

**MINUTES OF THE
SENATE COMMITTEE ON NATURAL RESOURCES**

**Eighty-second Session
March 2, 2023**

The Senate Committee on Natural Resources was called to order by Chair Julie Pazina at 3:32 p.m. on Thursday, March 2, 2023, in Room 2144 of the Legislative Building, Carson City, Nevada. The meeting was videoconferenced to Room 4412 of the Grant Sawyer State Office Building, 555 East Washington Avenue, Las Vegas, Nevada. [Exhibit A](#) is the Agenda. [Exhibit B](#) is the Attendance Roster. All exhibits are available and on file in the Research Library of the Legislative Counsel Bureau.

COMMITTEE MEMBERS PRESENT:

Senator Julie Pazina, Chair
Senator Melanie Scheible, Vice Chair
Senator Edgar Flores
Senator Pete Goicoechea
Senator Ira Hansen

STAFF MEMBERS PRESENT:

Alysa Keller, Policy Analyst
Erin Sturdivant, Counsel
Cherie Dittler, Committee Secretary

OTHERS PRESENT:

Ashley Kennedy, Clark County
Patricia Haddad, Clark County School District
Peter Krueger, Executive Director, Nevada Petroleum Marketers & Convenience Store Association
Doug Busselman, Executive Vice President, Nevada Farm Bureau Federation
Kyle Roerink, Executive Director, Great Basin Water Network
Davy Stix, Nevada Cattlemen's Association
Patrick Donnelly, Center for Biological Diversity
Levi Shoda, Manager, Sadler Ranch
Herman Lewis
Matthew Berg, Chairman, Private Well Owners Association
Jake Tibbitts, Manager, Natural Resources, Eureka County

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Adam Sullivan, State Engineer, Division of Water Resources, State Department of
Conservation and Natural Resources
Jeff Fontaine, Executive Director, Central Nevada Regional Water Authority;
Humboldt River Basin Water Authority
Chaunsey Chau-Duong, Southern Nevada Water Authority
Naresh Kumar, Ph.D., Executive Director, Division of Atmospheric Sciences,
Desert Research Institute
Justin Huntington, Ph.D., Research Professor of Hydrology, Desert Research
Institute

CHAIR PAZINA:

I am requesting a Committee introduction of Bill Draft Request (BDR) R-349.

BILL DRAFT REQUEST R-349: Urges the United States Bureau of Reclamation to
consider certain actions, alternatives and measures for the protection and
management of the Colorado River (Later introduced as Senate Joint
Resolution 3).

SENATOR SCHEIBLE MOVED TO INTRODUCE BDR R-349.

SENATOR FLORES SECONDED THE MOTION.

THE MOTION CARRIED UNANIMOUSLY.

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CHAIR PAZINA:

I will open the hearing on Senate Bill (S.B.) 48.

SENATE BILL 48: Revises provisions relating to air quality. (BDR 40-395)

ASHLEY KENNEDY (Clark County):

Senate Bill 48 will change how air quality fines are utilized in Clark County. I will
provide some background information. Washoe and Clark Counties operate air
quality divisions that monitor permits and enforce federal requirements of the
Clean Air Act. The Division of Environmental Protection monitors the air quality
for the remaining portions of the State. These entities can issue fines and
penalties related to noncompliance with air quality standards and regulations.

Clark County is required to disperse all fines related to air quality, except for administrative costs to the Clark County School District (CCSD), to fund programs and projects related to air quality. Senate Bill 48 will allow Clark County to use some of the penalties for a broader range of air quality programs and initiatives across Clark County.

I will explain sections of the bill. Section 1, subsection 3, clarifies that Clark County can use only \$17,500 per year for administrative costs. Section 2 allows Clark County greater flexibility to use money from fines to support air quality activities, services and programs in the community. Every state or region in the U.S. must develop a State Implementation Plan (SIP) to monitor, maintain and improve clean air in compliance with federal law. The SIP developed by Nevada is submitted to the EPA, approved by the federal government, and updated when new standards are developed or implemented at the federal level

This bill does not have an effective date. If passed, it will by default become effective October 1, 2023. The bill clarifies that any money the CCSD has before changes go into effect will remain for their use only.

By way of explanation, the EPA regulates six common pollutants to determine if states are in compliance with national air-quality standards. Based on these standards, the EPA establishes attainment and nonattainment zones across the U.S. An area that meets or exceeds federal standards is considered to have reached "attainment," while an area that does not meet federal standards is designated as "nonattainment."

In 2016, the Las Vegas Valley was designated as marginal nonattainment because of ground level ozone, the main element in smog. In August 2021, it did not reach attainment. Since January 2023, the Las Vegas Valley has been classified as moderate nonattainment.

When a region reaches nonattainment, the level of severity can be categorized into six classifications with six being the most severe and one being the least severe. In 2016, Clark County reached Level one, and we are now at Level two. Not meeting EPA standards could impact our federal highway funding. We also pursued this bill as we have a community need and revenue stream that has been underutilized. The money at issue is generated from fines and penalties imposed for violating Clark County's air quality standards.

Every year, CCSD is required to submit a plan to the Clark County Board of County Commissioners indicating how they plan to spend the funds. From 2009 to 2023, on average, the school district received just over \$500,000 per year. The school district spends, on average, just over \$330,000 per year, leaving a balance in the account that is available for other air quality needs. Clark County does not have the luxury of maintaining unused funds slated for air quality control, and we should spend every dollar.

SENATOR SCHEIBLE:

What programs would the money be used for if under the control of Clark County?

MS. KENNEDY:

In Clark County, the climate action plan called "All-in Clark County" is to reduce greenhouse gas emissions by 100 percent by 2050. One of the most immediate needs is to fund our Smog-Free Clark County Vehicle Repair Program. The passing of A.B. No. 349 of the 81st Session closed the classic vehicle loophole. The only vehicles exempt from a smog check now are vehicles designated as "classic," like a 1950s roadster. Clark County has invested \$1.4 million in our Smog-Free Clark County program to help low-income residents repair older vehicles to pass a smog test. The \$1.4 million invested would repair 1,400 to 1,500 vehicles. Approximately 16,000 vehicles will need repair before they can pass a smog test. For every 1,500 cars in Clark County we repair, we reduce over 175,000 pounds of emissions.

SENATOR FLORES:

What was the original intent when the money from the fines was earmarked for the Clark County School District?

MS. KENNEDY:

I do not have an answer. I do know that the CCSD has been receiving the money since 2007. I can do some research on the genesis and provide the information later.

SENATOR FLORES:

Are there other programs in Clark County that have a similar fee or penalty structure that feeds the money back to the County? We need to be careful not to over-penalize and fine people. Can you educate the Committee on how the penalty structure works? For example, how are rule breakers identified? How does the penalty structure work? Is there due process for alleged violators? I am

concerned that overzealous peace officers will try to penalize everybody trying to bring more money back to the County.

MS. KENNEDY:

I will provide an example from a similar program in Clark County. If a person who has allegedly violated the Clean Air Act disputes the citation, the violation is submitted for an independent review. If the person disagrees with the review finding, they can request an additional review and, after that, a judicial review. The dispute process is completely independent of Clark County.

SENATOR FLORES:

Assemblyman Howard Watts worked on this bill. One of his objectives was to use some of the funds to pay for repairs to older vehicles so they can pass a smog test. Are there other concerns that the money is being underutilized by the CCSD?

MS. KENNEDY:

The Clark County Board of Commissioners approve the spending plan yearly. One problem is that our air quality has worsened since 2007. The purpose of the original bill was to improve air quality and support air quality programs and initiatives. The way CCSD has been using the money has resulted in the fund balance growing yearly.

Although we recognize that CCSD opposes this bill, we did attempt to work with them on a conceptual amendment that would have split the revenue from these penalties and capped the amount of allocation they would receive at \$450,000. Under the proposed amendment, CCSD would not be able to carry over any fund balance. That amendment was not accepted.

CHAIR PAZINA:

Has the fund balance from air emission violations been the same amount yearly since 2009?

MS. KENNEDY:

The balance is different every year, which creates a problem with planning and budgeting. It is difficult to plan programs and expenditures around revenue that is so inconsistent. The fine program is based on the Clean Air Act and changes from year to year. The fines collected yearly have been anywhere from \$500,000 to \$1 million.

SENATOR HANSEN:

If the fines went to the County, and the CCSD planned to use the fee money on bus conversions, is there a supplemental fund the CCSD could draw from to build their electric bus fleet?

MS. KENNEDY:

Yes. To convert one bus from diesel to electric costs about \$500,000. The fines generated are not enough to pay for the entire CCSD fleet conversion. The federal bipartisan Infrastructure Investment and Jobs Act appropriated \$10 billion to be invested in public transit, including school buses. The CCSD has already been awarded \$10 million to convert 25 school buses to electric and infrastructure to support electric bus operations. A grant is available from the Diesel Emissions Reduction Act, and State money is also available.

SENATOR HANSEN:

What is the estimated cost to repair the estimated 16,000 vehicles in Clark County that need smog repairs to pass a smog test? What is the estimated cost per vehicle?

MS. KENNEDY:

The repair costs can vary. It depends on how old the vehicle is and when a smog test was last done. When the smog program was developed, we averaged between \$950 to \$975 per repair. The program was aimed at low-income Nevadans who could not afford to repair their vehicles in order to pass a smog test. Of the 24,000 vehicles in Clark County initially designated as classic vehicles, only 8,000 of them were true classics under the definition. The remaining 16,000 vehicles were just old vehicles, not true classics.

SENATOR SCHEIBLE:

Can you provide an idea of who is being cited and fined for the smog violations? Are they small businesses, large businesses or individuals?

MS. KENNEDY:

The violation would have to be significant for a citation to be issued. Most violators are major businesses.

CHAIR PAZINA:

As there is nobody to testify in support of the bill, we will hear from those who are opposed.

PATRICIA HADDAD (Clark County School District):

The CCSD has maintained a cohesive partnership with Clark County on the use of these funds. Throughout the partnership, CCSD has demonstrated responsible and impactful use of the funds to support student academics and air quality programs that affect the environment. We have employed infrastructure improvements that have improved the environment surrounding students, families and educators who are in school buildings daily. Our effort has had a positive impact on children and their futures.

We believe the CCSD is uniquely positioned to monitor and use the funds addressing short- and long-term needs for improving the quality of the air we breathe in southern Nevada. We are using the funds for fleet conversions, HVAC improvements for portable classrooms, energy efficiency and improving air quality in southern Nevada.

PETER KRUEGER (Executive Director, Nevada Petroleum Marketers & Convenience Store Association):

Most of the fines generated are from members of our association who are cited for not having a working boot on a gasoline nozzle or not maintaining paperwork correctly. Our members are concerned with the fox guarding the henhouse. When an agency imposes fines they monetarily benefit from, it creates a conflict.

If Clark County has a budget deficit, will they want law enforcement to write more citations to balance the budget? It is the principle that concerns us, not that Clark County needs more money to improve air quality. Our members believe there are better ways of accomplishing improved air quality goals.

MS. KENNEDY:

To address the concerns of the Nevada Petroleum Marketers & Convenience Store Association, we have a system to address violation disputes that is independent of Clark County. Violation disputes are initially submitted to an independent hearing officer, then an independent hearing board and, finally, judicial review. We have faith in the fairness of the process. It is concerning that Clark County has reached nonattainment status and we risk sanctions by the federal government, including reduced highway funding. It is extremely important that our air quality improves.

CHAIR PAZINA:

As there are no other testifiers, I will close the hearing on S.B. 48 and open the hearing on S.B. 113.

SENATE BILL 113: Revises provisions relating to groundwater management plans.
(BDR 48-595)

SENATOR PETE GOICOECHEA (Senatorial District No.19):

I am sponsoring S.B. 113 which was requested by the Nevada Farm Bureau Federation. Although Jake Tibbetts drafted the bill, he stands neutral. He also drafted the groundwater management plan for Diamond Valley and has great knowledge and expertise. Senate Bill 113 was drafted and submitted in response to legislation we passed in the Eighty-first Session. It clarifies steps to address water basins in Nevada that are over-appropriated and overpumped. Half of our basins are currently over-appropriated. It is unclear how many of our basins are overpumped, but we need to address that issue in the future.

This bill only impacts basins designated as being in a critical management area. The legislation does not impact domestic wells which are already addressed in statute unless located in a critical management area.

Assembly Bill No. 419 of the Seventy-sixth Session, was codified as *Nevada Revised Statutes* (NRS) 534.037 and NRS 534.110, subsection 7. The legislation addressed water rights in critical management areas. Over the next ten years, several water management disputes and decisions were appealed to the Nevada Supreme Court. In a subsequent opinion, *Diamond Natural Resources Protection & Conservation Association, et al. vs. Diamond Valley Ranch, et al.*, 138 Nev. Advanced Opinion 43, the Court addressed conflicts in the bill we had not considered. The purpose of S.B. 113 is to clarify that the 2011 Session changes do not affect private water law. The 2011 bill allowed a ten-year period to monitor conservation efforts and conserve groundwater use. The thought was that after ten years, there would be positive recovery from conservation efforts.

My co-presenter, Doug Busselman, will explain the bill's components. There are proposed amendments to the bill, but everyone agrees on the primary concepts. This bill ensures that the tail does not wag the dog, which would happen if all water right holders ended up with water under the cut line. Junior water right holders would then be able to change the groundwater management plan developed for a basin. If there are more junior water right holders and less senior

holders, available water would be over-appropriated. The Diamond Valley is seriously over-appropriated which is why the passage of S.B. 113 is so critical to water management.

The bill maintains priority water law in the state. There is another bill being introduced that addresses retiring water rights and the two bills may be combined down the road. Our water is over-appropriated and retiring water rights is also a critical component to managing our diminishing water resources.

DOUG BUSSELMAN (Executive Vice President, Nevada Farm Bureau Federation):
I will present a summary of S.B. 113 in my testimony ([Exhibit C](#)). The bill is simple and straightforward. It protects senior water rights in areas designated as critical management areas by the State Engineer, and when locally developed groundwater management plans have been submitted to the State Engineer for consideration.

Section 1, subsection 2 of the bill, lines 12 through 17 on page 2, state that a groundwater management plan prepared and submitted to the State Engineer for consideration must be signed by most of the senior water right owners in a basin. In this context, the "majority" is defined as the amount of water rights appropriated for that basin, held by each water right holder.

Section 1, subsection 6 of the bill, lines 23 through 33 on page 3 address protections given to senior water right owners. Specifically, the water of a senior water right owner is not included in a groundwater management plan.

Section 1, subsection 7 of the bill, lines 34 through 42 on page 3, clarifies that the State Engineer is required to check on the progress made by a groundwater management plan after 10 consecutive years. The State Engineer is also required to determine if progress has been made in stabilizing the basin. If no progress has been made, the groundwater plan is dissolved and the curtailment process is initiated, which is addressed in section 2, subsections 1 through 3, on page 4.

Local water right owners should be able to work together and develop strategic well management plans for aquifer stabilization and recovery. The doctrine of prior appropriation cannot be imperiled. Property rights matter, and senior water right owners should not have their water taken unless they refuse to be part of a groundwater management plan.

A proposed amendment to this bill was submitted by the Southern Nevada Water Authority (SNWA). Their amendment, with deletions, eliminates everything we are trying to accomplish with the bill. Although we are not in favor of the SNWA proposal, we are willing to participate in further conversations. Our primary focus is to protect senior water right owners in critical management areas that have submitted groundwater plans.

CHAIR PAZINA:

Has a groundwater plan been implemented since 2011, when was the last legislation was passed?

SENATOR GOICOECHEA:

The Diamond Valley groundwater plan is the only one that has been implemented.

CHAIR PAZINA:

Has the State Engineer had a chance to determine if the plan has been successful?

SENATOR GOICOECHEA:

The plan was adopted by former State Engineer Jason King. The 2011 legislation allowed for a 10-year groundwater plan, but the Diamond Valley plan was extended to 35 years. The time extension, among other issues, was appealed to the Nevada Supreme Court which is why we are back here clarifying the language.

MR. BUSSELMAN:

Section 1, subsection 7 is aimed at the time allowed for a groundwater plan to be in place. The subsection creates a ten-year clock, after which the State Engineer must review the merits of the plan and determine if it has been successful. The Diamond Valley plan is currently the only plan in place. If the bill passes, the State Engineer will be responsible for reviewing the plan after ten years to determine if the groundwater plan has been successful.

CHAIR PAZINA:

I did not realize that the first bill allowed 35 years for a groundwater plan to remain in place. What percentage of senior water right holders are in these critical management areas?

SENATOR GOICOECHEA:

Only Diamond Valley has been designated as a critical management area. To correct the record, NRS 534.037 and NRS 534.110, subsection 7, enacted in

2011, required the groundwater plan to be implemented within 10 years, not 35 years. Somehow the time allowed to implement the plan was extended to 35 years. The Supreme Court found that the basin had ten years to implement a groundwater plan.

SENATOR HANSEN:

The Supreme Court decision was a 4 to 3 split. In *Diamond Natural Resources*, there was only one senior water rights holder, and everyone else was a junior holder. Is there a definition of a senior water rights holder?

MR. BUSSELMAN:

The definition is based on the number of people who owned water rights before the basin went over the limit.

SENATOR HANSEN:

The Sadler Ranch folks submitted a letter ([Exhibit D](#)) for this meeting that says their ranch had previously been spring fed. They also indicated the springs have dried up due to the extensive pumping of their basin. Who determines the acceptable level of water to be pumped? Would it be determined by when and where the springs start to flow again on the ranch, or is the decision based on the stability or depth of the water table?

SENATOR GOICOECHEA:

I am familiar with the Sadler Ranch and Diamond Valley situation, but during the ten-year plan there must be some recovery. There are water sources in Diamond Valley that are completely dry and could take a century to recover. The bill is about recovering water resources. Nevada over-appropriated and overpumped, so now we must employ conservation measures to correct it. We must also consider retiring water rights.

MR. BUSSELMAN:

In section 1, subsection 7, lines 37 and 38 on page 3 state that an analysis will be done by the State Engineer to determine if there has been significant progress toward stabilizing the drawdown. This language indicates that when your water situation is not worsening, that would be acceptable progress.

SENATOR HANSEN:

I'm sure someone from the Division of Water Resources will develop some criteria to be followed. There is only one critical management area in Nevada, Diamond Valley in Eureka County.

MR. BUSSELMAN:

Although we now have only one critical management area in the State, future designations of critical management areas are covered in the bill. We are not retrying *Diamond Natural Resources*. Section 7 is specific to Diamond Valley, but only for the ten-year clock to make improvements in conservation efforts. The bill clarifies that Diamond Valley does not have 35 years to make improvements.

SENATOR GOICOECHEA:

Given the number of over-appropriated basins in Nevada, Diamond Valley is only the first of potential critical management areas. The State Engineer will declare critical management areas in the future but may also opt not to institute a critical management plan. In ten years, you have the option of curtailing water by priority until the basis starts to recover. This is how limited water resources must be handled, even though it is harsh.

SENATOR SCHEIBLE:

I want to understand section 1 of the bill. Are there more senior holders than junior holders? Are the junior water rights holders causing the over-appropriation?

MR. BUSSELMAN:

The junior water right holders have caused the over-appropriation.

SENATOR GOICOECHEA:

As the basin drops, the perennial yield drops, and more permits are appropriated above the cut line. As the basin worsens, more water right holders become junior.

SENATOR SCHEIBLE:

I want to make sure I understand the concept. For example, if the basin has 100 water rights holders, and 75 have senior rights while 25 have junior rights, does section 1, subsection 1, paragraph (a), subparagraphs (1) and (2) of the bill require that a petition be signed by 51 rights holders for a plan to be passed? The section requires that a majority of the 75 have to be senior water right holders. I am assuming that the purpose of those sections is so junior water right holders cannot band together and pick off a few of the senior water rights holders so a

plan can pass that is not approved by the majority of the senior rights holders. Is this the purpose of the bill?

SENATOR GOICOECHEA:

That is exactly what the bill intends to do.

SENATOR SCHEIBLE:

Is there a definition for "significant progress"?

SENATOR GOICOECHEA:

There has been much discussion on the definition of that phrase. Do we consider perennial yield, quantify drawdown or static levels? The best measurement is to quantify water table measurements at a specific time every year.

SENATOR SCHEIBLE:

What about a hearing to determine if substantial progress has been made?

SENATOR GOICOECHEA:

I like the idea of defining "substantial progress" but not in requiring a hearing to determine if substantial progress has been made. That would result in needless litigation, something we are trying to avoid. If the State Engineer is required to make a hearing determination, his decision could be litigated. The concept of creating a groundwater management plan does not contemplate litigation.

CHAIR PAZINA:

We will hear testimony in support of S.B. 113.

KYLE ROERINK (Executive Director, Great Basin Water Network):

We support this bill, especially section 1, subsection 7 which specifies that after first considering water rights priority, the curtailment of water rights are necessary to put the water supply in balance. By analogy, say you were a prime customer of Southwest Airlines and, because you are such a good customer, you have priority rights against overbooking. If Southwest Airlines was overbooked but ignored your priority status and removed you from a flight anyway, you would be angry, and rightfully so. Senior water rights must be paramount.

DAVY STIX (Nevada Cattlemen's Association):

Our association supports S.B. 113. Our industry is multigenerational with some families having ranched in Nevada since the late 1800s. The prior appropriation

doctrine that water rights are determined by priority of beneficial use is important when your livestock are grazing through groundwater. We support the bill wholeheartedly.

PATRICK DONNELLY (Center for Biological Diversity):

We support this bill. At first glance, we look like a bunch of farmers fighting with each other, so why would an environmental group care? Six years ago, I met with Senator Goicoechea who said, "If you protect senior water rights, you protect the environment" because the oldest water rights are associated with surface water. Sadler Ranch possesses important water springs used by wildlife and ecosystems; all are threatened by over-appropriation and groundwater management plans that do not protect senior water rights. This is an environmental and property rights issue, which is why we are in support.

Section 7 is extremely important as a groundwater plan should not be in place longer than ten years. A plan should only be implemented for emergency stabilization and a determination should be made after ten years if the plan is working. If the plan shows no visible progress, other measures should be taken.

LEVI SHODA (Manager, Sadler Ranch):

I submit proposed revised language for S.B. 113 ([Exhibit E](#)). On behalf of Sadler Ranch, we strongly support this bill. Senior water rights must be protected for many reasons. When legislation was first passed in 2011, the language was vague, and the courts had difficulty interpreting the statutory intent. The purpose was to focus on stabilization of water basins that were over-appropriated. There are springs in the basin that support wildlife and other ecosystems that develop with irrigation.

Water law codifies the prior appropriation doctrine known as senior water rights. Protecting those rights will also protect related environmental issues which affect Sadler Ranch and all future basins. It is imperative that this legislation be passed to help preserve water resources in the future.

SENATOR HANSEN:

Are the springs at Sadler Ranch completely dry?

MR. SHODA:

We have a mitigation right that allows us to access water, but we must now pump water that previously flowed freely through the springs. We are one of the

many ranches at the north end of the basin where all the springs have dried up from over-appropriation of water.

SENATOR HANSEN:

How long have you been ranching in the basin and how long have you been dealing with water over-appropriation?

MR. SHODA:

The springs started drying up in the 1980s.

SENATOR HANSEN:

I spent a lot of time in Diamond Valley when I was young. Even then, every water user in the basin experienced divots while pumping water. Water users in the basin have been experiencing water over-appropriation for at least 40 years. Even 40 years ago, efforts were made to curtail water usage, and the pumping of water increased. It appears there is a clear correlation between the springs drying up and the pumping of water in the valley.

MR. SHODA:

Those issues were resolved with the State Engineer. Although the initial 2011 legislation was specific to the Diamond Valley situation, any basin would have to be appropriated up to 90 percent of the previous water yield to be designated as a critical management area. The 90 percent benchmark covers half the basins in Nevada. This problem will not disappear as we all continue to pump. There are many sides to this problem.

SENATOR HANSEN:

I am just verifying that there is a clear correlation between the springs drying up and the critical management areas. Thank you for submitting your letter as it explains many of the issues.

SENATOR PAZINA:

We will hear testimony opposing S.B. 113.

HERMAN LEWIS:

I live in Pahrump and my comments are specific to Basin 162. When I moved to Pahrump ten years ago, the first thing I did was educate myself on the water situation and Senator Goicoechea was helpful in that regard. I now hold a water permit and am pending certification for farming a domestic homestead. I have

tried to attend all water district board meetings with the county commissioners. I believe the water allocation in Basin 162 is precarious; too many permits for water that have never been used for beneficial use. Small farmers are required to do this.

Although I support critical management plans designed by the Nye County Water District, there is a bait-and-switch component to the process if water is not properly managed. I was previously informed that the State Engineer had no control over domestic wells. I am not sure this is correct. Is this bill directed towards saving the senior water rights at the expense of domestic wells? I do support the implementation of critical management plans, but senior water rights must be protected.

MATTHEW BERG (Chairman, Private Well Owners Association):

I am presenting a letter ([Exhibit F](#)) summarizing our opposition. Well owners in Nye County vigorously oppose S.B. 113. The proposed legislation allows holders of water rights to have input and exclusive control of water management. The bill excludes representation from over 11,500 private domestic well owners. We have over 23,000 residents on private wells and the bill excludes them from having any input on drinking water plans. This bill threatens the sustainability of the rural lifestyle and is just plain wrong. Thank you so much for giving me the opportunity to speak.

SENATOR PAZINA:

We will hear testimony of those who are neutral.

JAKE TIBBITTS (Manager, Natural Resources, Eureka County):

I facilitated the process in the Diamond Valley Groundwater Management Plan, and am speaking on behalf of my employer, Eureka County as neutral. To clarify, the Diamond Valley Groundwater Management Plan is not a 35-year plan, with the goal of the plan to stabilize the groundwater levels. It was somehow interpreted that a 35-year plan was appropriate based on water monitoring, and the response of the aquifer. Then, if the plan was reviewed after ten years, and a 30 percent reduction in water pumping was determined, that would be significant progress. However, we must experience a 55 percent reduction of pumping in the Diamond Valley basin to meet the current perennial yield line.

The State Engineer has the discretion to ramp up reductions in pumping or slow them down; it is based on the groundwater level response. Although the plan

could be in effect for 35 years, it could also be shorter. Most reductions occur in the first ten years.

ADAM SULLIVAN (State Engineer, Division of Water Resources, State Department of Conservation and Natural Resources):

I am testifying because the bill directly involves actions of the State Engineer and I want to provide some perspective. Revisiting the critical management area statutes is worthwhile for the reasons discussed. The bill as written is something our office could feasibly implement in Diamond Valley and other future critical management areas. The intent of the bill is to protect senior water rights, and there is a presumption that the perennial yield would separate junior and senior water rights holders.

Water curtailment in respect to water rights are fluid. If you are a priority senior water rights holder, your perennial yield allows you to be exempt in a strict "curtailment by priority" scenario. If you are a junior water rights holder, you would be subject to water curtailment. In reality, there are many situations where senior priority would not apply. For example, if we enacted a groundwater management plan today based on the perennial yield estimate, and if there was an adjudication of claims to vested rights, priority could change.

SENATOR HANSEN:

Are you saying that any water level below perennial yield could not belong to senior water rights holders? What is the capacity of a groundwater basin to support long-term groundwater pumping?

MR. SULLIVAN:

Perennial yield can change as our scientific methods improve, and we can better budget available water. The water budget can change depending on the accounting method applied for springs and the resulting discharge on the valley floor. Water above or below that line can also change. If we adjudicate claims based on pre-statutory vested rights, other valid rights could shift that spectrum.

SENATOR HANSEN:

I have always felt sorry for the state water guys. You get beat up no matter what you do and that is no exaggeration.

Do the springs at Sadler Ranch in the Diamond Valley Critical Management Area need to start flowing again before you can determine if they have reached a

certain level? Are you looking for stabilization at 200 feet on average in your test wells? We could get Sadler Ranch springs flowing again, but many people's water supply would be affected if you shut down other supply to achieve that. What are the criteria?

MR. SULLIVAN:

The Diamond Valley Groundwater Management Plan was developed by the local community with the objective of stabilizing the groundwater level decline.

SENATOR HANSEN:

If you set the level at 200 feet, and the water rises to and stays at that level, acceptable stabilization has been achieved. Once stabilization is reached, you want to see the groundwater level improve. The initial goal is to just stop the bleeding.

SENATOR FLORES:

My understanding is that Diamond Valley has been over-appropriated for about 40 years. I am trying to understand perennial yield and curtailment, and how the numbers are determined. Moving forward, the doctrine of prior appropriations comes into play. Does the NRS ever deviate from that doctrine? Do we ever move away from the doctrine that a senior water holder will always have priority over a junior water holder? How was water continually over-appropriated in Diamond Valley over a 40-year period? I do not want to revisit this same issue session after session.

MR. SULLIVAN:

Diamond Valley was over-appropriated in 1961. The perennial yield number is determined by the State Engineer. None of these quantifiers were in NRS until the critical management area allowance was created. There are many basins where the perennial yield commitment succeeded. The reasons why it took so long to get this language added to statute are complicated.

For a long time, Nevada water law was not well developed, and did not specify how to manage water, except by priority. The critical management area allowance was the first statute interpreted by the Supreme Court to allow deviation from the doctrine of prior appropriation. How the prior appropriation doctrine is applied to reducing groundwater pumping was not well developed in water law.

SENATOR FLORES:

Discussing the doctrine of prior appropriation is at the heart of this conversation. Are there now sections in the NRS where the doctrine of prior appropriation does not apply in certain circumstances?

In *Diamond Natural Resources*, the primary argument was whether the legislative intent of the 2011 Legislature was to deviate from the prior appropriation doctrine. When else has the Legislature determined that deviation from the doctrine is appropriate? At some point, we are going to be engaged in this same conversation again down the road.

MR. SULLIVAN:

I cannot speak for past discussions, but even with the Diamond Valley plan, the prior appropriation doctrine "first in time, first in right" still applied, it was just interpreted differently. If a senior priority water right holder is using their water continuously for beneficial use, their water is protected from junior users.

JEFF FONTAINE (Executive Director, Central Nevada Regional Water Authority, Humboldt River Basin Water Authority):

We strongly support the prior appropriation doctrine and are neutral on this bill. There is only one groundwater management plan and critical management area in the State. The Diamond Valley situation and plan are unique, and specific only to Diamond Valley. Going forward, we will have additional critical management areas designated in central Nevada, the Humboldt region or both. Going forward, S.B. 113 will make it more difficult to develop management plans in critical management areas and for them to be successful in the ten-year time frame. We are aware of the impact of mandatory curtailment on junior water rights holders and larger communities. We need to strictly adhere to prior appropriation and create additional opportunity for groundwater management plans.

CHAUNSEY CHAU-DUONG (Southern Nevada Water Authority):

I will submit a proposed amendment ([Exhibit G](#)) to S.B. 113. On behalf of the Southern Nevada Water Authority, we are neutral on this bill. We discussed a proposed amendment with the Nevada Farm Bureau Federation but did not reach a consensus. We support what Senator Goicoechea is trying to accomplish with this bill but want certain terms in the bill clarified, for example, the definitions of "establishment," "starting point" and the calculation method for "perennial yield." We asked to strike section 6, because we needed clarification on the terms it cited. We believe this bill is needed to manage water effectively.

SENATOR GOICOECHEA:

When a critical management area is designated, the property owner is required to prepare a ten-year critical management plan. If you fail to develop a plan, NRS requires that water consumption be curtailed based on priority. Depending on the perennial yield line, people who have lower priority may have their water use limited. Junior right owners may also have their water use limited until improvement to the water yield is realized. The realities are harsh. That is why we are looking at developing a groundwater plan. Diamond Valley users have been trying to work out these issues among themselves and will hopefully still get there.

What exactly constitutes the recovery of a basin? If it has been over-appropriated and overpumped for over 70 years, quantifying recovery is a problem and I do not know how to fix it. Water is always going to be an issue. The water numbers are great this year, but I am concerned about down the road. We will continue to work with stakeholders on some of the language conflicts within the bill, use some wordsmithing, and be done with it. We will then return to the Committee with language we can agree on and move this bill forward.

SENATOR PAZINA:

I will close the hearing on S.B. 113. The Desert Research Institute has a presentation for the Committee. I saw their work in Las Vegas and was fascinated by their scientific studies and invited them to speak today.

NARESH KUMAR, PH D. (Executive Director, Division of Atmospheric Sciences, Desert Research Institute):

I have a PowerPoint presentation ([Exhibit H](#) contains copyrighted material. Original is available upon request of the Research Library). I am pleased to share the work that scientists at the Desert Research Institute (DRI) are doing to create a better future for Nevada. We are one of eight Nevada System of Higher Education institutions with two campuses; one is in Reno and another in Las Vegas. We have more than 450 scientists, engineers, students and support staff and over 100 primary, secondary and tertiary faculty working in 40 different disciplines. We do not grant degrees other than for advanced doctoral candidates; we only conduct research. We also have students from other institutions that work at DRI and support them financially.

Our salaries are not funded by the State. Last year, DRI generated \$43 million in addition to external grants and contracts. Only 15 percent to 16 percent of our

budget is funded by the State. The Desert Research Institute focuses on three areas of science: atmospheric and hydrologic sciences and ecosystems.

For example, DRI has a team studying microplastics, small bits of plastic that are micrometers or millimeters in size. These plastic fragments emanate from degraded materials, fabric or cosmetics. Microplastics are being found in pristine lakes, such as Lake Tahoe, Lake Mead and in the Alps in Europe. Our team is investigating the sources of these microplastics and developing solutions to eliminate or treat them. Microplastics have become an emerging concern for all countries, but especially the United States.

The DRI team is studying cloud-seeding, a practice I pioneered. We have managed the Statewide cloud-seeding campaign for years, although we have experienced some funding problems. We still have 27 generators in Nevada to conduct seeding operations. The DRI seeds clouds during anticipated storms to increase precipitation by 10 percent to 12 percent, which is necessary during periods of drought.

One of six regional climate centers in the Country is located at the DRI. Since the 1980s, their job is to collect and analyze climate data for 11 Western states and provide it to federal and local authorities for developing policy or decisions related to climate change. The DRI provides data that is included in a map maintained by the Environmental Defense Fund. The map depicts drought conditions throughout the Country.

Climate change is heavily impacting the Western United States, with Las Vegas one of the fastest warming cities in the Country. Buildings and paved roads are creating urban heat islands, so our scientists are researching ways to make communities more resilient by cooling urban areas.

Our scientists are conducting several wildfire studies. We are collaborating with the University of Nevada, Las Vegas, on a \$20 million National Science Foundation grant, studying the impact of wildfires on soil dynamics. When a fire burns in a specific area, the soil becomes impermeable, and the chance of debris flow and mud slides increase. Another study is determining how wildfire smoke affects public population health.

Our scientists are developing a wildfire forecast model to determine where a wildfire will spread based on meteorological conditions. The DRI also houses

a climate control facility on our Reno campus. This facility supports our local farmers by determining innovative ways to grow different products. Solar fields are maintained at both campuses that generate 50 percent of energy needed to operate their respective facilities. We are conducting research on maximizing the efficiency of solar energy.

The DRI employs many archaeologists and anthropologists who have been conducting research since 1969 to better understand how culture and environmental conditions impact human decisions. Anthropologists study the modern population, while archaeologists study materials used by older populations. We have also begun offering services in archaeological history.

A new topic under research is well water contamination in Nevada. We recently conducted a study and concluded that over 50,000 private wells in Nevada and the Great Basin may be at risk for elevated arsenic. Out of 174 wells sampled, over 22 percent exceeded EPA guidelines on arsenic.

The DRI works with the U.S. Department of Energy on the Nevada National Security Site and provides engineering, hydrologic and science support services. We also monitor radionuclides in Nevada groundwater systems and work closely with the U.S. Department of Defense and the U.S. Army and Navy to determine how environmental factors impact military equipment responses.

JUSTIN HUNTINGTON, PH.D. (Research Professor of Hydrology, Desert Research Institute):

My group is focused on consumptive water use by mapping groundwater perennial yield estimation, and remote sensing of consumptive water use. We also study drought conditions and measurement of evaporation from reservoirs. We have a weather station on Lake Powell to help us study its evaporation rates. Evaporation estimates from these reservoirs on the Colorado River are very important, as they provide a better understanding of evaporation rates. One of the least known fluxes from the Colorado River is open water evaporation; specifically, vapor transpiration. Combining these evaporative methods results in water applied to agricultural fields, which then reverts to bare soil transpiration from plants and is consumed through evaporation.

The applied water can recharge the underlying groundwater, and through runoff return to the system. But the great majority of water consumed is through the process of vapor transpiration. To monitor these processes, we use satellite

imagery to track vapor transpiration. We use spatially gridded weather data and bring models together, producing maps of vapor transpiration at a 30 mm to pixel resolution for the entire western United States. For context, a 30 mm to pixel measurement is about a quarter acre, the infield of a baseball diamond.

Using our app, you can zoom in on any agricultural field in the West and view the monthly evaporative transpiration rate for any field. We just hand-digitized all agricultural fields in the State. We also map geographic information system field boundaries from the other Western states and map them as image data. These images are mapped to polygons, which are used to develop spatial summaries and build an extensive geo-database.

CHAIR PAZINA:

I am beyond fascinated by your work. This is such an important presentation, especially with the drought conditions in Nevada.

DR. HUNTINGTON:

We are monitoring the reduction in consumptive water use. In the Grand Valley of Colorado, they implemented a pilot project where they did not irrigate for a year. You can see the results of the project on Slide 21 of [Exhibit H](#). The result clearly reflects the success of the pilot project.

Through the app, we can quantify conserved consumptive water use. There has been much discussion on how conserved consumptive use can save the Colorado River. We can now print those values out for study.

The DRI, U.S. Geological Survey (USGS) and Division of Water Resources received funds to start the Nevada Water initiative. Projects we have initiated with the funds include providing data and guidance for systematic Statewide updates on agricultural consumptive water-use inventories, building a consumptive water-use database and updating the science to estimate groundwater discharge rates that are used to estimate perennial yield.

Groundwater recharge naturally discharges through free modified plants that tap the shallow groundwater table. When we pump water, the water table is lowered and captured in a conservation mass. We then salvage the water for beneficial use. Groundwater discharges are the basis of perennial yield. We are updating the science to better understand perennial yield estimates throughout the State.

We are working toward a better understanding of how best to estimate groundwater recharge and water availability, but it is easier to estimate the discharge than the recharge because we can visually see and measure it.

We have a consumptive water-use database. In the late 1970s, the USGS launched the Landsat satellite, which took pictures of the earth every 8 to 16 days. These satellite pictures— "earth selfies"— are the longest continuous record of earth observation available. We use these pictures to update field boundaries and map irrigation status through time.

From every polygon, we can see if land has been irrigated, not irrigated or shorted back to the 1970s to determine water volume. We can identify an irrigation system type, the flood furrow center pivot, wheel lines, and merge the older data with the water rights database. This data helps us calculate consumptive water use, meteorological data and monitoring. We have a network of 18 agricultural weather stations to better understand agricultural water requirements. These stations support irrigation scheduling, farm conservation and water use.

In the picture of Diamond Valley on Slide 13 of [Exhibit H](#), you can see a low energy precision app, converting the center pivot systems by doubling up or down on the downspouts, and dragging the nozzles through the alfalfa to conserve nonbeneficial and avoidable consumptive use. We are enjoying a 20 percent water savings converting to this new technology. There is great potential to conserve water and we are helping Nevadans implement this technology.

SENATOR HANSEN:

Instead of the traditional spray methods everybody still uses, your plan is to drop the water on the ground instead of losing it through evaporate transpiration. You said we can go back to the 1970s and chart water use every 8 to 16 days with accuracy. Just how accurate is the older data? Does watching changes over time provide a determination of accurate water consumption?

DR. HUNTINGTON:

The earlier images from the 1970s are not the spectral wavelengths we have today, so we make adjustments and corrections to the older data. We have estimated the older data is within a 10 percent to 15 percent margin of error. The older imagery still provides us with 40 years of usable data.

SENATOR HANSEN:

When State Engineer Adam Sullivan mentioned using new science to determine perennial water use, you are the man he is talking about because you are the experts in the State. Who checks your studies and conclusions?

DR. HUNTINGTON:

We collaborate with Phil Gardner of the USGS. He is the groundwater specialist for the Nevada Water Science Center.

SENATOR FLORES:

What type of relationship do you have with Nevada high schools? We know you have two key institutions in Reno and Las Vegas, but how are we getting our younger folk excited about these topics? Many kids do not know that your world even exists, and learning they are capable of engaging in this world is good for everyone.

DR. KUMAR:

The DRI has robust K-12 STEM programs. For example, we have 150 green suitcases containing mini labs designed around different scientific topics. We share these boxes with educators all over Nevada, free of cost, for use in a classroom setting. Educators can request a box on our website, and we send the box to and from school at no cost to the requesting educator. The boxes are designed to teach children different science topics and over 100,000 students in Nevada have benefitted from them.

DR. HUNTINGTON:

We just launched an internship program where high school students can shadow research professors. I have four high school students working directly under me right now.

CHAIR PAZINA:

Due to time restraints, the DRI could not present information on all their programs, but what I would like to hear more about is the Greenland Ice Sheet project.

DR. HUNTINGTON:

We have one of the highest rated ice core teams, led by Professor Joe McConnell. Last summer, his team was in Greenland collecting ice core samples which were returned to Nevada for study. The team is now analyzing the samples to research the climate history of Greenland over the last 9,000 years. One of their areas of

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research is what led to the decline of empires. and determining if drought conditions or other factors could be garnered from the samples.

SENATOR HANSEN:

Russian scientists are conducting a similar study and it would be interesting to compare the results of both studies.

CHAIR PAZINA:

As there is no public comment, the meeting is adjourned at 5:24 p.m.

RESPECTFULLY SUBMITTED:

Cherie Dittler,
Committee Secretary

APPROVED BY:

Senator Julie Pazina, Chair

DATE: _____

EXHIBIT SUMMARY				
Bill	Exhibit Letter	Introduced on Minute Report Page No.	Witness / Entity	Description
	A	1		Agenda
	B	1		Attendance Roster
S.B. 113	C	9	Doug Busselman/ Nevada Farm Bureau	Testimony
S.B. 113	D	11	Doug Frazer/ Sadler Ranch	Letter of Support
S.B. 113	E	14	Levi Shoda/Sadler Ranch	Proposed Revised Language
S.B. 113	F	16	Matthew Berg/ Private Well Owners Association	Letter in Opposition
S.B. 113	G	19	Chaunsey Chau-Duong/Southern Nevada Water Authority	Proposed Amendments
	H	20	Naresh Kumar/Desert Research Institute	Presentation