

**MINUTES OF THE MEETING
OF THE
ASSEMBLY COMMITTEE ON NATURAL RESOURCES,
AGRICULTURE, AND MINING**

**Seventy-Ninth Session
February 21, 2017**

The Committee on Natural Resources, Agriculture, and Mining was called to order by Chair Heidi Swank at 1:32 p.m. on Tuesday, February 21, 2017, in Room 3138 of the Legislative Building, 401 South Carson Street, Carson City, Nevada. The meeting was videoconferenced to Room 4404B of the Grant Sawyer State Office Building, 555 East Washington Avenue, Las Vegas, Nevada. Copies of the minutes, including the Agenda ([Exhibit A](#)), the Attendance Roster ([Exhibit B](#)), and other substantive exhibits, are available and on file in the Research Library of the Legislative Counsel Bureau and on the Nevada Legislature's website at www.leg.state.nv.us/App/NELIS/REL/79th2017.

COMMITTEE MEMBERS PRESENT:

Assemblywoman Heidi Swank, Chair
Assemblywoman Lesley E. Cohen, Vice Chair
Assemblyman Chris Brooks
Assemblywoman Maggie Carlton
Assemblyman John Ellison
Assemblywoman Sandra Jauregui
Assemblywoman Lisa Krasner
Assemblywoman Robin L. Titus
Assemblyman Justin Watkins
Assemblyman Jim Wheeler
Assemblyman Steve Yeager

COMMITTEE MEMBERS ABSENT:

None

GUEST LEGISLATORS PRESENT:

Assemblyman Michael C. Sprinkle, Assembly District No. 30

STAFF MEMBERS PRESENT:

Susan E. Scholley, Committee Policy Analyst
Randy Stephenson, Committee Counsel
Nancy Davis, Committee Secretary
Cheryl Williams, Committee Assistant



OTHERS PRESENT:

Jana Wright, Private Citizen, Las Vegas, Nevada
Tony Wasley, Director, Department of Wildlife
Karen Layne, Private Citizen, Las Vegas, Nevada
Lori Bellis, Private Citizen, Reno, Nevada
Chuck Garbinski, Private Citizen, Gardnerville, Nevada
Leah Sturgis, Private Citizen, Gardnerville, Nevada
Tom Clark, Private Citizen, Reno, Nevada
Tina Nappe, representing the Toiyabe Chapter of the Sierra Club
Mike Reese, President, Southern Nevada Coalition for Wildlife
Julius Fortuna, Conservation Director, Nevada Firearms Coalition
Gerald A. Lent, Private Citizen, Reno, Nevada
Daryl Capurro, Private Citizen, Reno, Nevada
Walt Gardner, Private Citizen, Ruby Valley, Nevada
Furn Winder, Private Citizen, Elko, Nevada
Joyce Gavin, Private Citizen, Gardnerville, Nevada
Jeremy Drew, Commissioner, Board of Wildlife Commissioners, Department of Wildlife
Howard Watts, III, Private Citizen, Las Vegas, Nevada
Christian Gerlach, Private Citizen, North Las Vegas, Nevada
Rita Ransom, Private Citizen, Las Vegas, Nevada
Hillierie Patton, Private Citizen, North Las Vegas, Nevada
David von Seggern, Private Citizen, Reno, Nevada
Kyle J. Davis, representing Nevada Conservation League
Tammera Thompson, Private Citizen, Verdi, Nevada
Deborah Gordillo, Private Citizen, Las Vegas, Nevada
Lori Saward, Private Citizen, Las Vegas, Nevada
Ellen Moore, Mining Justice Organizer, Progressive Leadership Alliance of Nevada
Arthur (Art) Henderson, Commissioner, Oil and Gas, Commission on Mineral Resources
Jerome P. Walker, Private Citizen, Reno, Nevada
John Snow, Member, Commission on Mineral Resources
John Sande, IV, representing Western States Petroleum Association
William J. Ehni, Private Citizen, Carson City, Nevada
Steve K. Walker, representing Board of County Commissioners of Eureka County
Ray Bacon, representing Nevada Manufacturers Association
Richard Perry, Administrator, Commission on Mineral Resources, Division of Minerals

Chair Swank:

[Roll was called and standard rules of the Committee were reviewed.] Before we start this hearing, I want to make a statement and address an email that was sent out by Assemblywoman Titus yesterday. I would like to remind the Assemblywoman, members of this Committee, and the public that the hearing of Assembly Bill 101 was made public on

February 16, 2017. While the Legislature is not subject to open meeting laws, as Chair of this Committee, I think it serves the democratic process to adhere to these rules, with exceptions of extreme cases and deadlines. I would also like to remind the Assemblywoman that in advance of the 2017 Session, I offered to meet with her, or any minority representative from the Assembly Committee on Natural Resources, Agriculture, and Mining, on a weekly basis to keep everyone on the same page. Neither she nor any other Republican has accepted my offer, but the offer still stands. As to the scheduling of the work session for A.B. 101 on Thursday, I would like to turn to a bit of history from the 2015 Session. Ms. Titus sponsored Assembly Bill 123 of the 78th Session. It was heard on Tuesday, February 18, 2015, and scheduled for work session on Thursday, February 20, just as A.B. 101 has been scheduled this session. Even more startling, though, is that it was voted out of Assembly on February 24, 2015, less than a week after it was heard. The Assemblywoman did not seem to have an issue with the process in that case. I am committed to working with both Democrats and Republicans throughout this session; however, as Chair of this Committee, I will be scheduling bills and work sessions that meet noticing requirements and on schedules that are not new but have been followed by members on both sides of the aisle.

With that, I open the hearing on A.B. 101 and invite Assemblyman Sprinkle to provide opening remarks.

**Assembly Bill 101: Revises provisions governing the management of wildlife.
(BDR 45-187)**

Assemblyman Michael C. Sprinkle, Assembly District No. 30:

I am here today to present Assembly Bill 101. I think the easiest way for me to begin my testimony is to address the many misperceptions that have been revolving around this bill the last several days. Contrary to how things usually go, I will first say what is not intended in this bill. This is absolutely as much for legislative intent as anything else.

First and foremost, this bill does not stop management of predators. It does not stop lethal means of management of predators. This bill does not prevent the Department of Wildlife (NDOW) from managing big game mammal populations.

What does this bill do? This bill brings statute back to the original intent of the \$3 fee agreed upon many years ago. It allows NDOW to use its expertise in managing predators and other big-game populations. This bill removes the 80 percent mandate of lethal management of predators, which is how current statute reads for all \$3 fees.

Finally, I will discuss what still exists in statute, even if this bill was to pass. The NDOW must still consider the recommendations of the Board of Wildlife Commissioners, first and foremost. The Department of Wildlife must still take public testimony and the opinions of all affected by big game management into consideration. In essence, all other requirements for this account and the management of the \$3 fee still exist.

What I want to do with this bill, and what I want this language to read in statute, is to allow those people with the expertise and knowledge in NDOW, along with the recommendations from those they must listen to, but most importantly, from the public; from all of those with a vested interest in the management of big game mammals. I want NDOW to use its expertise and not have its hands tied. Currently, statute ties their hands in how they manage all big game and certainly how they manage predators. I am happy to answer questions.

Assemblyman Wheeler:

My question is for legal counsel. Assemblyman Sprinkle was looking at the legislative intent of the bill, and I understand that is extremely important. As I look at section 4, which designates the use of the funds for predator control and other things as well, is that how the bill reads, or is that just the intent of the bill?

Assemblyman Sprinkle:

According to section 4, there are no statutory changes.

Assemblyman Wheeler:

This is why I am asking; I believe that it may actually change how section 4 is interpreted.

Randy Stephenson, Committee Counsel:

Section 4 is what is known as a transitory provision. You are correct; it attempts to address the issue of what happens with the existing programs for which money has been expended. The idea with the provision in section 4 was, essentially, you can still use the money up until July 1, 2017. After that point, any money collected under *Nevada Revised Statutes* (NRS) 502.253 could not be used for those programs. It would go to the new programs. That is our interpretation of section 4.

Assemblywoman Jauregui:

Section 3 refers to obtaining matching money from the federal government. Have we ever received matching money? If so, how much money is available?

Assemblyman Sprinkle:

Instead of trying to address that, I would like to call an expert from NDOW who could explain that specific language. He should be back in the meeting soon.

Assemblyman Ellison:

You were discussing removing the part that states 80 percent has to be used for predator control, is that correct?

Assemblyman Sprinkle:

That is 80 percent for lethal predator management.

Assemblyman Ellison:

That was the intent when the hunters all voted in the \$3 fee, that money was supposed to go strictly to predator control. Is that correct?

Assemblyman Sprinkle:

Those are two separate things. The original intent, in 2001, was the \$3 fee for predator management and control. The current language that came into existence last legislative session was to mandate 80 percent of that \$3 fee be used for lethal predator management.

Chair Swank:

I have a copy of the original bill from 2001, Assembly Bill 291 of the 71st Session. It does not specify the 80 percent. It says programs for management and control, wildlife management activities relating to the protection of nonpredatory game animals, and conducting research and programs for education of the general public. That is the original bill. There were two other versions of this in 2009 and in 2015.

Assemblyman Ellison:

I brought this up because I do not think the 80 percent is being met. I asked for an audit of the funds to see where this money is going. That way the state can look at this and see where this money is being used, if 80 percent of this money is being used for predator control or not. I have heard two versions of this. That is why I have asked for an audit. It will determine if this money is being used for what it was intended. In the rural areas, where the problems are occurring, we are losing ground on predator control. You notice we are trying to list the sage grouse as an endangered species, because the ravens are in massive numbers and they are only poisoning 2,500 a year. We have a real problem out there. We have coyotes eating puppies in front yards in front of people's grandchildren. We have a lot of problems with mountain lions and coyotes; not only are they hitting the big game, they are hitting the small game. I really think this is important. I understand what you are trying to do, but I think it is important to verify if this money is being used for what it is supposed to be used for. I am hoping we can come to some kind of working solution because I am really worried about what is going on in the rural areas.

Assemblyman Sprinkle:

I would go back to my opening statement that the legislative intent of this bill is in no way to prevent NDOW from using lethal management of predators as they see fit and from the recommendations that they receive from all bodies who have a vested interest, including all of the individuals whom Assemblyman Ellison was referring to.

Assemblywoman Carlton:

Basically, what you are proposing to do is go back to the structure that we had prior to the end of last session. We had a structure at the beginning of the session; it was changed by the end of the session. It has not been in effect for two years yet. You are proposing we go back to the original scheme that we had been under since 2001 that had worked for 14 years with no problems. Is that correct?

Assemblyman Sprinkle:

That is correct. Also, I do not believe that I, as a firefighter-paramedic, or teachers, or lawyers, or anybody else in this building have the amount of knowledge and experience that NDOW does. Restrictions are already in statute that say they must take into consideration

the Board of Wildlife Commissioners and public comment. They are the ones who are most capable of making these types of decisions. This bill unties their hands and lets them do their jobs.

Assemblywoman Cohen:

Are predators just an issue in the rural areas, or is it an issue in the more urban and suburban areas as well?

Assemblyman Sprinkle:

This highlights the comment I just made. I am a firefighter-paramedic. I cannot accurately answer that because I do not know. Obviously, in the rural areas you hear a lot from people in regard to this bill; there is a real concern. I absolutely think they are valid concerns, and I think they need to be addressed. In my opinion, it is not the Legislature's responsibility to determine how management of these predators is done.

Assemblywoman Titus:

First, I have a comment. I respect your opinion, Madam Chair, and I appreciate your comments. I want to go on record saying that I asked that this hearing be postponed because we were not able to get visual comments from Elko.

Assemblyman Sprinkle, we changed the wording in 2015 for a reason. The reason was that these funds were not being used—based on what we heard in testimony at the time—to actually control the predators. There was a significant amount of damage still being done. It was my impression that the bill was changed to force the hand, and ensure that these funds were used for predator control; lethal, if that is what it took. I handed out a package; the first article is "Creative Thinking Helps Predator Control Programs," ([Exhibit C](#)) which addresses some of the issues of what is not happening. I am concerned that by giving yet more discretion to NDOW, this will now be even more of a problem. It was a problem last session, which is why we put the mandatory amount to be spent, because it was not being spent. I have heard testimony from ranchers, farmers, and wildlife enthusiasts who are concerned. Once again, we do more study programs and do not solve the problem. Are you here to testify that, if indeed, NDOW decides that lethal management is the key, then this bill will not prohibit that from happening?

Assemblyman Sprinkle:

That is correct.

Assemblywoman Titus:

At what point are you going to follow through with that? Will it be next season after lambing is done, and then see that we do need some predator control? When will we be able to force the hand and ensure that some of these issues that we hear about frequently are being taken care of? This is not just urban-rural interface, but in very isolated rural areas there are serious predator control issues. Are we looking at NDOW reporting back soon so they can initiate some programs?

Assemblyman Sprinkle:

Once again, I would say that it is not my job to determine how predator management is done. I can take your word for it, certainly, as you live out there and understand the anecdotal stories that you are hearing. This bill allows NDOW to determine for itself what the best way is to manage predators and all big game, as stated here. If there needs to be follow-up in the next legislative session, then certainly any of us are open to look at that. What I am saying today is, I do not believe that we should be tying the hands of the experts. To further answer your question, I think the impetus is as much on the public and on the Board of Wildlife Commissioners to hold NDOW accountable, as statute says. That is what I am trying to get back to with this bill.

Assemblyman Brooks:

Do you know how much money we are talking about on an annual basis with the \$3 fee?

Assemblyman Sprinkle:

I do not have that answer, but I will get it for you.

Assemblyman Ellison:

I would like to get Senator Goicoechea in here. He is one of the people who helped get the change in the last session because the money was not being used as it was supposed to. My biggest fear right now is that we are going to go backward.

Chair Swank:

This bill will be heard on the Senate side, should it be voted out of this house. I do not think we need to disturb Senator Goicoechea at this point. If he wants to testify on a bill, that is fine, but I do not believe we will be calling him over here.

Assemblyman Ellison:

That is fine. One of the big things I am trying to get across is, we had a problem and it was not being corrected by NDOW. We were not getting the ravens taken care of the way they should have, or the coyotes, or the wolves. I think we are going backward. There are horror stories, and you need to see what is going on out there. I do not believe NDOW is spending the money the way it is supposed to be spent. That is why I asked for an audit.

Assemblyman Wheeler:

What is the impetus for this bill? We only changed it in 2015, and we have not had time to see that money being spent on lethal predator control take effect, other than in very small amounts. Those of us in the rurals are still seeing quite a bit of predator action. Why are we changing this so soon without giving it a chance to work?

Assemblyman Sprinkle:

Once again, the impetus of this bill was to return language to the original intent of the \$3 fee, which we saw in 2001. For me personally, it was to again allow NDOW, who I believe are the experts, the ability to manage predators how they feel is best, and not simply tie their hands with an 80 percent lethal mandate. That is the intent of this bill.

Assemblyman Wheeler:

I do not think you really answered my question. What we are doing, basically, is just getting rid of a bill from the last session because we did not like it.

Chair Swank:

Please do not put words in Assemblyman Sprinkle's mouth.

Assemblyman Wheeler:

I am not putting words in his mouth, I am asking him a question, if I can finish. What we are doing apparently is, even though we have not seen how this works yet, we are going to go ahead and change it anyway. Do you have an answer to how it worked?

Assemblyman Sprinkle:

I really do not know how I can rephrase the answer that I have given four times now as to my intent with this bill. How you are perceiving it, I do not know. My intent with this bill, as I have already stated, is to remove the 80 percent lethal mandate and get this back to the original language from 2001, which is for there to be a \$3 fee on hunting licenses.

Chair Swank:

I think Assemblyman Sprinkle has made it very clear that this is not about getting rid of lethal means of controlling predators. It is about letting the experts do the jobs that we hire them to do. If there is a problem and we feel the people we hire are not doing their jobs, this may not be the best route to fix that. I think at this point we will move on to testimony in support of A.B. 101, starting in Las Vegas.

Jana Wright, Private Citizen, Las Vegas, Nevada:

I have been with NDOW and the Wildlife Commission since 2010, and the conversations about predators and Commission Policy 23, predation management, have been, at times, intense. It is my opinion that the mandate that 80 percent of the monies generated from the \$3 processing fee for big game tags be used for lethal removal of predators is not in the best interest of our wildlife in Nevada.

The annual predation management plan would be eliminated by the language of this bill. The predation management plan has never been a solid, comprehensive product but merely a workshop on trying to spend money on killing predators. Some people feel the need to kill all predators as this will magically restore habitat and solve the drought and wildfire issues facing Nevada. The few projects that reflect research and are eligible for money from the Federal Aid in Wildlife Restoration Act, also known as the Pittman-Robertson Act, have been well received. The chance to use the money from the \$3 fee for habitat restoration is huge and will benefit our wildlife. I ask the Committee to look favorably on A.B. 101. Thank you.

Chair Swank:

Thank you. I believe Director Wasley has arrived. We have a few questions from the Committee.

Assemblywoman Jauregui:

I have a question regarding the matching federal funds. Were we receiving them before? If this bill passes, how much potential money is available to Nevada?

Tony Wasley, Director, Department of Wildlife:

Right now, there is a small portion of the \$3 fee that has been used to garner match. In order for the \$3 fee to garner match, the project must be a preapproved project with United States Fish and Wildlife Service. It must have an approved design, and be more of a research type component with specific objectives. Trying to use the \$3 fee to garner additional federal funds does not allow us to raise that ceiling. We have a cap on federal funds, a formula that determines the amount of federal funds that each state is eligible for. Changing the way these revenues are spent will not adjust that cap. There is a small portion of these funds that is used to that end. Presently, the statute requires that 80 percent of this revenue, which is approximately \$500,000 a year, be used for lethal control. There is a small portion of that that can be used to leverage federal dollars, but it does not raise the cap, or ceiling, on federal dollars. At this point, the statute allows no more than 20 percent of this fund to be used to garner federal aid.

Assemblyman Watkins:

Are there any federal government matching programs that allow for money to be spent on lethal predatory management?

Tony Wasley:

There is a continuum in terms of what constitutes lethal control. Certainly, removing animals without any monitoring component, without research, question, or design, does not constitute federal aid-eligible expenditures. On the other end of that continuum, if we have a research design that has a significant monitoring component, then we can use a portion of the federal funds. The U.S. Fish and Wildlife Service administers regions around the country that contain multiple states. They try to maintain consistency in how they administer those programs. For each U.S. Fish and Wildlife Service region to draw that line in the exact same place on the continuum of what constitutes legitimate wildlife management activities versus those that are purely predator control, is a difficult task. Again, there are no programs specific to lethal predator control, but there are programs through the federal excise taxes when the details and the research design are approved in advance and fall under the guise of wildlife management and therefore are eligible for match.

Assemblyman Yeager:

If this bill was to pass, what procedure would NDOW use to decide how best to engage in predator management? What kind of input would be taken into account when deciding whether to exercise lethal predator management?

Tony Wasley:

The Department of Wildlife maintains a process where the Commission, a nine-member, Governor-appointed board, takes input from NDOW, the general public, and 17 county advisory boards. The memberships to the county advisory boards are appointed by local

county commissions. Presently, we have a policy that outlines this particular process. I do not see that process changing. What I see before us today changes how that money can or would be spent. I do not see it changing the public process. What would happen, in my view, is that NDOW would develop a plan in conjunction with some of our partners in this effort, the United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, has been our primary contractor in these efforts. We develop a plan with their input, we seek input from the 17 county advisory boards, we take that before the Board of Wildlife Commissioners in a public process, ultimately get approval of the Commission for that plan, and then work on an annual work program to implement that plan.

Assemblywoman Titus:

I am curious as to the actual dollars that have been spent on lethal predator control in 2013 and 2015. Also, did you actually do any lethal predator control since the last bill was passed?

Tony Wasley:

I cannot speak to the total amount expended in 2013 and 2015 off the top of my head. I can tell you that since this bill was passed in 2015, NDOW has made every effort to act in accordance with the statutory requirement that 80 percent of the revenue be spent on lethal control. There have been some significant challenges in achieving the 80 percent, primarily due to a legal settlement between WildEarth Guardians and U.S. Department of Agriculture Wildlife Services. WildEarth Guardians challenged the environmental analysis required for the National Environmental Policy Act (NEPA). WildEarth Guardians and Wildlife Services settled, and what that settlement does is basically take Wildlife Services, which has been our primary contractor in providing these services, out of wilderness or wilderness study areas for a period of two years. Additionally, challenging NDOW to meet that 80 percent requirement is, again, with Wildlife Services. They had an unfortunate aircraft incident where there were one or more fatalities, which resulted in an investigation that grounded their fixed-wing aircraft. That left us tasked with fulfilling the charge of 80 percent in that statute, scrambling to try to figure out how to spend approximately \$400,000 in lethal predator control. We found individuals and ensured they were registered contractors or vendors who were bonded and insured. We presently have four parties who have entered into contract with the state. The state procurement process, in this type of instance, is not the most nimble. Depending on the contract amount, we are required to use the Purchasing Division, Department of Administration's competitive bidding type processes. In an effort to meet the 80 percent requirement, we now have four individuals contracted with the state to help fill that void that exists due to legal and other complications for Wildlife Services.

Assemblywoman Titus:

You have contracted four different companies at this point in time. Would you be able to fulfill your contracts with those groups if this bill passes?

Tony Wasley:

Yes, we would be able to fulfill those contracts. They are up to a certain amount for certain tasks, and either the state or the contractor can pull out of the contracts if they choose to. It is not an obligation of the state or NDOW to pay for a set amount, it is more as they occur.

Assemblywoman Titus:

Was any of this taken into consideration in 2015, in the Governor's negotiation of the sage grouse and sagebrush habitat predator control?

Tony Wasley:

I do not know that it was. I do know that NDOW, through our partnership with Wildlife Services, does place out a corvidcide that removes ravens with the intent of protecting sage grouse nests. That is considered predator control; it is not considered wildlife management per se through federal excise tax dollars. I am not telling you my opinion; I am telling you how the federal government views that in terms of determining eligibility of those funds. I am unaware if those conversations occurred.

Assemblywoman Titus:

So you do not know if this bill would negatively impact that?

Tony Wasley:

This bill, in our estimation, would primarily do two things as it is currently written. It would remove the 80 percent statutory requirement, and it would provide discretion to NDOW. The language in this bill says that the \$3 fee must be used for activities that could garner the federal match. It would basically render the \$3 fee ineligible for what would be construed solely as predator control projects. The NDOW would then go to other sources of funds, largely sportsmen revenue, to conduct those activities with a similar transparent public process that was previously described. In our opinion, those are the two things: the 80 percent requirement would go away and the discretion would come back to NDOW. On one hand, discretion is nice, but one of the difficult things about discretion is the scrutiny that accompanies it. We need look no further than the emotions and perspectives present in this room today to know this item has occurred in every session since the original passage of this bill. Kill more, kill less, and the Department gets beat up simultaneously by people who are saying we are not killing enough and those who say we are killing too much. There are some benefits to NDOW not having discretion in this manner. I also do not want to be here lobbying for statutory requirement of how wildlife should be managed. Statute is a difficult place to handle wildlife management decisions.

Chair Swank:

I will encourage other Committee members to follow up with Mr. Wasley offline. We have many people here to testify, and we need to get through some of the testimony. We will go back to those in support of A.B. 101 in Las Vegas. We have very limited time, and you can submit your testimony to the staff by 5 p.m. tomorrow. I will give testifiers two minutes.

Karen Layne, Private Citizen, Las Vegas, Nevada:

I am a former commissioner, a public member commissioner, and a nonconsumptive user of wildlife. I sat on the Wildlife Damage Management Committee during my tenure as a commissioner. That was the committee that was responsible for looking at predator plans and trying to make decisions about looking at outcomes and trying to determine the monies that were spent. Recommendation was then made to accept the plan and send it to the Board of Wildlife Commissioners for its review. I would suggest that you look at the minutes of the Wildlife Damage Management Committee, it is online at NDOW, particularly the minutes of Wednesday, March 23, 2016, and Thursday, May 14, 2015. I can provide those files to you if necessary. You will see continuing discussions about how to measure the success of the programs. In truth, I think that this whole process, which we just discussed at the last Clark County Advisory Board to Manage Wildlife meeting, that there is a lot of unhappiness on both sides in terms of looking at whether these programs are successful. The issue is how you measure output of these different programs. In my view, and I think it is a view shared by many, how many predators you kill for a particular program is not a sufficient outcome measurement.

Chair Swank:

Is there anyone else in Las Vegas in support of A.B. 101? Seeing no one, I will move to Carson City for support of A.B. 101.

Lori Bellis, Private Citizen, Reno, Nevada:

I am a retired biologist who worked for Environmental Services Division, Department of Transportation (NDOT). I am testifying in support of A.B. 101. The existing statute mandates that NDOW spend 80 percent of revenues received from the \$3 tag fees for predator control, which is surprising and concerning. As a biologist in Nevada, I believe there are more effective ways to spend money to support healthy populations of all native wildlife. This particular mandate restricts NDOW biologists to a single tool in their tool kit for wildlife management strategies—that of killing native wildlife in the hope it will enhance big game herd sizes.

Current science, including NDOW studies which I have provided with my testimony ([Exhibit D](#)), indicates predators are not always the limiting factor for herd size; in fact, they are mostly not. Habitat loss occurs particularly in areas of Nevada, where large wildfires have occurred and extended drought has degraded already marginal habitat. In these cases, predator control is not an effective means of increasing herd size; it is habitat restoration.

What A.B. 101 does is give biologists back their full tool kit and not just one tool, which is predator control. It allows them the flexibility to use funds for the best benefit of wildlife, including habitat restoration and protecting migratory deer corridor movement. This is an example to show different ways to look at that tool kit: in 2009, the first wildlife overpass in Nevada was constructed on U.S. 93 in Elko County. The project was a collaborative effort between NDOT and NDOW. I strongly encourage you to support A.B. 101, which broadens the scope of possibilities for effectively and beneficially managing wildlife populations in Nevada.

Chuck Garbinski, Private Citizen, Gardnerville, Nevada:

I am a longtime resident of Gardnerville. I have lived there since 1989. I would like to point out one thing: as an engineer, I know what the value of quality data is. I know that you do not have to be an engineer to have a good grasp of how to control a process. If you want something to show provable results, you have to have quality data. I simply want to point out that I would take a serious look at what is being reported as success for the current statute. It is great to say it is working and has been in place for two years, et cetera; I have to question that. There may be very well-meaning people making these claims. That happens all the time, but policy requires proof. Regardless of how we proceed with this, I think it is very important and there are a lot of opinions on both sides. I think the right thing can be done, and I believe that this bill will put the right tools back where they belong: in NDOW's hands. I would say, again, as an engineering manager, you are trying to engineer a solution, which is the right thing to do. I would not take someone's word for it; I would question it.

Leah Sturgis, Private Citizen, Gardnerville, Nevada:

I am speaking on behalf of myself and my family who have been rural ranchers in the Carson Valley since 1949. I am speaking in support of A.B. 101 because I recognize the value that predators bring to a healthy ecosystem. I watch coyotes, on a daily basis, pick off voles on our 800 acres, and it is a pleasure to watch nature in action. It is a myth that all ranchers hate predators. I happen to know some ranching families with the largest ranches in Nevada, and I know that they do not support predator control. In fact, none of them would support this type of predator killing. Peer-reviewed science also shows that random killing of coyotes does not prove to prevent depredations on farms and ranches and can actually make the problem worse. The Department of Wildlife's own research of game management unit 231 actually shows that random killing of coyotes increases litter size and there are more juveniles out there without family structure, which causes more problems. It is actually ineffective. I am here to support A.B. 101 and to allow NDOW to receive matching Pittman-Robertson funds that are not granted when strictly lethal measures are being taken. [Written testimony was also provided ([Exhibit E](#)).]

Tom Clark, Private Citizen, Reno, Nevada:

After reading A.B. 101, I reached out to the sponsor and others to ask some questions. When it is put to me in the way that you have heard today, I totally support it. I am a hunter, a sportsman, and native Nevadan born in Elko. I lived in Tonopah for a number of years, then moved to Carson City and then Reno. I have hunted and fished all over this state. This issue of NDOW not being able to look at all of the options to mitigate this is an important matter. Assembly Bill 101 could help NDOW bring on the research, bring on the expertise to ensure they can use all of those tools to mitigate this issue, and not just openly use the term as it is in statute, "lethal means" of dealing with predators. I think there is a better solution and we should pursue it.

Tina Nappe, representing the Toiyabe Chapter of the Sierra Club:

The Toiyabe Chapter of the Sierra Club is in support of many of the provisions in this legislation. We were involved in the original legislation, and we opposed it because the predator fee was based on the assumption that mountain lions and coyotes caused declining

mule deer populations. We feel the bill provides too much funding, thereby encouraging wasteful spending, and is unlikely to provide useful documentation of results. These concerns were heightened last session when 80 percent of the money has to be spent for killing predators. What is the validity of this, and what are the results of killing predators? There is so much money spent on this that there is very little left, within the same source of funds, to develop valid studies, lay out conditions in which projects are managed, provide oversight on the projects, and provide useful information on projects carried out. We support the removal of 80 percent required funding. We also think that maybe Wildlife Services does not have to be the sole contractor for services, so we support removing that. We also feel that if, in collecting this money, there are not valid studies, why not expand the check-off system to include access and habitat fees, so sportsmen can have the choice of what they want to support, or remove the fee all together, which many sportsmen might support more. We are concerned about limiting this to mammals. Some of the best work going on right now is on sage grouse. I believe some of the original legislation allowed for sensitive species and for research projects. We would also support the removal of the State Predatory Animal and Rodent Committee, State Department of Agriculture, or conversely, bring it in-house. [Written testimony was also provided ([Exhibit F](#)).]

Chair Swank:

We will now move to opposition in Las Vegas.

Mike Reese, President, Southern Nevada Coalition for Wildlife:

We are adamantly opposed to this bill. We have been talking about science since this became a bill in 2001. Where is the science that warrants any change at all? What happened is, in 2015, the local citizen advisory boards to manage wildlife came to the Board of Wildlife Commissioners and started asking to have a certain percentage set for lethal predator control. In previous years, they did not feel as though there was enough money being spent toward control. For example, there was a five-year study, which cost \$500,000, to study what coyotes eat. The way they did that, they picked up scat and checked it. That \$500,000 came straight out of the \$3 predator fee. It also received matching money from Pittman-Robertson, so if you take that, it is probably close to \$2 million to find out what coyotes eat. That is what the sportsmen are looking at and saying, What did that \$2 million get us? How much more knowledge did we obtain by doing that study? In fact, the study was not even a peer-reviewed study. We would move that any money that goes toward a study become a peer-reviewed study. With that, I want people to keep in mind the \$3 predator fee is not from waterfowl or upland game hunters who pay this money. It is strictly the big game. It is a small portion of the hunters who are putting it in, and we are trying to decide through a legislative process, how that money gets spent. It is true that in 2001, it was for predator control. That was the number one reason this bill ever came to the Legislature, because they felt that the coyotes were out of hand and they needed to do something about that. [Written testimony was also provided ([Exhibit G](#)).]

Julius Fortuna, Conservation Director, Nevada Firearms Coalition:

Nevada Firearms Coalition represents 35,000 firearm owners and sportsmen in Nevada. There is so much wrong with this bill, but I want to touch on three different areas. First, the

original language of any bill does not make it right or effective. That is the reason why hunters and NDOW came back and wanted to make changes to this, according to the hunters, the folks who are sponsoring and paying 100 percent of this bill. Next is section 3, the elimination of mandatory lethal management for predators. Again, we feel this is the crux behind this bill and it is incorrect. Finally, and most important, and what concerns us greatly: what Assemblyman Sprinkle is missing is who will get pink slips in July by eliminating the Governor-, hunters-, and naturalists-supported State Predatory Animal and Rodent Committee, which was created by NRS 567.020 and mandates consensus from the key affected Nevada citizens. This Committee represents a group of two from the State Board of Agriculture, one from the Range and Sheep Committee, one from the Board of Wildlife Commissioners, the State Board of Health, and Nevada Farm Bureau. This bill shuts down their opinions and impacts Nevada experts and volunteers who have selflessly given hundreds of hours to effectively consider and guide expert wildlife commissions toward consensus and proper predator management. Is it really worth alienating self-taxed hunters, the State Board of Agriculture, the sheep industry, the State Board of Health, the Nevada Farm Bureau, and the Board of Wildlife Commissioners who are the experts who count on the input from this group to make decisions on predators a consensus? That is the part that is missing.

Chair Swank:

We will now come up to Carson City for those in opposition.

Gerald A. Lent, Private Citizen, Reno, Nevada:

I am a past chairman of the Board of Wildlife Commissioners for two years and vice-chairman for one year. I am opposed to A.B. 101. It will eliminate the wildlife predator program as intended. I was one of the original sponsors of the bill in 2001. The predator bill legislation came about in 2001 with Assembly Bill 291 of the 71st Session, sponsored by Assemblyman Claborn of Clark County and Assemblyman Carpenter of Elko County and 12 other legislators, in response to a survey of hunters done by our organization, Hunters Alert, and Nevada Hunters Association. It came out after we were greatly losing our mule deer population in Nevada, and we conducted a survey of hunters asking them if they would support a serious predatory program; 87 percent of the hunters overwhelmingly responded yes. Assemblyman Claborn did his own survey asking hunters if they thought lions and coyotes were responsible for the decline of the Nevada deer herds; 83 percent said yes. He also asked in the survey if they were willing to pay \$3 for a viable predator control program; 72 percent said yes. There are approximately 63,000 hunters in this state who apply each year; 30 percent are from Clark County, 30 percent are from Washoe County, and 40 percent are from rural areas. These surveys clearly show hunters thought predator work was needed in Nevada to save our mule deer populations. In a letter from Wildlife Director Kenneth E. Mayer to Assemblyman Claborn, dated January 28, 2008, he reiterates the desire of the Legislature to see the recovery of Nevada mule deer to be a principal focus of the predation management projects, including sage grouse. Assemblyman Claborn also restated that he was responsible for the bill with the intent to do on-the-ground projects for removal of predators to enhance deer numbers. [Written testimony was also provided ([Exhibit H](#)).]

Daryl Capurro, Private Citizen, Reno, Nevada:

I am also a former member of the Board of Wildlife Commissioners and the Wildlife Damage Management Committee. I would say to you that one of the problems we have is the language as it is currently in A.B. 101 eliminates any protection, essentially, for sage grouse and upland game, ducks, geese, and the like, because of the language on page 5, to develop the enhancement of big game mammals. The fact of the matter is, it wipes out any reference to the county boards and the park committees, where there is expertise in both areas. These are people who are out there all the time. We do not believe that it should eliminate their input, even though they say it can be done in public hearing. That was one of the problems in the last session, why Assembly Bill 78 of the 78th Session was passed. It was passed on a bipartisan vote. It has been 1 1/2 years since this has been in effect; it seems to me that is not enough time to throw the baby out with the bath water. There was a survey that was done for NDOW by three people in Idaho. The net effect was, when they surveyed deer hunters, one of the questions was, In your opinion what factors are negatively effecting mule deer population in Nevada? Seventy-one percent said that it was very likely or likely that it was predators. This situation has not gone away.

Walt Gardner, Private Citizen, Ruby Valley, Nevada:

I am a sportsman. When this was pitched to us, it was a predator fee over and above general operating costs for NDOW. I did not feel it was fully implemented until two years ago when we got the 80 percent. That was my intent, that is how I felt it was supposed to be intended. Now we are being told, if this passes, it is in essence a \$3 increase in our license costs. We voted for it, and we supported it because we felt that money was going directly to predator control. I donated money to it, over and above the \$3, not because I wanted to increase the general operating costs, but because I wanted that money to go to predator control.

Chair Swank:

We have folks who are teleconferencing in from Elko. We will hear from one of those who is on the telephone.

Furn Winder, Private Citizen, Elko, Nevada:

Listening to this today, everyone has brought up Pittman-Robertson and how they want this \$3 fee to be matched. The Department of Wildlife already gets Pittman-Robertson fund match from tags and applications. They cannot get Pittman-Robertson fund match if it is a lethal program as Director Wasley said. Last year, 34 mountain lions were lethally controlled. There were 173 mountain lions taken by hunters. Statewide, the quota was 245 mountain lions. Even with the matching money, we are not hitting our mountain lion quotas. People say this is detrimental to mountain lions. No, it is not. The other question I have for Assemblyman Sprinkle, did NDOW ask for this bill to be changed? If not, we should not even be here. If NDOW did ask, did they bring it in front of the Commission? Did they bring it in front of the county advisory boards? I am completely opposed to this, and I thank you for your time.

Chair Swank:

Is there anyone else on the phone in opposition to A.B. 101? [There was no one.] We will now hear from anyone in neutral.

Joyce Gavin, Private Citizen, Gardnerville, Nevada:

I am a partner with Borda Land and Sheep. We need live sheep, not research studies or restoration of vegetation, and we do not need too much government. We have our sheep out on the range, and it is very challenging for us to remain in the sheep business. Lions and coyotes put extra pressure on our business. Coyotes will be here when we are all long gone. There is no endangered species for coyotes and lions. We have big dogs that help protect our herds—our bands of sheep—and they do a great job. When a coyote or lion comes in and attacks the lambs, we have to have someone there to take care of it immediately, especially if they come back. We do not want to eradicate the coyotes or the lions, we just want it managed. [Written testimony was also provided ([Exhibit I](#)).]

Jeremy Drew, Commissioner, Board of Wildlife Commissioners, Department of Wildlife:

The Board of Wildlife Commissioners is neutral on A.B. 101 as we have not had an opportunity to review the bill language as an entire Commission. We will be reviewing it tomorrow. There are a couple of points that I would like to bring up. It was mentioned that the intent of this bill was to go back to the program as it was before 2015. If that were truly the intent, I would recommend that we look at the language that was brought forward in 2015 and strike that.

What I see in this language in two particular spots is that it will change the relationship between NDOW and the Board of Wildlife Commissioners. There are some provisions in this language that explicitly lay out how the Commission will address the predator program. Specifically, on page 5, it refers to developing and implementing an annual program, and annual program is stricken out. Lines 21 through 25 spell out programs which must be conducted under the guidance of the Commission; this is also stricken out. The only provision I see left would be on line 32, which essentially says we can make recommendations as a Commission. It completely changes what we have been doing in terms of establishing policies for this pot of money because the intent for this pot of money has completely changed with this particular language. I want to put that on the record because I think it has been reported this would not change anything in terms of process. In my opinion, having read this and having lived through two separate changes in previous sessions, I think this does, in fact, change how this program is managed going forward as it relates to our Commission.

Howard Watts, III, Private Citizen, Las Vegas, Nevada:

I am a member of the Clark County Advisory Board to Manage Wildlife (CAB) and a board member of Backcountry Hunters and Anglers. I appreciate many of the comments. I think one thing that is a general takeaway is that it is important to work with sportsman organizations in crafting these measures. I think the wording versus the intent has created some miscommunication that is leading to some of the tension. The other thing, I have been

on the CAB for 1 1/2 years, so I came on after this was implemented. Even with this, there are still vigorous debates about the contents of predator management plans, the projects that are undertaken, and there is still dissatisfaction with how those funds are being spent, which Assemblyman Ellison spoke to. I think there is a larger debate around having this predator management fee and if the \$3 level needs to be reduced. There is an argument that the money is just being thrown at different programs and potentially increasing tag fees to have a larger pool to invest in a wider range of projects. There is still dissatisfaction with how some of these predator management funds are being spent, and we may need to be evaluating the entire aspect of having a fee set at \$3, dedicated to that aspect of wildlife management.

[Testimony submitted but not mentioned in support of A.B. 101 includes: ([Exhibit J](#)), ([Exhibit K](#)), ([Exhibit L](#)), ([Exhibit M](#)), and ([Exhibit N](#)). Testimony submitted but not mentioned in opposition to A.B. 101 includes: ([Exhibit O](#)), ([Exhibit P](#)), ([Exhibit Q](#)), ([Exhibit R](#)), and ([Exhibit S](#)).]

Chair Swank:

With that, I will close the hearing on Assembly Bill 101. I will open the hearing on Assembly Bill 159.

Assembly Bill 159: Prohibits hydraulic fracturing in this State. (BDR 46-593)

Assemblyman Justin Watkins, Assembly District No. 35:

Who knew a \$3 predatory management fee would get more attendance than a ban on fracking, but here we go. I have with me today Dr. von Seggern. He is a geophysicist and can discuss the seismic aspects of fracking. I will talk to you mostly about the public policy aspects of the bill.

Today I am honored to introduce Assembly Bill 159, which proposes to ban hydraulic fracturing, commonly known as fracking, in Nevada. Hydraulic fracturing is used to extract oil and natural gas from the earth by injecting pressurized fluids, generally a mixture of water, sand, and chemicals, into the ground to create fractures in the rock shale openings, from which gas and oil can be extracted ([Exhibit T](#)).

I want to talk about the history of the regulations in the state. In 2013, the Legislature passed strict regulations on the industry which required quite a bit of transparency. This was bipartisan, comprehensive legislation that Nevadans could actually be quite proud of. It is some of the strictest regulations in the United States. With that in mind, a common question I get is, Why are we addressing this now? The answer is that the information that was available in 2013 pales in comparison with the information we have now. Studies, peer-reviewed, scientific, government, or otherwise, that were available in 2014 exceed the sum of the studies available in 2009, 2010, 2011, and 2012. The studies in 2015 exceed those in 2014 by 10 percent, and more than 200 independent studies were published in 2016. What these studies show is that no amount of regulation can eliminate the harmful effects on humans that result from fracking.

Based on this new evidence, many countries and states have banned the practice or instituted moratoriums. France, Bulgaria, and Australia have full bans on fracking, as well as Vermont and New York. Scotland; Wales; New Brunswick, Canada; Germany; Maryland; and six counties in California have instituted various lengths of moratoriums.

This session, with the support of Chair Swank, Assemblyman Brooks, and Senator Ratti, I am introducing this legislation to prohibit fracking because, simply stated, the risks far outweigh the benefits to this state.

Before I discuss the policy considerations behind the bill, let me first quickly outline the provisions of the bill.

The key section is section 1, which adds a new section to the law that prohibits the practice of fracking. Sections 2, 3, and 5 simply eliminate definitions in reference to fracking in other parts of the statutes. Section 4 clarifies that any existing permits expire when the bill becomes effective, which will be upon passage and approval of the measure.

As we heard last Thursday from the Division of Minerals, there are currently no hydraulic fracturing activities going on, so doing away with existing permits should not have a direct impact. I saw that there is a fiscal note submitted that indicated one permit of \$3,500 was issued in 2015 and 2016. I have not had the opportunity to establish the veracity of that claim, but, assuming that to be true, we are talking about one permit.

Now let us talk about the problems and the policy considerations that we are all here to consider: establishing and balancing the risks with the benefits. Evidence shows that fracking is dangerous to people and their communities through increased seismic activity, water contamination, air pollution, permanent geological changes, and adverse effect on human health.

I would like to begin by discussing the environmental impacts that fracking has on our water supply. Last week we had presentations from the State Engineer and the Southern Nevada Water Authority about how precious a resource water is in Nevada. In fact, it is codified as a public policy in our state. The first concern is the incredible amounts of water required for fracking wells to operate properly. On the conservative end, 3 million to 5 million gallons of water are used per well. On the more liberal end, it would be up to 10 million gallons used per well. That water could not be utilized, pursuant to our current regulations, for residential use or for irrigation. As part of mixtures with that water, there are more than 170 chemicals that have been known to be used in fracking mixtures; most of which include toxins such as methanol, hydrochloric acids, and petroleum distillates. The use of these chemicals in hydraulic fracturing, and their impacts on our environment and health, make fracking a risky business for Nevada.

The second concern with fracking's impact on our water resources is contamination. Of particular concern in Nevada is the contamination of groundwater in the state. You will see that the federal Environmental Protection Agency (EPA) determined there are three

mechanisms for contamination of water, the first being spills of fluid and fracking wastewater, mostly which goes to surface waters. Second is discharge into rivers, streams, or irrigation, which is either purposely or accidentally done. I learned in doing this research that in 2015 and 2016, due to the extreme drought, California actually allowed discharge fracking fluids to be used for the purposes of irrigation in up to 20 percent of its crops. Finally, there is underground migration of chemicals, including gas, into drinking water wells, or the groundwater table as a whole. As our State Engineer testified last week, Nevada relies heavily on groundwater resources. Once groundwater and aquifers are contaminated, there is no easy way to clean them up, if there is a way at all. We have two such examples of that in Nevada, one being Virginia City, where they still have to pipe in their drinking water from Marlette Lake because their groundwater is contaminated from 150 years ago. In Fallon, contaminated groundwater is feared to be the cause of some of the highest cancer rates per capita in the United States.

I anticipate the opponents of this bill will cite an EPA study, a draft of which was published in 2015, which indicates that there is no evidence of widespread contamination of groundwater as a result of fracking. That statement is true for the draft; however, in the final report, which was issued in 2016, that statement was removed. In the question-and-answer section of the final draft, you will see that they removed it because they felt there was no scientific evidence for the statement. They did find, in fact, where water has been contaminated through a number of different mechanisms. Of particular concern for Nevada is the groundwater.

In addition to the troubling water issues, fracking has also been associated with increases in air pollution and the health concerns that result therefrom. I added slide 9 ([Exhibit T](#)) because I thought it was helpful to understand the different types of contaminants that pollute the air. On the lower portion of the graph, the gray dots are urban emissions in what is probably the most heavily air-polluted area in the United States, Los Angeles County. The red dots are pollutants exhausting from a fracking site in northeastern Colorado, which is not an urban development. There are two kinds of contaminants. One of the things that proponents of fracking will indicate is that getting to natural gas and oil deposits helps us get away from our reliance on coal. That is, in fact, true. What we are learning is that some of the methane exhaust that comes from fracking sites can be up to 80 times worse for the ozone than coal emissions. There is still a lot that we can learn about the air pollutants, but there is no doubt that the evidence is pointing us in a direction that is concerning at the least.

Studies published by Johns Hopkins University and Yale University have found troubling statistics regarding quality of health for individuals living within close proximity to fracking sites. The concerns range from increases in asthma attacks, headaches, chronic nasal and sinus symptoms, and severe fatigue, all the way to congenital heart failure, birth defects, and the like. They run the gamut of the effects on human health. These are confirmed, peer-reviewed studies.

In addition to public health, troubling statistics have also emerged in regard to worker safety and health. There have been findings that the risk of the exposure to toxic chemicals has increased and the number of accidents at fracking sites has increased when compared with other forms of oil and gas extraction. The risk of lung disease has more than doubled in some instances. When you look specifically to North Dakota, which has more fracking wells than almost any other state, they found that the fatality rate there is seven times the national average for that industry, an industry that already has a high fatality rate. They have found similar results in West Virginia, although the frontier of fracking in West Virginia is fairly new compared with North Dakota.

Of particular concern for Nevada, as the third most seismically active state, is the induced seismic activity that can be caused by fracking. The fracturing of shale rock in and of itself is a seismic event, but the implications on our geology are much greater than that. Evidence indicates that fracking induces additional earthquakes, and they increase in intensity over time. The landmark case study for this is Oklahoma. Prior to 2009, Oklahoma experienced, on average, two earthquakes a year. They started fracking in 2009. In 2015, they had 900 seismic events. In 2016, that number dropped to about 580, but the intensity of those events had all increased.

Proponents of hydraulic fracturing will argue that it creates economic activity, jobs, and energy independence. While I acknowledge that those are some of the benefits, the risks in Nevada far outweigh the rewards. We are a state with scarce water, significant seismic activity, minimal oil and gas deposits, and an abundance of renewable energy resources. Nevada has a long history of conserving and protecting its water resources, and a promising future to be a leader in renewable energy independence. Fracking for oil and gas deposits is a step in the wrong direction for Nevada.

I have provided some source information that I used to compile this testimony ([Exhibit T](#)).

Chair Swank:

I am concerned with the economic impact from earthquakes and other problems caused by fracking. Nevada does not have deep pockets to pick up the pieces. I am wondering if you have any information on how other states have had to pick up the pieces and how much that cost.

Assemblyman Watkins:

I do not think that information is available as a peer-reviewed study. The most profound information we have on the increase in seismic activity exists in Oklahoma. Their seismic activity was so low prior to fracking that their greatest earthquake on record happened in 2016, and it was only a 5.8 on the Richter scale. I do believe there was quite a bit of damage to that, but when you compare that to what we would be risking in Nevada, where our greatest seismic activities are on the order of 7 and 8, I think you would be comparing apples to oranges.

Assemblyman Brooks:

Are you aware of how many permits we have ever had for fracking wells in Nevada since the technology started to become available?

Assemblyman Watkins:

The technology has changed over time. Proponents of fracking will say that it has been going on since the 1940s. The difference between what happens today and what happened in the 1940s is clusters of wells, depth of wells, and the pressure of the water that is used within that. When you compare 1940 with today, most experts would agree that the technology changed about ten years ago. If you use that assumption, I think the total number of well sites in Nevada is on the order of two to five.

Assemblyman Brooks:

Do you know what the yield was of all of the combined wells that have been put in Nevada since the next generation of hydraulic fracturing wells?

Assemblyman Watkins:

I do not have those numbers. The only study I have seen in regard to yield for gas and oil from Nevada, throughout its entire history, has been indicative that it does not move markets, it does not change the price of oil or gas that you and I pay, and it does not lead us toward energy independence. That is why I have to acknowledge that each state can make its own determination of public policy and the pros and cons. For some states, fracking may make sense to them. For Nevada, it makes absolutely no sense.

Assemblywoman Titus:

You stated that fracking has been around since the 1940s and in the last ten years, the standards have changed. In light of that, the fact that science is changing, technique is changing, and methods are changing, why would we want to eliminate the ability to use this in the future, as science changes? Why would we not go to letting the State Department of Conservation and Natural Resources put a moratorium on it as opposed to eliminating the possibility that, as future science goes, perhaps there is a need for this as science changes. I am curious why you want to eliminate that possibility for future use and exploration.

Assemblyman Watkins:

That is the number one question that I have been asked regarding this bill. My response is twofold. One, the public policy of Nevada is to move toward renewable energy sources. With the limited amount of deposits we have of oil and gas and the high risk of contamination to water in this state, which is particularly risky, I do not think that the counterbalance would ever be made. That being said, before I became a lawyer, I studied engineering and I have to say, as a matter of science, that it could happen. Science may catch up and make this viable. That may be so, and any future legislative body could certainly address the ban and move to overturn it, but that would be based on science. If we were to do a moratorium with a sunset clause, then it expires with no basis of science or requirement that new information comes forward to the legislative body for action.

Assemblywoman Cohen:

Can you talk to the proprietary chemicals that are used in fracking and any issues that there might be with that?

Assemblyman Watkins:

Most of the chemicals are proprietary, but with the increased regulation in transparency that passed as part of the 2013 Session, we do know most of those that would ever be used in Nevada. A lot of states do not know that. We do, and I applaud the 2013 Session in regard to fracking regulations. We do know that more than half of the time, the chemicals include some form of toxicity. Whether they are radioactive elements, methane, hydrocarbons, or petroleum, those sorts of things do exist in over 50 percent of the fracking fluids that are used.

Assemblyman Wheeler:

Has there ever been a study that has definitively tied fracking to environmental damage of any kind? I have not seen that yet. Also, are you aware of a study from the Desert Research Institute (DRI), an institute that we all hold in very high esteem, which shows absolutely no environmental damage from any fracking in Nevada at the Noble Energy Inc., which is our only fracking site?

Assemblyman Watkins:

To answer your first question, yes I am aware of a study that has conclusively shown water contamination as a result of fracking activities. It was published in an EPA study in 2016. I am also aware of the DRI study in regard to one fracking well in Elko. I have to respectfully disagree with your conclusion as to what that study said. That study said that it only studied one of the potential harms of fracking in that well; that was water contamination. It did not find that particular well had contaminated the water. It did not study seismic activity, air pollution, or the effect on human health within a mile of that fracking site.

Chair Swank:

Much of the information that was in your presentation came from peer-reviewed studies, not anecdotal evidence, correct?

Assemblyman Watkins:

Yes, I would say the most complete study is the "Compendium of Scientific, Medical, and Media Findings Demonstrating Risk and Harms of Fracking (unconventional Gas and Oil Extraction)," compiled by Physicians for Social Responsibility and Concerned Health Professionals of New York. This study contains hundreds of peer-reviewed and government-endorsed studies, all of which are cited and discussed over its 209 pages.

Assemblyman Ellison:

I have provided a statement on the financial impact to Elko County ([Exhibit U](#)). Also, I have been to all of the wells in Elko County, some of the best I have ever seen, as far as structurally sound places to drill versus a regular well where oil can be spilled everywhere.

Elko has one of the safest fracking facilities in the country. I was hoping the Division of Minerals would be here to give testimony on those wells. As far as fracking goes, I still think it is one of the safest there is. I am sure at one time they probably used all of those chemicals you referred to, but everything I have read and seen in Elko County did not show chemicals. They had a great presentation in Elko County. I am hoping that before this Committee votes on this, they take a look at what the Division of Minerals has to say. I have been there, and I would rather do fracking.

Assemblyman Brooks:

You mentioned the byproduct of the process being the release of methane. I know we learn more and more every year about how dangerous, maybe the most dangerous, greenhouse gas methane is. Can you touch on that, on what kinds of levels we are seeing?

Assemblyman Watkins:

A government panel in Texas has done a study which found that methane actually can trap 86 times more heat within our atmosphere than carbon dioxide. Over a 100-year span, it is 34 times more potent. In northeastern Texas, researchers found that 71 to 85 percent of the methane emissions came from fracking operations.

Chair Swank:

We will now move to support for A.B. 159. I will hear three in Las Vegas and then three in Carson City. I will keep testimony to two minutes each.

Christian Gerlach, Private Citizen, North Las Vegas, Nevada:

I am a former executive director of Save Nevada's Water: Ban Fracking in Nevada, and one of the cofounders of Nevadans Against Fracking. I now work for the Sierra Club. I want to read a statement that we prepared when the regulations were being passed that is still true to this day. Current regulations do not have sufficient measures to prevent contamination of our state's precious groundwater aquifers. These current regulations have a supposedly pretty good area of review of one mile around the drill pads and where the well borers are but, unfortunately, there are a lot of loopholes to where they do not even have to monitor water sources; for instance, on private property. They also have limitations on how many times these oil or gas wells are monitored, and even limit up to four sites per drill pad that is hydraulically fractured.

A very important thing, as far as the chemicals currently being used in Nevada: if any of these operators deem anything to be a trade secret, they are actually exempt from reporting it publicly. The Division of Minerals gets the information, but they do not have to report publicly.

Furthermore, in the overall sense of oil and gas drilling in Nevada being a bad idea, we are basically a crumple zone on a car between two tectonic plates. We have very deep water aquifers and shallow aquifers. When they are doing this oil and gas development, there is a possibility of hitting other aquifers that could do a lot of damage. There have been instances in Pennsylvania, Wyoming, and all across the country where oil and gas welling has been done and it has ruined aquifers, and that is something that could potentially happen here in Nevada.

Rita Ransom, Private Citizen, Las Vegas, Nevada:

My educational background is in science, and I am an ardent and unapologetic environmentalist because we have one earth that we all share. I believe we must not willfully cause damage to our earth in the pursuit of profit, which fracking is clearly all about. Allowing fracking in Nevada would definitely damage our state. Other states where fracking occurs have already experienced the negative effects on local water supplies, air quality, and local landscapes. However, in Nevada, we have an even greater concern. Fracking would irreparably disrupt the subterranean geography, leading, perhaps inevitably, to more frequent and potentially more intense earthquakes. Prior to this meeting, I Googled fault lines in Nevada. I was both amazed and appalled by what I learned. There are active earthquake faults in nearly every part of our state, especially in western Nevada along the Nevada-California border. We have already experienced catastrophic wildfires and floods in Nevada. Do we want to add catastrophic earthquakes to that litany just to pull more fossil fuels out of the ground? I say, no way. Nevada needs to focus on renewable energy instead of fracking.

Hillierie Patton, Private Citizen, North Las Vegas, Nevada:

I am president of The Dignitas Agency. I am a former U.S. Bureau of Land Management (BLM) employee and concerned citizen who supports A.B. 159. I recognize the nation's need for energy independence and reducing our dependence on foreign sources of oil. I also value the necessity of job creation and providing opportunities for all Americans' energy security. I am a vocal advocate for responsible use and development on public lands. That said, responsible is the key word here. The central and interior western states are known to have significant supplies of oil and gas. The Dakotas, Colorado, Wyoming, Texas, and Oklahoma all have abundant oil and gas resources compared with the extremely small oil and gas potential in Nevada. Even with the increased jobs and economic development opportunities in those states, problems still persist from the process of hydraulic fracturing.

Let us take Oklahoma for example. Actually, I will speak about my home state of Kansas. In 2016 alone, Kansas had more than 900 earthquakes. Kansas is not known for large fracking operations; however, the induced earthquakes happening in Oklahoma affect the people of Kansas every day.

The idea of issuing permits to use hydraulic fracturing to drill for oil and gas in Nevada is not only bothersome, it is borderline ridiculous. First, Nevada does not have enough stores of oil and gas to even consider any significant oil and gas operations. We have the opportunity to

be the leader in clean energy by having this Legislature pass laws that will move the needle on clean energy technology such as solar, geothermal, and wind.

Secondly, as much as we lament the state of our water resources in Nevada, why would we even consider wasting one of our most precious and limited resources? We have sensitive plant and animal species, such as the Devils Hole pupfish in the Amargosa Valley, that could be adversely affected by a drawdown in the aquifer. Fracking is a technology based on using vast quantities of water. Why would a state like Nevada have fracking on the table as an option? [Also provided written testimony ([Exhibit V](#)).]

David von Seggern, Private Citizen, Reno, Nevada:

I am chair of the Toiyabe Chapter of the Sierra Club, representing today nearly 5,000 members in our state. Hydraulic fracturing is opposed in Sierra Club policy, and I have some particular credentials to be able to speak to this issue. My doctorate is in geophysics. I worked for an oil and gas company for ten years in Oklahoma. I worked at the University of Nevada, Reno for 13 years monitoring and reporting earthquakes at Yucca Mountain. Hydraulic fracturing is not a highly visible issue in this state, but I think it is a concern. It is a concern because hydraulic fracturing has been shown to increase seismicity levels in the eastern and central United States where it has been practiced widely. This kind of thing is called induced seismicity. The U.S. Geological Survey has studied this problem extensively, with the conclusion that high-volume, high-pressure disposal wells for waste fracking fluids are a serious seismic hazard. It is not in the fracking itself; it is when you take the waste from the fracking and inject it into deep wells under high pressure and high volume.

When I lived in Oklahoma, there were no earthquakes in the 1980s and 1990s. The level of seismicity has come up, as the Assemblyman has shown. Knowing this, what should we do in Nevada, which is the third most seismically active state? Nevada is no stranger to induced earthquakes. In the 1930s during the filling of Lake Mead reservoir, there were lots of earthquakes. There was very little population in Las Vegas, so they were not very damaging at the time. Also, during decades of underground nuclear tests at the Nevada Test Site, we had many earthquakes induced by these tests. [Also provided written testimony ([Exhibit W](#)).]

Kyle J. Davis, representing Nevada Conservation League:

We are in support of the legislation. Many of the reasons why we would be in support have been stated by previous speakers. The one point that I would make is that currently, under federal law, the process of hydraulic fracturing is exempt from the Safe Drinking Water Act. I think that is something that we should be thinking about. As long as that continues to be the case on the national level, then it is a precaution we should take for our state's water. The other thing is, I was involved in working on Senate Bill 390 of the 77th Session that was responsible for the process that developed the regulations for hydraulic fracturing in our state. I would be remiss if I did not mention that there was a lot of work done on that legislation. Afterward, the Division of Minerals put together a pretty broad stakeholder process to work on those regulations. Generally, those regulations have a lot of good in them

and are in the top half of the country in terms of regulations. I think it is important to mention, but also important to recognize, that despite all of that, all of the concerns that have been mentioned by previous speakers still remain, so we are in support.

Tammera Thompson, Private Citizen, Verdi, Nevada:

Much of what I was going to talk about has been said by others, so I will move to my personal statement. I urge you to pass A.B. 159 now because poisoning Nevada's air and water is not something that should be allowed. These contaminants do not recognize property boundaries; they spread across a region. Because of this, individual property owners are not protected if their neighbors choose to frack on their land. This decision should not be left up to individuals; this decision should be made by the state, and I urge you to pass A.B. 159. This decision should definitely not be left to leaseholders on BLM land who will take their profits and leave our state with whatever problems we have afterward. We must protect the health and rights of all Nevadans.

I have not been paid, supported, or associated with any organization; I am just a Nevada citizen. Please do not allow money and influence to speak louder than your citizens. Do not allow companies, that will take their profits and leave, to rape and poison our state.

Howard Watts, III, Private Citizen, Las Vegas, Nevada:

I want to recognize Assemblyman Watkins' thoughtful research in presenting this bill. I think he did an excellent job. For all the reasons he stated, and for the other reasons that other members of the public have given, I do not think I could do any better. I am in support of this bill.

Deborah Gordillo, Private Citizen, Las Vegas, Nevada:

I very strongly support A.B. 159. Please support this important bill. Again, for all the reasons stated, I think the issue of hydraulic fracturing is an extremely serious one. As we all know, beyond any doubt, it does contaminate massive amounts of water. We are the driest state in the country and water supplies are a concern in many parts of the country already, even those states that do not have the extremely low supply of water that we have. It is causing earthquakes where there were not any before. It is leaking numerous toxic chemicals into the water, the air and the soil. Water is life. We cannot afford to keep continuing as we have been. It is senseless when we see how much sun we have in Nevada. We have sun, we have solar energy, and wind energy potential that is vast. It makes no sense to continue poisoning our water and our air supply. I hope that we will be able to pass this very important bill.

Lori Seward, Private Citizen, Las Vegas, Nevada:

I am speaking for myself. I am also a member of Indivisible Nevada and Together We Will Nevada. We have about 800 members in our group and I would be able to find a lot of support to back this bill if need be. I learned about this bill yesterday and drove here today as a concerned citizen, but with the power of my group behind me. I will fight in any way that I can to make sure that I find as many members and as many Nevadans to fight for this bill. Our water is the most precious commodity, and we should treat it that way.

Ellen Moore, Mining Justice Organizer, Progressive Leadership Alliance of Nevada:

I reiterate and support things other people have said in support of A.B. 159. I would like to highlight some concerns about the need to protect our communities, especially Native American communities who are often the ones most deeply impacted by this type of hydraulic fracturing that could take place on our lands in Nevada.

Chair Swank:

I will open up comments for those in opposition. We will start here in Carson City.

Arthur (Art) Henderson, Commissioner, Oil and Gas, Commission on Mineral Resources:

I am the Oil and Gas Commissioner in Nevada. I have served in this appointed capacity for 3 1/2 years. I have a degree in petroleum engineering from the University of Oklahoma, and am a registered professional engineer in Nevada. I have no financial or personal interests in hydrocarbon exploration or production in our state. I was appointed to protect the groundwater of the state, which we exhausted many hours doing.

The 2013 Legislature mandated in *Nevada Revised Statutes* (NRS) 522.119 that the Division of Minerals (NDOM) and the Division of Environmental Protection (NDEP), State Department of Conservation and Natural Resources, jointly develop a program for hydraulic fracturing that assesses effects on waters of the state, discloses any chemicals used, and provides notice to the public. The Commission was to then adopt new regulations for hydraulic fracturing.

This work began with stakeholder meetings in 2013, followed by a review of other states' regulations by a team from NDEP and NDOM. I was a member of this team which met weekly for months to develop what I believe are the best state regulations for hydraulic fracturing in the United States today.

As a dual-permitting state, our state regulations are required on any well intended to be hydraulically fractured on federal or non-federal lands. Our regulations require a detailed application process that evaluates what is known about the subsurface geology and what existing wells or springs are located within the local area. Nevada regulations addressed concerns of spills, well mechanical integrity, and reuse and disposal of fracking fluids, and prohibits unlined pits that are listed as concerns in the 2016 EPA report. All water required for drilling or hydraulic fracturing must be permitted by the State Engineer. The state addressed in the regulations approved in 2014 every potential impact listed in the 2016 EPA report on hydraulic fracturing. Nevada chose a proactive regulatory approach and is the only state which has a preapproval process for any chemical to be used in hydraulic fracturing. While we were developing Nevada's new regulations, Noble Energy, Inc. funded a baseline groundwater assessment study called the Aquifer Quality Assessment Program in the area of its Elko formation hydrocarbon exploration. [Also provided are ([Exhibit X](#)), ([Exhibit Y](#)), ([Exhibit Z](#)), and ([Exhibit AA](#)).]

Jerome P. Walker, Private Citizen, Reno, Nevada:

I have been a petroleum geologist for 41 years. I have a master's degree from the University of Illinois. I have worked domestically and throughout international areas.

Hydraulic fracturing has enabled society to flourish. This innovative technology has dramatically increased our nation's reserves and production of natural gas, a plentiful, reliable, and inexpensive energy source that we all need. In fact, for decades we will be using fossil fuels to provide over 50 percent of the energy that the world needs. Furthermore, hydraulic fracturing has significantly helped the U.S. reduce greenhouse gas emissions as new reserves of natural gas opened by hydraulic fracturing have replaced coal as a fuel in generating electricity. There is a big difference between fracking activities on the surface that are manageable and probably responsible for almost all of the water contamination and air pollution, and the actual fracking process that occurs deep underground, 5,000 feet or deeper. I think there are two basic misunderstandings: one is the increase in earthquakes in Oklahoma. The underground fracking process has not caused a single earthquake. The amount of seismic energy released from relatively large hydraulic fracturing is no more than a gallon milk bottle falling off the table onto the floor. What have caused the earthquakes are the reinjections of the large volumes of water produced with oil from deep geological formations. A number of those wells have never even been fracked. The other problem that I see is the contamination of drinking water. [Also provided written testimony ([Exhibit BB](#)).]

John Snow, Member, Commission on Mineral Resources:

What we have here in Nevada is good government with good regulations in place to manage hydraulic fracturing. As was said earlier, the process that we went through in 2013 resulted in a promulgation of regulations. We are the nineteenth state in this nation, out of 36 oil-producing ones, to have hydraulic fracturing regulations. Our current regulations meet and exceed all the best practices of the industry and allow the United States to continue to move forward on energy independence. There have been five wells hydraulically fractured in this state since the regulations were put in place. One of those was analyzed in Publication No. 41263 by the DRI ([Exhibit CC](#)). The other four, as well as the first, have had follow-up on water before and after from monitoring wells with no impact on the water source. There has not been a single incident since our regulations were put into place—safety or detrimental environmental impact. We do not need this regulation. We do not need the law to change. What we have in place is perfect, and as we move and evolve, if it needs to be modified, I have confidence in our governmental bodies that the proper adjustments can be made. With respect to funding, one aspect that may have been overlooked is the monies that come to the Distributive School Account in the State of Nevada from the federal government. We have about 1 million acres of leased land right now that is sitting out in the wings to utilize hydraulic fracturing or resource development using unconventional methods. Those monies come back; last year \$897,000.

Chair Swank:

We will now go to opposition in Las Vegas. Seeing no one in Las Vegas in opposition, I will come back here to Carson City.

John Sande, IV, representing Western States Petroleum Association:

On behalf of the Western States Petroleum Association, I appreciate the opportunity to provide comments on A.B. 159, which would prohibit the well stimulation technique commonly referred to as hydraulic fracturing. I would be remiss if I did not thank Assemblyman Watkins for his open-door policy and willingness to talk about this very important issue, and I look forward to working with all of you as we continue down this road.

The Western States Petroleum Association represents companies that account for the majority of exploration and production, refining, marketing, and transportation of crude oil and refined petroleum products in five western states, including Nevada. We continue to support pragmatic approaches to regulating hydraulic fracturing, as long as those efforts balance public interest in safe and environmentally protective operations with technically proven and standard oil field practices. As you have heard from some members on various commissions, Nevada has been a bellwether in crafting and implementing these regulations. We feel that this is the way we should go. We are not afraid of regulation, we are not afraid of doing things right, which is what we want to be doing here. [Also provided written testimony ([Exhibit DD](#)).]

William J. Ehni, Private Citizen, Carson City, Nevada:

I am a geologist in Carson City. I have lived here since 1985, consulting for the oil and gas industry. Currently I am consulting to one of the few people who have an existing permit to do any fracking on a well in Nevada. This bill is not necessary. The Division of Minerals has already addressed all of these issues that were presented with the regulations they have in place. Hydraulic fracturing has been proven to be safe. All reports indicating otherwise are fictitious. I do not say that lightly; most of the reports that say there are hazards with hydraulic fracturing are taken out of context. There are lots of references to that. Stimulating wells and fracturing in Nevada will enable the development of hydrocarbon resources that will benefit Nevada and its citizenry. Currently, there is a huge financial impact on the counties of this state. Over \$800,000 goes to education through monies that are generated through the oil industry in Nevada. That could increase significantly because Nevada is a frontier state. I think everyone has noticed that there is not a lot of oil and gas activity in Nevada, but it is on the cusp of having a huge amount of income from exploration and development in Nevada. There are a lot of accredited and well-respected associations that provide numerous, well-referenced sources of information in an attempt to educate the public on hydraulic fracturing. One such group is the Association of American State Geologists, which is a group of people who have come out with a comment on hydraulic fracturing that I would like to read: "After decades of hydraulic fracturing-related activity there is little evidence, if any, that hydraulic fracturing itself has contaminated fresh groundwater." [Also provided ([Exhibit EE](#)) and ([Exhibit FF](#)).]

Steve K. Walker, representing Board of County Commissioners of Eureka County:

Eureka County opposes A.B. 159. State regulations have been developed through a legislative mandate a couple of sessions ago, and they are stringent, solid, and very risk averse. Furthermore, the BLM has very stringent permitting requirements on federally administered lands. Most oil and gas development will take place on BLM-managed land.

This double permitting is very protective. Additionally, local ordinance and special use permits allow for another check on the process. There should be no blanket prohibition of fracking for these reasons. Fracking has occurred in Nevada without issue in Eureka County in Pine Valley.

Ray Bacon, representing Nevada Manufacturers Association:

I would like to add one point that has not been made. Noble Energy, Inc. is the primary one that is working in Nevada. After the explosion in the Gulf of Mexico, Noble Energy, Inc. was the first company permitted to have a deep well in the Gulf of Mexico. They are a highly respected, highly responsible company. They have a track record of years of doing a class job. That should be recognized.

Chair Swank:

Is there anyone else in opposition? Seeing no one, I will move to neutral.

Richard Perry, Administrator, Commission on Mineral Resources, Division of Minerals:

My agency oversees oil, gas, and geothermal permitting, well construction, and drilling in Nevada. I want to try to answer a few questions I heard earlier. There have been approximately 20 permits issued in Nevada for hydraulic fracturing. Five wells were actually drilled, three by Noble Energy, Inc. in Elko County, one in Eureka County by an existing company that operates in Pine Valley, and one in Nye County. One of those wells, which was an existing well, is actually producing oil. I believe there was a question about how much oil; I can look that up for you. The average water consumption for hydraulic fracturing in Nevada has been on the order of about 1 1/2 acre-feet. We posted that on our website during the year when this activity was occurring. That is roughly 500,000 gallons, and we required reuse of that water. The company could either refrack, or if they were through with it, they had to take it to a disposal facility and have it treated. There was no spillage anywhere into any aquifers or surface flows. Targets for oil in Nevada are in eastern Nevada in Elko, White Pine, Eureka and Nye Counties. Those are the only counties that have ever produced oil. Oil does not come out of granite or volcanic rocks, so it is fair to say that if there are targets of tight shales, they are in those four counties in rural Nevada.

Nevada has been producing oil since 1955. There are a lot of statistics and data, including papers on hydraulic fracturing, on our web page.

Chair Swank:

With that, I will close the hearing on A.B. 159 and ask Assemblyman Watkins back for closing comments.

Assemblyman Watkins:

I would like to make a quick closing comment. I applaud the efforts of everyone who has testified today, both in favor and in opposition. I do not dispute the opposition's contention that we have some of the strictest regulations for fracking in the United States. We should be very proud of that and the efforts of the 2013 Session. In regard to the "Compendium of

Scientific, Medical, and Media Findings Demonstrating Risk and Harms of Fracking," their conclusion was: our examination of peer-reviewed medical and public health literature uncovered no evidence that fracking can be practiced in a manner that does not threaten human health. That is why I ask for support of A.B. 159.

[Testimony presented but not mentioned in opposition to A.B. 159 include: ([Exhibit GG](#)), ([Exhibit HH](#)), and ([Exhibit II](#)).]

Chair Swank:

Is there any public comment? Seeing no one, this meeting is adjourned [at 3:46 p.m.].

RESPECTFULLY SUBMITTED:

Nancy Davis
Committee Secretary

APPROVED BY:

Assemblywoman Heidi Swank, Chair

DATE: _____

EXHIBITS

[Exhibit A](#) is the Agenda.

[Exhibit B](#) is the Attendance Roster.

[Exhibit C](#) is a copy of an article titled "Creative Thinking Helps Predator Control Programs," from *Sheep Industry News*, July 2013, submitted by Assemblywoman Robin L. Titus, Assembly District No. 38.

[Exhibit D](#) is written testimony in support of [Assembly Bill 101](#), submitted by Lori Bellis, Private Citizen, Reno, Nevada.

[Exhibit E](#) is written testimony in support of [Assembly Bill 101](#), submitted by Leah Sturgis, Private Citizen, Gardnerville, Nevada.

[Exhibit F](#) is written testimony in support of [Assembly Bill 101](#) from the Toiyabe Chapter of the Sierra Club, submitted by Tina Nappe.

[Exhibit G](#) is written testimony in opposition to [Assembly Bill 101](#) from Mike Reese, President, Southern Nevada Coalition for Wildlife.

[Exhibit H](#) is a packet of material in opposition to [Assembly Bill 101](#) submitted by Gerald A. Lent, Private Citizen, Reno, Nevada.

[Exhibit I](#) is written testimony in opposition to [Assembly Bill 101](#) submitted by Joyce Gavin, Private Citizen, Gardnerville, Nevada.

[Exhibit J](#) is a letter in support of [Assembly Bill 101](#) submitted by Donald A. Molde, Private Citizen, Reno, Nevada.

[Exhibit K](#) is a letter in support of [Assembly Bill 101](#) submitted by Elaine Carrick, Private Citizen, Reno, Nevada.

[Exhibit L](#) is written testimony in support of [Assembly Bill 101](#) submitted by Lynn Cullens, representing the Mountain Lion Foundation.

[Exhibit M](#) is written testimony in support of [Assembly Bill 101](#) submitted by FG Voltz, Private Citizen, Carson City, Nevada.

[Exhibit N](#) is proposed amendments to [Assembly Bill 101](#) provided by Doug Busselman, Executive Vice President, Nevada Farm Bureau Federation.

[Exhibit O](#) is written testimony in opposition to [Assembly Bill 101](#) provided by Kris Jones, Private Citizen, Carlin, Nevada.

[Exhibit P](#) is written testimony in opposition to Assembly Bill 101 provided by Paul R. Dixon, Private Citizen, Clark County, Nevada.

[Exhibit Q](#) is written testimony in opposition to Assembly Bill 101 provided by Ryan L. Dennett, President, Las Vegas Chapter Safari Club International.

[Exhibit R](#) is a copy of an email in opposition to Assembly Bill 101, dated February 22, 2017, by Mel Belding, Private Citizen, Reno, Nevada, written to Assemblyman Michael C. Sprinkle, Assembly District No. 30.

[Exhibit S](#) is written testimony in opposition to Assembly Bill 101, dated February 22, 2017, provided by Karen Boeger, Board Member, Nevada Chapter Backcountry Hunters and Anglers.

[Exhibit T](#) is a copy of a PowerPoint presentation titled "AB 159 Prohibition of Hydraulic Fracturing," presented by Assemblyman Justin Watkins, Assembly District No. 35.

[Exhibit U](#) is a letter dated February 21, 2016, from Cliff Eklund, Chairman, Board of Elko County Commissioners, in opposition to Assembly Bill 159, and provided by Assemblyman John Ellison, Assembly District No. 33.

[Exhibit V](#) is written testimony in support of Assembly Bill 159 presented by Hillerie Patton, Private Citizen, North Las Vegas, Nevada.

[Exhibit W](#) is written testimony in support of Assembly Bill 159 presented by David von Seggern, Private Citizen, Reno, Nevada.

[Exhibit X](#) is written testimony in opposition to Assembly Bill 159 presented by Arthur (Art) Henderson, Commissioner, Oil and Gas, Commission on Mineral Resources.

[Exhibit Y](#) is a copy of a document titled "Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States," dated December 2016, by the United States Environmental Protection Agency, presented by Arthur (Art) Henderson, Commissioner, Oil and Gas, Commission on Mineral Resources.

[Exhibit Z](#) is a copy of a document titled "Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources," dated June 2015, by the United States Environmental Protection Agency, presented by Arthur (Art) Henderson, Commissioner, Oil and Gas, Commission on Mineral Resources.

[Exhibit AA](#) is a copy of a report titled "Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States" by the United States Environmental Protection Agency, provided by Arthur (Art) Henderson, Commissioner, Oil and Gas, Commission on Mineral Resources.

[Exhibit BB](#) is written testimony in opposition to [Assembly Bill 159](#) provided by Jerome P. Walker, Private Citizen, Reno, Nevada.

[Exhibit CC](#) is a copy of a report titled "Interim Final Report, Hydraulic Fracturing in the Upper Humboldt River Basin, Aquifer Quality Assessment Program," dated October 2015, prepared by the Desert Research Institute, provided by John Snow, Member, Commission on Mineral Resources.

[Exhibit DD](#) is written testimony in opposition to [Assembly Bill 159](#) presented by John Sande, IV, representing Western States Petroleum Association.

[Exhibit EE](#) is written testimony in opposition to [Assembly Bill 159](#) presented by William J. Ehni, Private Citizen, Carson City, Nevada.

[Exhibit FF](#) is additional written testimony in opposition to [Assembly Bill 159](#) submitted by William J. Ehni, Private Citizen, Carson City, Nevada.

[Exhibit GG](#) is written testimony in opposition to [Assembly Bill 159](#) provided by Tim Shestek, Senior Director, State Affairs, American Chemistry Council.

[Exhibit HH](#) is a fact sheet titled "Global Challenges, Chemistry Solutions," dated September 2016, by American Chemistry Council, provided by Tim Shestek, Senior Director, State Affairs, American Chemistry Council.

[Exhibit II](#) is written testimony in opposition to [Assembly Bill 159](#) provided by Chandler T. Wilhelm, President, Division of Professional Affairs of the American Association of Petroleum Geologists.