason King, Nevada State Engineer
Nevada Division of Water Resources
901 So. Stewart St. #2002
Carson City, NV 89701 hand-delivered
ATTN: Susan Joseph-Taylor

Re: Comments on SNWA applications in Spring, Cave, Delamar and Dry Lake Valleys

Dear State Engineer King,

As a citizen and a conservationist, I participated in the filing of thousands of protests of the 1989 applications by, at the time, the Las Vegas Valley Water District for hundreds of thousands of acre feet of groundwater in eastern and southern Nevada. When the Southern Nevada Water Authority (SNWA) revived the somnolent project in 2004, I again became involved in raising concerns about the potential environmental and other impacts of the massive exportation proposal. I have attended water hearings on SNWA applications and protests in Three Lakes/Tikaboo Valleys and both sets of hearings on Spring Valley and on Cave, Delamar, and Dry Lake Valleys since 2006. I reviewed and submitted extensive comments on the 4000 page Bureau of Land Management (BLM) draft Environmental Impact Statement (EIS) on SNWA's Groundwater Development Project (GWD) this summer, again focusing on the potential environmental harm caused by this proposed groundwater mining project. These comments to you are based on notes which I took while attending the recent six weeks of hearings or while watching the webcasts.

Rather than re-arguing the points made at the hearing, I reviewed my notes and came up with questions and observations on what I heard or didn't hear in the testimony presented at the hearing which might be useful to you in your consideration of the thousands of pages of exhibits, documents, and oral and written comments by the public regarding the SNWA applications and protests.

Does SNWA actually need the groundwater from these applications?

The first set of comments has to do with the need for rural groundwater to be exported to southern Nevada. I sat in amazement when on the first day of the hearing, the SNWA executive director clearly stated that even if it received permits from the State Engineer and from the BLM, the GWD project would sit on the shelf until absolutely needed. And SNWA witness after witness testified that any "need" for the rural groundwater was in the future, perhaps decades in the future. There is no way SNWA will be able to put any approved water rights to beneficial use, unless and until the pipeline is constructed and wells are drilled. There are no actual customers for the requested water. The confusing presentation on SNWA's water

supplies from the Colorado River on Day Two appeared to show enormous reserves of water which SNWA has not yet called upon - again, because there is no demand. The testimony on possible future droughts on the Colorado River, one of the 3 criteria which we were told would initiate pipeline construction, omitted the current agreement among Colorado River states to short Lake Mead water in favor of shunting more water to raise levels at Lake Powell. This agreement has created, in effect, an artificial shortage at Lake Mead the last few years. How is the state engineer (or anyone else) supposed to be able to guess when Lake Mead levels will fall to 1075 foot elevation? Or when other Colorado River supplies would need replacement? Or when the economy in southern Nevada will recover and generate more demand for water? Does NRS allow allocation of Nevada's scarce water resources to applicants which have no immediate need for the water and cannot put the water to beneficial use in the foreseeable future? Is this in the public interest, especially given the continued stifling of the futures of the basins of origin which has occurred since 1989 by the applications?

What is the purpose and need for the GWD project?

A related set of questions have to do with the ever changing and mutually exclusive "purposes" presented by SNWA for its GWD project.

a. growth and development? Is the rural groundwater needed to support new growth and development in "the economic engine of Nevada?" SNWA's Water Resource Plan has not been updated since 2009 and therefore does not reflect the severe economic downturn which has crippled the real estate industry, the tourism industry, and entire local economies in southern Nevada and elsewhere and reduced both water demand and revenues.

b. drought protection? Or is rural groundwater needed for drought protection? If so, how would this work? I heard no testimony at the hearing on storing groundwater in reservoirs or leaving it in the ground until needed due to (undefined) drought conditions. Witnesses testified to what SNWA "can" do to "relax pumping" in droughts or to replenish depleted aquifers or conjunctively manage water in high precipitation years, not what it would do. What we do know is that water cannot be preserved for drought protection and simultaneously sold to new customers for M&I uses.

c. replacement of CO River supplies? This seems unlikely as SNWA has substantial water reserves from the Colorado River which it is not using, including its initial 300,000 afy and return flow credits as well as its tributary water rights and water reserves from various agreements with other Colorado River states, Indian tribes, Mexico, etc. In any event, rural groundwater cannot be used for these first three purposes simultaneously.

d. diversify portfolio? This doesn't appear to be a consumptive use, so is compatible with at least some of the other proposed purposes.

e. deal with other Colorado River states? There was testimony on Nevada's need to respond to

at least an unofficial "demand" from another Colorado River state that Nevada must develop its in-state water resources before other states would help Nevada out during droughts on the river. However, spending over $15.4 billion for a project with huge environmental consequences and an unknown and possibly unreliable source of water does not seen an appropriate response to a perception.

f. a supplemental water supply? Testimony on how SNWA considers its applications for rural groundwater as a "supplemental" supply was not supported by evidence. It raises the question of whether state water law permits approval of supplemental water for M&I purposes. And also, it may point out the unreliability of rural groundwater as the basis for M&I uses.

g. can water rights be approved for more than one purpose? This issue was not addressed at the hearing.

Lastly, there is the issue of whether feasible alternatives exist for the GWD project. Despite testimony that there are no viable alternatives to groundwater exportation, I read a newspaper account the day after the SNWA case was completed that SNWA had signed an agreement with several other water districts and Mexico to finance the development of a large desalination plant on the Pacific coast of Mexico, yet I did not hear disclosure of this pending agreement at the hearing. I did hear of much opportunity for SNWA to increase water efficiencies in southern Nevada, including to levels which would exceed its applications for rural groundwater. I was particularly disturbed by the testimony of a SNWA witness that the tiered block rate system was designed to maximize revenues and not to conserve water or prevent water wasting.

Is the GWD project environmentally sound?

There was a lot of testimony on SNWA's commitments to environmental stewardship, to spending a lot of its money on gathering data for baseline studies and the BLM's EIS,to the two stipulated agreement with the federal agencies on Spring Valley and on the 3 basins, and to hydrological and biological monitoring plans for the 4 basins. This is a very important point to me as a conservationist so I paid a lot of attention to this testimony. All questions on environmental soundness appeared to assume effective implementation of the stipulated agreements as well as mostly SNWA's voluntary monitoring, management, and mitigation plans (MMM), and, of course, enforcement of federal environmental protection laws. These are voluntary because NEPA does not require monitoring and mitigation for groundwater pumping impacts. What I heard was not reassuring, raising more questions than were answered.

a. stipulated agreements and MMM plans? If these agreements are as great as SNWA witnesses claimed, then why are local counties and residents, tribes and the public excluded? Why are there no timelines for "coming to consensus" on impacts and on mitigation? Why is SNWA pumping allowed to continue to cause adverse impacts to federal resources while the

committees are talking? Why aren't the federal water rights to be protected from SNWA pumping impacts not identified in the 4 basins? When will the stipulated agreements go through the NEPA process? Have the federal agencies abnegated their environmental protection responsibilities by turning most monitoring and mitigation over to SNWA and violated their trust responsibilities to the affected tribes? Since implementation is stated to be subject to annual budgets of SNWA and the federal agencies, will future funds be sufficient to carry out their commitments under the stipulated agreements and, if not, will pumping/permits be suspended by SNWA or the state engineer until adequate funding is restored? What are the MMM requirements for lands not covered by the stipulated agreements but affected by SNWA pumping; i.e. all private lands? and public and tribal uses of public lands? Will the state engineer have adequate staff and budgets to correct SNWA pumping impacts on existing water rights? Why didn't the agreements address MMM for subsidence caused by lowering of water tables caused by SNWA pumping?

Hearing testimony also raised additional substantive questions about the feasibility and effectiveness of stipulated agreements and MMM plans for addressing pumping impacts. First, some impacts may not be mitigable. One citizen witness testified that while one can throw money at a dead horse, the horse will never get up - this is the question about no mitigation possible for irretrievable and irreversible pumping impacts disclosed in the BLM EIS. An expert witness testified that while one can monitor pumping impacts, the critical question is what action will actually be taken when monitoring identifies pumping impacts, something which is not currently included in these plans and agreements. Other testimony established that the stipulated agreements and arbitrated rulings on disputes are not enforceable and there are no penalties for any violations. Then, these agreements and plans appear quite premature as they are dependent on a large number of unknowns, including whether and how many, if any, applications will be approved in the four valleys, where pumping will occur - at the original well site locations or "distributed" over entire basins, how much pumping will occur over what timeframe, and what restrictions the state engineer may put on the permits in order to protect existing water rights and the environment. SNWA witness testimony also revealed no commitment in the plans and agreements to protecting all of the springs of Spring Valley and the 3 basins, just "identified" springs. SNWA testimony on proposals to move water around through intermittent pumping and redistribution of surface water appeared to be a ponzi scheme with protestants experts testifying that this type of water manipulation has not been effective anywhere, is not sustainable in the long term as SNWA pumping will eventually capture all discharge in the basins, and would require, based on LADWP's experience with water needed for mitigation in Owens Valley, at least one half of the perennial yield of the basins. Another unanswered question was about SNWA's mutually exclusive goals - how to preserve phreatophytes (and ecosystem health) v. its need to kill phreatophytes in order to capture the groundwater evapotranspiration for export. Testimony assuring a beautiful orderly plant community succession in Spring Valley from declines in water tables caused by SNWA pumping appeared to leave out the reality of the current infestation of invasive species, such as cheatgrass and halogeton as well as the propensity of these invasive species to colonize bare ground caused by the killing of phreatophytes and other native shrubs, grasses, and wetlands

plants. Expert witnesses also pointed out that attributing pumping impacts to SNWA's pumping v. other pumping or drought or climate change, etc. would be difficult if not impossible in each of the four basins, much less over an area the size of the carbonate aquifer.

b. SNWA's claims to environmental stewardship commitments? It was difficult for me to reconcile testimony about SNWA's environmental stewardship commitments and SNWA attorney's attacks on protestants' expert witnesses for former or current work for environmental organizations. In addition, I heard only oral assurances that SNWA's past levels of funding for biological and hydrological monitoring would continue in the future. Unfortunately, it was established that the $15.4B GWD project cost estimate does not include funding for monitoring and mitigation and that SNWA's current budgets have identified no funding for MMM, and that current monitoring of at least one spring in Spring Valley was curtailed because of SNWA budget shortfalls this year. These raise the question of whether SNWA funding for MMM will cease or drastically decline once state and federal permits are issued.

c. The BLM's EIS, using SNWA's model, estimates the enormous adverse impacts of the GWD project - up to hundreds of feet of drawdown, hundreds of square miles of subsidence, and thousands of acres of meadows, wetlands and wildlife habitat dried up as well as drying springs and streams. The EIS clearly demonstrates that this level of adverse environmental impacts does not represent a "reasonable" lowering of the water table or decline in spring flows, but instead represents a groundwater mining project which will not reach equilibrium in thousands of years. SNWA's applications are not a long-term sustainable use of Nevada's water resources, nor are they environmentally sound for the four basins of origin.

How much do we know about the hydrology of the carbonate aquifer?

The proposed GWD project is of monumental scale with estimated impacts to public lands, springs, streams, wetlands, wildlife habitat, and public uses estimated in the BLM EIS on 4,065 square miles or 2,601,600 acres in Nevada (additional lands impacted in Utah). Yet, I heard expert witnesses from SNWA and from the protestants testify that our knowledge of the carbonate aquifer, where groundwater flows, and how possible impacts of groundwater pumping on the "head" would be propagated through the four basins, much less the other affected basins is not known. Instead, the wide range of estimates of perennial yield, especially in Spring Valley, illustrate the high degree of uncertainty in our models and our best guesses of what water is available and where and when pumping impacts will occur as well as how to avoid or stop adverse impacts. Experts also testified to the real mystery of the plumbing of interbasin flows through Cave, Delamar and Dry Lake Valleys to already fully appropriated discharge areas in downflow basins such as White River, Pahranagat, and Warm Springs Valleys since models and "water balance" spreadsheets are not properly conceptualized to accurately estimate SNWA pumping impacts on the timing and level of flows, without high levels of uncertainty.

Approving unprecedented water applications from this huge interconnected aquifer requires

much more thought and planning than consideration of the usual applications for in-basin uses.

How does Nevada water law address many of the concerns about protecting existing water rights from junior applicants?

While Nevada water law is based on the principle of prior appropriations, I heard testimony especially from citizen commenters that junior applications for groundwater rights are displacing senior surface water rights, many of which were established before Nevada was a state much less before Nevada had any groundwater laws. SNWA appeared to have no difficulty shuffling the responsibility for protecting existing water rights from their pumping impacts to the State Engineer's staff and the burden of proof and financial responsibilities for defending their water rights onto existing water rights holders. How is this system fair to existing users and sustainable over the longterm by a state agency with limited annual budgets?

In addition, Nevada water law does not prescribe what a "reasonable" lowering of the water table or decline in spring flow is. While a case by case approach may work in most areas, I do not see how it would work over the huge area the size of the carbonate aquifer with hundreds if not thousands of springs and existing water mostly vested water rights, subject to pumping impacts.

The state water law has a very prescribed process for appropriating water but no such process for the State Engineer to either protect senior water rights holders from harm or remedying the harm once pumping impacts have occurred. It would be very helpful to have this process better defined and explained by DWR.

Does Nevada water law permit anyone other than the State Engineer to manage Nevada's water resources?

On the first day of the hearing, I heard testimony by the director of SNWA that it intends to manage the water resources of Spring Valley and the three basins conjunctively with the federal agencies through the stipulated agreement, forever. Isn't this the responsibility of the State Engineer? How can local counties, residents, tribes, senior water rights holders and the public - all of which own the waters of the state - be excluded from management of the waters of Nevada?

Does Nevada water law authorize the State Engineer to stop pumping which is causing unreasonable adverse impacts on senior water rights and/or the environment?

There was much speculative testimony that the State Engineer would or could order SNWA to stop pumping because of unacceptable impacts. Has this ever occurred in Nevada for M&I permits? Was (over) pumping successfully stopped? Shouldn't permits for M&I water have a very high level of reliability and dependability as well as a very low level of potential adverse impacts in order to avoid the necessity for stop pumping orders? I am reminded of the

testimony about the overcommitment of the Colorado River in 1922 and the severity of impacts we must deal with today from regular shortages and failures to meet the compact requirements, especially in drought years. History shows us the importance of avoiding making the same mistakes of overcommitting Nevada's groundwater for these applications.

This 1989 groundwater project remains hugely controversial.

Thousands of protests were filed in 1990 against the original applications for nearly a half-million acre feet of groundwater in eastern and southern Nevada. When the Supreme Court ruling opened up the old applications for additional protests, many new protestants were able to express their concerns about this controversial proposal. This water hearing reflected the broad nature of concerns about the potential impacts of SNWA pumping on existing water users, local residents, counties, and communities, Indian tribes, neighbors in Utah. Unfortunately, I do not think the 328 protestants were properly acknowledged in this hearing.

Nearly 100 people made statements on October 11, 2011 to th State Engineer with the vast majority stating their concerns about the high environmental, social, and economic costs of this project. Thousands more are providing written comments to the State Engineer about their similar concerns.

We are all wondering whether SNWA's arguments about the public interest being approving all of its applications for rural groundwater for future growth and development in southern Nevada or any of its other purposes will outweigh the concerns expressed about this project.

What is the public interest concerning the SNWA applications?

It's easier to list what is <u>not</u> in the public interest:
> groundwater mining
> unsustainable water development with associated drawdowns, subsidence and drying up springs and water-dependent ecosystems
> reallocating existing surface water rights to junior groundwater applicants
> unacceptable impacts to wildlife and wildlife habitat
> desertification over decades of four valleys leading to dust-storms and downwind health impacts
> stealing the future of the four basins through losing their water and natural resources to exportation
> harming threatened, endangered, and sensitive water-dependent species of plants and animals
> harming ecosystem health of at least four Great Basin valleys as well as other valleys affected by SNWA pumping, including meadows, wetlands, springs, and stream reaches
> destroying vegetation and drying up springs of great cultural importance to Indian tribes on which their traditional practices of hunting, fishing, gathering are based as well as the integrity of their ceremonial and sacred sites, including the Spring Valley swamp cedars/massacre sites
> putting the burden of proof and financial stress on existing water rights holders to defend

senior water rights from SNWA pumping impacts
> adversely impacting the Great Basin National Park, Lake Mead NRA, Pahranagat, Desert, Fish Springs, Moapa Valley, and Ash Meadows National Wildlife Refuges, as well as several state parks and wildlife management areas

What was missed in the hearings?

a. water quality impacts of SNWA pumping

b. climate change impacts on the availability of ground and surface water in the future as well as its exacerbation of pumping impacts

c. little information from applicant on locations of geological constraints on available potable water in the 4 valleys

d. the Nevada Department of Wildlife. While NDOW filed protests on some of the SNWA applications, it did not participate in the hearing nor provide information on potential impacts of pumping on wildlife and wildlife habitat in the four valleys nor recommendations on how to avoid or minimize adverse impacts. You will be receiving a resolution passed unanimously by the Nevada Wildlife Commission opposing SNWA's applications today.

e. the federal agencies. While cosigners of the 2 stipulated agreements, the federal agencies provided no information on potential impacts on public lands and resources or how the stipulated agreements would be implemented or whether they would be effective. Nor did the federal agencies show up to fulfill their trust obligations to the 3 Indian tribes in the hearing.

f. any consideration of the carbonate aquifer as a whole, not just the parts in the four targeted basins

g. no information on the failed pipeline projects approved in Nevada. These include the Honey Lake pipeline approved and built by Vidler Water Company years ago but without any water ever pumped and transported to North Reno valleys and without any customers; the Kane Springs pipeline approved but never built by Vidler Water Co. with no water pumped and transported to the failed Coyote Springs development; and the Tule Desert pipeline approved but no pipeline built or groundwater pumped and transported by Vidler Water Co. to the failed Mesquite development. Water rights were approved for each of these projects and appear locked in limbo of non-use. Can we afford to lock away scarce Nevada water resources in unused permits to SNWA, perhaps for decades?

What is needed in considering SNWA's applications?

I heard many suggestions in testimony about what should go into the consideration of SNWA's

applications. One witness suggested that we need a transparent flow of information on the GWD project, with full participation in planning and agreements and meetings by local counties, tribes, communities, residents, and the public; a proactive program to protect existing water rights and keep costs down and the need for adjudications of water rights in basins targeted for interbasin transfers in order to protect vested water rights. Other witnesses recommended a very conservative approach to approvals of any of SNWA's applications because of the high degree of uncertainty in the estimates of availability of groundwater as well as how pumping impacts will propagate through the carbonate system and the difficulties of monitoring impacts and taking effective actions to minimize or mitigate adverse impacts on the environment and existing water rights. Many supported a requirement for the professional and independent collection of credible baseline data for both the four targeted basins as well as affected basins (based on EIS model estimates). I urge you to consider requiring SNWA to refile any approved applications if groundwater production is inadequate. Filing applications for changes in points of diversions for unsuccessful wells effectively circumvents Nevada water law by allowing SNWA to file for "distributed pumping" anywhere in a basin, something not allowed for any other water rights applicant by Nevada water law.

Four basin inventories

I also have some comments on the basin inventories completed by the NDWR for the four basins. I am concerned about the potential for overallocation of water in the four basins because not all vested water rights are on file with the State Engineer. Your staff assured me that non-recorded vested water rights are still valid and take precedence over permits approved later. However, if water to accommodate unrecorded vested water rights is not reserved for the four basins, I am concerned that available water will be overestimated and over-appropriated in the four basins.

Although NRS 533.367 clearly says that water must be left at the source (springs or creeks) for wildlife (customary wildlife and customary amounts of water), there was no water for wildlife included in the basin inventories. How does DWR determine this information? We understand that the DWR calculates livestock use as 20 gallons/day times the # of livestock, but does not have a similar standard for wildlife use. How will conditions on individual well permits quantify the need for leaving water at the source for wildlife when pumping impacts on these sources as well as the amount of water necessary to enforce this NRS provision intended to protect wildlife are not known?

When I asked if permits for "flood water" were subtracted from the basin inventory calculation of available groundwater since it is dependent on recharge and infiltration from runoff, I did not understand the response. Because Nevada water law does not recognize the interconnections between surface water which infiltrates and becomes part of available groundwater or groundwater which discharges in springs and seeps and becomes surface water does not mean that interconnections do not occur. This is what the science at the hearing showed. Basin inventories should not double-count groundwater and surface water in their calculations of

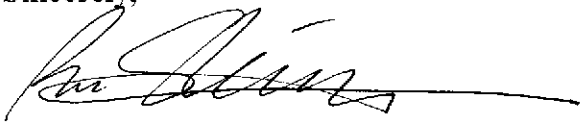
"available" water in the four basins.

Since the District Court ruling on Cave, Dry Lake, and Delemar Valleys was based, in part, on the NSE decision to increase the perennial yield (PY) estimates without sufficient supporting evidence, the basin inventory should not characterize the PY estimates as "generally accepted." At the very least, the CDD inventories should report a range of estimates and their reliability.

I also did not understand why groundwater which flows through basins is counted in the basin and then counted again in the next basin in the inventories. A better system is needed, so that groundwater is not counted twice or three times, etc. as "available" water in order to avoid overappropriating basins linked by groundwater flows.

In conclusion, I do not believe that sufficient evidence was presented by the applicant to justify the need for the GWD project, to prove that there is groundwater available for these 25 applications in this groundwater mining project proposal without causing unreasonable adverse impacts on existing users, cultural resources of 3 Indian tribes, and the environment, to prove that the non-enforceable stipulated agreement framework and the proposed inadequate MMM plans are capable of avoiding, minimizing, managing, or mitigating adverse pumping impacts, to prove that the GWD project is environmentally sound for the four basins of origin, nor to prove that this unsustainable proposal is in the public interest. I request that you deny the 25 SNWA applications for these and many other reasons.

Sincerely,



Rose Strickland