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Natural Resources Committee
September 22, 2015

[LR154 LR247]

The Committee on Natural Resources met at 9:00 a.m. on Tuesday, September 22, 2015, in the Performing Arts Center in the Sidney High School, Sidney, Nebraska, for the purpose of conducting an interim hearing on LR247 and LR154. Senators present: Ken Schilz, Chairperson; Curt Friesen, Vice Chairperson; Dan Hughes; Jerry Johnson; Brett Lindstrom; John McCollister; and David Schnoor. Senators absent: Rick Kolowski.

SENATOR SCHILZ: Good morning everyone and welcome to today's Natural Resources Committee hearing on two legislative resolutions, the first being LR247 introduced by Senator Haar; the second being LR154 introduced by Senator Stinner. My name is Ken Schilz. I'm the Chair of the committee from Ogallala. We will take a minute and everybody can...all the other senators that are up here can go ahead and introduce themselves starting to my far right.

SENATOR STINNER: Yes, my name is John Stinner. I'm District 48, Scotts Bluff County.

SENATOR HUGHES: Dan Hughes from Venango, Nebraska, District 44, ten counties in southwest Nebraska.

SENATOR JOHNSON: Jerry Johnson, District 23, eastern Nebraska, Saunders, Butler, and Colfax County, and I reside in Wahoo.

SENATOR FRIESEN: Curt Friesen from Henderson, District 34, Hamilton, Merrick, Nance, and part of Hall County.

SENATOR LINDSTROM: Brett Lindstrom, District 18, northwest Omaha.

SENATOR SCHNOOR: My name is David Schnoor. I represent District 15, which is Dodge County, and I live in Scribner.

SENATOR McCOLLISTER: My name is John McCollister, District 20, and that's central Omaha.

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SENATOR SCHILZ: Thank you, and I'd like to thank everyone, all the senators, for coming out to Sidney. It's a beautiful facility out here. We'd like to thank the Sidney Public Schools and everybody that worked together to make this happen. Thank you very much for having us and hosting us today. If you are planning on testifying, we have a order for that. We've got some green sheets that sit back there. We'd ask you to fill those out in their entirety, please print. And then when you get up to the microphone, if you could say and spell your name so that we can get it in properly on the record, would be wonderful. And I will stop you if you forget that and I'll ask you to do that. But do fill out that sign-in sheet. Make sure it's filled out completely and then give the sign-in sheet to Barb right over here. And I'll introduce Barb Koehlmoos. She's our committee clerk. She makes everything work up here on the stage and all that, so we thank her for coming in early and getting all that started. And then to my immediate left is Laurie Lage. Laurie Lage, she is the legal counsel for the Natural Resources Committee and she's the one that keeps all of the committee members and everybody informed on everything that happens and helps out quite a bit, so we appreciate her help too. If you don't choose to testify but you can also submit comments in writing and those can be read into the official record. So if you have any of those, you can either wait until afterwards and hand them to Barb or one of the senators and we'll make sure that it gets to where it needs to be. If you do have handouts, please make sure you've got about 12 copies for the clerk to hand out to the committee. If you don't, we will get it into the record, but it will...it won't be today that everybody will get a copy to see that. And when you do testify, when you come up here, please speak clearly into the microphone like I said and spell your name. At this time I'd like to have everybody turn off or turn to silent their cell phones and/or anything else that makes any sort of noise. And if you have to have a conversation, please take it to the hallway, or if you have to answer your phone, please take it out of the hearing room so that folks won't be distracted. We don't allow any displays of support or opposition to any of the LRs that are here today, so no cheering, no clapping, no hollering. We expect a quorum here and we will make sure that that takes place. We will be using the light system. We have some invited testimony that will take a little longer, so we'll go through that and we'll allow a little extra time for those folks, and then when that's done, when the general public is coming up to testify, we will turn the lights on. We'll probably do...looks like we've got quite a few people. We'll probably do about three minutes. So you'll get two minutes with a green light, one minute with a yellow light, and then once the red light comes on, we'd like you to sum up, be done and move on so that somebody else has an opportunity to testify. And so with that, I think the first

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one on the agenda today is LR247, which is Senator Ken Haar's. And Senator Haar is right here. You can go ahead and take your seat.

SENATOR HAAR: Up there?

SENATOR SCHILZ: If that's where you want to go, yes.

SENATOR HAAR: I'll try not to fall off the stage. (Laughter) Well, first of all, I want to say a few thank-yous to the committee for holding this hearing and to the high school for also holding the hearing. And, obviously, what we're talking about today is about all these young people that are going here and there in this high school, a great place to have this. And I just looked at the altimeter on my smartphone and we're at 4,000 feet, so I find the breathing a little bit hard after coming from Lincoln. (Laughter) Well, water is Nebraska's gold. We don't have mountains or beaches or massive deposits of coal or oil, but we have something that all living things need, which is water. It's the lifeblood of our most important industry, agriculture. We have streams that flow and, even more significantly, we have North America's largest and most abundant underground water source--the Ogallala Aquifer. As Senator Carlson, who headed up the Natural Resources Committee for a number of years, said, water is life. And certainly we see this. California in the midst of a 500-year drought where rain and snow are evaporating before it hits the ground. Their agriculture production is being negatively impacted and it will have an increasing impact if it continues. California and Washington are having...I think it's 1,200 more... 1,200 to 1,500 more wildfires this year than they've had in the past. The recent drought in Texas has caused reductions of cattle herds and it's one of the reasons that Nebraska has recently risen to number one in the beef cattle production. And the rains of this spring should not let us forget the drought that we experienced in 2012, nor the predictions by climate scientists that such droughts are likely to become more common in the twenty-first century. Because water is so valuable, we need the gold standard of protection for it. Now, fortunately, our state Legislature has been forward-looking in terms of policy creating the NRD system to protect groundwater, and recently the mechanism to fund projects to sustain our water supply into the future. And I know the Natural Resources Committee had a lot to do with the funding that we put into the budget for that purpose. Now we see a new concern for our water: disposing of fracking wastewater deep beneath our aquifer, depositing in a safe manner forever--as one person at the

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March hearing said, over the life of the earth. So what we're looking at is disposal of fracking wastewater from other states, which has put certainly the spotlight on this very serious issue of how do we dispose of toxic wastewater forever. It's raised lots of concerns. There was the hearing, I'd call it infamous hearing, in March, and I was here for that. And a poll, the Nebraska poll, which is a scientific poll done each spring, showed 77 percent of Nebraskans objected to accepting wastewater from other states; 88 percent wanted standards as strong as our neighbors-- and I'm going to talk about that in a few minutes; and 84 percent asked for, they thought that we should have full disclosure of all the liquids that are put down into the earth. Now this has caught the attention of state senators. And it's not, you know, the satellite or the space craft, I guess you could call it, that just flew by Pluto, was launched nine years ago. It has flown 3 billion miles and it will just keep going. Well, more and more the Legislature is understanding the things we create--political subdivisions, commissions, and so on--we don't just create them and let them go forever. It's our responsibility to provide oversight. And we've seen over this past year, and I think we're going to see more and more, not just the Oil and Gas Commission, but the Legislature has seen that we have a responsibility for oversight of those things that we have created. So this year, now we've seen Senator Chambers' bill, LB664, which is...would be a disclosure of all the fluids, that's in committee right now; Senator Stinner's LB512, which he describes now as a placeholder for future legislation; LR154 from Senator Stinner, which he's going to talk about in a few minutes; and then my LR247. I introduced LR247 because I think the Oil and Gas Commission has dropped the ball and is not delivering the gold standard that we need. Now, this is not an attack on fracking. In fact, I believe that fracking, and natural gas in particular, is the transition that we're going to see between now and a future where we don't burn fossil fuels. So this is not an attack on fracking. It is questioning, my resolution, LR247, is questioning the performance of the Oil and Gas Commission. And the purpose--and this is right out of the resolution--the purpose of LR247 is to examine the process of eliminating the Nebraska Oil and Gas Commission. The study shall include an examination of the current statutory duties of the natural...of the commission and whether other agencies or political subdivisions could assume the duties. And it wasn't introduced just by me. I introduced it, but it was cosigned by Senator Baker, Senator Kolowski, Nordquist, Pansing Brooks, Stinner, and, of course, I introduced it. Now there are nine points to be studied in the resolution and they're all interrelated and it's just not about the disposal issue that's come up. It talks about all of the things that the Oil and Gas Commission does. So I'd like to talk about the reasons for my lack of

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confidence in the Oil and Gas Commission. First, it's a cheerleader organization and it's also a regulator, and I think that raises some serious issues in any circle. And then some issues where I think we fall short right now as a state: the protection for landowners and local political subdivisions. For example, roads and other infrastructure are not covered, spills, and dumping. Schools, we have the concern of some schools because there could be 80 to 100 semis passing every day. Volunteer fire departments, how are they to be prepared for this? Contamination of groundwater if it occurs, how do we deal with those things because right now, they're not part of the agreements? Funding and financial assistance for leaks or spills: Colorado requires a \$1 million bond; Nebraska requires \$10,000 bond. We need appropriate and objective analysis of geology. The spike in earthquakes in states like Ohio and Oklahoma as a result of fracking and disposal of fracking materials is something we need to seriously consider. We need meaningful procedures for public input. In my opinion, the public hearing or the hearings, they weren't really public as such, I think was a shambles in March. And the public is rightly concerned. And I know there are answers and they need to get good answers. But again, we're talking about disposal of this wastewater over the life of the earth. What about pipes and cements? Do pipe and cement last forever? Waste...we know that waste will eventually...even though it's below our aquifer, the Ogallala Aquifer and so on, it will migrate underground over time. If it leaks, what if a pipe leaks, a pipe rusts through? The whole issue of microearthquakes, we can't just dismiss it by saying it can't happen here. I believe the public is rightly concerned. And then there was this whole thing of only if you live within...only if you have property interest within a half mile could you be a part of the official public hearing. Local political subdivisions need to be able to have a say in the process. Counties will have to maintain roads, NRDs will need to protect groundwater, local health departments will need to deal with potential health impacts. So we need a much broader voice in this process as the commission makes decisions. We need to be able to protect wildlife habitat and native grasslands from damage. Nebraska has no such provisions right now in the rules and regulations of the Oil and Gas Commission. And so, just to take a minute, I want to compare a bit with Colorado. And Colorado is a state...and I'm not necessarily saying this is the model. I'm just saying Colorado is a state that has a much more robust oil and gas industry. And if you look at the regulations, and I've been comparing, these are Colorado's, 186 pages, and Nebraska's are 50. And larger doesn't necessarily mean better, but it's telling that their regulations cover many issues that Nebraska's do not, and their regulations provide far more detail about important issues related to protection of resources and public health. And here are

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just some examples. I was tempted to read, but I'm not going to do that. I see Senator...or Chairman Schilz smiling. Here's some examples where Colorado's rules are more extensive and more explicit: requirements for consultation with local government; requirement for consultation with parks and wildlife, similar to Game and Parks; requirements for consultation with public health and environmental groups; provisions for public forums and public input procedures are quite extensive in Colorado's regulations; provisions for public water protection; groundwater baseline sampling and monitoring; provisions for public comment about injection wells. If any comments, the data or other information that raises an impact, it provides for public hearings where any person may testify--provisions for local public forum for input by elected officials, local government, and citizens at which the following may be considered: the impact to the infrastructure; impact to the environment; impact to wildlife resources; impact to groundwater resources; potential reclamation impact; and other impacts on public health, safety, and welfare. And these are all specified in Colorado's rules and regulations. There's an entire section on financial assurances of sufficient amount to cover obligation of operators, and including the requirement which I mentioned before of \$1 million in liability insurance. Consideration of impacts on roads and requirements for traffic plans, that's included in Colorado's plans; set-back requirements and consideration of impacts on high-occupancy buildings, such as apartments or schools; aesthetic and noise control provisions; extensive provisions for waste management, including management of produced water; provision of soil and groundwater sampling to protect contamination and provide for remediation; provisions for reducing flaring of natural gas; reclamation provisions; pipeline regulations; provisions for protection of wildlife resources; provisions relating to sensitive wildlife habitat. All of these are included in the Colorado plan. Again, I'm not necessarily endorsing this. My big question is, with a state with such a robust oil and gas industry, why do they have far more specifics in their regulations than we do as a state? So, in conclusion, again I believe the current Oil and Gas Commission is not providing the gold standard of protecting our valuable water and must be either fixed or replaced by another agency. I came here to listen carefully and I appreciate being able to testify. Thank you. [LR247]

SENATOR SCHILZ: Thank you, Senator Haar. I would like to welcome Senator Davis to the stage. Good morning. [LR247]

SENATOR DAVIS: Good morning. [LR247]

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SENATOR SCHILZ: At this time, do any of the committee members have questions for Senator Haar? Senator McCollister. [LR247]

SENATOR McCOLLISTER: The resolution intimated that other bodies of government currently have some authority that is indicated. And you've suggested that they apparently are not doing the job, for example, the Department of Environmental Quality. Is there any...do you know of any idea whether they are adequately doing the job or do you think they've been deficient in their oversight of the oil and gas business in the state? [LR247]

SENATOR HAAR: Well, my resolution deals primarily with the Oil and Gas Commission. And so I think as this study goes on, and what I will be looking at, is to see what role these other agencies play, and at this time whether indeed the Oil and Gas Commission needs...whether their duties need to be transferred to maybe some other agency or a group of agencies. [LR247]

SENATOR McCOLLISTER: Thank you. [LR247]

SENATOR SCHILZ: Thank you, Senator McCollister. Any other questions for Senator Haar? Senator Haar, I just have one. As you talk about this and the possible elimination of the Oil and Gas Commission, that most certainly wouldn't eliminate the need for doing all of this. And then I was just wondering if you had any thoughts on where those responsibilities would fall to if not to the Oil and Gas Commission. [LR247]

SENATOR HAAR: No. Of course, all of the things that I mentioned need to be a part...need to be taken care of. They need to be taken care of. And so, hopefully, the study is...we'll be looking and we're going to hear testimony: Are they doing these things? Why aren't they? Is it simply a matter that the Oil and Gas Commission needs to come awake and get on board with some of these things, or is it so broken that it needs to be replaced? But certainly, all these things need to be dealt with because it's our water at stake. [LR247]

SENATOR SCHILZ: Thank you, Senator Haar. Any last questions? Seeing none, thank you very much for your opening. And now we will have...invite Senator Stinner to the table to open on his LR150-something, LR154. There we go. [LR154]

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SENATOR STINNER: Good morning, Chairman Schilz and the members of the Natural Resources Committee and fellow legislators. For the record, my name is John Stinner, J-o-h-n S-t-i-n-n-e-r. We are here today because of two phone calls I received early in the session concerning a proposed wastewater well application located in Sioux County, Nebraska. Our investigation confirmed that an application had been submitted by Terex Energy Corporation to convert an existing nonproductive oil well into a Class II-D disposal well for specific purposes of disposing of produced water generated from the production of oil and gas. The application requested that the proposed maximum injection pressure at the surface be set for an injection rate at 10,000 barrels per day. A call to the Oil and Gas Commission also confirmed that the applicant must be in compliance with the Safe Drinking Water Act by the EPA. And if you know anything about the EPA, they have very robust standards as it relates to drinking water. I guess we felt at that time that they would address and mitigate any of the concerns that we would have. So my initial concern was to focus on increased truck traffic and the impact on our roads, especially in small towns, and also a concern that the commission lacked enough funding to adequately monitor such a high-volume well. That bill, LB512, is still pending in your committee. These initial concerns regarding the application have morphed into numerous additional concerns as expressed in our committee hearings, on the floor of the Legislature, by my local constituents, and by the media across the state. The concerns and questions raised about the proposal include, but not limited to: whether the disposal of such wastewater in a subterranean region in Nebraska may trigger earthquakes; also, the long-term cost of monitoring such wells and how the cleanup would be financed if damage was incurred; also, the possibilities of contamination of water used for human consumption, irrigation, and watering of livestock; and if the heavy truck traffic will damage Nebraska roadways and impose a highway safety problem. The purpose of this resolution is to investigate and make recommendations regarding the authority of the Nebraska Oil and Gas Conservation Commission and its rules in decisions regarding the disposal of salt wastewater into dry wells. The study shall address what can be done to protect the environment, the surface and underground water supply, public safety, and to ensure that the current regulations are robust enough to accommodate high-volume wells such as this. The study should make recommendations if further regulations are deemed necessary, and examine the funding needed and possible funding sources for such additional regulations. I would like to conclude with the idea that the focus of this review should be on Class II-D wells, commonly referred to as commercial wastewater disposal wells. It is my understanding that

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presently the state has four commercial disposal wells, with Sioux County well being the fourth. My hope is that this is a start of a process whereby we accumulate factual information and data to make informed decisions and recommendations. I would like to thank the committee. I'd like to thank Laurie Lage for her work in this endeavor, and also Senator Schilz for allowing this hearing to occur, and to Sidney High School for allowing us to be here today. Thank you.

[LR154]

SENATOR SCHILZ: Thank you, Senator Stinner. Any questions from the committee for Senator Stinner? Seeing none, thank you very much for your opening. Now at this point, we will invite Mr. Dave Miesbach from the Nebraska Department of Environmental Quality as our first invited speaker. Good morning, sir, and welcome. [LR247 LR154]

DAVID MIESBACH: Good morning. My name is David Miesbach, D-a-v-i-d M-i-e-s-b-a-c-h. It's nice to be number one. (Laughter) I am currently the groundwater unit supervisor with the Nebraska Department of Environmental Quality. Prior to that, from 1998 to 2004, I was in charge of the Underground Injection Control Program for the DEQ. In 1959, the NOGCC drafted or was formed and drafted regulations for injection wells, which would eventually become designated as Class II wells. The Clean Water Act in 1972 required states seeking delegation of the national pollution discharge elimination system permitting program to have adequate authority to issue permits that controlled the discharge of pollutants into wells. The NDEQ was also formed that year. In 1974, the Safe Drinking Water Act required establishing national health standards for drinking water, required developing a comprehensive program with states to protect underground drinking water aquifers. The EPA adopted federal UIC regulations in 1980, which is 40 CFR Part 146. Exploration of uranium began in 1980 in western Nebraska and the NOGCC had oversight at that time. NDEQ promulgated Title 122, which is rules and regulations for underground injection and mineral production wells in 1982. NDEQ and NOGCC jointly submitted Nebraska's UIC program to the EPA in 1982. The EPA granted the UIC primacy to the NOGCC in 1983 and the NDEQ in 1984. And just for your information, primacy means the state has the lead responsibility for administrating and enforcing the UIC program within its jurisdiction. There are six types of class...there are six classes of injection wells, excuse me. Number one, which is regulated by the DEQ is a Class I well, which injects fluids below the lower-most formation containing a drinking water source. Currently, we have three in the state of

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Nebraska. They must follow a design that protects all underground sources of drinking water. They must inject below the lower-most underground source of drinking water. They can only inject into an aquifer that has a total dissolve solid of greater than 10,000 milligrams per liter. They can only accept nonhazardous fluids. They must demonstrate mechanical integrity. And they must obtain a permit from the department prior to be constructed. Class II wells inject formation fluids produced in connection with conventional oil or natural gas production, fluids used to promote and enhance recovery of oil or natural gas and liquid hydrocarbons for storage purposes. Currently, they're regulated by the NOGCC under Title 267. Class III wells regulated by the NDEQ inject fluids to promote extraction of mineral production or energy. Any formation containing a drinking water source must be protected or exempted prior to their construction. Currently, we have a little greater than 5,000 Class III wells and they're all located on one facility. They must follow a design that protects against migration of fluids to an underground source of drinking water. They must demonstrate mechanical integrity. They must have a monitoring well system to detect any migration from the mining operation. And they must obtain a permit from the department before being constructed. Class IV wells inject hazardous or radioactive fluids into or above the formation containing a water source. They are categorically prohibited in the state of Nebraska. Class V wells regulated by the NDEQ inject waste fluids into or above a formation which contains a drinking water source. Currently, we have greater than a 1,000 Class V wells in the state. They may inject into or above an underground source of drinking water. They must not endanger health or cause pollution to the environment. They must obtain a permit or authorization from the department prior to being constructed. They can only accept nonhazardous fluids and they must follow specific design or construction standards. Class VI wells, they inject carbon dioxide into approved subsurface formations in order to sequester CO₂. EPA adopted this new well classification in December of 2010 and to date no state has been delegated this part of the UIC program. The EPA directly implements the UIC Class VI program in Nebraska. Just a little background on the NOGCC: The NOGCC has been regulating injection wells associated with oil and gas since 1959. The basis under the Safe Drinking Water Act mandated that the EPA not interfere with oil and gas production; consider bearing geologic, hydrogeologic, or historical conditions; and avoid unnecessarily disrupting existing state programs. The authorities for the Class II...relating to the Class II underground injection wells, prior to the NDEQ having the UIC programs and inspectors, the NOGCC inspectors developed a Class III inspection program for us. Nebraska Revised Statute 81-1531.01 states, "Nothing in the

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Environmental Protection Act shall be construed to apply to any wells or holes covered by sections 57-901 to 57-902," which the NOGCC authority. The NDEQ and the NOGCC have an MOU that specifically delegates Class II injection well authority to the NDEQ...or to the NOGCC, and that was signed in 1981. The obligations for us, for the NDEQ for an oil and gas incident that proposes a threat to public health, an incident report to the NDEQ notification system would be addressed by the appropriate division--meaning air, water, or waste--under specific regulations. As an example, if an incident posed a threat to an underground source of drinking water, the groundwater unit in the Water Division would deal with the situation under Title 118. The responsible party would have to verify the impact, identify the extent, and potentially conduct remediation. I appreciate you taking the time to listen to my statements. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir. Any questions? Senator Stinner. [LR247 LR154]

SENATOR STINNER: In the statute it talks about fresh water definition and in the fresh water definition it says, unless an aquifer is exempted by the director. Is there any other process, is there any exempt aquifers in the state, let's put it that way, and what is the process that the director would go through to exempt an aquifer? [LR247 LR154]

DAVID MIESBACH: Okay. For the NDEQ, we have...there are actually two exempted aquifers in the state of Nebraska. They're both up in Dawes County by the uranium mines. The first time we petitioned for an aquifer exemption, we had to go through the EPA. So that's an EPA...it's written in CFR 40, 146. So, we looked at it, we approved it, we sent it to the EPA. They sent it to headquarters and they approved the aquifer exemption. So there is a lengthy process. There's public hearings. We just don't go out...you have to prove that that aquifer is not going to be used for drinking water or it's so highly contaminated that it can't be. [LR247 LR154]

SENATOR STINNER: So it's not just up to the director; there's a process. [LR247 LR154]

DAVID MIESBACH: There is a process. [LR247 LR154]

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SENATOR STINNER: Okay. The second thing is, as you transferred this primacy to the Oil and Gas Commission, what's the process, do you know, now back in the '80s? I mean, did they have to fulfill a certain amount of requirements tests, demonstrate abilities, those types of things? [LR247 LR154]

DAVID MIESBACH: Unfortunately, I wasn't there at the time but I do know the EPA will not grant you primacy unless they feel comfortable that you can run the program. So, I guess that's probably...I mean, I've never been through the primacy process. [LR247 LR154]

SENATOR STINNER: My guess is it was a pretty rigorous process. [LR247 LR154]

DAVID MIESBACH: Yes. [LR247 LR154]

SENATOR STINNER: Is every state granted primacy or is it...how many states have primacy? [LR247 LR154]

DAVID MIESBACH: I can't answer how many states but I know you only...if you want primacy, you have to apply for it. So there are some states, like the state of Iowa, that does not have primacy for the UIC program because they didn't feel that they had the qualifications to run the program. [LR247 LR154]

SENATOR STINNER: Now is there a requirement also for the EPA to come in and review the Oil and Gas Commission from time to time to make sure that they do have rigorous...and they're meeting the standards, so on and so forth? [LR247 LR154]

DAVID MIESBACH: I can't speak to the NOGCC, but I do know that they come and review the NDEQ's program. [LR247 LR154]

SENATOR STINNER: Okay. Thank you. [LR247 LR154]

SENATOR SCHILZ: Senator Schnoor has the next question. [LR247 LR154]

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SENATOR SCHNOOR: Thank you, sir. When Senator Haar gave his opening, he talked about he used the definition toxic waste, or not gave a definition, he just used that term. You talked about the different classes of injection wells. And you talked about nonhazardous fluids. These...whatever the fluids may be, are they tested before they can be put into these injection wells? [LR247 LR154]

DAVID MIESBACH: In the Class I where I stated that it had to be nonhazardous, they have to. We have a set of standards they have to meet before it will be allowed to be injected into those wells. That is correct. [LR247 LR154]

SENATOR SCHNOOR: Okay. So...and are these results available to the public? [LR247 LR154]

DAVID MIESBACH: Yes, sir. [LR247 LR154]

SENATOR SCHNOOR: Okay. Then has any...has any drinking water well or any domestic wells, have they ever showed any contamination from any of this, of these processes that have taken place? [LR247 LR154]

DAVID MIESBACH: Specifically to any class? [LR247 LR154]

SENATOR SCHNOOR: Yes. [LR247 LR154]

DAVID MIESBACH: Okay. Since we only have...we have three Class I wells in the state of Nebraska, to my knowledge---we can look at the public record--there's been no impact to a drinking water well from the Class I program. The Class III program is specifically to the mine in Crawford and we can look at the record again. There has been no impact of public water system or private well from the Class III program. And to my knowledge, we have never had impacts from any of the Class V wells that we regulate. [LR247 LR154]

SENATOR SCHNOOR: So overall, there's never been any contamination of any classes that you know of from injecting? [LR247 LR154]

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DAVID MIESBACH: Not to private wells. [LR247 LR154]

SENATOR SCHNOOR: Okay. Back to Senator Haar's comment about toxic waste, when we had our hearing during the session there was a lot of talk about toxic waste. But you have said that toxic waste cannot be injected in any wells in the state of Nebraska. Did I understand that correctly? [LR247 LR154]

DAVID MIESBACH: I stated that for Class I wells specifically it has to be nonhazardous. So in order to meet the...we have the eight RCRA metals. There's a list of things that makes something hazardous or nonhazardous. So for Class I wells, it has to be nonhazardous. In Class V wells, we won't allow anything hazardous. We don't even consider that. It generally has to be drinking water standards to put water back in through a Class V well. And what Class III program is, that aquifer is exempted, so the fluids that are going back may not meet drinking water standards but they are nonhazardous. [LR247 LR154]

SENATOR SCHNOOR: Okay. Thank you. [LR247 LR154]

SENATOR SCHILZ: Senator Haar. [LR247 LR154]

SENATOR HAAR: Yes, thanks for being here. In terms of the Class II wells that Senator Stinner is talking about, do they allow for hazardous fluids? [LR247 LR154]

DAVID MIESBACH: I can't speak to that on Class II wells. [LR247 LR154]

SENATOR HAAR: Okay. So, how do you determine if some of the chemicals...and in a way this is talking about Senator Chambers' law...or the bill before the committee now. If we don't know exactly what's in these wastewaters or their produced water, whatever we call it, how would we know if it's nonhazardous or not? [LR247 LR154]

DAVID MIESBACH: Well, again, I can only speak to my program. In Class I situation we have a specific list of chemicals that have to be tested for and we have specific guidelines on what those

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amounts can be. So that's how we do it. You have a guideline you have to meet before you can inject those fluids. [LR247 LR154]

SENATOR HAAR: But in the cases of the water that's coming in from Colorado, and maybe you can't speak to this, but we don't know for sure exactly what's totally in that water. Is that correct? [LR247 LR154]

DAVID MIESBACH: Again, that's outside of my program. [LR247 LR154]

SENATOR HAAR: Yeah, I'll ask that of someone else. [LR247 LR154]

DAVID MIESBACH: Thank you. [LR247 LR154]

SENATOR HAAR: Thank you very much. [LR247 LR154]

SENATOR SCHILZ: Senator McCollister. [LR247 LR154]

SENATOR McCOLLISTER: Yeah, thank you, Mr. Chairman. Thank you for your testimony. [LR247 LR154]

DAVID MIESBACH: You bet. [LR247 LR154]

SENATOR McCOLLISTER: You cited a number of statutes and used quite a few acronyms. [LR247 LR154]

DAVID MIESBACH: Sorry. [LR247 LR154]

SENATOR McCOLLISTER: Yeah. So, is the origin of Nebraska's environmental laws a federal origin or have...did they originate with (inaudible)? [LR247 LR154]

DAVID MIESBACH: The underground injection laws? [LR247 LR154]

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SENATOR McCOLLISTER: Yeah. [LR247 LR154]

DAVID MIESBACH: Okay. I believe I stated...I'm going to refer back to my notes. The EPA actually developed the underground injection control rules and regulations and then we had to be as stringent or more than the federal regulations. So we based our regulations off of what the federal government had written. [LR247 LR154]

SENATOR McCOLLISTER: Thank you. Are Nebraska's current laws less robust than Colorado's? [LR247 LR154]

DAVID MIESBACH: I can't answer that, I'm sorry, for the Class I, III, or V program. [LR247 LR154]

SENATOR McCOLLISTER: Yet how much responsibility, environmental responsibility does the Nebraska Oil and Gas Conservation Commission have compared to the responsibility of your department? [LR247 LR154]

DAVID MIESBACH: Again, I think that's probably a question for the NOGCC. [LR247 LR154]

SENATOR McCOLLISTER: Well, I can ask it a different way. [LR247 LR154]

DAVID MIESBACH: Okay. [LR247 LR154]

SENATOR McCOLLISTER: You've got primacy for the environmental statutes. Does the commission have any enforcement or any other responsibilities with regard to the environmental laws of Nebraska? [LR247 LR154]

DAVID MIESBACH: I don't think that I can answer that question. I do know that they have federal primacy for the Class II program through the UIC. [LR247 LR154]

SENATOR McCOLLISTER: Okay. Thank you. [LR247 LR154]

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DAVID MIESBACH: You bet. [LR247 LR154]

SENATOR DAVIS: Mr. Chairman? [LR247 LR154]

SENATOR SCHILZ: Thank you. Senator Davis. [LR247 LR154]

SENATOR DAVIS: Thank you, Mr. Chairman. Just a couple of questions. You mentioned rules and regulations were put in place in 1982. Is that correct? [LR247 LR154]

DAVID MIESBACH: I believe so. [LR247 LR154]

SENATOR DAVIS: Do you know if they've been updated at all since that time? It's 33 years ago. [LR247 LR154]

DAVID MIESBACH: I can answer that. They were updated in 1990 and then I was responsible for the update in 2002. [LR247 LR154]

SENATOR DAVIS: And that's the most recent is 13 years ago. [LR247 LR154]

DAVID MIESBACH: Yes, sir. [LR247 LR154]

SENATOR DAVIS: And then you mentioned that there had not been any contamination in private wells. What about public wells? [LR247 LR154]

DAVID MIESBACH: No, sir. [LR247 LR154]

SENATOR DAVIS: All right, thank you. [LR247 LR154]

SENATOR SCHILZ: Thanks, Senator Davis. Sir, as you go through this, and obviously you don't have any responsibility when it comes to permitting or the monitoring or regulation of those wells. But if there would happen to be...if there would happen to be a contamination or a spill, then DEQ would be triggered to help monitor for that cleanup, correct? [LR247 LR154]

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DAVID MIESBACH: In our agreement with the NOGCC, it says that we will be available for assistance and consultation with the NOGCC. So if it's something they don't feel that's in their jurisdiction, they would notify us and then we would take it from there under Title 118 or whatever title would...Title 118 is for water. But if it's air or waste, we would take that for them. [LR247 LR154]

SENATOR SCHILZ: But they would have to request that, though,... [LR247 LR154]

DAVID MIESBACH: Correct. [LR247 LR154]

SENATOR SCHILZ: ...that you come (inaudible). [LR247 LR154]

DAVID MIESBACH: Or, I mean, some notifications come in, you know...if a notification comes in, we will handle it. If we think it's an NOGCC issue, we work with them. [LR247 LR154]

SENATOR SCHILZ: Okay. Great. Thank you. Any other questions? Sir, thank you very much for your testimony. We appreciate it. [LR247 LR154]

DAVID MIESBACH: Thank you. [LR247 LR154]

SENATOR SCHILZ: At this point, we have Dr. Matt Joeckel, University of Nebraska state geologist and associate director for Conservation and Survey. I think he has a PowerPoint presentation, so the members of the committee are going to come into the audience. And I would ask that Dr. Joeckel stay up here while we come back, in case we have questions when you're done with the PowerPoint. Thank you. Don't think we're leaving you guys. [LR247 LR154]

MATT JOECKEL: (Exhibit 1) I apologize for the drama as we wait for the screen to come down. Hello everyone. My name is Matt, M-a-t-t, Joeckel, J-o-e-c-k-e-l, and I'm state geologist of Nebraska, associate director for Conservation and Survey in the School of Natural Resources in the Institute of Agriculture and Natural Resources at the university. In short order, that means that I am in charge of the state's geological survey and I do believe that this particular instance, several others of late, illustrate the importance of having an objective geological survey in the

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state of Nebraska. Other than that, I will offer no other opinions. I am required to testify in the neutral position. I intend to honor that obligation. I'm just here to give you some facts. If we might have the first slide, please. First of all, I want to offer my sincere thanks to the Legislature, et al. at large, to the citizens of Nebraska for letting me have a job. Because whether indirectly or directly, you pay me to do this, and I thank you all for this opportunity. I should hope that I would always live up to the trust that has been placed in me. It's laudable that we're all here engaging in democracy. It's good that everyone has an opinion. I have some, but they're not germane to the issue today, except perhaps that we might all share the opinion that we wish that the football team were winning more games, but that's beyond our control. I think it's great we're talking about natural resources and protecting them. I think it's great we're engaging in democracy. I'm a geologist. I'm not much else than that. I'm not an engineer. I'm not a lawmaker. I will try as hard as I can to limit my comments to geology, provide you with facts about the local and regional geologic setting. If we might have the next slide, please. First of all, some introductory terminology. An aquifer: a permeable body of earth material that transmits economic quantities of useable water. An aquitard is much the opposite. It does not transmit those quantities of useable water. I'll use the term "basement" or "basement rock." That refers to the old, generally hard, crystalline, igneous, and metamorphic rocks that are underneath the layers of sedimentary rocks that we find below the land surface here in the interior of North America. And in the case of the well that I will speak to today, we're talking about basement rock that's in a depth of something like a mile and a half approximately. So you never see it. The closest you'll come to seeing it is if you take a vacation trip to the Canadian Shield.

Microearthquake: generally defined as an earthquake with a magnitude of less than two. What does that mean? Unless you have some earthworm ancestry in your family tree, and believe me I've known people who were worms but they weren't part earthworm, you're not going to sense that. So if you're not going to sense it, it's not going to cause any damage...conceivable damage to any structure. And by way, when I make those little jokes, I'm not being flippant to anybody. Just trying to lessen the mood because I couldn't possibly be any more nervous than I am right now. (Laughter) Thank you for laughing. I appreciate it. Subnormal pressure, and we'll define some other terms later: pressure in a subsurface geologic layer that's less than the hydrostatic pressure of water in a hypothetical column that would extend to the same depth as that layer. May we have the next slide? Induced seismicity: Senator Haar mentioned induced seismicity. We don't have much evidence for it in Nebraska. We do potentially have a little bit, we'll get to that

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later, but not in the area of interest. Earthquakes generated by things that people do including wastewater injection, but also groundwater withdrawal. Now, members of the press, lest we make an error here, I am not suggesting that groundwater withdrawal in Nebraska induces seismicity, but groundwater withdrawal can. So can the presence of large reservoirs. There are documented cases of large man-made lakes inducing seismicity. It can be an outcome of various activities associated with petroleum production, including the injection of saline waters, which is the subject of interest today. Usually it occurs because...in those cases, because you're introducing mass. What the heck does that mean? Leave it to a scientist, at least a geologist here, to come up with a highfalutin term for something. You put water in the ground, you're adding weight to geologic materials below the surface. It's that simple. The other one is more complicated. Elevation of pore pressures in pores deep under ground in geologic layers. Those two things can work separately or together to induce seismicity where you're injecting fluids. The earthquake hazard associated with these activities is somewhat difficult to constrain. It depends on the total volume of fluid injected over time, perhaps decades, perhaps a couple, three, four decades; proximity to faults; rates of occurrence; and magnitude of historical earthquakes. And I'll address all these points. Induced seismicity in cases of injection wells depends on a particular set of circumstances. Merely because you're injecting water into the ground of some chemical composition means in no way, or does not mean--pardon my grammar--that you will automatically have induced seismicity. I will say this, however. The state of science is changing all the time. That's no different in geology. Rocks may seem immutable, but the science of geology changes on a monthly and yearly basis and we're learning more and more about induced seismicity all the time. We've learned a lot in the past five to ten years alone. Next slide, please. Let's dispel some myths though about induced seismicity. All injection wells do not cause induced seismicity. There are places like the Williston Basin in North Dakota where the injection of fluids under ground for petroleum production does not seem to have caused a major problem in terms of felt earthquakes. Remember, you get microearthquakes, magnitudes or one or two. They're certainly not going to cause any damage and they're not going to...you're not going to be able to sense them. All right. We get above that, you might feel them if you're awake. We do know that seismicity can be induced by injection wells under certain circumstances, not under all circumstances, within about 6.2 miles or 10 kilometers from the location of an injection well. We also know that some affect, under certain circumstances, not under all circumstances geologically speaking, some seismicity may be induced as much as 2.5 miles or 4 kilometers

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below the bottom of the injection well. Those numbers almost certainly do not apply to any situation in Nebraska, but we're trying to provide the whole truth here. It seems very likely that induced seismicity strong enough to be sensed by humans--and remember to really cause damage it has to be more than that--exists or occurs only when a combination of specific conditions exist at the same time and the same place: sufficiently large faults, sufficient stresses in the earth's crust, existing fluid pathways, sufficient changes in pressure, so some relatively specific conditions. Did I do this research? Did I come up with this on my own? No, this is from a paper by Rubinstein, et al. Rubinstein is an employee of the U.S. Geological Survey whose duty it is to investigate induced seismicity. This was published in a reputable peer review journal, Seismological Research Letters, Volume 86. If you'd like a copy of it, I can provide you with one. Next slide, please. So here's the geologic setting in the Laucomer 13-1 well, which is one of the wells that people have been concerned about. In fact, it's the chief concern here. The diagram is from the NOGCC Web site. The stratigraphy, the sequence of layered rocks, is primarily what I want to speak to. The engineering of all this is somewhat beyond my capacity. I'm not an engineer, but I do know that there are supposed to be four concentric layers of steel and concrete in the surface casing. The base of the surface casing is well below the base of the aquifer. I'll get to how we know that, why we know that in a little while. There's a bridge plug with cement at the bottom. So this whole lower part of the well that's turning off sideways here, it's not really germane to our discussion at this point. It's sealed off above that level. Water is to be injected only in a certain zone shown in red here, the Spearfish Formation, which is more than 1,600 feet above basement rock, plenty more than 1,600 feet. We don't know exactly how much because the well wasn't drilled that deep. That will become relevant later. It already contains saline waters, 20,000 parts per million or milligrams per liter--same thing. That's almost as salty as sea water, which is about 30,000 to 40,000. The EPA says you shouldn't be having drinking water with a TDS of greater than 500. So this is much higher than that. It has a high permeability. It's subnormally pressured, which means that the pressure within it--this is what I'm told--the pressure within it is less than that for a column of water extending to that depth. Let's talk about the rest of the geology. I put the State Capitol up here in the corner for scale, about 400 feet in height. So everything in this diagram is scaled according to the height of our lovely Capitol Building in this lovely state of ours, the best one in the country as far as I'm concerned. The base of the High Plains Aquifer, about 208 feet there, I believe. The aquifer is confined immediately below by strata of the White River Group, but even below that we have the Pierre Shale, which is

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almost 4,000 feet thick. The Pierre Shale, studies indicate that it has a hydraulic conductivity that is extremely low. What is hydraulic conductivity? Basically, the rate at which water moves through a layer of geologic material, according to a certain hydraulic gradient that exists in nature. Now there are about three papers that deal with this. I didn't summarize all of them. I admit this isn't the most thorough presentation ever. I only spent about three days on it, but a paper that's commonly cited, Neuzil et al., 1993, Water Resources Research, a peer-reviewed Article 29, suggests something like 10 to the minus 14th to 10 to the minus 9th meters per second. Now, I'm a geologist because I wasn't terribly good at math and I always have to remind myself what those exponents mean. If you have a negative and then the bigger the number behind that negative, that means you're talking about a really, really, really, really small number. Remember how we learned it, the exponent tells you how many zeros you either put after a number or before a number, and we're going this way. We're putting zeros before a number. So those numbers for hydraulic conductivity are extremely low. The Pierre Shale is not an aquifer. It is very much an aquitard. We're injecting well below it. In fact, we're injecting potentially, in this particular case, below lower to middle Cretaceous strata, 500-some feet in thickness already known to have saline water in them and even brine across the entire Great Plains region. The proposed injection zone in this particular well is even below that. Once we get below the injection zone, we're down in Upper Pennsylvania and Lower Permian strata widely recognized, recognized by the U. S. Geological Survey as a confining unit, as a regional aquitard, not an aquifer, as something that instead, by virtue of its low hydraulic conductivity, holds water above it. That's my sketch of the geologic setting. If you have questions about it later, you can ask me. Have the next slide, please. So fluid is not being injected in the High Plains Aquifer. If it is to be injected, the proposed injection zone is more than a mile below the estimated base of the aquifer. High Plains Aquifer is confined below by strata, the White River Group and also the Pierre Shale which is almost 4,000 feet thick. Saline waters already exist above the zone, etcetera. Next slide, please. May we have the next slide? Thank you. We know some of this because another good reason to have a geological survey, we have a Conservation and Survey Division test hole drilled about a mile away that tells us something about the aquifer conditions. What I want to point out here is, locally, waste is not being injected into the aquifer. We know that. We have to make that abundantly clear. But the aquifer is thinner than it is in places east of here. It's probably not optimal in terms of its characteristics as an aquifer. It's still an aquifer. It still yields useful quantities of water. The depth of the water table is pretty good-sized. It's a big number. It's

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hundreds of feet of water from the surface, including spilled contaminated water, which none of us wants to see happen by the way. Not advocating that we should do that but if you were to spill contaminated water or wastewater at the surface, it would have a long way to go to get to the aquifer and a very hard time of it, so to speak, getting there. Have the next slide, please. Here we are, bedrock geology of Nebraska. The location of the well is the red dot up there. We're on top of the Arikaree Group, that kind of sickly orange color, the colors never come out perfectly here. Bedrock is the first stratum of consolidated material that you hit when you're drilling down from the surface. But as we know now, there's plenty of rock underneath that with different characteristics, including aquitard characteristics. The deeper stratum into which injection is to take place, they're not even represented on this map. We saw them before. Next slide, please. You can see some of the rocks of the Arikaree Group, some of the rocks that form the aquifer locally, the High Plains Aquifer, the more inclusive term, not the Ogallala Aquifer, if you go out to Scotts Bluff National Monument. Next slide, please. And the High Plains Aquifer more inclusive term than the Ogallala Aquifer, and matter of fact, the injection site, well site in this case, does not lie over the Ogallala Aquifer, part of the High Plains Aquifer. But if we look at the High Plains Aquifer, it varies quite a bit in characteristics and thickness from place to place. This is a cross-section in the Sandhills. People assume it's all one thing and it all has the same properties. It doesn't, not to a geologist and not to a hydrogeologist. But we're not injecting into the High Plains Aquifer. We're injecting so deeply, if we were to do it, that the strata into which we would be injecting don't even show up on the diagram. Some of the confining layers do, but the proposed injection zone is way down probably underneath the floor somewhere. Next slide, please. This is an old geologic cross-section, not a particularly good one. Why don't I have a better one? We've not got around to making one. The Black Hills up there, Dawes County, Nebraska, doesn't go exactly through the area. The Spearfish Formation and some other strata that only appear in the subsurface Nebraska crop out up there in the Black Hills. It's a feature called the Red Racetrack. Maybe you've seen it. It's like a red oval around the core of the Black Hills. Then the proposed injection zone is way down here in Nebraska, the red line, well underneath the aquifer and confining units. Next slide, please. So there we are, there's the distribution of the High Plains Aquifer, the more inclusive construction designated by the U.S. Geological Survey in light blue; the Ogallala Aquifer in crosshatched blue which is a subset, in effect, of the High Plains Aquifer. The site doesn't, inasmuch as we can ascertain from the scale of the map and what we know on the basis of that test hole that I shared with you earlier, the site

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does not lay on the top of the Ogallala part, the thicker part, the most productive part; rather, it lies over a thinner part in the Arikaree Group. Yes, next slide, please. It's certainly not overlying an area of the greatest saturated thickness--the darker the blue, the greater the saturated thickness. What does that mean? It's an egghead term for the thickness of geologic materials in which the pores are fully saturated with water, which should be the case below the water table within an aquifer. So we're far from the maximum thickness, saturated thickness. It's close to a place where the High Plains Aquifer is thinner. Absent Nebraskans don't always understand that there are places in the state where you can't get groundwater, where you can't get much of it. Now if you happen to be at one of those places...from one of those places, you're acutely aware of that. But knowing what's what in this case, I dare say, is another reason why it's good to have a geological survey. Let's emphasize again, we're not injecting wastewater into the aquifer. I'm just telling you what we know, what the geological survey knows about the aquifer under this particular site. May we proceed? Next slide. And transmissivity, it's above a low transmissivity...transmissivity zone. What does transmissivity mean? The rate of groundwater flow for a given width of the aquifer. And we're in a light blue area, which is something like zero to 20,000 of gallons per day per foot. I'm just giving you the information, not passing any judgment, forming any opinion here. But one more time, we're not injecting into the aquifer. I'm just telling you about the aquifer at the site. Next slide, please. Let's talk briefly about seismicity--the biggest headache of all. Senator Haar is very astute in wanting to know about this. I'll tell you what we do know. This is a map from the U.S. Geological Survey and look at that title. I have trouble balancing a checkbook, ladies and gentlemen. If I have trouble balancing a checkbook, I have trouble understanding what this means at first. Let's go through it. Estimated 10 percent probability of exceedance in 50 years of peak acceleration due to shaking of 0.03-0.05 g. Huh? This is how earthquake hazards are phrased dominantly by the U.S. Geological Survey. It's the idea that within a 50-year period, you only have a one in ten probability, a .1 probability, that you will have an earthquake that will shake you up to the equivalent to .03 to .05 times the force of gravity. Why would we use that as a constant? It's what keeps us all where we are. We're abundantly familiar with gravity. Consider this: If there's shaking that exceeds gravity, folks, it's all over. Right? However, let's look at how tiny that number is. Most people wouldn't feel that. In fact, I think only the lightest...I don't even think...and I'd have to back this up with more research. I don't even think the lightest of sleepers would pick up on this at night. Maybe the most sensitive of people might pick it up during the

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day. It would not normally cause damage. And the injection site...I apologize, the dot moved. Now all of a sudden we're way out in Colorado, but you see Nebraska there. You know approximately where southern Sioux County is. May we have the next slide, please? Historic earthquakes in Nebraska: Unfortunately, because the colors don't come out well, you can't see the red dot over there in Sioux County. We also show known faults mapped at the surface in this map. They're the dark lines. There's not much of an earthquake history in this area. Many of the places where induced seismicity has been an issue, there has been some history of natural earthquakes in the recent past. Okay. Very little history out there, much more of a history in some other places in Nebraska, you'll note. What do I mean by historical earthquakes? Since 1854, but in effect since 1867 because that is the first one on record. Earthquakes overall in Nebraska have been very weak. The biggest one of all about 5.1. That was at Merriman in the 1960s, caused a little bit of damage, scared the daylights out of people. I can tell you that, even as a geologist, I might have soiled myself in a 5.1, but that's not a terribly damaging earthquake. You start getting above that, then I think there's room for concern. The site is not atop a known fault map at this time. There's little seismic activity, natural seismic activity during the past century and a half--I'll qualify that statement--during the past, you know, in that area. Okay. Next slide. So, we do know that there are probably some earthquakes that occurred down in Red Willow County during the period of 1977 and 1989, microearthquakes. Remember what a microearthquake is, less than magnitude 2, you're not going to feel it. There were probably some microearthquakes there during that period that were related to oil and gas activities. Bet you didn't know that. I didn't know it until relatively recently. They were attributed to that. There was no thorough study of the causation of those, but I emphasize, those were microearthquakes. We have a petroleum production area in western Nebraska, and inasmuch as I know, there is no record of microearthquakes out there. That may be because, in fact, there were none ever. It may be because our instrumentation wasn't distributed well enough at the time, but I won't speculate beyond that. Next slide, please. Piece of data, maybe the piece de resistance here, a piece of data of which probably no one else in this room is aware: We do have a seismic data set for southern Sioux County in Nebraska. We inherited this. The data were about 30-years-old that came on magnetic reel tapes. I squirreled them away until I could do some horse trading to get them decoded and put in a useable form. Well, what are seismic data? Seismic reflection of geophysical technique that uses vibrations to image the interior of the earth. So we're sending vibrations down into the earth, they're bouncing off layers of rock, and they're coming back. And

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we could look at those reflectors, those layers of rocks, and we can interpret geologic structure. We have a seismic line that goes right through that area near, but not exactly on, this Laucomer well. These are some of the most specific data that we have in Nebraska. There are other data like this being collected right now in the state by petroleum production companies. I hope that some day they come to the Survey. I think you can understand why we would want those data in the public domain eventually. May I have the next slide? Let's look at that seismic line. Can we do one more forward here? That's enough to make you seasick. It's not showing up very well, but basically something like this. There's the injection zone, the dashed line down there. There's the top of basement rock. Now the scale here would not be in feet. Why? Because we're talking about travel times of vibrations into and out of the earth. We can roughly translate that to feet, but remember we're talking about a thickness down to basement here that's something like a mile and a half, maybe more. The top of the Spearfish Formation is well above the top of basement. The cases of notable seismic, induced seismicity in Kansas and Oklahoma are typically in situations in which you're injecting into a deep sand or sandstone that's right above basement. This is not like that. We can...for the most part, the layers in here, they just march straight across indicating that they're, generally speaking, undeformed and "unfaulted." We did find a few little faults in here, and for the life of me, I can't figure out why they're not showing up. We can investigate that later. I think the materials that I gave the senators show them. Those faults, inasmuch as we know, were active a long time ago, perhaps during the Laramide orogeny most recently, the last major mountain building event in the Rocky Mountains, something like 50 to 80 million years ago. They don't seem to be active now. Remember, we have no historic record...little historic record of seismicity in the area. None of those faults that we can interpret from this go through the proposed injection zone. None of them extend upward into the aquifer, none of them are present in the aquifer, none of them can be mapped at the surface. And the geologic structure overall is extremely gentle. This is quite different from settings in Oklahoma, in Arkansas, and in Colorado where there are some prominent cases of induced seismicity within the past and very recently. I believe that is the last slide. Let's check it out. Could we check and make sure there isn't one more? Could we advance the slide? Oh, there are our faults. Finally. Sorry folks. You see the little red lines there, they're faults. They appear to be, they're interpreted as faults in the basis of the seismic profile. Ladies and gentlemen of the press, do not run with this. I've said nothing about a hazard associated with these faults. This is a work in progress. We're hoping that the paper is published next year. They seem to be mostly up in the pure shale.

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None of these interpreted faults extends upward into the aquifer or upward towards the surface. None of them communicate directly from the proposed injection zone up into other layers and, in fact, no fault at all appears to cross the proposed injection zone. What about basement structure? I mentioned that earlier. There are, I believe a...there is one little fault shown in the basement over here to the left, a little red line. It's not terribly close to where the injection well would be and I think that would be somewhere towards the middle and then offset either north or south from this line. Believe me, there are lots of other places where injection is being done where the geologic structure is much, much, much more complicated. And I'm sure some of those folks in some of those places like Oklahoma, Arkansas, etcetera, wish they'd had some seismic lines like this when they were experiencing some induced seismicity. I believe that finally, we're done. Could we try to advance it once more? We're done. Thank you all for your attention. Thank you, Senators, for inviting me out here. I hope I've been of some service. I will be happy to entertain your questions. [LR247 LR154]

SENATOR SCHILZ: Thank you, Dr. Joeckel, for your presentation there. It was very helpful. Are there any questions for Dr. Joeckel? Senator Stinner. [LR247 LR154]

SENATOR STINNER: The proposed well talks about 10,000 barrels a day. That application has been lowered to 5,000. If you take that over a period of 10, 15 years, how about migration of fluid? How far would it migrate given that porosity of that layer? [LR247 LR154]

MATT JOECKEL: Permeability rather? [LR247 LR154]

SENATOR STINNER: Yeah. [LR247 LR154]

MATT JOECKEL: It's a good question, Senator. I applaud all of you for your astuteness, Senator Haar in particular. I haven't done the math on that. I think that is more in the realm of something that a reservoir engineer would tell you. It seems like a comparatively small volume of fluid overall, but I can't answer your question. I apologize. [LR247 LR154]

SENATOR STINNER: So there is a math formula that you could go through and figure it out. [LR247 LR154]

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MATT JOECKEL: I think you could dredge it up. I think if you asked someone to calculate that for you, you would want them to explain all of it to you thoroughly. And you might want some additional data. [LR247 LR154]

SENATOR STINNER: Yeah, there's been some criticism that we only limit it to a half a mile around the drilling site and that would be the impact of this well. So, having that formula computing that out would be probably pretty crucial on affected parts. [LR247 LR154]

MATT JOECKEL: Well, you can probably get somebody to do that for you. [LR247 LR154]

SENATOR STINNER: Okay. [LR247 LR154]

SENATOR SCHILZ: Thank you, Senator Stinner. Senator Davis and then Senator McCollister. [LR247 LR154]

SENATOR DAVIS: I think you can probably hear me out there. You talked about these earthquakes in Red Willow County which were related to seismic activity. [LR247 LR154]

MATT JOECKEL: I'm sorry, Senator, if I might interrupt. It was presumed that they were. I need to make this abundantly clear. They were microearthquakes. They could only be sensed by an instrument. A correlation...it's a fantastic question actually if you'll permit me to expand upon it before you continue. How do we know that injection activity does induce seismicity? We actually don't know for certain, and before you groan about that, we don't know for certain about too many things in science, do we? I can only give you a 1.0 probability on a few things. I can only think of two things right now. One is that eventually I will die. And I won't include you in that. Number two is that in the next 30 seconds I won't become a multimillionaire. All right. I think there's a 1.0 probability of those things not happening. The correlation...basically, the reason why...we've known about induced seismicity for a long time. The reason why it has come to the fore is because there was an increase in various activities in the oil and gas industry: injection, fracking, etcetera. And by the way, fracking by anybody's reasonable estimate can only be fingered as the culprit for induced seismicity in a very few cases. But there was an uptick in activity in the petroleum industry within the U.S. What we see is a correlation between the time

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scale for that and the number of earthquakes that are occurring during that time period, so we're presuming, I think accurately so, that those extra earthquakes are being caused by human activities. They're being induced. That's basically, in a nutshell, the extent of the correlation in general between induced seismicity, apparent induced seismicity in people's activities. In the case of Red Willow County, we didn't have much in the way of baseline data. There was a short period of time in which we had a seismograph network across the state. I wish we still had it. We don't. We do have an operating seismograph at Ogallala. We may get another one. The USGS may put another one in Nebraska. So the only baseline data we had were, in effect, circumstantial, anecdotal accounts of earthquakes in that historical record of which I spoke earlier. We assumed because...someone assumed, because of the location of the earthquakes in a petroleum producing region, and because they were microearthquakes, that they were associated with oil and gas production. We can't prove it. [LR247 LR154]

SENATOR DAVIS: Thank you. [LR247 LR154]

SENATOR McCOLLISTER: Thank you, Mr. Chairman. In a couple of the slides that you showed us today they had a description called saline water. [LR247 LR154]

MATT JOECKEL: Uh-huh. [LR247 LR154]

SENATOR McCOLLISTER: Can you better describe that and what the origin of that material was? [LR247 LR154]

MATT JOECKEL: I knew somebody was going to ask that. That's a classification of types of water on the basis of TDS. And perhaps my colleague, who was here before me, can help me classify waters as fresh, brackish, saline, and marine and brine. And I can't, for the life of me-- and I apologize--remember the exact numbers. Sea waters is about the 30,000 to 40,000. A value of, I think, 10,000 TDS would be saline, but it wouldn't be brine. You can look it up. It's readily...it's a standard classification of waters on the basis of salinity for TDS. [LR247 LR154]

SENATOR McCOLLISTER: Maybe this is beyond your level of expertise, but would that differ appreciably from the wastewater that the applicant intends to inject? [LR247 LR154]

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MATT JOECKEL: I honestly don't know what the salinity of the wastewater is. You can ask someone else that. But I would make one comment. Remember, the EPA says that the water that we drink should be less than 500 milligrams per liter, less than 500 parts per million, which is a pretty small number. This is very small in terms of its TDS. In fact, it should be extremely low. So we're talking about a lot of dissolved solids there, naturally, above the formation and within the formation. [LR247 LR154]

SENATOR McCOLLISTER: Thank you. [LR247 LR154]

MATT JOECKEL: Thank you. [LR247 LR154]

SENATOR SCHILZ: Thank you. Other questions? Senator Haar. [LR247 LR154]

SENATOR HAAR: Part of our job in the Legislature is to be forward-looking. You mentioned seismographs around the state. Is that something we should have, in your opinion, as we get into the days of fracking and so on? [LR247 LR154]

MATT JOECKEL: I appreciate your question, Senator Haar. I'm not here to be a pitchman for the university or for my part of the university. I do think that tax money should be spent on responsible government. By the way, I am going to offer an opinion. I think we saw proof of that--and you can strike it from the record if you wish--I think we saw proof of that with the gentleman who was up here before me who I think he answered...provided very cogent answers to your questions. That aside, I'll say this. Experts in the rapidly emerging field of study on induced seismicity suggest that monitoring, and that a sort of a traffic light system, and by that I mean a system in which data are collected objectively and if there appears to be the onset of induced seismicity, a red light goes on and we stop injecting in an area, see what happens. I do think that that's forward-thinking. I won't address the rest because I don't want to appear that I am independently soliciting assistance for my unit from the Legislature. I cannot, will not do that. But I appreciate your question. [LR247 LR154]

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SENATOR HAAR: Well, we wouldn't give money to your unit. (Laugh) But it seems like something that should be included in our study, as these kinds of activities go forward, that perhaps this kind of monitoring then should be there. [LR247 LR154]

MATT JOECKEL: I think we already have organizations in state government that engage in some form of monitoring and do it fairly effectively. Sorry, there's a second opinion. I apologize. Seismographs are not a part of that. I think we have to look at a cost-benefit analysis here probably if we're using taxpayer money. I think we also have to consider the difference between hazard and risk, something that when I taught a geologic hazards course to undergraduates I always tried to instill in them, hazard and risk are two different things. A hazard, in terms of geologic hazard, is something that already exists naturally. What might that be? A known mapped fault. We might take that even further: of a certain length, extending to a certain depth, with certain other characteristics. Another piece of information that might represent it. Hazard is a particular historic record of earthquakes in a given area. If you noticed, there aren't that many earthquakes historically in that area. That doesn't mean that they couldn't conceivably occur. Remember the whole argument about probabilities. So, what is the hazard? In terms of volume, in terms of what I just explained to you, there's very little that constitutes that particular geologic hazard--induced seismicity. All right. What's the risk? The risk has to do with all of the human assets that are there in the area. Right? All of the things that we might want to protect. So, risk is an outgrowth of hazard with everything else layered on top of it. We'd want to look at cost and benefit when we're spending taxpayer money. Off the record, gee, it would be fun to have seismographs because we could generate more data and better understand the geology of Nebraska. Excuse me, but there are other things that would be helpful too. I'm sorry, Senator. [LR247 LR154]

SENATOR HAAR: Okay. [LR247 LR154]

SENATOR SCHILZ: Thank you. Senator Stinner. [LR247 LR154]

SENATOR STINNER: You know, as you to look at the state of Nebraska--let's forget about the Laucomer situation for a minute--as you look across the state of Nebraska, would there be a

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higher risk area? And I'm reflecting more upon the fault that actually goes by Lincoln, I believe, or somewhere close. [LR247 LR154]

MATT JOECKEL: Now, we're speaking of higher risk in terms of what? [LR247 LR154]

SENATOR STINNER: Higher risk as in terms of seismic activity, or should we red line a portion of the state saying that we should not do wastewater in this region? [LR247 LR154]

MATT JOECKEL: I think we'd want to do a lot more study on that. I think the state of our objective knowledge about Nebraska's subsurface geology is comparatively minimal. What do I mean by comparatively? Compared to Oklahoma, let's say, compared to Colorado, perhaps even compared to Arkansas. And again, I want to single out the members of the press. They do a great job. We have freedom of the press. Nobody panic, please. We're not looking at...I could go on for a long time about this. I would say, let's suffice to say, we would need further study. I think it's very astute, however, that you have observed that there's some large faults in southeastern Nebraska where more than 50 percent of the population lives. That said, that area is not considered by the USGS to be a zone of major seismic risk, although larger earthquakes could potentially happen in the future than the ones we have recorded in our...in your American history. [LR247 LR154]

SENATOR SCHILZ: Thank you. Any other questions? Seeing none, Dr. Joeckel, thank you very much for your time. [LR247 LR154]

MATT JOECKEL: Thank you, Senators, and thank you all out there for your patience. [LR247 LR154]

SENATOR SCHILZ: At this time, we would invite Mike Nickolaus, special projects director for the Ground Water Protection Council. Good morning and welcome. [LR247 LR154]

MIKE NICKOLAUS: [LR247 LR154]

SENATOR SCHILZ: Thank you. Senator McCollister. [LR247 LR154]

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SENATOR McCOLLISTER: Thank you for your testimony. Does Nebraska do a proper job in determining which department the DEQ or the Oil and Gas Conservation Commission has particular responsibilities? Are we well-organized? Is that laid out well, in your experience and your review of other states? [LR247 LR154]

MIKE NICKOLAUS: With respect to the UIC program, and I speak only to the UIC program because that's my particular area of expertise, I would say that Nebraska is fairly well-organized. The DEQ has authority over the specific Class I, III, and V program, and the Oil and Gas Conservation Commission has authority over only the Class II, which is the Disposal and Enhanced Recovery Underground Injection Control Program. This is a fairly typical breakdown in states. Some states have all authority within a DEQ, most states have authority split between an Oil and Gas Conservation Commission or board and an environmental department. [LR247 LR154]

SENATOR McCOLLISTER: Thank you. [LR247 LR154]

SENATOR SCHILZ: Senator Haar first. (Inaudible) [LR247 LR154]

SENATOR HAAR: When...in your process, do you look at such issues as the difference in bonding--Colorado \$1 million versus Nebraska \$10,000? [LR247 LR154]

MIKE NICKOLAUS: We do look at the bond requirements under the program. We don't do it as a comparative analysis so much, because the bonding varies from state to state in its purposes of achievement. For example, some states have what we refer to as penal bonds. The design of the bond is not so much to meet the full cost of any repair or contamination repair, but it's to provide a...how should I put this, a hammer against people conducting activities that would cause environmental damage. Others have full performance bonding. So it varies from state to state. [LR247 LR154]

SENATOR HAAR: So how would you consider Nebraska's \$10,000? [LR247 LR154]

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MIKE NICKOLAUS: I'd certainly have to look at the full program to tell you. I don't know if that's a per well bond, is that a blanket bond for any number of wells? We have to look at all that in terms of the total program, and that will be part of the review. [LR247 LR154]

SENATOR HAAR: From my understanding, it's \$10,000 per well, but for \$25,000 you can cover a whole field. But anyway, that's something you will look at... [LR247 LR154]

MIKE NICKOLAUS: That's certainly something we'll look at. I can tell you that \$10,000 per well is a fairly substantial bond for a plugging and abandonment bond among states. Many states have their bonds keyed towards depth of well; others do not. Some have blanket bonds with large amounts, but they also have limits on the number of wells that can be placed on the bond and so on. So it's really a hodgepodge among the states. Every state deals with it differently. [LR247 LR154]

SENATOR HAAR: Okay. So this is something we need to explore, certainly. What about hearing...the whole issue of public hearings and, you know, hearings from individuals and county boards and cities and so on? Do you consider the hearing process? [LR247 LR154]

MIKE NICKOLAUS: We look at the public notification and input process as far as whether the state has, for example, direct notice versus just published notice, or a combination of the two, what those time periods are and that sort of thing. We do look at that as part of the UIC review, yes. [LR247 LR154]

SENATOR HARR: So do you make a judgment on that or you simply review it and report it? [LR247 LR154]

MIKE NICKOLAUS: We actually just review it and report it for the most part, when it comes to things like that, because what we're looking at here is a comparison of the program, as much as anything else, against what the EPA has stated in their delegation authority. Because if the state has initially met it's burden, with respect to whether the program is effective or not...because that's the basis on which the EPA grants primacy for most oil and gas type programs in the UIC program. [LR247 LR154]

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SENATOR HAAR: So, basically, the EPA is more technical, would you say? And things like public hearings are more public relations kinds of issues. [LR247 LR154]

MIKE NICKOLAUS: I wouldn't necessarily call it public relations as such. [LR247 LR154]

SENATOR HAAR: That's not a good term. [LR247 LR154]

MIKE NICKOLAUS: You know, that's sort of (laugh)...it's kind of a loaded term, yeah. Clearly, public notice is an important aspect of the UIC program, but it doesn't mean that a specific public notice, for example, a 30-day notice versus a 60-day notice versus a 15-day notice, makes a program any more or less effective. [LR247 LR154]

SENATOR HAAR: And that's sort of a different issue than the public...who gets to participate in public hearings. Or is that a standard (inaudible)? [LR247 LR154]

MIKE NICKOLAUS: No, that's a very different issue entirely. Standing is something that is a legal concept, not something that is a programmatic concept. [LR247 LR154]

SENATOR HAAR: So that's pretty much a state-by-state determination. [LR247 LR154]

MIKE NICKOLAUS: That's a state-by-state issue, exactly. [LR247 LR154]

SENATOR HAAR: What about things like wildlife protection? Is that part of the EPA? [LR247 LR154]

MIKE NICKOLAUS: No, sir, that's not part of the UIC program. If you consider the UIC program being basically from the wellhead down, everything from the wellhead down to the injection zone is part of the Underground Injection Control Program. Anything outside of that, fluid storage, fluid transport, spills, any sort of management outside of that is not part of the UIC program. [LR247 LR154]

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SENATOR HAAR: Generally it's...so it's outside the UIC program that we hear the most about, frankly, from our constituents and so on. [LR247 LR154]

MIKE NICKOLAUS: That's my understanding, yes. [LR247 LR154]

SENATOR HAAR: Okay. Well, thank you very much. [LR247 LR154]

MIKE NICKOLAUS: You're welcome. [LR247 LR154]

SENATOR SCHILZ: Senator Davis. [LR247 LR154]

SENATOR DAVIS: Thank you, sir. I just have a couple of questions. You're with the Groundwater Protection Council. Is that right? [LR247 LR154]

MIKE NICKOLAUS: That's right, sir. [LR247 LR154]

SENATOR DAVIS: And who is the Groundwater Protection Council? [LR247 LR154]

MIKE NICKOLAUS: We're an association of the state regulatory agencies themselves. For example, the department...NDEQ is a member of the GWPC, the NOGCC is a member, the Texas Railroad Commission is a member, and the, you know, it's all... [LR247 LR154]

SENATOR DAVIS: And so who is your funding source then? [LR247 LR154]

MIKE NICKOLAUS: Our funding primarily comes from federal grant money from the Department of Energy and the U.S. EPA. [LR247 LR154]

SENATOR DAVIS: Thank you. [LR247 LR154]

SENATOR SCHILZ: Senator Stinner. [LR247 LR154]

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SENATOR STINNER: Thank you. I'm going to cite FracFocus. There was an article concerning well construction and groundwater protection, and I'm going to read just a little bit of it, just to give you some background: Some wells penetrate formations that are difficult to cement because their porous nature or due to a substantial water flow within the formation. Since it's going down through an aquifer, I presume that's what they mean. It says: additives like cellophane flakes, calcium chloride are sometimes added to the cement in that zone to quicken the hardening process. It goes on to state further in the article: As important as casing is, the cementation of the casing adds the most value to the process of groundwater protection. Proper sealing of the spaces with cement creates a hydraulic barrier to both vertical and horizontal fluid migration. In some states it is common that for the state personnel to witness the running of the cementing of the casing strings, while other states, the submission of a completion report which details the amounts of types of casing and cement used in the completion of the well is considered sufficient evidence for proper well construction. In a few states, such as Alaska, Michigan, Ohio, an additional verification method using geophysical logs, such as cement bond logs and variable-density logs, may be required. And really, my question really kind of relates to that. What kind of rigor should we have in our state? Do we have that kind of rigor? Or would you comment on the cementation and how we go about it versus maybe someplace else. [LR247 LR154]

MIKE NICKOLAUS: I mean, certainly, that will be part of the UIC review. We will look at the cementing requirements, the well integrity requirements regarding what we commonly call part one and part two integrity, part one being the components of the well: the casing, the tubing, and the packer, which seals off the bottom inside the casing. And we'll also look at part two, which is the cement evaluation. Depending upon circumstances, if you have a loss circulation zone, such as what you're describing--and cello-flake doesn't allow you to create circulation back to the surface for cement, it may be necessary to run additional, specific tests. Some of those tests, like the CBL/VDL you mentioned, oxygen activation logs, radioactive tracer surveys, there are a lot of different methodologies you can use to evaluate cement integrity. They may be necessary if you have a loss circulation zone and cannot achieve circulation. Typically, if you can achieve circulation, and you use enough cement overage, they're not absolutely necessary to have those. If you do have high pressure zone, though, for example, or a gas zone that may cut the cement, you may want to run one of those types of evaluations to make sure that you have a good cement bond, and that you don't have fluid migration behind the casing. [LR247 LR154]

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SENATOR STINNER: Okay. When we reactivate a dry-well like we did in this case, what would be the process that you would go through to ensure the cementing and the casing is all in good shape? [LR247 LR154]

MIKE NICKOLAUS: Well, the very first thing I would do is I would look at the original completion reports on the well to see what casing was set, to what depth it was set, what cement was used, what class of cement, how much cement was used, to evaluate whether I might have a cement top that is well above the injection zone, and certainly cement across the groundwater zones to assure that you have sufficient surface casing that covers freshwater zones, and that you have cement circulation behind that casing to the surface. [LR247 LR154]

SENATOR STINNER: Now, I will ask my last question on fracking fluid management, and this is again FracFocus brings up following hydraulic fracking: Fluids returned to the surface within a specific length of time are referred to as flowback. Flowback can be comprised of as little as 3 percent and as much as 80 percent or more of the total amount of water and other materials used to fracture the well. Besides the original fluid used for fracking, flowback can also contain fluids and minerals that are also in that. It goes on to say flowback should be managed in a responsible manner. You know, we're not only fracking wells, we're talking about refracking wells. So in an oil field where some of the wastewater is taken out, what would be our procedure, our appropriate procedure, in these? I would presume the specified time is the first 30 days. [LR247 LR154]

MIKE NICKOLAUS: Uh-huh. I would follow, essentially, the exact same procedures you would with any other produced water. The whole point of the exercise in the UIC program is to isolate that fluid from groundwater. Whether or not it contains constituents from the fracking process, or it is simply produced water that is almost primarily magnesium, calcium, sodium, you know, with some traces of oil, I would treat it exactly the same in terms of its ultimate disposition in the injection process. That is exactly the entire point of the Underground Injection Control Program is that isolation. So, I mean, you're talking about things like making sure you don't have leaky valves and lay flat pipes on the ground that leak and that sort of thing. That's a good practice regardless of whether it's flowback fluid or produced fluid. Some people don't even refer to it as two different things. But... [LR247 LR154]

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SENATOR STINNER: Okay. It goes on to say: In at least nine states, jurisdiction over waste management for oil and gas exploration and production activities involves more than one agency. Are you aware of those nine states and what their other agencies that get involved in this process? [LR247 LR154]

MIKE NICKOLAUS: Yeah, I don't have the specifics of which states do that. When I was in Indiana, for example, we had a spill protocol, between our Department of Environmental Management and our division of oil and gas. We had a written memorandum of agreement. We had a manual that specified under which circumstances the Department of Environmental Management had jurisdiction and under which the division of oil and gas had jurisdiction. We had...in that manual, we described our bioremediation processes for oil spills, how you handle salt water spills, and all those sorts of things. The thing you have to remember is that regulations aren't really the last word. There are other things you can do. You can have protocols, whether written or not, within your agency that describe how you handle particular situations. And we had that in Indiana, and I'm sure Nebraska has the same to a certain extent. [LR247 LR154]

SENATOR STINNER: Now, your review is going to be...is going to cover this area and the casing and cementation of wells is in your review that you were talking about? [LR247 LR154]

MIKE NICKOLAUS: We will cover the specifications, and make any recommendations we feel are necessary with respect to it. But, yes, that's covered. [LR247 LR154]

SENATOR STINNER: Thank you. [LR247 LR154]

SENATOR SCHILZ: Thank you. Any other questions? [LR247 LR154]

SENATOR HAAR: Yeah, just (inaudible). [LR247 LR154]

SENATOR SCHILZ: Senator Haar. [LR247 LR154]

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SENATOR HAAR: And I'll just ask this: Does your organization have any policy or recommendations in terms of disclosure of all the chemicals that go into a well like this? [LR247 LR154]

MIKE NICKOLAUS: Okay. FracFocus, which was developed by the Groundwater Protection Council in the Interstate Oil and Gas Compact Commission, is neutral with respect to this. And the reason we're neutral is because every state has different requirements with respect to what it allows or what it requires for disclosure. Some states require, like California, now requires full disclosure of everything, but that's California. On the other hand, one of the things we have done in FracFocus is create systems that encourage operators to disclose everything. We have two different methods of reporting, for example. We have what's called an MSDSplus approach and a systems approach. The MSDSplus approach says that anything on the material safety data sheet gets listed by the product, then its supplier, and its purpose, and then the list of the chemicals within it, okay, within that product. Well, that leads operators or service companies to tend to say, well, I've got a formula here; I don't want people to know everything that's in there. There's this one thing I don't want them to know, because that's my particular formula. So they don't put that down, they'll put in trade secret. We've developed what's called a systems approach that allows us to decouple the trade name products from the actual chemicals. So you'll list each individual trade name product and its purposes and so on, and then below that you'll have a single list of all the chemicals. So nobody can say, well, this chemical goes in this product and this chemical goes in this product. It tends to encourage those companies to say, well, I don't have to protect that chemical now, because nobody can reverse engineer it. It's back over here, so now I can list that chemical, whereas I couldn't before. So we're encouraging the use of the systems approach. And in fact, more companies are going to the systems approach. Baker Hughes, which was recently acquired by Halliburton, uses the systems approach; Schlumberger, another service company, uses the systems approach. And we expect, and have seen actually over a period of time, that the number of trade secrets claimed continues to decline as more of this is used. [LR247 LR154]

SENATOR SCHILZ: Thank you, Senator Haar. Senator McCollister. [LR247 LR154]

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SENATOR McCOLLISTER: Isn't it fairly typical that certificates of analysis are utilized in the transport of this material? [LR247 LR154]

MIKE NICKOLAUS: Again, it depends on the state. There are states like Ohio, for example, where they have a specific manifest system for the transport of brines from location to location. Ohio is one of the few states that actually has that sort of a system for transport. But typically, that's all it is, is a manifest that says I picked up this much salt water from this location, and I'm delivering that amount of salt water to this location for disposal. It's not really necessarily an analysis. [LR247 LR154]

SENATOR McCOLLISTER: Is that considered to be fairly robust, that kind of enforcement or that kind of protocol? [LR247 LR154]

MIKE NICKOLAUS: It depends on your need. I'd hate to characterize it as robust or not robust, it's just something that Ohio does. It's just part of their law that requires it, so. [LR247 LR154]

SENATOR SCHILZ: Thank you. Any other questions? Seeing none, thank you for your testimony today. We really appreciate it. [LR247 LR154]

MIKE NICKOLAUS: Thank you very much. [LR247 LR154]

SENATOR SCHILZ: Now we'll have Bill Sydow from the Nebraska Oil and Gas Conservation Commission. [LR247 LR154]

SENATOR HAAR: Ken, I left my notes up there. Could I...? [LR247 LR154]

SENATOR SCHILZ: What's that? [LR247 LR154]

SENATOR HAAR: Could I...I need to go get my... [LR247 LR154]

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SENATOR SCHILZ: You can grab your notes, yeah. Thank you. And I would ask that everyone that has testified so far, if you could please fill out one of those green sheets and turn it in, that would be great. Thank you. Mr. Sydow, sorry for the delay. [LR247 LR154]

BILL SYDOW: That's fine, Mr. Chairman. For the record, my name is Bill Sydow, B-i-l-l S-y-d-o-w. I'm the director of the Nebraska Oil and Gas Conservation Commission, and live and work here in Sidney. My intention this morning is not to make any kind of statement, but I would be happy to answer any questions that you have for me. [LR247 LR154]

SENATOR SCHILZ: Very good. Senator Stinner. [LR247 LR154]

SENATOR STINNER: Thank you. Would you describe the permitting process that you go through. And I'm specifically looking at the water...the groundwater that you test at least to form a baseline for where you're at before the well is permitted, and then the water also that's being injected in and what that process looks like. [LR247 LR154]

BILL SYDOW: Yes. Our permitting process is fairly rigorous. The companies who would permit any kind of an injection well have to provide data to us as a part of the application, and that is always in the public domain. We ask and require that they submit to us a chemical analysis of the fluids to be injected or disposed of. That is normally done only one time, and it is a chemical analysis mostly of the inorganic elements, and this would include sodium, potassium, bromine, calcium, and chloride predominantly. In the oil field waters, those particular elements will comprise about over 99 percent of the total dissolved salts in that water. So that's always required, Senator Stinner. As well, we desire to set a baseline to see what the quality of the drinking water was inside of our half-a-mile radius. We ask that if at all possible...and sometimes, we're in such remote areas there's no water well inside that circle. But we will require at least one, we like two, chemical analysis of potable drinking water that is in the vicinity of that well, so that we can determine the baseline or set the baseline for any future event. If there's a question, that's going to be in the record, and that's a permanent record. So the company who provides those analyses, they are always third party. Because of our operating companies for oil and gas in the state of Nebraska, no one has their own laboratory. So they will get the analysis and they will send that to a third party, receive that back, and then that's a part of

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the record. So we know, basically, the quality of the groundwater before any oil field activity takes place. [LR247 LR154]

SENATOR STINNER: Okay. That sets the baseline before the well is permitted. How many times do you go back? And what period of time is it that you go back and would test it again to make sure the baseline looks about the same? [LR247 LR154]

BILL SYDOW: Okay, the simple answer to that is that we will never go back and test the baseline. If there were a problem, the owner and user of that well, whether it's for domestic purposes or livestock purposes, certainly has all the freedom to question their water quality. If they question it, we will go to that location and we will obtain a water analysis, and we will actually do our own little investigation, so to speak. And so we only do that upon demand. [LR247 LR154]

SENATOR STINNER: And the baseline is public information, so if the NRD wanted to come and test it, or somebody else, they would have access to that for comparison purposes. [LR247 LR154]

BILL SYDOW: Oh, yes. So our records--we're a public agency. We're headquartered down here on Main Street, so you can walk in our office. And if you desire to look at any particular files, people are welcome to do that. We'll provide copies. So that information is available to the public. [LR247 LR154]

SENATOR STINNER: Now, Terex, when they filed the application, they went out and had to sample the wastewater that they were going to dump into the Sioux County well and provide you with results. Those results, how many fields were they considered taken out of? Or was this just well by well basis? [LR247 LR154]

BILL SYDOW: Okay, in the Terex application, they were anticipating taking water and injecting it, under our rules and regulations, for disposal into this well. They provided us, as a part of that application, with...I'm going to say more than seven analyses of produced water from a large field that's called a Wattenberg Field in the Denver Julesburg Basin of northeastern Colorado.

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They provided us with water samples of produced water, predominantly from the Niobrara Formation. And as well, they were evaluating whether they may take some produced water from Wyoming, which would be from around Cheyenne in the Silo Field, which predominantly again is Niobrara Formation water. So there were, I'm going to say, more than seven analyses, Senator Stinner, of the water that we plan to inject. Those analyses were made by actually four companies, who would be a client, if you will, who would bring their produced water to this well if it were ever approved. That was their analysis by independent methods. And then as well, I believe in this case there were two baseline potable water wells that were sampled and their chemistry analyzed, and those wells are owned by the surface owner--in this case, Mr. David Laucomer and his ranch. [LR247 LR154]

SENATOR STINNER: Okay, how many times...so you take a look at the water that's going to go...that's proposed to go in, in the fields. Do you test it afterward to see if the...let's say a year later or two years later, to make sure that the composition is the same? [LR247 LR154]

BILL SYDOW: The answer to that is, no, we don't test it. And the reason why is that when these saline, or brackish waters in some cases, but the waters that have some dissolved salts in the subsurface, number one, that water was originally deposited in a marine ocean environment, so it had sea water in it, whatever the chemistry of the sea water was then. It may have precipitated some amounts of those elements, so that we could...or been diluted by fresh water coming into the aquifer. But the waters are basically in chemical equilibrium, they do not change substantially over time. So once the baseline is set for that oil field produced water, of whatever composition, it will generally is going to remain the same for time. [LR247 LR154]

SENATOR STINNER: Okay, so you used the manifest system to make sure that Terex would be taking out of those wells that you've kind of given your approval to? Or how do you, I mean, if they all of a sudden decided they were going to take it out a different field, would they have to file another application? Or how is that... [LR247 LR154]

BILL SYDOW: Okay, good question. They would not have to file another application, because this well is designed and permitted so that it can only handle produced water from the oil field. If it comes from the oil field, wherever it is, since this is a federal program, we cannot isolate

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production to come from only a certain state. It's part of interstate commerce. So we would not necessarily check that, although we have the authority to do that. We could go send our field inspectors to any well to get any sample at any time of the day at any day of the week. We have access to those facilities. We could obtain our own water analysis and we could have it analyzed for our own purposes as well. Our rules and regulations, not particularly under our Underground Injection Control Program rules, of which we have an entire chapter--which Colorado does not--our program rules outside of the UIC portion allow us and require trucking firms who haul produced water to keep a manifest, just as what Mr. Nickolaus was talking about: Where did they pick up the water? Who owned the water? How much was it? And where did it ultimately go? And we have...we require by our rule that trucking companies maintain those records back for five years. That's for subpoena purposes. We represent and have police powers of the state of Nebraska, and if there were an investigation be required, then we could subpoena those records and they would have to be turned over to our commission for our investigation. So the...not an exact chemical manifest, Senator Stinner, but we know and/or could know where produced fluid comes from and is brought to a location. As well, the operator of that particular well needs to know where that water is coming from. And the reason that he is interested is because waters sometimes are not compatible. You can mix two separate waters and you can precipitate minerals that are virtually impossible to remove from your wellbore, which is what they do not want to have happen. And so they may, on their own, be very sensitive about what water comes to their facility, and have full authority to deny anybody from using well that under their authority. As well, their chemical...they could perform analyses at their cost, but they also have to maintain a log book. They are going to maintain records on who brought what fluids, and how much to their facility. [LR247 LR154]

SENATOR STINNER: Bear with me, just a couple more questions. The difference between this wastewater wells, which we've got four of them in the state now, and other injection wells--there's something special about the commercial wastewater wells, obviously the volume. Is there any difference that you treat those wastewater wells from an inspection purpose? How many times do you inspect those versus maybe some other wells? [LR247 LR154]

BILL SYDOW: Okay, good question. We, in our program, we have two varieties of wells. We have enhanced oil recovery injection wells, which can inject brand new water, water that might

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be brought in but certainly produced water, so that as we sweep oil and water to the producing wells, we get more oil recovery. That's the majority of our wells. We also have these wells that we refer to as salt water disposal wells. Those wells inject produced fluids, not a part of a secondary recovery operation. And of those, there are two varieties: one is a private salt water disposal well; the second is a commercial disposal well. So right now, in our regulated inventory, we have approximately 130 salt water disposal wells. Basically 126 right now are private. They are owned by the oil and gas company who produces that water. They use it themselves. Now, for every salt water disposal well, we require a reporting difference than the enhanced oil recovery wells. We require monthly reporting for any kind of injection well, as well as production. We also require that the operator submit to us monthly, on an EOR well or project, the volumes and the pressure that is an average pressure injecting and tubing and the annulus. If it's a salt water disposal well, we're going to require that they report to us once a month, but they will report based upon their monitoring and average pressure weekly. So we would get four reports during that month of injection pressures. And we also make a difference as well on our mechanical integrity tests that are formal. Number one, once a well is permitted, no one is going to use that well until it has passed a mechanical integrity test. This is a positive test of the annulus, and it must hold 300 pounds per square inch of pressure for 30 minutes. It's a jug test. If it holds, everything mechanically is demonstrated to have it's integrity, including the casing, the tubing, and the packer. So that's required on every well. Once that well has been permitted, if the packer is ever moved, if the tubing is ever replaced, they are required to retest the well, and we will witness that. For the disposal wells of the commercial variety, we will require--and can require more often than we do--but every year there is a mechanical integrity test that is required to be performed by the operator at their expense. And I will tell you that our mechanical integrity test in Nebraska, we witnessed 100 percent of those tests by some employee of the commission. It may be myself, my deputies--our deputy director, Stan Belieu. We have two field inspectors. So those tests on any mechanical integrity test are always witnessed and verified that this is what is maintained. On the commercial wells, that has to be done every year. [LR247 LR154]

SENATOR STINNER: So it's an annual inspection, but the reporting on a weekly basis is done by the owner of the well? [LR247 LR154]

BILL SYDOW: Yes. [LR247 LR154]

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SENATOR STINNER: And if you're dumping 10,000 barrels a day in a well, and actually you guys permitted it less at 5,000 barrels a day, wouldn't you want to know if the pressure fails almost immediately, so you can stop trucks? You could get there and see what's happening to the well? [LR247 LR154]

BILL SYDOW: In fact, on this particular well, it was stated in the hearing in the afternoon, which was a public hearing, but it was the legal hearing for this well since we are quasi-judicial in our organization, that they will actually monitor this real time with pressure transducers, which can be accomplished, so that it's a 24-hour a day recording. It's continuous, Senator Stinner, both on the tubing and on the casing, or the annular pressure between the tubing and the casing. So that can be monitored. And in this case, we don't require it. It's not written in the order, but they have the full authority to do that. And I believe that would be their intent, because they do not...they want to know immediately when something happens to their well, because they will be obligated to not use that well. [LR247 LR154]

SENATOR STINNER: Now, the other thing that you're responsible for is to...about physical security of the site. Have you imposed any fencing regulation on them or what have you done in that situation? [LR247 LR154]

BILL SYDOW: Okay. The order that was written is...in certain instances, it's specific. But this site...any commercial...our commercial wells require some site security. It's going to be, at a minimum, a fence, and I believe in this instance it's probably going to be a chain-link fence. This particular well, if it's ever authorized, and now you know it's in district court and has the right of appeal all the way to our Supreme Court. We would require that they provide security, the operator. Now, in this particular case, the operator intended on having someone there 24-hours a day and living...or working in a facility that was heated, had lights. So we do require that certain...that the operators take certain steps for security. In certain instances, we have the operator, at their election, has actually padlocked or otherwise put covers on the valves and locked them with padlocks, so that no one has access to the valves. [LR247 LR154]

SENATOR STINNER: Okay, my last question would be why did the commission take it from 10,000 to 5,000? [LR247 LR154]

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BILL SYDOW: Well, my answer is this: My commissioners took it from 10,000 to 5,000. And we had a public hearing. We have three commissioners. Mr. Goodwin, who's here, my chairman, was forced to recuse himself, and so we had this hearing with Mr. Oliver and Mr. Rundel. In their conferences, they decided that they would require in the order--which they wrote, by the way, on this one--that this well would be incremented downward from 10,000 barrels a day to 5,000. And I haven't specifically asked them why, Senator Stinner, but I believe that that was in response to the people who were sensitive to the truck traffic, to put a limit on that particular well. And the other thing that...and I'll tell you as committee members and everybody here, we generally don't do that. We want...or would see as being reasonable to inject as much water into the injection well as you possibly can, and as your need is there, but be below what is called fracture pressure of the formation. We will not let anybody inject above the fracture pressure, because we want that water to be confined to the, we'll call it an aquifer, because it has water in it, be confined and maintained in that geologic formation for sequestration. I'll use that word. So usually, we will never set a limit on the rate, but we will also require every time that there be injection below the fracture pressure of the well. I'm going to speak a little bit about this as far as this well. This well for disposal was into a formation that we had otherwise never perforated and tested in the state of Nebraska. It's called the Spearfish Formation, and it outcrops at Spearfish, South Dakota. So we required the operator to do a number of things. We required them to obtain a water analysis from this formation, because by our primacy agreement under the Safe Drinking Water Act, any water of 10,000 parts per million or less...and you heard Dr. Joeckel say our drinking water standard is really 500. But the U.S. EPA in 1972, whenever the Safe Drinking Water Act came out and they issued rules, said, look, we're going to protect water of 10,000 parts per million or less, because if we ever need it in the future, we could probably desalinate that water, or otherwise go through a reverse osmosis process. So we required them--the operator--to obtain a water sample from the Spearfish Formation. And when that was done, we had personnel on location, we grabbed our own sample and had it analyzed by an agricultural laboratory in McCook, Nebraska. They took their water sample, and so we could have some corroboration. It was over 10,000, it was actually around 20,000 parts per million, so this is not a protected aquifer. So we required that of them so that we would not allow them to inject...and if had been, you know, 9,999, we're sorry, we're not going to use it. We do have some aquifer exemptions that were made and authorized by U.S. EPA Region 7 early on. This aquifer exemption means that the aquifer was studied. It may have water less than 10,000 parts per million, but it also has

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mineral production, i.e., oil and gas, or in the case of Crow Butte, uranium. And so there was an exemption made for the Dakota Reservoirs, the "D" and the "J," which produced probably 350 million barrels in this part of the world where we sit today of oil, just in Nebraska. There was an exemption granted because we needed to have water floods, where we would inject that water back in the formation, so that was set. However, at that time Sioux County had no production at all, and so Sioux County was not exempted. So when the folks from Terex came to our office and visited with us, basically six or eight months before this application was given to us...presented to us, we visited with them about what was going to be required of them. And we told them under no circumstances were they going to be allowed to inject in the D or J sands, which you can do right across the border in Scott's Bluff County, but not in Sioux County, because there's no aquifer exemption that was ever granted. [LR247 LR154]

SENATOR SCHILZ: Senator Johnson. And I would say, too, that let's be mindful up here. We've got about an hour and a half left for the hearing, and I see quite a few people in the public that would like to have a chance, so. Ask what you need to ask, answer what you need to answer, and then let's keep going. [LR247 LR154]

SENATOR JOHNSON: Thank you, Mr. Chairman. Thank you for your testimony and helping me in my next question dealing with some of the responsibilities of the commission. A couple questions may be tied together. As far as the commission itself, the background of the commissioners, what's the qualifications, and how are they selected or appointed would be my one question, and then another quick follow-up. [LR247 LR154]

BILL SYDOW: Okay. Our commission was established in 1959. There's always been three commissioners as set by law. The law says that at least one commissioner must have experience in oil and gas production. I've been here 21 years. I've worked for a number of different men, and I can tell you that most of their backgrounds have been in production agriculture. The candidates, when an opening comes...becomes open, if you will, there is the appointment process that every Governor goes through. I first came to work here, Governor Ben Nelson was my Governor. And the Governor selects the candidate that he would like to nominate or she would like to nominate, and that nomination is put forth to the Legislature. The Natural Resources Committee has purview over my agency, the Oil and Gas Conservation Commission, so there is

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always a hearing that is set, public hearing, to interview those candidates, to meet them, whether it be telephonically or in person. And then the Natural Resources Committee will make their recommendation to the full Legislature and it will be voted on, on the floor. [LR247 LR154]

SENATOR JOHNSON: Thank you. That is mostly for the public record here today. Personally, I will say I have some concerns about a three-member commission, whether it be a county, whether it be...whatever it might be, governmental agency. Do you feel that it would be an improvement to the commission to have more members to the Oil and Gas Commission in order to have a broader view of this very complex industry? [LR247 LR154]

BILL SYDOW: My honest feeling, Senator Johnson, is that I like three. Those people are well-qualified. They have excellent backgrounds, and when they are required to make a decision, it is after a public hearing, or after they'll decide on an application. Most of our work doesn't get done by the commissioners. We have a hearing scheduled--we would have been having a hearing today; we actually asked the company to postpone--but one time a month, the fourth Tuesday of the month at 10:00. And those commissioners will get together at that time to hear as judges, based upon testimony that is sworn testimony, of expert witnesses and the exhibits from both parties, because it can be contested, certainly. And they will make the decision on the record. And I will tell you all, in my years here, I have never seen a split vote, it's always unanimous. [LR247 LR154]

SENATOR JOHNSON: Thank you. [LR247 LR154]

SENATOR SCHILZ: Senator McCollister and then Senator Haar. [LR247 LR154]

SENATOR MCCOLLISTER: Awesome. Thank you, Mr. Chairman. Sometimes it's difficult to establish responsibility for a well or some kind of environmental problem. Can you help me with a few terms? The well operator or the operator, and you've used that term, the well owner...it's not necessarily the landowner. Is that correct? [LR247 LR154]

BILL SYDOW: Oh. It is not, generally. We have some landowner's who are operators, Senator McCollister, but in general, it is a company who has legal access to the minerals beneath the

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surface. Or, in this case, there is a surface owner, mineral interest owner, who has a side agreement--Mr. Laucomer with Terex--to allow them to come onto his land. [LR247 LR154]

SENATOR McCOLLISTER: Was he typically the original driller of that well? [LR247 LR154]

BILL SYDOW: Oh, no. He's a rancher. He's in production agriculture. He has nothing to do with oil and gas. But originally, he and his family members leased this. This well was drilled by Burlington Resources back in 1997, was the fifth horizontal well we ever drilled in Nebraska. So landowners typically are...they're smart enough, they're intelligent enough, they stay out of oil and gas because it's high risk. [LR247 LR154]

SENATOR McCOLLISTER: So they, the well owner, is the one that's responsible for renovating the well and making it usable and to say we have injection (inaudible)? [LR247 LR154]

BILL SYDOW: Yes. And it will have to be done under our regulation, under our authority and by permit. Any well...any person or company, individual who operates a well in the state of Nebraska must have a bond put in place. And that bond is there to see that they ultimately plug and abandon that well the way we want it plugged and abandoned. [LR247 LR154]

SENATOR McCOLLISTER: One more question: You use water wells or part of the water wells as a control mechanism, and you indicated that you have to at least have one that maintains the drinking water quality. Is that correct? [LR247 LR154]

BILL SYDOW: Well, I would say we don't require that it be maintained at that, but we require that there be a water analysis in that application that sets a baseline of the water quality in the area around any injection well. [LR247 LR154]

SENATOR McCOLLISTER: Who's got standing in order to request a water quality test on the water in that approximate area? [LR247 LR154]

BILL SYDOW: Oh, everybody. Everybody who owns a well. [LR247 LR154]

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SENATOR McCOLLISTER: Including the public? [LR247 LR154]

BILL SYDOW: Well, how do I want to say that...answer this? The public being the landowner right there because, see, that's the person who's been left out of this whole discussion. Is that we have a private individual who owns real estate, who desires to have this operation performed on his land. Now he is the only sole person, I believe, other than the NRD, who would have jurisdiction, that could ask us get or have anybody else, otherwise, get a water sample for analysis. Otherwise, somebody is going to be trespassing on his surface to get there. [LR247 LR154]

SENATOR McCOLLISTER: And who bears the cost of that test? [LR247 LR154]

BILL SYDOW: Well, I'll say historically, we have a little, small budget line item--we pay for the test, because they're generally only about \$50 or \$60. [LR247 LR154]

SENATOR McCOLLISTER: Thank you. [LR247 LR154]

SENATOR HAAR: Quick question. [LR247 LR154]

SENATOR SCHILZ: Senator Haar. [LR247 LR154]

SENATOR HAAR: Okay, a couple questions; I'll limit myself to two. First of all, as I stated earlier, in this Nebraska poll that's done every spring on a lot of issues. There was a question about fracking, and 88 percent responded that they want standards at least as robust as their neighbors. And you heard me talk about Colorado. Do you believe Colorado has more robust regulations than Nebraska? [LR247 LR154]

BILL SYDOW: Thank you for the question, because I've looked at Colorado's rules. I'm not going to characterize them as being any more robust than ours at all. I think there's a lot of similarities. The differences between them and us is we have 6 chapters, they have 12. They've addressed rules that are not of concern to the landowners in Nebraska, like aesthetics or nuisances. They have--right? They have a whole chapter on that. But as far as the operating rules,

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I believe that ours accomplish the same things. There may be some more rules that they have. And here is a for instance: They require blowout preventers on every well, we do not, and the reason is that we are so subnormally pressured that there's really not a chance. Now, if the operator wants to run one or a set, that's fine, but we won't require that. But I believe, Senator Haar, if you look at the real meat and potatoes of Colorado versus Nebraska's rules, the basis for the rules is the same. They were the Interstate Oil Compact Commission model rules, and that's why the first three chapters, at least right now, have the exact same numbers and names in Colorado and Nebraska. I believe that our rules are absolutely sufficient to not only protect the environment, but to produce oil and gas in a very effective...and in an environment where it's regulated well. In time...I'm going to cease. [LR247 LR154]

SENATOR HAAR: Well, maybe we need to look at some of the things like roads and those other concerns we have separately. But I considered at least the March hearing, or whatever it was, as kind of a nightmare, frankly, seeing how notices were sent, and rescinded, and resent, and people could talk, but it wasn't part of the official record, etcetera. What have you learned from that? Or will there be any changes in the way you do hearings in the future? [LR247 LR154]

BILL SYDOW: Well, for everyone, Senator Haar did come out to our...the March hearing. And he came to the morning session and, unfortunately, couldn't stay for the afternoon session, which is where the real hearing took place--the legal hearing. We established a time to take public comment, and it could have been for anything, and in fact, it was quite varied. It pertained to the well, it pertained to hydraulic fracturing and their fluids. So by the Open Meetings Act, the state of Nebraska, we periodically put on our agenda a time for public comment--just public can come in and comment. In this case, I will tell you that I believe this was probably the most contentious and, at the same time, well-attended hearing that I've had since I've been here. I think it was well organized. So I'm going to disagree with you, Senator Haar. I think we had...it was very well organized. If you ever have the time, stop down to see our shop, we're on Main Street. We ran two microphones; we gave everybody three minutes. Mr. Goodwin, my chairman, was the chair of that committee. He's an attorney. We ran it, I believe, according to all the requirements that we had. And in fact, everyone was allowed to participate in that who desired to speak. And Mr. Goodwin made three questions at the end--does anyone...is there anybody left--three times. We had several individuals that talked again, and we let them do that. So I believe it was a good

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hearing, and our afternoon hearing was very good as well. That is when we had the applicants, their attorney, their witnesses, the evidence was presented. Those people who were protestants to this were surface landowners within the half a mile. They were there because they are the interested persons, because they own an interest in a real estate around that well. That's where that legal term "interested party" comes from. And those people were there. They were represented by an attorney who is very competent, and there was time for cross-examination. It was conducted like a district court. Because our agency is quasi-judicial, any decision of the commission is appealable to the district court, all the way to the Supreme Court. And so there was...I prepared a transcript for this, because the decision was appealed and it's in the Cheyenne County District Court. And to my knowledge, has not been yet set for docket. [LR247 LR154]

SENATOR HAAR: I limited myself to two questions. [LR247 LR154]

SENATOR SCHILZ: We appreciate that. Senator Schnoor, real quick. [LR247 LR154]

SENATOR SCHNOOR: Thank you, sir. During your testimony, you talked about...you mentioned once or twice about desalination. Is there, you know, not really knowing what chemicals or products or whatever is in this fracking wastewater, is it possible to desalinate it, clean it, and just dispose of it above ground? Is that practical? [LR247 LR154]

BILL SYDOW: I think, given...actually, I mean, we're in a drought, or we have been. Some people are trying to recycle water. They're really not trying to desalinate it. The desalinization, Senator Schnoor, would be for so that we could drink it. You and I could drink it at 500 parts per million or less. Now, with that desalinization or reverse osmosis to take those chemicals, those elemental components, out we would have a waste stream. And in fact, our Department of Environmental Quality, Dave Miesbach's group, has a well like that that injects the waste stream from the potable water of McCook, Nebraska. And it has arsenic, nitrates, and I don't know what else is in there, but they clean that water so it can be provided to their public. [LR247 LR154]

SENATOR SCHNOOR: Okay, thank you. [LR247 LR154]

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SENATOR SCHILZ: Thank you. Any other questions? Seeing none, thank you, Mr. Sydow. We have...bear with us, we have two more invited testifiers, and I hope that we could have those done in 15 minutes, and then we will move on. Can you, just by a show of hands, how many people would like to testify? Okay, this is (inaudible) folks, so I want everybody to be mindful of that. Mr. Drew Parks, please, and then Jenny Hughson, if you could get ready. And then, folks, have your sheets filled out, ready to go. You're going to get three minutes. I want everybody to come up, say their piece, move off and allow as many people as possible to get in. We have an hour and a half before the scheduled end of this hearing. Thank you. Mr. Parks. [LR247 LR154]

DREW PARKS: No worries, I have the intention to be brief. [LR247 LR154]

SENATOR SCHILZ: Let's hope we are. [LR247 LR154]

DREW PARKS: First off, I'd like to say good morning and thank you to the Nebraska Oil and Gas Commission, the senators present, and all those in attendance. I am pleased to be here and participate in this hearing. My name is Drew Parks, and for the record, that's D-r-e-w P-a-r-k-s, and I am the district construction engineer for the Nebraska Department of Roads for District 5, whose boundaries include all counties of the Panhandle and, consequently, Sioux County. I am here to speak on behalf of District 5 in regards to the impacts to the road structure due to the proposed increase in truck traffic on Highway 29, from Mitchell to Harrison, Nebraska. This increase in truck traffic would be the result of providing access to the well site in question from the state highway for wastewater disposal purposes. To address this matter appropriately, I would like to read directly from a memorandum that has been provided to me by the Nebraska Department of Roads Materials and Research Division. This is the division of the department that is responsible for pavement design and determining strategies for roadway maintenance. So here is the text from the letter: "Highway 29 is a thin, asphalt roadway, designed and maintained to handle the 15 to 35 trucks per day currently utilizing it. A recently revised truck volume estimate in the permit will result in the addition of approximately 44 trucks per day to this low-volume roadway, increasing the truck traffic between two and four times the current amount, and reducing the life of the pavement by 2.5 years. A thicker pavement would be required to handle the proposed increase in trucks. An estimated \$3.3 million would be needed to strengthen the roadway between Mitchell and Harrison for this purpose. If the roadway is not strengthened

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prior to the additional trucks, the roadway is expected to deteriorate at a faster rate." And as I stated, this is approximately a loss in 2.5 years of the life of the pavement. "This means the future resurfacing that's currently scheduled would need to be advanced 2.5 years, and the amount of structure would need to be added, and the increase in funds would need to be...the funds would need to be increased to handle this amount of trucks." So that's the end of the letter. In summary, if nothing is done to increase the capacity of this roadway structure, a significant loss of service life will occur. In order to accommodate this increase in truck traffic, three-fourths inch to one inch of more asphalt would be needed in addition to the current strategy for the 55-mile segment on Highway 29. Preliminary cost estimates for this project would be for \$3.3 million for the 56-mile segment. So I thank you for your time, and will take any questions if you have them. [LR247 LR154]

SENATOR SCHILZ: Thank you, and one question that I have, before I turn it over to anybody else,... [LR247 LR154]

DREW PARKS: Sure. [LR247 LR154]

SENATOR SCHILZ: ...is that so if you have a road that can't handle certain weights and certain sizes of trucks, you can post that as such and have...how does that work? Because you could say, hey, no traffic over so many pounds or whatever. Can you do that? Is that possible? [LR247 LR154]

DREW PARKS: That would be an option, but there is a legal weight set for that roadway, and it's been designed for the state vehicle weight, which I just checked recently was 45 tons. So only if it was a weak structure or for some reason had neglected maintenance. [LR247 LR154]

SENATOR SCHILZ: Okay, thank you. Any other questions? Senator Stinner. [LR247 LR154]

SENATOR STINNER: This was a big area where I kind of dug into, and at the time we were looking at 80 trucks. At the time we were looking at 80 trucks instead now you've calibrated it down to 40. But I'm going to ask this very quickly. In light of the fact that the Road Department says they've got a \$70 million deficit every year in terms of maintenance, this would add to that.

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How much time would it take to put this on the schedule for the road to get worked? [LR247 LR154]

DREW PARKS: The addition of the asphalt I mentioned earlier...the roadway is divided into four segments from south to north, so the span of the years for those projects to be awarded and under contract would be, you know, one year for each project from south to north, so four years total. And in order for design to accommodate that, they'd have to make changes to their process. But it would be delivered in about the same time frame. [LR247 LR154]

SENATOR STINNER: Two things is, what would trigger a traffic study by the department? And secondarily, Mitchell School sits right there. That's been a concern. Can you regulate truck traffic around when the kids are coming to school and leaving? [LR247 LR154]

DREW PARKS: To speak to your first question about what would inspire a traffic study to be done, I'm not a traffic engineer--I usually work in construction--but my understanding of that would be, you know, with rapid increase or decrease in traffic volumes, either anticipated or observed. And that would inspire the traffic study. And your second question was how do we regulate around the schools? Is that correct? [LR247 LR154]

SENATOR STINNER: Can you? [LR247 LR154]

DREW PARKS: Can you? We can work with the counties and the schools to post different speed limits, and then perhaps suggest routes that...if available suggest routes that truck traffic take as an alternate. [LR247 LR154]

SENATOR STINNER: Okay. [LR247 LR154]

SENATOR SCHILZ: Thank you. Any other questions? Seeing none, thank you very much for your testimony. [LR247 LR154]

DREW PARKS: Yeah. Thank you again for your time. [LR247 LR154]

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SENATOR SCHILZ: Yes. And finally we have Jenny Hughson. Good morning and welcome.
[LR247 LR154]

JENNY HUGHSON: Thank you. Thank you, Senators, for this opportunity to express our concerns regarding the NOGCC, and the approval of the Laucomer 13-1 wastewater disposal well. My name is Jenny Hughson, J-e-n-n-y H-u-g-h-s-o-n, and I represent the Hughson Flying A Ranch, and five generations who have cared for that land. The NOGCC function is to develop oil and gas resources, but in doing so, they accepted the responsibility of protecting the environment, as stated in their mission statement. Protection of the environment and all natural resources should be foremost in their decision making, but they appear to disregard that responsibility. The disposal of thousands of gallons of toxic wastewater in a well in Sioux County will have no benefit to us as landowners, no benefit to the citizens of Sioux County, and no benefit to the state of Nebraska. These are just a few of our concerns. The NOGCC's approval of Terex's application included a modification of 5,000 barrels per day, rather than the 10,000, and an injection rate of 1,500 PSI at the surface, as opposed to the .7 as stated in the application. If at some point Terex needs to increase that 5,000 barrels per day to 10,000 or more, do they submit another application and we go through this whole process again? Or does the NOGCC simply approve that without public knowledge? An injection rate of 2,000 times that listed in the application is another cause for concern. What are the consequences when wastewater is injected at that high rate? What about other wells that are in close proximity? Within a half a mile there are three livestock wells, there are three wells that were capped (inaudible) and abandoned in 1986 and 1988, and there is one producing oil well. Were the unused wells capped properly? Will toxic waste injected at this high rate weaken those wells and domestic wells? When wastewater is injected at such a high pressure, does it compact the formation at that 6,000 feet, thus reducing the porosity at that level, and reducing the absorption rate? Prior to the approval of the application at the March 24 hearing, Terex was asked who would be trucking the toxic waste. They responded they did not know. What licensing will drivers be required to have? What standards will the trucks be required to meet? Do the trucking companies have any financial assurance in the event of accidents, spills or leaks? With no trucking guidelines in place, the entire route, from oil well to disposal well, is in jeopardy. Who will monitor the mechanical integrity of the well and the surface at the site? If the inspections we were told by the NOGCC are actually carried out, it will cost the NOGCC, as they are a cash-funded agency. The NOGCC

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is not supported by the general taxpayers of Nebraska. The cash that funds the NOGCC comes from a levy that is assessed against the value of the oil and gas produced in Nebraska. Water that is trucked into, then disposed of in Nebraska is not taxed in any way. Terex will pay nothing to fund the NOGCC, and monitoring by the owner or the operator of a well seems to be a bit of the fox guarding the henhouse, as it would not be in their best interest to report any malfunctions. The NOGCC currently has three field inspectors: one in Sidney, one in the McCook area, and one in southeast Nebraska. Realistically, how can a disposal well in Sioux County be properly monitored by the NOGCC? The state of Nebraska needs to establish statutes governing the protection of all natural resources, as well as public safety in relation to oil and gas production. We do not object to oil and gas production in our state, but we strenuously object to being a dumping ground for waste from other states who enjoy the economic benefits of that production. Senators, we invite you to visit Sioux County. We would like you to have firsthand appreciation of the land we are striving to protect by giving you a tour of our ranch and the surrounding area. Thank you. [LR247 LR154]

SENATOR SCHILZ: Thank you, Ms. Hughson. Thank you. Any questions? Seeing none, we really appreciate your testimony. Thank you very much. [LR247 LR154]

JENNY HUGHSON: Thank you. [LR247 LR154]

SENATOR SCHILZ: Okay, at this point what I would ask is that folks that want to testify, as you see somebody getting ready to move, please move forward, be ready to go. First testifier, please. And once again, I'll remind everyone we have the three-minute time limit, so... [LR247 LR154]

TYLER LEE PLASENCIO: I'll make sure you get to lunch, sir. [LR247 LR154]

SENATOR SCHILZ: Okay, thank you, sir. [LR247 LR154]

TYLER LEE PLASENCIO: Can you all hear me okay? [LR247 LR154]

SENATOR SCHILZ: I suppose. Are we picking it up okay? Yeah, go ahead. [LR247 LR154]

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SENATOR DAVIS: Can they hear you out there, though? [LR247 LR154]

TYLER LEE PLASENCIO: Can you all hear me okay? This is mostly for them. When I woke up this morning, I had no intention to be up here testifying today, but some things I heard this morning certainly concerned me. My name is Tyler Lee Plasencio, that's P-l-a-s-e-n-c-i-o. I emphasize my middle name, because it is the first name of my granddad, Lee, who is with us today. He's a man I admire greatly, and he's one of the landowners. He's Jenny's husband, so. You just met her. He was my inspiration to join the army. And in the army, I learned a few phrases that I heard this morning. Phrases like: to the best of my knowledge; I cannot speak to that; outside my program; beyond my capacity; I cannot answer that question. These are phrases people with responsibility often use to cover their own rear ends, for a lack of better terms. It seems to me that everyone just has enough responsibility to not be completely accountable for when things go south. Dr. Jekyll...sorry, Dr. Joeckel, you provided an excellent presentation on the risks involved, and I think you did well in addressing concerns about earthquakes and contamination of our water, etcetera. However, the one thing that concerns me the most is that as this water is being introduced into our soil, it passes through the well water through pipe. Pipes break. South of the wastewater disposal site, or the proposed wastewater disposal site, I have three cousins. They are ages 8, 10, and 12, and they drink from that well. There are other citizens in the area who drink from that well also, and I'm concerned for them. It is beyond me that we're considering this terrible proposition. Who (inaudible) this? What's in it for Nebraska? If this enterprise is allowed to pump water that's wastewater into our soil, we risk turning the Panhandle into a wasteland that separates the Missouri River from the Rockies. It might take years or even decades, but be assured, the threat is real. The American west was built on the promise of an abundant amount of water being available to future generations, and that abundance was embellished. And what's left is now being threatened. Sunday, I sent an invitation to Governor Ricketts, inviting him out to the ranch for a personal tour, as well as some of my grandmother's home cooking--she's a great chef. And I was going to say I would like to invite you also, but she already did. So I hope you'll accept, and thank you for listening to me. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir. Are there any questions? Seeing none, thank you very much for testimony. Next testifier, please. [LR247 LR154]

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STEVEN MATTOON: (Exhibit 3) First, for the record, my name is Steven F. Mattoon, spelled M-a-t-t-o-o-n. I'm a Nebraska guy, west Nebraska. I was born and raised in Sidney, except for law school. I returned in 1976 to practice law with Senator Gerald Matzke, my father Frank Mattoon, and Paul Martin. I have been able to work in the oil and gas industry with emphasis in oil and gas law since I first came out in 1976. That was kind of a boon time. I've rendered title opinions for oil companies and also for individual landowners in over 20 counties in the state, with regard to mineral ownerships, oil and gas lease ownerships. I've represented numerous companies, filing applications with the commission, many of which are not contested. These applications range from spacing, to pooling, to secondary and tertiary recovery operations, to injection in disposal wells. Probably more importantly, I represent a number of landowners who deal with oil and gas companies. We deal with them in negotiating oil and gas leases, negotiating damages if there's problems with the drilling of the well, problems with spills if they would ever occur, problems with...we had one unscrupulous operator who was trying to siphon off gas from one and reported it under a different well. The Oil and Gas Commission has always been extremely responsive, not only to the oil and gas companies but the landowners. If I have a problem and I take it to the commission, we will usually have an inspector there the following day or, at most, two days if that inspector is tied up on other business. I've dealt with several agencies, both on a local, regional and state level. The Oil and Gas Commission is very professional, they have a great deal of expertise, and you have always access to their personnel and to their records. I'd also like to refocus the committee that these legislative resolutions and potential legislative bills go far beyond the Terex application and the Laucomer well. You're talking about disbanding the entire Oil and Gas Commission, putting it in different agencies. There's other ramifications that I think can be solved within the confines of the statutory provisions, the current rules and regulations. Reference has been made to the Oil and Gas Commission being a cheerleader. They do not approve all applications. I have two very controversial applications that were not approved: one being for formation of the unit in the Matador field in Morrill County, and after expert testimony, that was not approved. Exxon filed an application in the Kleinholz field years ago, for increased spacing to 640 acres. That was mainly object to, not by oil companies, but by the individual landowners. The commission was responsive--unfortunately, we lost, but they were responsive. They did not approve that application. They will do what's right, and what the evidence shows in any given manner. They are not biased as has been implicated. I don't want to address anything with Roger (sic--David)

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Laucomer, because I'm more concerned with any attempt to move this commission. This commission has been here since 1958. I would say that over 95 percent of the wells in Nebraska are executed...or located either in Panhandle or in southwestern Nebraska. We have constant access to the records and also to the personnel of the commission to assist if there's any problems. It makes no sense to disband the agency, move it, divide up its responsibilities, and now have it administered out of Lincoln, Omaha, or Falls City where the other wells are. We need the commission. If there are to be modifications, I believe they can be made within the parameters of the commission as it now exists. I would ask you to recognize that they are a very efficient, organized, and responsive commission at this time. [LR247 LR154]

SENATOR SCHILZ: Thank you, Mr. Mattoon. Any questions? Senator Haar. [LR247 LR154]

SENATOR HAAR: Real quickly. Do you think that the issues, for example, that Senator Stinner has brought up about roads and so on, ought to be incorporated into the concerns of the Oil and Gas Commission? [LR247 LR154]

STEVEN F. MATTOON: I think they should. I think the commission was concerned with the roads also. That's my understanding. But there was nothing in their current rules and regulations which allowed them to deny the application based on that. Whether that can be changed in the future, whether there could be a tax assessed, those are things that should be considered. It's a concern, I recognize that. But it goes beyond the current parameters of the rules and regulations, and those rules and regulations are not lightly adopted. The most recent revisions were after several public hearings by a review of the Attorney General's Office for over a year, and then by a review of the Governor's Office. So it's not easy to just go in and change a rule or a regulation; probably easier to change a statute than to change the rules and regulations. [LR247 LR154]

SENATOR SCHILZ: Thank you, Senator Haar. Any other questions? Seeing none, thank you (inaudible). [LR247 LR154]

STEVEN F. MATTOON: And I did provide the Chairman with a letter from Kevin O'Donnell, who's an attorney in Ogallala, who does a great deal of litigation in this area, that I'd like made part of the record too. [LR247 LR154]

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SENATOR SCHILZ: Thank you very much. Next testifier, please. [LR247 LR154]

DAVE HAACK: My name is Dave Haack, D-a-v-e H-a-a-c-k. I'm the president of Z&S Construction. We're an oil field construction business that's been incorporated in the state since 1963. We support over 28 families in the Kimball area. Z&S has owned and operated this water disposal of yours for over 20 years. In fact, one of our wells is right in the city limits of Kimball, has been there for over 20 years. I challenge you to find one person in this audience, in the city of Kimball, the county of Kimball that has an issue with one of our disposal wells. These wells are monitored, records kept, reported on, and have regular mechanical integrity tests performed on them. Over the past 50 or 60 years, there has not been one recorded incident of groundwater contamination. I think that record speaks for itself. Not even the agricultural industry can make this claim. I'm here this morning to address some of the objections that have been made of the oil and gas industry, the roads being one of them. In my county in Kimball, Dave Hottell, who's the highway superintendent there, said the roads in their county were in the best shape that they ever were in the oil boom days. You can call some of the other county commissioners: Tom Noel, who is a Cheyenne County commissioner; Tom Green (sic--Neal), Banner County. We've even recently worked in Sioux County, where this other disposal well, talked with Gordon Mathis, who's the highway superintendent up there, asked him how we've treated their roads up there. We did some work for Hawkwood Energy up there, and they paid my company to dress up county roads up there, to try and keep them in shape while their drilling operation is going on up there recently. As far as the state, talk with Jim Land (phonetic), Don Hull of District 5. You know, we've had to get approaches and different things to get on the state highways. Ask them how we have performed as the Oil and Gas Industry as far as getting along with approaches and access to highways. Besides, I don't see a reason why the state can't spend a little money on the western part of the state instead of all of it back east, you know? A couple million dollars here and there to fix our roads up here wouldn't be a bad deal. Spills seem to be another concern. Production water is not considered hazardous by the Department of Transportation. My company hauls production water everyday. These trucks do not have to be placarded to transport water. It's not considered hazardous. The water has chlorines and salines in them, but less than what you'd find in what the state Highway Department is putting on roads in deicing operations. You know, you don't see Hazmat teams going over after they spray saltwater on the highways to try and clean up spills, and what we're hauling has less saline and chlorine than those. [LR247 LR154]

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SENATOR SCHILZ: Sir, I would say that the red light is on. If you could please wrap it up.
[LR247 LR154]

DAVE HAACK: Okay. Well, you know, I have questions for you, too, but...so I guess I'll just shut it off there. You know, I've got three minutes to try and defend a company that I worked at for 30 years, 12-15 hours a day, six days a week. And I have you guys determining what's going to happen in my company, and a lot of you are not even familiar with the Oil and Gas Commission. It doesn't seem fair that I get three minutes to defend myself, and I have several senators trying to determine what's going to happen in the oil and gas industry in Nebraska in the future here. [LR247 LR154]

SENATOR SCHILZ: Sir, let me just... [LR247 LR154]

DAVE HAACK: And I take...one more thing: I take opposition to Senator Haar saying the Nebraska Oil and Gas Commission has dropped the ball. I've had wells that I've applied for that have been declined for disposal wells. You've listened to Bill speak, Stan. Their experience is way beyond a lot of the Oil and Gas Commission's. We should be patting them on the back and congratulating them for doing such a fine job. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir. Let me, sir... [LR247 LR154]

DAVE HAACK: One more thing. [LR247 LR154]

SENATOR SCHILZ: No, not one more thing. I'm sorry, there's a lot of folks. And let me say this, sir, before you leave. Everyone of us up here that are in the Legislature, we would be more than willing to sit down with you at any time to discuss this issue. [LR247 LR154]

DAVE HAACK: I wish that would have happened before Senator Stinner introduced a bill.
[LR247 LR154]

SENATOR SCHILZ: Sir, I appreciate that. [LR247 LR154]

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DAVE HAACK: All those bills (inaudible). [LR247 LR154]

SENATOR SCHILZ: Sir, thank you for your testimony. We very much appreciate it. Next testifier, please. Good morning and welcome. [LR247 LR154]

DAVID HAGSTROM: Thank you. I want to welcome...I want to thank all you guys for giving me the opportunity to speak here today. My name is David Hagstrom, D-a-v-i-d H-a-g-s-t-r-o-m. I'm a farmer. I was born and raised and still live about a mile from the original discovery well in Kimball County, and I want to tell you a little bit about the oil trash in the beginning days. They...it was a constant battle between the landowners, the oil companies, and their employees that were cutting fences, driving randomly over the land--the trucks didn't seem to have reverses then--torn down electric wires. The farmer could get his hayrack under him in them days, but they couldn't get the oil buried under them, so they'd just drill through them--junk strewn everywhere, pits covered over, you've got stuff in them for 10 years. It was just a mess. It was a constant battle between the landowners and the oil companies, so we gave them the nickname "oil trash." Now I'd like to read to you--you all probably know this, but I want to read real quick. "The Nebraska Oil and Gas Conservation Commission was founded in 1959. Its mission is to foster, encourage and promote the development, production and utilization of natural resources of oil and gas in the state. The mission will be accomplished in such a manner as will prevent waste, protect correlative rights of all owners, and encourage and authorize secondary recovery, pressure maintenance, cycling, or recycling, in order that the greatest ultimate recovery of oil and gas may be obtained within the state while protecting the environment. To this end the landowners, producers, and the general public will realize and enjoy the greatest possible good from these vital, irreplaceable natural resources." Now, this commission is appointed by the Governor and approved by the Legislature in full disclosure. Due to the Oil and Gas Conservation Commission today, we don't have any more oil trash. We have responsible operators. If they aren't responsible themselves, the Oil and Gas Commission sees to it that they become responsible. I have no problems whatsoever with the Oil and Gas Commission. Everything is carried out in a fair and efficient manner to all parties involved. Senator Haar brought up some valid points. He stated though that we need to fix or replace. Well, let's fix it. It's the Legislature's duty to aid the Oil and Gas Commission in what you feel is wrong. Come to them and work with them on the roads and fix it, don't abolish it. [LR247 LR154]

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SENATOR SCHILZ: Sir, your red light is on. [LR247 LR154]

DAVID HAGSTROM: My red light is on. Okay. Well, in Kimball County, agriculture, livestock, and oil production, along with the oil and service companies, are all we have, and it's...don't force an undue hardship on those oil producers when their backs are against the wall due to prices or they won't be here to send the tax money in when the prices do recover, and then all of Nebraska suffers. The Arab oil sheiks will be glad to sell us all the oil we want at their price, on their terms. Let's protect these guys now, when prices are down and their backs are against the wall. They've got to put this water somewhere. It's the way God set it up. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir. [LR247 LR154]

DAVID HAGSTROM: The oil is formed with the water, and the water is there. And unfortunately, there's more water than there is oil. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir. We appreciate your testimony. Any questions? [LR247 LR154]

DAVID HAGSTROM: Thank you. And thank you for the opportunity to speak. [LR247 LR154]

SENATOR SCHILZ: Thank you. Next testifier, please. Good morning. [LR247 LR154]

LEON RODAK: (Exhibit 4) Good morning. Thank you, Senators. My name is Leon Rodak, L-e-o-n R-o-d-a-k. I'm the vice president of Murfin Drilling Company of Wichita, Kansas. I'm a petroleum engineer, have been involved in oil production for 35 years in Kansas, Nebraska, Oklahoma, Texas. Murfin is the fifth largest oil producer in Nebraska, second largest oil producer in Kansas, and we operate 1,100 oil and gas wells and 215 injection and disposal wells. As an engineer, I tend to talk technically, so before I start to doing that, I want to state emphatically that protection of the fresh water is the rule. It's the farmers' livelihood, and we lease that oil from the farmers, we drill on farm ground, and if we're lucky enough to get a well, we live with that farmer for maybe the next 50 years. We take no chances with our fresh water. In our area of Dundy and Hitchcock Counties, there are many injection wells operating under

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center pivots. Any pollution of fresh water would immediately show up as wilted crops if saltwater was being introduced to the aquifer. But that hasn't happened--it doesn't happen. We fully support the EPA rules being administered by the Nebraska commission, because they've worked for decades. I've passed out a safety overview of the saltwater injection wells by Phil Kriz, an oil producer here in the Panhandle, and I'll touch on the high points of the well construction. There are four levels of fresh water protection. We set the surface casing through the freshwater zone. This first layer of protection is most commonly eight and five-eighths diameter steel pipe, and it's cemented in place to protect the fresh water. The well is then drilled down to the injection zone, which is thousands of feet below any fresh water. We then set the second layer of protection, the production casing, which is most commonly five and one-half inch diameter steel pipe that's cemented in place across and above the injection zone, and the production casing protects the surface casing. The third layer of protection is the injection tubing and packer. The tubing is most commonly two and three-eighths in diameter, and is run to just above the injection zone. It is there sealed off by the packer. The space between the tubing and the casing is loaded with corrosion protector, the injection tubing protects the production casing. The fourth layer of protection is the testing and monitoring program. The tubing casing annulus must pass a pressure test before ever entering service. It must pass again every five years thereafter. When the well is in operation, the injection and annulus pressures must be read weekly and reported monthly. Wells which inject using pressure must also have safety switches to automatically shut the pump down in case of a sudden pressure loss...in the case of a leak or a pressure increase. Even in the case of a tubing leak, you still have two casing strings which remain in place protecting the fresh water. It's a mechanically simple system, it's robust, it's redundant, and it's proven to work. Thank you. [LR247 LR154]

SENATOR SCHILZ: Thank you, Mr. Rodak, for your testimony. Appreciate it. Any questions? Seeing none, thank you. Next testifier, please. [LR247 LR154]

JAMES SCHNELL: Thank you for the opportunity. My name is James Schnell, J-a-m-e-s S-c-h-n-e-l-l. I'm a city councilmember of the city of Kimball. I've also had the honor of serving as a mayor for the city of Kimball. My reason for being here today is to share the history I've had in the oil field industry as a landowner and the experience of knowing what a valuable asset the oil field industry is to Nebraska. Keep in mind the statement, "oil field industry." I grew up five

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miles east of Sidney. We had one existing oil well on the St. George Ranch as long as I can remember. We had one drilling attempt that was within 100 yards of the Lodgepole Creek that was not a success. That rig had the misfortune of a ground shift that tilted the drilling rig. The situation was handled and at no time was the creek flow at any risk of contamination. The only problem as a landowner we experienced was a two-year period till bentonite soil from the slurry pit dried out to return to normal soil. This case was in pasture and I would probably be the only one, along with my brother, who could even point out that site today. My dad, brother, and I started our farming and ranching in Kimball County in 1975. We had experience in land contracts, drilling operations, and well sites. In 1979 we were able to buy land after an unsuccessful drilling attempt. Within one year, due to satellite technology, we had two wells on the same 400 acres. The unsuccessful well was on grassland and the two producers were on irrigated cropland. All that oil field industry activity did not infringe on the agricultural activity of our family. This is largely due to the fact people who are in the oil field industry in the state of Nebraska are our neighbors. They will build roads, lower pumps to accommodate irrigation pivots, use livestock gauge, and put in additional fencing to ensure that the landowner is at no risk to his livelihood. The (inaudible) oil field industry know that the oil wells in Nebraska are short-term production as opposed to the landowners' long-term usage. I keep referring to the oil field industry. We here in western Nebraska are not BP, ExxonMobil, Chevron oil, or other top oil producers in the global market. We have small wells in comparison to our neighbors to the south in Colorado and the west in Wyoming. That's where the big dogs play. We, unfortunately, are on the other side of fault lines that stop the progress of what is the latest oil boom in our area. We at Kimball have greatly benefited from that boom, because our oil field industry companies were there to service Colorado's and Wyoming's large oil and gas strike. They're within 40 miles of Kimball to the west and south but they're not in Nebraska. The oil field industry people from Kimball and McCook will tell you why we are not in that huge oil and gas strike area. I'm here to tell you why we did strike it while the boom was going and why we want to still be involved. We're here today to tell you...understand why this Oil and Gas Commission is vital to our oil field industry. The rules you make for them to follow for years and the commission has enforced them. It seems ironic that when Health and Human Services hasn't done the job to keep track of \$4 million to \$6 million nobody is talking about disbanding them and giving it off to another jurisdiction. So why this, sir? If this is delegated to another agency we all know that we will have an office in Lincoln, then the distance will demand an office in Scottsbluff or Sidney, but that

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means travel to the southern counties. Now we've got to put an office in McCook. The bureaucracy will not end till we have shut down the marginal production of oil that Nebraska's oil field production can afford to produce. When Governor Heineman always stopped in Kimball, his first question was, has the boom started in Kimball County? He knew as well as you know the impact of oil production for Nebraska. The state of Nebraska's royalty share, Kimball County tax share, the sales tax share to the city of Kimball from oil field pipes,... [LR247 LR154]

SENATOR SCHILZ: Sir, I don't mean to...sir. [LR247 LR154]

JAMES SCHNELL: ...tanks, pumps, vehicles, and other industry entities. [LR247 LR154]

JAMES SCHNELL: One minute? I can only speak on behalf of one county. What the impact of other oil producing has on other counties, I cannot speak of. We've seen layoffs to affect 300 jobs since the bust in oil prices. We, as a city, are budgeting a loss of approximately \$150,000 in sales tax. You guys, that hits you at the state level just in sales tax at \$550,000 next year. That's not including your royalties or property taxes. I find it ironic that in LR154 and LR247 the words "finance" and "funding" are used ten times and the total of those two resolutions have only nine paragraphs. This is the oil field industry out here. We drill, we roustabout, we pump, we haul, we sell, we buy, and we employ. There are no billions being made. We in Kimball have finally seen our kids return to Kimball after college because you can be in the oil field, on the farm, and have job openings at the school, hospital, and other companies that are able to survive due to the nature of our county. Speaking of impact, did all of you notice as you came into the Panhandle, all the windmills to the south of I-80? Even at night you should have seen all the red beacons on the top of those towers. That's another energy source that's not in Nebraska due to the Unicameral's lack of education on what the energy industry of Nebraska has to offer if you'd let it be developed. All those towers were within 30 miles and we could all cut our county taxes in half if we would allow production to be made in the state of Nebraska for wind generation and let them sell it outside the state without penalty... [LR247 LR154]

SENATOR SCHILZ: Sir. [LR247 LR154]

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JAMES SCHNELL: ...but they're in Colorado and Wyoming. Thank you. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir, for your testimony. Appreciate it. Any questions? Seeing none, thank you very much. Next testifier, please. [LR247 LR154]

DAVE PETERSON: My name is Dave Peterson, D-a-v-e P-e-t-e-r-s-o-n. I have a company called Diamond Operating Inc. I'm a geologist by education and I'm a resident of Colorado. I've been an operator in both Colorado and Nebraska since 1987. The main reason I chose to make a statement today is to provide my perspective on how numerous new rules and regulations that have been adopted in Colorado have impacted my company and other medium and small companies. The first reason for the new rules was there was a drastic increase in oil and gas development in the most densely populated areas of the state. The second reason, and I think the primary reason, was due to a change in the political power structure in Colorado that enabled environmental groups to begin to exert extreme pressure on the governor and on both branches of state government. Under pressure from these groups, a massive rewrite of the rules and regulations were adopted in 2006. Since then there have been dozens of other targeted rulemakings. The underlying purpose of this incessant drumbeat of new rulemaking is simple: to make things as difficult as possible for oil and gas operators and hope they will go away. Unfortunately, in Colorado this tactic is working. After years of battling a regulatory onslaught, in 2013 I gave up and made the difficult decision that I would no longer do any new business in Colorado. I now work exclusively in several other states and now when an opportunity in Colorado is offered to me my reply is always the same, no. Believe me when I tell you I am not alone. Many companies are following suit. These companies, which all had significant operations in Colorado, have decided they just can't tolerate the regulatory risk. I recently was working on a project near the Wyoming-Colorado border and I spoke with an employee of Tulsa, Oklahoma, based Kaiser-Francis Oil Company about a possible joint venture in the area. Kaiser-Francis is a substantial, privately owned company and the person's response to me was, quote, well, we would love to look at it, but I would need to know more specifically where it is located. Our board of directors has ordered that we no longer do business in Colorado. If time would allow, I could go on and on with more specific examples. In conclusion, if Nebraska were to adopt anything the size and the scope of the rules in Colorado it would wreck the industry and

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the ripple effect would affect communities all over the western part of the state. Thank you.
[LR247 LR154]

SENATOR SCHILZ: Thank you, sir, for your testimony. [LR247 LR154]

DAVE PETERSON: I can also clarify the bonding question. [LR247 LR154]

SENATOR SCHILZ: Go ahead real quick. [LR247 LR154]

DAVE PETERSON: Colorado requires a \$10,000 bond for wells shallower than 3,000 feet and a \$20,000 bond for wells deeper than 3,000 feet. Nebraska requires a \$10,000 bond for any well. In Colorado you can get a blanket bond for \$60,000 and it covers up to a hundred wells. The blanket bond in Nebraska is \$100,000. And the comments on general liability insurance, it's like comparing apples and oranges. Colorado requires general liability but it's only for personal injury, and there's no pollution coverage or anything like that. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir. Next testifier, please. [LR247 LR154]

DANIEL ORTIZ-HERNANDEZ: Good afternoon. And thank you for taking the time to hear my testimony today. My name is Daniel Ortiz, D-a-n-i-e-l O-r-t-i-z. Currently, I serve as a city administrator in Kimball, Nebraska. I come to you today representing my community and the many local workers who call Kimball home. I am not in favor or against fracking or changing the Oil and Gas Commission. I am in favor, however, of making my community strong and resilient. The slowdown and decline of oil has reverberated across my community like wildfire. We have seen our sales tax revenues decline over \$100,000 so far; dealt with layoffs at one of our largest employers while other businesses keep their employees home because there isn't sufficient work to do. Kimball has dozens of oil- and gas-related businesses. Combined, these businesses account for over 436 acres within our zoning jurisdiction; 380 of those are within our city limits. These are not oil fields and wells. These are businesses, offices, shops, work yards, and warehouses. They represent jobs, hundreds of jobs that sustain our community, jobs filled by blue-collar workers who call Kimball home and whose children attend our schools. These jobs are not provided by large corporations. Most are simply mom and pop shops that grew a business

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from the ground up. One of Kimball's businesses has seen their payroll decrease from \$1.5 million in 2014 to \$650,000 year to date in 2015. I am not against rules and regulations and, in fact, if you ask many people in my community they would tell you that I'm a stickler for rules and regulations. However, I do know that the Oil and Gas Commission is well regarded and that any changes that have or will have a negative impact on the oil and gas industry will dramatically affect life in Kimball. Our local economy will simply collapse and we will not recover from it for many years, if at all. I ask you to consider the effects these changes being proposed will have on communities in western Nebraska. We will not only have to contend with the loss of jobs and the quality of life our residents enjoy, but also the loss of property value. Thank you. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir. Any questions? Seeing none, next testifier, please. [LR247 LR154]

MARK CUTRIGHT: (Exhibit 14) Good afternoon. My name is Mark Cutright, C-u-t-r-i-g-h-t. I'm managing member of RTA Petroleum. We're a Denver-based oil and gas company managing \$50 million in investments, and we're hoping to turn it into \$500 million unless we go broke first. And one of our target areas is Nebraska. We chose and promoted Nebraska because the resource potential, as well as the ease of doing business in the state, and the reasonableness of the regulations. A little on my background: I'm a petroleum engineer with 35 years' experience throughout the U.S. and international. I'm a registered professional engineer. And more germane today, I serve as commissioner on Colorado Gas Conservation Commission, specifically, I crafted the rules that Senator Haar has been talking about. The rules turned out to be the standard that many states and countries use to base their own rules on. I used to question who is attacking the industry, because we have been under attack since early 2000s. And I used to accuse environmental groups. But in reality, I'm an environmentalist as well. I care about the air, the water, the food, the land, and all the natural resources that our great country has, so I am an environmentalist. The industry has been under attack. We've been attacked by the chemicals we use in our processes. We've been accused of contaminating water wells. We've been accused of using too much water in the oil and gas process. We've been accused of not notifying the correct people as wells are being developed or areas are being developed. And all in all, industry and regulators have responded with regulations to these barriers that have been erected and industry

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has found a way to not circumvent, but to get to maneuver around these barriers and to make it work. In all cases, it has cost the industry money. Now LR247, we currently had something similar last year which I testified against in Colorado, to change the commission makeup. And they wanted to take industry out of the commission. It failed in Colorado. A good portion of the work that the commission deals with involves engineering or geologic decisions based on experience with the technical understanding of what goes on below the ground and how best to access it. Political appointees and bureaucrats are not competent to adjudicate these technical issues that come before the commission. Next, on LR154, there are groups now attacking disposal wells. Let me make this one statement: If disposal wells are not permitted, this renaissance we're seeing in the oil and gas industry will die. The industry will die. Part of our product, we produce water and something has to be done with this water. Yes, we've heard from many people today about the regulations involved with disposal wells. It seems odd to me that Nebraska has a long history of water injection with over 500 permitted injection or disposal wells in the state today, classified as Class II. Over time (inaudible) counties to produce 473 million barrels of oil and over 2.7 billion barrels of water have been produced in this state and disposed of in this state and most of it in injection wells or disposal wells. All the points, in conclusion, all the regulations that I mentioned that have been enacted, they've all cost the industry money. And I challenge anyone to say where the harm has been done as far as did FracFocus, did chemical disclosure disclose any big, smoking guns? No. Did water well sampling disclose any big contamination issues? No. There has not been the problem that some people have been saying the industry has been causing. Thank you. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir. Any questions? Seeing none, thank you for your testimony. Next testifier, please. [LR247 LR154]

MIKE SARCHET: My name is Mike Sarchet, M-i-k-e S-a-r-c-h-e-t. First of all, I want to thank you for the opportunity, but I also want to state kind of what an amazing process this is. For those of you that didn't have an opportunity to be involved in this process in very early spring when there was a great deal of misinformation and concerns going about, I applaud our state senators for rapidly getting educated on the process, moving to try and help the state resolve this process. And I think we need to realize how unique that is. With our "Unicam" system and with our contact, regular citizens like myself have an opportunity to work directly with our state

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senators, get involved in the "Unicam" process, and facilitate meaningful change for the people in Nebraska. I come with a little bit different approach than what you've heard so far. I see this process as providing great opportunity for the state of Nebraska, for our "Unicam," and for our natural resources. I've had an opportunity to talk to Bill at the commission and as a geologist--my initial degree was in geology in Colorado--I have to tell you that the first hour and a half I spent with him on the phone was enlightening to me because that's the first real professional geology that I'd really gotten to compare with another geologist since I started teaching public school in Scottsbluff over a 30-year career. He was extremely helpful, did a great job of educating me, offered all kinds of resources, and brought me up to date. But as I went through that process, I still had a large number of concerns as to what's going on. I think there is an inherent problem in having an Oil and Gas Commission that we want to promote and facilitate oil development and at the same time also protect our next important resource, water. But I think within the state we have the answers in place. I don't think we need to resolve commissions. I don't think we need to increase a new facility type. I think, if we look at it, I think there's maybe some answers that a creative "Unicam" can deal with. You know, we have three organizations: we have the Oil and Gas Commission; we have our NRDs; and we have our NDEQ that have professionals that serve our state well. I think the ideal answer is that if we involve all three of these in resolving these water issues on Class II water injection wells. I think it could be a combined process to where the Oil Commission makes a recommendation for or against a permit, allows the local NRD to review it with their concerns in mind; request the NDEQ to review it with their expertise. And between those three entities, then come up with a decision as to what serves the state best. We have a unique state. We have a unique group of people who live in the state. And we have unique resources that need to be protected. I think as a government within our state we're capable of doing that. I think we have the professionals that can do that. I applaud your response to this point and hope that you can help us resolve this problem. Thank you. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir. Any questions? Seeing none, next testifier, please. Good afternoon, sir. [LR247 LR154]

KENDALL ATKINS: (Exhibit 5) Yes, especially good afternoon. I'm Kendall Atkins, K-e-n-d-a-l-l A-t-k-i-n-s, and I'm speaking in...against LR154 and LR247, especially as it pertains or might

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pertain to doing away with the Nebraska Oil and Gas Commission. My wife, Beverly (phonetic), and I have farmed and ranched northwest of Dix, Nebraska, since 1962. I am speaking to reaffirm the safety of injecting oil field wastewater into subterranean geologic formations in western Nebraska. In 1966, the East Simpson Unit of producing oil wells was discovered approximately two miles northwest of Dix and six miles northeast of Kimball, Nebraska. To date this field has produced 539,881 barrels of oil and 5,011,102 barrels of water have been injected into two separate injection wells to a depth of 5,900 feet below ground level. Part of our ranch lies within this production area and we have two conventional oil wells and one water injection well on our property. A producing well on adjoining neighboring land was unitized with our family's wells in 1986 and the neighbor's well was converted to an injection well in order to force oil towards wells on our property, in which both property parties share the production. All of these oil injection wells are about 5,900 feet in depth below the surface of the earth. In other words, they are well over one mile in total depth. The Nebraska Oil and Gas Commission in Sidney has overseen the permitting of all these wells, the division of all the production among the various owners of the mineral interests, and conducts rigid safety tests in accordance with Environmental Protection Agency. Incidentally, I just met one of their personnel while I was checking fences in early September, asked him what he was doing from the pickup. Said he was from the Oil and Gas Commission. He said he was making a periodic check that they had to make for the EPA. We have six domestic and stock water wells plus two irrigation wells within a two-mile radius of all these oil field wells, mostly pumping from the Ogallala Aquifer found at 100 to 250 feet below ground level. One stock water well is located 2,000 feet from an injection well and only 205 feet from one of the oil wells pumping oil and brine water to the oil treater which separates the oil from the water. The oil is stored in oil tanks and the water is recycled under pressure into the injection well to repeat the process. We have regularly consumed water from all our water wells, as have cattle, and I might add wildlife over the past 29 years, and we savor the clarity and high quality of our drinking and irrigation water. None of our crop nor rangeland has been lost to contamination during all of this time. From our long history of witnessing brine water being safely injected into the geology thousands of feet below the Ogallala Aquifer, we are absolutely confident that this practice in western Nebraska is beyond question. Thank you. [LR247 LR154]

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SENATOR SCHILZ: Thank you, sir. Any questions for Mr. Atkins? Seeing none, thank you for your testimony. Next testifier, please. [LR247 LR154]

WALTER TEHAN: Good afternoon. Mr. Chairman, members of the committee, my name is Walter Tehan, W-a-l-t-e-r T-e-h-a-n, and I'm the VP of operations for R. Lacy Services, Ltd. I'm a petroleum engineer by degree and a registered professional engineer. And I'd like to thank you for the opportunity to address the group today. R. Lacy is a privately owned oil and gas company, headquartered in Texas. We have a proven track record of responsible development in all the states in which we operate. Over the past two years, our company has invested millions of dollars acquiring tens of thousands of acres of oil and gas leases in western Nebraska with the hope of bringing significant new development to the area. The potential changes that are being discussed today have the potential to seriously impact R. Lacy's investment in Nebraska and the people whose jobs and royalties depend on future development. The NOGCC has provided regulatory stability for over 50 years. It is difficult for any company to invest in Nebraska without knowing who or what will be regulating its activities. We currently operate one oil well and one salt water disposal well into which we inject our produced water. It never leaves the well site. And our future development will be hindered or halted altogether if we are unable to move forward with some degree of regulatory certainty. And I'm familiar with agencies from other states and their personnel, and I have found the NOGCC personnel to be very professional and very knowledgeable about our industry. Technical and practical knowledge is vital for any agency to regulate in an efficient, fair, and effective manner. In my opinion, it would be a dire mistake to assign the NOGCC's responsibilities to other agencies that do not have the same level of expertise. Salt water disposal wells, they're vital to our operations. Without them we would not be able to produce most of our oil and gas wells. When properly designed and maintained, they pose no threat to fresh water supplies, as many people have already discussed. Nebraska's underground injection regulations have been approved by the United States EPA as well as other states. And Nebraska's regulations contain the same fundamental requirements as most other states. Without any real evidence of adverse health impacts, there's just no justification for burdensome regulations that could slow or prevent needed economic development, particularly in light of the valuable income that oil and gas development provides for the state of Nebraska. The idea that communities have to choose between affordable energy and a clean environment is patently false. We can have both and, in fact, we do have both. I urge you to allow the NOGCC

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to continue to do the job for which it was created, to regulate the oil and gas industry in a professional and fair manner that protects the rights and concerns of all citizens. The Oil and Gas Commission has done an excellent job in seeing that operators drill, complete, and produce wells in such a way that the natural resources of the state are protected and are developed responsibly. And we hope that they will be allowed to continue to do so. Thank you very much. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir, for your testimony. Any questions? Seeing none, next testifier, please. [LR247 LR154]

PATTY GOODSCHMIDT: Hi. I'm Patty Goodschmidt, P-a-t-t-y G-o-o-d-s-c-h-m-i-d-t. I am a Sioux County landowner and I'm south of the projected well. I am on the highway. You're talking about 40 trucks a day. But 40 trucks go up, but 40 trucks got to come back, so that's 80 trips on that little road. And I had someone tell us, well, if they get too much, pull over to the side of the road. There is no side of the road. There is no shoulders on that road at all; there is nowhere to pull over. When you meet big farm equipment you look for the first driveway to get off in to let the tractors and their equipment go by. It is not a road set up for high traffic. Our first water level there is 25 feet from the surface. Our first well was 16 foot, and when they put in a lot of pivots it went down so we redrilled a well. There's a 25-foot, a 40-foot, a 60-foot, and a 100-foot water level. The first truck that overturns along Spotted Tail Creek is going to take out two fish farms. That water is fed into both fish farms, then it runs into the Platte River. How long will it take to get contamination into those and take out their livelihood on those fish farms? You know, it's something we have to look at. The percolation is good out there and it's going to go down into our water table. Another thing, you guys keep saying it's just salt water. I've done a lot of research since January; there has been four or five wastewater injection well fires. Please explain to me how salt water burns. There is chemicals, there's toluene, benzene, these are combustible chemicals. We should have placards on those trucks. Wonder if our fire department knows what to deal with, what to look for if there's spills from these wastewater wells. The fires in Williston, Alexander, North Dakota; there's been a fire in Colorado; and there's also been a fire in Oklahoma. One was caused by a spark from a welder; two were caused by lightning; and I don't know what caused the fire in Colorado. I never did hear on that one. We have to know what we're putting in the ground. You know, there's a lot of chemicals. There's a list of 600 chemicals that

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can be used in frack water and there's also a way to clean frack water, because I have a friend that does that. She works for a company, but they don't want to pay the expense to clean the water and use it again for fracking. How much water could we save by recleaning the water to put back down into wells? Our farmers and ranchers have lived out there for generations and they are good conservatives; they take care of their land and soil. Please don't let this wastewater well ruin their livelihood. As Mr. Haack said, you know, he's fighting for his livelihood. He's been here 30 years. These ranchers have been here for generations and these farmers. So we ask that you not let wastewater come in from other states. As to Nebraska, I think we can handle our own wastewater. They have already reaped all the taxes off the oil from other states and we get the trash. I thank you for this time and if there's any questions... [LR247 LR154]

SENATOR SCHILZ: Okay. Thank you, ma'am, for your testimony. [LR247 LR154]

PATTY GOODSCHMIDT: Thank you. [LR247 LR154]

SENATOR SCHILZ: Any questions? Seeing none, next testifier, please. [LR247 LR154]

HAL McVEY: Appreciate the opportunity to speak. My name is Hal McVey, H-a-l M-c-V-e-y. My wife and I own a farm in Garden County, just southeast of Oshkosh. We primarily grow wheat, corn, edible peas; we annually produce about 8 million or 10 million pounds of food per year. In addition to our farming operation, one of our parcels contains a natural gas compression station that an oil company leases from us. In the not too distant past, all of our farm ground has been leased for oil and gas. We've had several wells drilled on our property, most of them being dry holes, just one well set production casing. Most of our neighbors in the southern part of Garden County recently have been leased. The impact of oil and gas revenue, particularly if you can establish production, is just a tremendous boost to family farms, individuals, obviously, to the counties, and the state of Nebraska through the revenue. I'm very concerned that the proposed changes and the radical change to restructure the Oil and Gas Commission would have an adverse effect on the oil and gas exploration here in Nebraska. I think the proposed changes will result in many companies deciding not to explore anymore in this state. And moving the commission hundreds of miles from the heart where most of the oil and gas is produced just creates more of a disconnect between the producers and the regulators. I'm not aware of any

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existing problems due to too little regulation. And I sense that the new proposals are just a fix for really a problem that doesn't exist. The proposed fixes simply add more layers of bureaucracy and do little or nothing to protect the surface, the groundwaters, or the environment. In fact, I believe some of the proposals are due mostly just as a ploy in which to grab power and to move that power over towards Lincoln instead of right here where most of the oil and gas economy revenue is derived. I'm going to shorten up a few of these things that have already been expressed many times. I just would implore you to look at something as far as a real fix if we have real problems, not just as a ploy to grab power and to move it down towards Lincoln. Appreciate your time this morning or this afternoon. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir, very much. Any questions? Seeing none, next testifier, please. [LR247 LR154]

ANN WARNER: I'm Ann Warner, a business owner and also a farm owner. I'm here in support of the Nebraska Oil and Gas Commission. My husband has dealt with the commission since 1982 and I personally since 1999. An example of one of the commission's oversights: We needed to plug a well a few years back. Price was about \$15,000 a well to plug them. We had difficulty getting down the hole the last 200 feet. We were already between 4,000 and 6,000 feet deep; just couldn't make that last 200 feet that was required. Due to finances, we pulled out, paid the \$20,000, and a few months reentered with a bit different procedure. Again, no success. The staff insisted we had to go the extra 200 feet. What a blow to us financially. The third time was a charm. We finished as the commission instructed and with them on site, and we paid out at least \$60,000 to the workover crews. The commission doesn't give anyone a break in the industry. You follow the proper rules or that's it. At the time I couldn't understand when you were already 4,000 to 6,000 feet deep how another 200 feet could make a difference. But they were not only protecting me from future lawsuits, but protecting the water for future generations. I believe a couple of the people on the committee who are trying to do away with the commission and run it through other departments are maybe, in part, trying to do it because of personal political gain. I understand your responsibility to protect our natural resources, but the part of the rules and regulations that specializes in overseeing the oil industry has been assigned to the Nebraska Oil and Gas Commission by the federal EPA. In more than 30 years, the commission has not been deficient in carrying out their duties. The Nebraska Oil and Gas Commission has proven

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themselves worthy of the responsibility. Do you really think that I would risk my children and my grandchildren's lives and well-being plus my own reputation to come here and testify in support of the Nebraska Oil and Gas Commission if I didn't believe that they were protecting our natural resources in the best possible way and with extreme efficiency? Thank you. I can answer your question: We have to do a \$100,000 blanket bond in Nebraska. If it had to go to \$1 million, I can guarantee you us little people with just a few wells that produce a couple of barrels a day there's no way. The industry in Nebraska would be done. [LR247 LR154]

SENATOR SCHILZ: Thank you, ma'am. Any questions? Seeing none, thank you very much for your testimony. Appreciate it. Next testifier, please. [LR247 LR154]

NANCY KILE: My name is Nancy Kile, N-a-n-c-y K-i-l-e. I am a homeowner and a landowner in Sioux County. Thank you. It is good to see lawmakers responding appropriately to citizen worry about the risks and hazards of toxic waste disposal. Please do reorganize the Nebraska Oil and Gas Conservation Commission for a more broad review. Modern science will provide better understanding of the human impact of waste disposal industries. We heard today that Nebraska's processes include federal funding. Please do include state historic preservation officers in the survey processes of waste disposal industries so that tribal historic preservation officers are involved in the collaboration of a formal survey of historic properties. Thank you. Oh, and by the way, I was born in 1958. I wasn't born knowing everything. I've learned a lot. And I think this commission can too. [LR247 LR154]

SENATOR SCHILZ: Thank you, ma'am. Any questions? Seeing none, next testifier, please. [LR247 LR154]

JOHN BERGE: (Exhibit 6) Good afternoon. Chairman Schilz, members of the committee, Senator Stinner, Senator Haar, a former member of the committee, thanks for coming out here and having this hearing. My name is John Berge. I am the general manager of the North Platte Natural Resources District in Scottsbluff. And I'm here today to offer testimony on behalf of our board of directors. The North Platte NRD has statutory responsibilities for ground water quality and nonpoint source pollution. The district does not regulate the disposal of wastewater via injection into deep aquifers. Wastewater disposal via injection constitutes a point source and in

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our view should fall within the responsibility of the Department of Environmental Quality. Nebraska Oil and Gas Conservation Commission currently has authority over Class II wells like the Laucomer well. But based on the information readily available on the commission's Web site, the commission has promulgated no rules, procedures, or information as to how such wells are regulated. Chapter 4 of the commission's rules dealing specifically with underground injection makes no mention of remediation. And the cleanup standards in Chapter 3 provide no assurance that the commission possesses the expertise or the will to take the necessary steps in the event of a surface spill or contaminant excursion into drinking water. DEQ, in contrast, has an established underground injection regulatory program and the staff expertise to oversee the environmental remediation that would be required in the event of an accident at the Laucomer disposal site. This NRD believes that the Legislature should transfer the authority over Class II injection wells to DEQ, and that the Legislature should ensure that DEQ is provided with the additional funding necessary to exercise that authority for the health and safety of Nebraska residents. The district is gravely concerned, absent any substantive oversight by a qualified regulatory body, the NRD will be left with the undefined, and more importantly for my purposes, the unfunded obligation to establish a baseline for aquifer water quality in the Laucomer well area, as well as the \$100,000 price tag for constructing and monitoring a well in the area to track changes in aquifer quality that may relate to wastewater disposal. The district has little confidence that in the event that chemical constituents were detected in such a well, the district would be able to rely on the Oil and Gas Commission to provide guidance in handling the situation. Moreover, the painfully small bonding that Terex was required to provide for the Laucomer well project would be completely inadequate to cover the cost of any surface or aquifer remediation such as may be needed in the future. The Oil and Gas Commission is to promote fuel exploration in Nebraska. And as a result, the commission, we believe, is ill suited to be the kind of watchdog agency needed to ensure Nebraska natural resources are adequately protected. Thank you for your time this afternoon. I'd be happy to answer any questions. [LR247 LR154]

SENATOR SCHILZ: Thank you, Mr. Berge. Any questions? Seeing none, thank you for your testimony. Next testifier, please. [LR247 LR154]

PHILLIP KRIZ: Mr. Chairman and members of the Natural Resources Committee, my name is Phil Kriz, that's spelled K-r-i-z. I'm a petroleum engineer with 30 years' experience working in

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Nebraska and 16 other states and six tribes. I currently work for the Evertson Companies, which are headquartered just to the west of here. And we're the second largest oil producer in the state. I have worked on injection wells, permitted injection wells in multiple states, and we have a track record in our industry. We handle 2 billion gallons of fluid a day. How many problems are you seeing out there? There can be all kinds of "if" problems. How many problems are you actually seeing? The UIC program works. There's 160,000 of them in the United States, 160,000; 650 in this state. They're very mechanically simple. It's got four layers of containment. And I went and took several senators out to go look at an injection well. We're injecting 1,300 psi in that one well, and if we had a leak--it's a noncompressible fluid--we would see it immediately. There hasn't been a problem. And so we can get scared about all these "what if" problems, but we have a program working in every state with 160,000 oil wells...injection wells working every day. There are systems in place. It doesn't have to be scrapped. That would be a huge mistake. Tell me, if a new landfill has to be put in and there's some complaints, you going to eliminate the DEQ? Complaints on a new feedlot, you going to eliminate the Department of Agriculture? We're just going to scrap an agency that hasn't had any problems? I understand that there's got to be...there are stakeholders and they're going to complain. There's got to be a process, and I'm all for that. But our industry goes and sits there and works on these wells every day. Evertson has ranches, we have irrigation wells, we have farms, I have employees living in my oil fields. And we don't have problems every day. You know, this system works. It doesn't need to be scrapped. If there's some minor tweaks, then work with the system and work with the Oil and Gas Commission. I heard that the Oil and Gas Commission has dropped the ball and they're not handling it. The Oil and Gas Commission is a part of the IOGCC, Interstate Oil and Gas Compact Commission. It's all the other commissions in the United States. And they work with each other to go sit there and help guide rules and do a better job. And Nebraska is a leader in that and a leader in the Groundwater Protection Council. Just recently, the director of our Oil and Gas Commission was given the top regulatory award in the United States for the oil and gas. Was he given the worst award or the best award? The Natural Resources Commission should be working and supporting the Oil and Gas Commission and be proud of the job that they do. They serve this state very well. Are there a whole bunch of spills right now? No. Are there a whole bunch of earthquakes going on? No. I wanted to also answer a couple of questions that were brought up and stuff. [LR247 LR154]

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SENATOR SCHILZ: Sir, real quick. Your light is on, so real quick. [LR247 LR154]

PHILLIP KRIZ: Okay. They wanted to know how much fluid goes and moves and how fast and stuff like that. Well, I am an engineer. If you inject 5,000 barrels a day in 80-foot sand, which has 30 percent porosity for ten years solid, it's going to go out 100 acres...100 acres. That's why these stakeholder circles are normally a half a mile. You can put a lot of fluid in porous rock and it doesn't go that far. So how long would it take to go 400 acres? Forty solid years. And in answer of maybe another question about as far as are we working on going and recycling water? You bet. There's about 20 different entrepreneurial processes that are being pushed across the United States to recycle water. Water is precious to all of us. These frack jobs take a lot of water and it costs a lot of money and there's a lot of people working on it. And so the amount of frack water waste is getting reduced dramatically in the next couple of years. But waters across the United States are different and it takes different kinds of processes. There's a lot of entrepreneurial pushes and there's going to be some winners and some losers on which processes that work. But our industry is working on that hard right now. [LR247 LR154]

SENATOR SCHILZ: Thank you, Mr. Kriz. Any questions? Seeing none, thank you for your testimony. Next testifier. I would like to say one thing before we get all done here, and we're going to go ahead and finish up everyone we have here. I know that earlier in the day there was somebody out there with a petition I think or something like that. That was in no way in coordination with this hearing at all. It's a private citizen that showed up to do that. We don't know where that came from; we're trying to track that down. But it's in no way in conjunction with this hearing or with the Natural Resources Committee or any of the senators here. Thank you. Please. [LR247 LR154]

JODI KEELER: Hi. Thanks for being here today. It's a great process and it's important that you hear from your people in the state. I am Jodi Keeler and I've been employed by a small family-owned exploration production company for over 31 years. I was asked to serve on the committee to review and rewrite the rules of the commission and that was about a two-year process. And as you've heard, there were public hearings. The rules went to the Governor, they went to the Attorney General and that is the process. There were two major changes in the rules: One was a bonding requirement. And, Senator Haar, I would like to also address your concern with the

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bond. We do have a \$10,000 per well individual bond and a \$100,000 blanket bond. In Wyoming, those range...the blanket bond ranges between \$25,000 and \$75,000. In Colorado, as you heard, a \$100,000 bond for 100 wells or more. So you can see we are within our neighboring producing states. The \$1 million that you were talking about is liability insurance; it's not bonding. We also implemented the reporting of frack fluids through FracFocus. We've heard talk about the pages and pages of rules in Colorado. And it's important for you to also understand that we don't have the same kind of development in Nebraska that we do in Colorado. There are lots of wells being drilled outside of cities and municipalities or within those cities and municipalities, horizontal wells. And so a lot of their rules deal with, you know, noise and effects of drilling operations and producing operations within those municipalities. Another thing that you questioned was the reporting of materials on site so that fire departments would know how to respond in the event of a fire. We do that through Tier II reporting under the SARA Title III requirements and that goes through the NDEQ. And we submit that information to the rural fire districts or all fire districts so that they know what chemicals they're dealing with on each specific location that has a producing well. We've also heard about the efficiency of the Nebraska commission, and I believe they are efficient. They're knowledgeable. They help the industry. They help the public. They help the landowners. Another thing I'd like to address is the benefit of the industry to our schools and the amount of money that's generated and paid to the state Board of Educational Lands and Funds. It received nearly \$1.7 million in oil and gas royalties from wells that produce on state lands and another \$.5 million from the sale of oil and gas leases at state sales. In the last two years, delay rentals, royalties, and severance taxes paid to the Board of Educational Lands and Funds yielded \$10 million to the permanent school fund. This doesn't take into account the tax benefit of personal property taxes and production taxes paid to each county with land gas production, nor does it take into account the rents and royalties paid to mineral owners in the state. Thank you. [LR247 LR154]

SENATOR SCHILZ: Very good, thank you. Are there any questions? Seeing none, thank you very much for your testimony. Next testifier, please. [LR247 LR154]

CHRISTY WARNER: Hi. My name is Christy Warner, C-h-r-i-s-t-y W-a-r-n-e-r, and I spent the first years of my life on a farm outside of town. We still own farmland we kept in the family for generations, but eventually my dad went to work for an oil company. He started as a laborer and

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worked his way up. In 1999, we bought Oil Field Pipe and Supply. As a small, family-owned business, we understand how crucial both farming and oil are. Without both, we cannot support our families, our communities, or our local economy. Our community receives economic revenue from those Wyoming and Colorado wells. I currently serve as a member of our city council and, therefore, my decisions affect people as a whole. As such, I look very carefully at all sides. I can understand why you guys are here to ask questions, but I also understand that if you've never lived in a rural community you have no idea to what level our accountability is to our communities. Having a commission locally means being able to look at what's going on in the field, not just on a piece of paper. It means the employees of the commission drink the same water, breathe the same air, and eat the same food we do. That has more accountability than those living almost 400 miles away. The staff at the Nebraska Oil and Gas Commission have been very helpful. I had to learn the ropes when I started working in the office. They always answer my questions, they correct me when I'm wrong, and they make sure that all the assets are in compliance. You approve the Governor's appointments to the commission. You already have the best people for the job. [LR247 LR154]

SENATOR SCHILZ: Thank you for your testimony. Any questions? Seeing none, thank you. Next testifier, please. [LR247 LR154]

JAMES WEBER: (Exhibit 7) My name is Jim Weber, W-e-b-e-r, I'm president of Coral Production. We've been an operator in Nebraska since 1986. We operate about 80 wells in the Nebraska Panhandle. I went through some of our company records, and I'd like to state that we recently paid \$110,254 directly to the counties of Kimball, Banner, Morrill, Cheyenne, and Garden Counties. This is for the taxes due on the production from last year. It's based upon...our average price received per barrel companywide from Nebraska last year was \$80.47. If you take the total amount of production from the state for 2014, it was 2,842,626 barrels of oil. That gives an informed estimate of...on a dollar value just for one year of \$228,746,000. Of that amount we can extrapolate from the figures we've paid, you're looking at \$3.5 million going directly to the counties. And as far as royalty payments, the royalty payments based on the statewide production and average price received was over \$34 million. The vast majority of the royalties go to Nebraska residents, which in turn are subject to your 5 percent state income tax. My company also has extensive operations in Colorado, Wyoming, and Kansas. And we have had a

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long...we've been under the jurisdiction of the Wyoming Oil and Gas Conservation Commission for our wells in Wyoming; we're under the jurisdiction of the Colorado Oil and Gas Commission for the wells in Colorado; and we're under the jurisdiction of the Kansas Corporation for our wells in Kansas. In none of these other states is there any impetus whatsoever to go from the oil and gas commissions to oversight by an environmental agency. One of the reasons for this is there is a competition among the states for the exploration dollar. For instance, right now my company is drilling three 6,000-foot wells in Cheyenne County, Kansas. The state of Kansas has a program whereby, with newly discovered oil, they give everyone involved, including royalty owners, the oil operator, and all the investors, an ad valorem tax holiday up to two years. This is not offered by the state of Nebraska and so the wells we're drilling are only six miles from the Nebraska border. And one of the reasons we decided to drill in Kansas rather than Nebraska is the ad valorem tax holiday and also the fact that we're not sure where this thing is going with the...the whole thing is in flux right now. Now we've been...we've had relationships with the Nebraska Oil and Gas Commission over the past 30 years. Before Bill as director we were dealing with Paul Roberts. We found the entire staff associated with the commission here in Nebraska to be extremely professional and knowledgeable and anything but a rubber stamp. And I'll just go through two items here. [LR247 LR154]

SENATOR SCHILZ: Well, sir, your red light is on, so very quickly. [LR247 LR154]

JAMES WEBER: Okay. Well, let me just make one statement before I leave. Right now the combined production from the United States and Canada satisfies all of our needs for both countries and allows a significant portion of the produced oil to be exported. This should be a time of celebration for the entire country, as we no longer have any reason at all to engage in Middle Eastern wars like we have in the past in order to assure our country of a secure oil supply. So in light of the amount of money generated by our industry, I just don't think it's a great idea to take a chance on killing what could be the golden goose. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir, for your testimony. Any questions? Seeing none, next testifier, please. [LR247 LR154]

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RENO RED CLOUD: Good afternoon. My name is Reno Red Cloud, Reno, R-e-n-o, Red Cloud, R-e-d C-l-o-u-d. I am the great-great-grandson of Chief Red Cloud who was born here on the Platte River in Nebraska. And I'm here today to give some public comment. Back in March I did come to the meeting and I did bring a letter to the Nebraska Oil and Gas Commission with signatures from two of our tribal presidents from the Rosebud Sioux Tribe and the Oglala Sioux Tribe. I am from the Oglala Sioux Tribe. Back then, still now, we are deeply concerned about the potential contamination that can be caused by this toxic wastewater in the well over by Harrison, Nebraska. Today I just wanted just to reaffirm our position, to give some comments. I work for the Oglala Sioux Tribe Natural Resource and Regulatory Agency. I am their water resource administrator, so I work with water on a daily basis. And on my previous experience, I worked with the Mni Wiconi Water Project in South Dakota which handles three reservations and nine counties. And our production wells for public water systems and private...I mean our rural water system, our water wells come from the Ogallala Aquifer. So the Ogallala Aquifer is a very vital water resource to us and our concern is any potential for contamination that, you know, we have a deep concern. And we'd like to see an environmental review process more focused on in the decisionmaking process with the Ogallala Aquifer's water resource management policies. So that's just my recommendation. Whether you take in consideration the other people in the region using the water, especially around the Nebraska-South Dakota border where our tribes are located, that our tribal populations rely on this water, because Mni Wiconi means: water is life to us, too, in the Lakota language. Thank you for listening to me. Thank you, sir. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir, for your testimony. Any questions? Seeing none, next testifier, please. [LR247 LR154]

JAMES ROWLAND: Good afternoon. My name is Jim Rowland, it's J-i-m R-o-w-l-a-n-d, and I'm an engineer. I've operated in the oil and gas industry my entire career, the last 30 years and 3 months, I believe, I've been working on a consultant basis for quite a few operators and have operated in 13 states from Alaska to Texas to Michigan to Utah. And in my humble opinion, I think this Oil and Gas Commission as it is now is as effective as any of those other commissions and most probably more effective than any of them. And it's because it already contains the IQ and the experience level that allows it to really operate. Most of the topics I was going to address have already been addressed, probably better than I probably could have. But it seems that there

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still might be a concern whether this commission was remiss in allowing waste from another state to be disposed of here. And I think it's pretty clear that the answer is, no. If you look at the constitution--I'm just an engineer, I'm not a constitutional expert--but if you look at the constitution, you'll find that there's some pretty specific commerce provisions there. And one of those provisions specifically prohibits a state from inhibiting or prohibiting interstate commerce. Interstate commerce there is defined as: exchange of goods and services. Then the question becomes whether waste disposal falls into that broad definition. And the answer to that question I think has been clearly answered already when a federal court stopped the state of New Jersey from prohibiting trash from being placed in a New Jersey landfill when the trash had been created in another state. And they prohibited that on the basis of interstate commerce concerns. I think it's really clear that this commission or any other agency in this state could have prohibited a commercial well from taking waste from adjacent states. And if you look closely--I'll try to hurry here--if you look closely, that's already being done among essentially all the oil and gas producing states. Wastes produced here have been disposed of in both Colorado and Kansas. Wastes from Colorado have been disposed of in commercial wells here and so on and so on. It creates a system that's efficient and there's really no legal basis for this commission to have prohibited that transfer of waste. So I believe it's pretty clear they have not been remiss in that responsibility. [LR247 LR154]

SENATOR SCHILZ: Very good. Thank you, sir, for your testimony. [LR247 LR154]

JAMES ROWLAND: Thank you. [LR247 LR154]

SENATOR SCHILZ: Next testifier, please. [LR247 LR154]

LOREN HOEKEMA: First of all, I'd like to thank all of you for coming out and making the long trip out to western Nebraska in some of your cases, we appreciate you doing that. You've heard a lot of stuff and I won't redundant all of that. My name is Loren, L-o-r-e-n, last name is Hoekema, H-o-e-k-e-m-a. I'm a petroleum engineer. I live in Sidney, Nebraska, so I drink the water from the Ogallala Aquifer also. I've been involved with the Nebraska Oil and Gas Commission now for probably close to 40 years, two directors, and numerous commissioners. I've always found them to be extremely professional and unbiased. They are just as tough on industry people as

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they are anybody else and they'll go to bat for a producer if they feel like they need to and he's been wronged. They'll go to bat for a landowner in just as much of a heartbeat if they feel like he's been wronged. I don't think the commission is swayed either way. I also want to entrust all of you gentlemen that what you need to work on are facts. You heard facts this morning. You don't need to deal with hearsay, you don't need to deal with emotion, you don't need to deal with knee-jerk reactions. You need to work on facts. You had a lot of expert testimony this morning from a lot of very intelligent people, and I would implore you that you consider that. As I stated before, I think the commission as it is works well. They're very professional. You've got some great people sitting down there in front of you, some extremely competent people. And as the old adage says, if it ain't broke, don't fix it. And in this case, I don't think it's broke. There was not one incident that came up this morning in all the testimony of contamination from an injection well. You didn't find one person that could come up here and say, we had contamination from an injection well, and I think you need to take that to heart. In other words, the system as it's in place now works. The road considerations and other things are probably valid, but I think those are outside of the scope of the commission with their current regulatory arena, if you will. At the hearing, the afternoon hearing which Mr. Sydow referenced earlier, I heard reference from the commissioners and from, I think, Mr. Sydow himself that they were shocked that the Department of Roads wasn't present that day. They hadn't filed a protest, they hadn't gotten involved in the process. The highway and roads would be their concern, not really the commission's jurisdiction; and I just wanted to bring that point home. I don't want to belabor the point, we've got a few more people here today. But I do want to say one thing: The commission is funded from taxes levied on oil and gas production, so they aren't dependent on the Legislature or the state for funding. And I don't know of any other agency where the director and the deputy director would drive hand-me-down vehicles left over from the field inspectors. If you want to think about that for a little bit and want to know the kind of people you've got running your commission, I think they're pretty good. Thank you very much. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir, for your testimony. Any questions? Seeing none, next testifier, please. [LR247 LR154]

BRYAN PALM: Thank you, Senators. I welcome you to western Nebraska. I really appreciate you guys coming out here. For those of you who may not make it out here, welcome. My name

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is Bryan, B-r-y-a-n, Palm, P-a-l-m. I am a father, a farmer, a rancher, a landowner, and a Sioux County resident. You have heard much testimony about this March meeting of the Oil and Gas Commission and reciting that and a lot of people testified in the morning session and a lot was said and a lot of opinions and a lot of emotion was discussed in the morning. And in the afternoon, everybody was told to disregard everything they heard that morning because it was irrelevant. And right then and there I thought, you know, this commission needs reformed. I don't know if it needs abolished, but it needs reformed. Nebraska is a agriculture state. Water is the most important and valuable resource to Nebraska. Oil and gas is not a close second. We need to protect our waters, we need to protect everybody from farmers to ranchers to citizens in town that drink our water. As I sat in the back of the line there and I heard everybody come up here and testify and I heard some guys from industries out of the state and how that if we increase our regulations on this they might not want to do business in our state. I'm saying, Senators, that you need to protect people already invested in Nebraska like us landowners and us taxpayers. Thank you. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir. Is there any questions? Seeing none, next testifier, please. [LR247 LR154]

BECKY McMILLEN: Good afternoon. My name is Becky McMillen, B-e-c-k-y M-c-M-i-l-l-e-n. I live in rural Scotts Bluff County, and I'm just one of many people across the state who think that we need to change the way that Nebraska is regulating and approving fracking waste wells. This hearing is about our future. It's about the health of our children and our grandchildren. It's about the health of our neighbors, too, because contamination doesn't stop at a state line. Fear is a great motivator to action, and I'm scared to death up here if you can't tell. Some people in this room fear a future without money and some of us fear a future without water. As I look around at the rapid development of mineral extraction through in situ and fracturing mining techniques and the large-scale dumping, pumping, and spilling of mining waste onto our lands, into our waterways and our aquifers, I'm afraid that the future that I fear is already here. We cannot change the past. We can do something about the future. It's clear that large-scale fracking waste disposal is causing problems in other states: earthquakes in Colorado and Oklahoma, spills in New Mexico, contaminated wells and aquifers in New York, Pennsylvania, and California. North Dakota, once a beautiful state, is a place that I don't want to live in or even visit. Many of those

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states have more stringent regulations than Nebraska does. Is it any wonder that oil and gas investors and energy powerhouse states are looking at Nebraska for disposal of their fracking waste? Nebraska is not an oil and gas powerhouse state and it should not be a waste disposal state. The Nebraska Oil and Gas Conservation Commission has done a good job all these years of developing and regulating the oil and gas resources in our state. They recently passed a scaled-back version of a commercial waste disposal well in Sioux County after a huge outcry from citizens of this state. They scaled back the application even though they did not consider public input, letters from lawmakers, or numerous resolutions from political subdivisions most affected by the presence of the well. I urge you and our lawmakers to include us, the citizens of this state, in the decisionmaking process and regulation for fracking waste disposal wells. We should have a seat at that table. Our natural resources districts should be involved along with NDEQ and NOGCC in updating regulations, approval of wells, and monitoring of fracking waste disposal. They should be funded appropriately to carry out that charge. The ability to protect our resources should not be dependent on funding from the very industry that they regulate. The North Platte NRD has already begun research into the monitoring of these types of wells, and I commend them and their locally elected board for taking a proactive approach to public concern about the possible contamination of our precious water. Nebraska should lead the way to a cleaner, healthier future. I'm asking you, on behalf of my grandchildren and yours. I'm asking you on behalf of my neighbors and seven generations of their grandchildren. We can do something about this right now, and we should. And will our legacy be about money or will it be about water? Thank you. [LR247 LR154]

SENATOR SCHILZ: Thank you, ma'am. And just for me and everybody up here, I'm sure, if that's your nervous... [LR247 LR154]

BECKY McMILLEN: That's my nervous. [LR247 LR154]

SENATOR SCHILZ: ...folks better watch out, because you're pretty good. Thank you. Great job. [LR247 LR154]

BECKY McMILLEN: Well, I'm okay with the mike, I'm just not okay with people staring at me. [LR247 LR154]

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SENATOR SCHILZ: Thank you very much for your testimony. [LR247 LR154]

BECKY McMILLEN: Thank you. [LR247 LR154]

SENATOR SCHILZ: Next testifier, please. Which one of you is staring? That's what I want to know. [LR247 LR154]

JANE SAYRE: Good afternoon. My name is Jane Sayre, J-a-n-e S-a-y-r-e, I'm here representing the Western Nebraska Resources Council. We're a protective group that's been working with all of these issues for many, many decades. And thank you so much for allowing us to be a part of the process, especially Mr. Stinner, Mr. Haar, and Mr. Davis. I'm here to represent the water. You've heard all these facts, you have your statistics. Nobody has brought this up. The fact is, we can't live without water. And when we go exploring outer space, what's the one first main requirement they look for? Is there water? Is it capable of sustaining life? Oil doesn't sustain life. That's not what we look for when we explore. Water is sacred. It is what gives us life, and without it there is no life. And that's the simple fact that I would like you all to keep in mind. We can't live on money, we can't live on oil. We have to have water to live and our water is sacred and it has memory. It remembers. And what we're injecting into the earth is not water. I think it should be reclassified as to what it is, which is hazardous waste. We wouldn't be here right now if that was the classification. I have nothing against the oil business, have worked in it myself. I have made some of those seismographs. Okay? I'm not against anything to do with exploration. I'm against pollution, so I'm here to ask for your help in protecting our resources, our precious Nebraska resources. And I do disagree with the gentleman who said that oil is our number one and water is our number two. Water is our number one resource and it's up to us; it's our responsibility to protect it. Thank you so much. [LR247 LR154]

SENATOR SCHILZ: Thank you for your testimony. Do we have any questions? Next testifier, please. [LR247 LR154]

JANE KLEEB: (Exhibits 8, 9, 10) Hello. Hello, Senators. My name is Jane Kleeb, I live in Hastings, Nebraska. I'm also the director of Bold Nebraska, a citizen advocacy group which you

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probably know us from the pipeline, but we have concerns on fracking waste as well. [LR247 LR154]

SENATOR SCHILZ: Ms. Kleeb, could you please spell your name? [LR247 LR154]

JANE KLEEB: Oh, yes, sorry. Yes, because that's good because it would be...doesn't sound the way that it is spelled. So Jane is J-a-n-e, Kleeb is K-l-e-e-b. So I have an article from ProPublica, which is being passed around to you guys. That actually has a lot of information and experts, I would say, on the other side of the coin from many of the experts that we've heard from this morning. So I hope that you take some time and read that. It will take you probably 15 or 20 minutes. We have previously submitted to the Oil and Gas Commission and we will submit to Laurie in electronic form 9,349 folks who've signed a petition against allowing fracking waste from other states coming into Nebraska. We submitted hundreds of testimony specifically for this hearing today. And in regards to the petition outside--I'm glad you brought that up, Senator Schilz--it seems that it was...well, the person we asked anyway, was from the corporation from Kimball. A lot of people signed it thinking that they were signing in for the hearing, so obviously that's distressing. If you get that petition, know that some people may have signed that under misleading pretenses. I was going to start by talking about a poll, but Senator Haar already described that. So the vast majority of Nebraskans clearly want to see fracking waste regulated in a different way. And so Bold Nebraska has some very specific recommendations that we're giving. One, the Natural Resources Committee and any other entity studying fracking waste should hear from experts equally on both sides of the coin. The Oil and Gas Commission will have their experts and environmental groups and water experts may be on the other side of the coin, and those should be heard equally. Two, we should not accept fracking waste from other states or countries. Three, the Oil and Gas Commission should serve as an independent trade association for oil and gas interests of our state. The commission should not have a formal role in any aspect of our government and no formal role in permitting or providing oversight to gas or fracking waste. You cannot promote an industry on one hand and then regulate it on the other. The Public Service Commission should enter into a rulemaking process for how fracking waste permits are approved. There should be things like full public disclosure of chemicals and ownership at the time of application, full chemical disclosure, not so a corporation can say that something is proprietary. There should be a comprehensive environmental impact statement that

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is conducted without conflict of interest, since we've seen many environmental impact statements done with a clear conflict of interest. That includes impacts on climate change, water, property rights, cultural resources, wildlife, tourism, and public health. That should also be submitted from reports from the Fire Marshal, the NDEQ, NRDs, as well as landowners in the area. I'll skip over some that I have specific recommendations, maybe I'll touch that in Lincoln since my time is up. But I wanted to say this: That we have a publicly elected body already. It's called the Public Service Commission. And Nebraska is a conservative state who likes to streamline government as much as possible. We should take this as an opportunity to streamline government. There is an inherent conflict of interest with the Oil and Gas Commission that is not in the public interest of Nebraska and that needs to be addressed with this body. Thank you.
[LR247 LR154]

SENATOR SCHILZ: Thank you, Ms. Kleeb. Next testifier, please. Oh, wait. [LR247 LR154]

SENATOR HAAR: Chairman. No, no, it's not a question. Did she pass out her talk or not?
[LR247 LR154]

SENATOR SCHILZ: If you could make your testimony available to the committee. [LR247 LR154]

JANE KLEEB: I did, and I will e-mail it to Laurie so everybody has it as well. [LR247 LR154]

SENATOR SCHILZ: Very good. Thank you. [LR247 LR154]

JOE SINGLETON: (Inaudible) Senators. Some pictures of our ranch that I took last evening. Although none of them are realizing that at this point in time, there's an oil well head on each one of them and one of them has an injection well on it. My name is Joe Singleton, J-o-e S-i-n-g-l-e-t-o-n. I have been dealing with the Oil and Gas Commission and oil companies my entire life. My grandfather did; my father did before me. We...our land contains the Singleton Field. We don't own all the mineral rights there, but we own some of them. And that field has been around nearly 70 years, with injection wells nearly 50 years of that time. We've had no problems, no injection catastrophes, all this kind of thing that all these people that really don't know very

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much about oil and gas and the production thereof are all worried about. Instead of a bunch of new legislation, it would be my opinion that maybe we should have a class to teach Bold Nebraska and some of these people what this is really about, because they obviously don't know from some of the things they've said. I hate to point out one specific group like that, but that was the one right before me, so. [LR247 LR154]

_____ : Yeah, right. [LR247 LR154]

JOE SINGLETON: I'll take you up on it, too. At any rate, my family has been here a long time. We have 1,000-plus dependents. Some of them are four-legged, cows, calves, horses, bulls. They've been there, they drink the water every day. So does my sons, my granddaughter, I, and my wife. Nebraska is a great place to live. I owned land in Colorado. I sold it in the '70s for the exact reason of excessive regulation on everything. We owned land up in the Rocky Mountains west of Fort Collins up where even in the '70s land was bringing \$200,000 and \$300,000. The first guy that made me an offer was \$4,500; I said, it's yours. Good-bye. Good riddance. And I don't even like to go into Colorado. We have too much regulation now. You know, we've got the DEQ out here with redundant, overlapping...and, you know, I actually had a DEQ manager tell me one time, this is not about making anything better, this is about telling you who's in charge. And that really, really rubbed me the wrong way. Those people work for us whether they like it or not. We are taxpayers, you know. The only time I haven't lived in Nebraska in my entire life was when I enlisted during the Vietnam War to serve my country. Everybody else was avoiding the draft. I went down and enlisted so I could serve my country. I love my country and I love Nebraska and I love my family. I don't see that we have any problem here that couldn't be handled before that. The one comment that I'd like to have made...it would have been really nice if we'd had a sign-up sheet here so we could sign in as we came this morning so that we would be on a docket to speak instead of just standing here for like hours, so. And a couple other questions that were asked, sir, should have been asked long before you were writing a bill about it. [LR247 LR154]

SENATOR SCHILZ: Any questions? Thank you. Seeing none, next testifier, please. [LR247 LR154]

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AMY SCHAFFER: Good morning. First, I would like to thank the committee for having a hearing and allowing us to speak. My name is Amy Schaffer, A-m-y S-c-h-a-f-f-e-r. I wholeheartedly support Senator Haar's and Senator Stinner's resolutions. I want to bring up my experience this morning walking in the door. I wasn't going to talk about that, but upon entering the school there was a line out the door to get in here. And I stood in line for ten minutes. And the rumor in the line was that we had to sign-in to get in. And not until I got to the door, about five people away, I asked this gal, I said, is this a sign-in sheet? And she said, no, it's for a petition for--she just said--oil and gas, to keep the commission. So then I looked and it says, the oil and gas industry is vital to the future of our communities. And so to me that's a red flag right there. There's plenty of folks from the oil and gas in this room today. And if that is a no-no...we don't get to do that at the State Capitol. You don't get to do that at the Public Service Commission. They should have said, you need to take down that booth. But nobody did, they just let them do that. And so to me, that's an example of them policing themselves. They are, they're just doing whatever they want. The second thing that I would like to...(applause.) [LR247 LR154]

SENATOR SCHILZ: Excuse me, folks. I'm sorry, no. Please, let the person testify. Thank you. [LR247 LR154]

AMY SCHAFFER: The second item I would like to bring up is the series of testifiers that I heard before from the Oil and Gas Commission saying, you know, it's easier to do business in Nebraska. That is also a red flag to me. We're a water state; we're not an oil and gas state. Then I want to briefly tell you about a story. I ran into a gentleman I hadn't seen for about ten years this summer and I said, oh, hey, Logan, what are you up to? And he said, oh, I'm down in Texas now. And I said, oh, where were you before? And he said, well, I own some fracking wastewater trucks. I had two of them and I recently sold them. I said, oh, yeah? I said, have you heard about what they're trying to do in western Nebraska? And he said, no. And he goes, well, I can tell you that water is nasty. He goes, anything that it gets on it kills. And this man had no political agenda, he was just candidly talking. And we've heard over and over that this water...there's nothing bad about it, you know, it's perfectly safe. Well, why are we burying it in the ground? And this gentleman that had a fracking truck, you know, says that it will kill whatever it lands on. And then I want to just briefly talk to some water facts supporting Senator Haar and Senator

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Stinner. UNL puts out an irrigation fact sheet. And Nebraska has 8.56 million acres of land under irrigation; that's the most in any state. Eighty-three percent of the water supporting this economy comes from aquifers. That supports that we are a water state. So why are we accepting waste from another state? That just boggles my mind. Secondly, if we are going to accept this waste, then we need to make sure that we have all of the information that we can as far as safety. We can look our kids in the eye and say, we knew all the facts, we did the best we could. And I think Senator Haar's and Senator Stinner's resolutions do that. I'm a mom. And, you know, the saying goes, when you make a decision look seven generations forward. I want to be able to look my son in the eye and say, we had all the facts on the table and we knew what we were doing. At the time it was the safest decision. So I think that their resolutions do that, and I ask the committee to go ahead and move forward with implementing their resolutions. Thank you. [LR247 LR154]

SENATOR SCHILZ: Thank you, ma'am, for your testimony. Any questions? Seeing none, next testifier, please. [LR247 LR154]

CHRIS PETERSON: Senator Schilz, members of the committee, my name is Chris Peterson, P-e-t-e-r-s-o-n, and I represent the Nebraska Petroleum Producers Association, which is our state's association of independent oil and gas producers; not the big folks who have long since left the state and no longer explore here, but the mom and pop operations, the smaller operations that you've heard testify in several instances before you today. First of all, let me say our members applaud the committee for being here today, as well as the other members who joined the committee, and also applaud you for extending the hearing and taking as much testimony as individuals here lined up are willing to provide. I would suggest that we've heard compelling testimony today on some very weighty topics, everything from ground water, of course, to earthquakes, economic impacts, Nebraska regulation versus other state regulation, and the effectiveness of the Nebraska Oil and Gas Conservation Commission. To try to keep my testimony short, let me just move toward the end and say, we believe that the commission is the right regulatory body to continue to effectively regulate the oil and gas industry in Nebraska. The track record of our producers when it comes to regulatory compliance is strong, if not outstanding. We believe that we wouldn't be here today if Terex hadn't filed that application for the well in Sioux County. In discussion with some of our association members, there's some question as to the economic viability of a wastewater disposal well at that location serving

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potential customers in Colorado. The trucking costs may not make sense. And so I would urge the Department of Roads not to run out and spend \$3.3 million tomorrow on upgrading those roads. Finally, again, let me just offer that our association, our members are more than willing to help the committee and serve individual members as you have questions and follow-up questions about these issues. We want to work with you to ensure that Nebraska remains a strong place to do business for the oil and gas industry, especially our smaller producers and especially to the benefit of our rural counties, especially here in western Nebraska, the benefit from those jobs and local property taxes that are paid. Thank you. [LR247 LR154]

SENATOR HAAR: I do have a quick question. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir. Senator Haar. [LR247 LR154]

SENATOR HAAR: Yes. Would your organization in any way support particularly Senator Stinner's contention that the roads ought to be somehow paid for out of this--maybe I'm not saying it exactly the way his bill is--but that somehow the repair and maintenance of those roads should be captured by the companies shipping in waste water? [LR247 LR154]

CHRIS PETERSON: Senator Haar, my members pay state gas tax, and so we contribute to the roads funds that are used to upgrade state roads and local roads. And so I would say on the one hand that we've done our part to fund those efforts. I would also say that there are numerous industries in this state that contribute to the wear and tear on the roadway and they, too, pay state gas tax. And so I think that the state has attempted to address those issues over time. And so my association would certainly be willing to engage in conversations about those issues, but I think that our starting point would be that we believe that in many ways those issues have been addressed through state policy already. [LR247 LR154]

SENATOR SCHILZ: Thank you. Any other questions? Seeing none, thank you for your testimony. [LR247 LR154]

CHRIS PETERSON: Thank you. [LR247 LR154]

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SENATOR SCHILZ: Next testifier, please. [LR247 LR154]

ROD HORN: (Exhibit 11) Good afternoon, Chairman Schilz and Senators. Again, welcome to many of you to western Nebraska. My name is Rod Horn, R-o-d H-o-r-n, and I'm the general manager with the South Platte Natural Resources District based out of Sidney. The South Platte NRD encompasses three counties in the southern portion of the Nebraska Panhandle. I am presenting testimony concerning LR154 and LR247. This interim hearing process resulting from the controversial oil field production water injection well in Sioux County and a fact focused review of the Nebraska Oil and Gas Conservation Commission's work, statutes, rules, and regulations is healthy for a better understanding by state legislators and the public. The South Platte NRD occasionally works collaboratively, shares the information with the commission. From our perspective, the commission has been diligent in its oversight of the oil and gas industry in administering and promulgating its rules and regulations. The commission staff is competent to do the work in this complex environment for Nebraska. The Environmental Protection Agency performs five-year audits and the commission submits annual work plans for review and quarterly reports to the agency. Agency representatives also frequently visit the commission office here in Sidney. Ground water is one of the most valuable natural resources in Nebraska. Within authority provided by the Nebraska Ground Water Management and Protection Act to natural resources districts, the South Platte NRD board of directors takes its responsibility for proper stewardship of this precious resource very seriously. The goal of the South Platte NRD districtwide Ground Water Management Rules and Regulations and its integrated management plan is to work together for the greater good of all citizens in the South Platte NRD to: one, maintain a sufficient water supply for use by present and future generations; two, maintain, enhance, protect the region's agricultural economy and the viability of its cities and villages; and three, promote the growth and economic activities while seeking to avoid adverse impacts on the environment. Senator Haar's LR247 to examine the process of eliminating Nebraska Oil and Gas Conservation Commission is perplexing. However, having natural resources districts mentioned in item number two in the interim study, while humbling, could have significant budgetary implications depending on the breadth and magnitude of the scope of responsibility that may legislatively be required to the districts. The district is confident in the commission's ability to manage all aspects of oil and gas production. However, if the laws are changed to increase districts' involvement in any responsibility-obligations related to injection

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wells for the protection of our natural resources with particular emphasis on creating the highest standard for groundwater protection, we respectfully request that adequate funding, increased budgetary authorities, and financial assurances are included. Thank you for the opportunity to testify on interim resolutions, LR154 and LR247. [LR247 LR154]

SENATOR SCHILZ: Thank you, Mr. Horn. Any questions? Senator McCollister. [LR247 LR154]

SENATOR MCCOLLISTER: Thank you, Mr. Horn, for your testimony. Your fellow NRD came up with a different recommendation. I can read the testimony that he gave us this morning. This NRD believes that the Legislature should transfer authority of our Class II injection wells to the DEQ and believes the Legislature should ensure that the DEQ is provided with additional funding necessary to exercise that authority for the health and safety of Nebraska residents. Would you care to comment on that, why the difference of opinion? [LR247 LR154]

ROD HORN: I think that's probably the beauty of the natural resources district system is that they're governed by locally elected officials. And if that's the position of the North Platte NRD, that's within their governing body. We're governed by separate elected officials and this is the direction that they desire to go. [LR247 LR154]

SENATOR MCCOLLISTER: Thank you, Mr. Horn. [LR247 LR154]

SENATOR SCHILZ: Any other questions? Seeing none, thank you, sir, for your testimonies. Next testifier, please. [LR247 LR154]

TOM BAKER: Don't shake your head to stare at me, please. I've been on that side of table many an hour. I'm Tom Baker, I'm from Trenton. I live northwest of Trenton. I live in the middle of an oil field. And I also chaired the Transportation Committee when I was in the Legislature, so I'd like to answer some questions dealing with the taxes. IFTA, International Fuel Tax Agreement, on these trucks is prorated...it's paid to the state, prorated back to the counties by mileage and so on. Plus, in our county, Hitchcock County--I think it's the top oil producer in the state of Nebraska right now--the county commissioners realize the value of the oil production to our tax

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base. It's tremendous. It's like a fourth of our tax base in Hitchcock County is oil valuation and personal property, meaning pumping units, tipping rods, and tank (inaudible). So they realize the value of oil to the county, schools, county government, and so on. In our case, when we move a rig, say, and the roads are torn up because we have to get a rig moved off a location or something, the oil company in many cases--and I've been a part of this--pay for the repair of the roads. It's understood. These oil companies, the county commissioners, also ask at times that we help build some roads into locations and some that require culverts and things like that. So it's a joint venture with the county commissioners when these counties that are so dependent upon...not dependent maybe, but it's certainly a large part of our tax base, so it works back and forth. And we have many, many examples of doing that with our county commissioners. So that's a little bit on the tax issue. The trucks that are coming in from Wyoming or Colorado, if they're licensed there, like I said, they have to have the IFTA stamp tax on it and that's prorated back to the counties by their mileage that they actually drive in the state of Nebraska. And it does go back to the counties. I guess I'm the wrap-up testifier. Is this the end? [LR247 LR154]

SENATOR SCHILZ: I hope so. [LR247 LR154]

TOM BAKER: This is the obituary? The facts are...and some of you have been out to my place. But I have a high-pressure pipeline that probably runs within 200 yards of my house, my front door. I have I don't know how many secondary recovery wells on our property. Yes, we've been blessed with oil production. That's how I actually got into this thing. It was on...we have wells on our property. Never have had any problem with the pipeline, never have we had any problem with injection wells. And I have a disposal well probably 100 feet from a stock well in the Bush Creek field. And anybody who would like to come out and witness any of these things, I've had no trouble with them. The first well drilled in Bush Creek, which is where I live, was drilled in 1961. It's still pumping; it's the big Charles Baker Number 1 and we have...as far as I can recall and my memory is not failing that badly, but I don't think we've ever had any problems with pipeline spills, injection issues, or anything whatsoever, so. I'd be glad to answer any questions. [LR247 LR154]

SENATOR SCHILZ: Thank you, Senator. Senator Haar. [LR247 LR154]

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SENATOR HAAR: As a former state senator, do you agree with the speaker this morning that said we're overpaid? [LR247 LR154]

TOM BAKER: You're overpaid? [LR247 LR154]

SENATOR HAAR: No, I'm kidding. [LR247 LR154]

TOM BAKER: I will say something about the Oil and Gas Commission. Overpaid? I don't...yeah, right. For those in the audience that don't know what you're paid, it's \$12,000 a year and it's a burden, isn't it? I understand. The Oil and Gas Commission, I believe the stipend is just \$40 per day. Is that correct? I don't think it's been changed. If you want to do something, it's rather hard to get people to serve on the Oil and Gas Commission, to be honest with you. It really is. It's a duty, I guess, that people feel necessary to fulfill and it's...although it's a bit of a problem. You might consider that. I'm certainly in favor of leaving the Oil and Gas Commission the way it is because...I am a bonded operator also. I have the bond, \$10,000 per well, and operate some wells. I'll tell you right now, when I walked in the office the other day I had a note MIT test due on a couple of injection wells I operate. They're due in October and I like to do them before they're actually due. But I was reminded again today that I've got to get those MIT, mechanical integrity tests, I need to get those tests run now. And the state doesn't treat me any differently than anybody else in the industry. I guarantee you, they'll make me...I'll have to fill out the form and they will witness it. [LR247 LR154]

SENATOR SCHILZ: Thank you, sir, very much for your testimony. Any other questions? Seeing none, thank you. [LR247 LR154]

TOM BAKER: Thank you for being here. [LR247 LR154]

SENATOR SCHILZ: And to everyone here today I want to say, thank you, on behalf of the committee for everyone that came, everyone that testified, and everyone that is involved with this issue. So just another quick note, there will be one more hearing that will be held on this issue that will be held in Lincoln, Nebraska, probably the first part of December. So if somebody didn't get anything that they wanted to there, that will be fine. And if there's anybody that didn't

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get any of their testimony that would like to, please send it to my office, Senator Schilz in the Legislature, and we will include it in the record. Thank you very much and have a great day and thank you for your hospitality. (See also Exhibits 12 and 13) [LR247 LR154]