[LR286 LR288 LR291 LR366 LR377]

The Committee on Natural Resources met at 9:00 a.m. on Wednesday, August 20, 2008, at Alliance Learning Center, Alliance, Nebraska, for the purpose of conducting a public hearing on LR291 and LR288. Senators present: LeRoy Louden, Chairperson; Tom Carlson; Mark Christensen; Annette Dubas; Deb Fischer; and Gail Kopplin. Absent: Carol Hudkins, Vice Chairperson; and Norman Wallman. Also present: Tom Hansen and John Harms. []

SENATOR LOUDEN: Well, good morning. We'll get this hearing started. Thank you all for being here today. My name is LeRoy Louden. I'm Chairman of the Natural Resources Committee, and I'll introduce the senators that are here today. On my left is Senator Deb Fischer from Valentine, next to her is Senator Tom Carlson from Holdrege, next to him is Senator Mark Christensen from Imperial, and on the end is Senator Tom Hansen from North Platte. To my right is Senator Annette Dubas from Fullerton. Senator Kopplin and Senator Harms had an emergency. Senator Kopplin forget to leave his keys with his wife, and if that isn't an emergency, I don't know what would be an emergency. (Laughter) So they will join us after a bit. The staff members here: Mark Ludwig is committee counsel, on my right; on the end is Barb Koehlmoos, committee clerk; and then Cynthia Monroe, administrative assistant for the office, is here with us today. (Phone rings) Uh-oh. Oh, okay. Yeah, you got to shut your cell phones off. As I said yesterday, I was at a conference and one of the senators from another state told me that the way he does it, that if your cell phone rings, it costs you a dollar for the Food Bank, and if you answer it, it's five bucks. (Laughter) So we may start something like that. Sounds like a good idea to me. Some of the guests and department heads we have here today would be Department of Natural Resources, is Brian Dunnigan, Ron Tice and Susan France; from the Department of Environmental Quality is Jay and (inaudible). [LR288]

BARB KOEHLMOOS: They're not here. [LR288]

SENATOR LOUDEN: They're not here. Okay. From the Attorney General's office is Jody Givens (phonetic) and Justin Lavene, and from the Game and Parks is our one and only Rex Amack. And with that, why, we will be get started on the hearing. Those wishing to testify on a resolution should come to the front of the room when that resolution is to be heard, and as someone finishes testifying the next person should move immediately into the chair at the table. The green sign-in sheets for testifiers are on the table by the doors, and they need to be completed by all people wishing to testify. Please complete the form prior to coming up to testify. When you come up to testify, give it to the committee clerk. Do not turn it in before you testify. And then please print; it is important to complete the form in its entirety. If our transcribers have questions about your testimony, they use this information to contact you. If you do not wish to testify but would like your name entered into the official record as being present at the hearing, there are white sheets for you to sign by the door. The list will be part of the official record of the hearing. As you begin your testimony, state your name and spell it for the record, even if it is an easy name. Please keep your testimony concise, and try not to repeat what someone else has covered. If there are large numbers of people to testify, it may be necessary to place time limits on testimony. If you have handout material, give it to the staff and it will be circulated to the committee. If you do not choose to testify, you may submit comments in writing and have them read into the official record. No vocal display of support or opposition to the resolution will be tolerated, and I'd also like to remind you that the purpose of the hearing is to gather information for the benefit of the committee. It is not appropriate to respond to what someone else has testified to unless a committee member asks for clarification. With that, we will start the hearing on LR288. And with that, we would ask for the first testifier, and I would ask that Lyndon Vogt...oh, wait. Do you want to introduce the thing? Good enough. [LR288]

MARK LUDWIG: I'll be brief. [LR288]

SENATOR LOUDEN: Good. [LR288]

MARK LUDWIG: Thank you, Chairman Louden and members of the committee. My name is Mark Ludwig, M-a-r-k L-u-d-w-i-g. I'm legal counsel for the Natural Resources Committee, and the first interim study we have up today is LR288. And the purpose of this interim study is to examine the causes and effects of water depletion across the state, and I might just clarify that for purposes of this interim study, when we're talking about water depletion for this particular study--we have another interim study tonight in Scotts Bluff, I think it's LR286, that deals with return flows and how return flows affect surface water irrigation, so that's to be distinguished from this hearing today, with respect to the difference between water depletion for context of this hearing, probably more so in the area of groundwater depletions. We're kind of looking for testimony that speaks to water table drops maybe that are occurring across the state and water level reductions that are due to decreased aquifer levels because of drought and pumping and issues like that. So some of the questions we're potentially looking for today is: Have domestic wells been adversely affected by water table drops across the state? Have increased rainfalls lessened any impacts? Is there anything to be learned from any statistics or studies that have tracked these trends with respect to water table levels and water table drops? And then, is there any evidence to show how recharge increases have affected water tables over maybe a period of time, as maybe the NRDs have been able to track over the years? And so I'm hoping we get some testimony today from the natural resources districts and others that can maybe provide some statistics and graphs and studies that have been done to show how water table levels have been affected across the state in dry years and wet years, and so forth and so on. And we may have some testimony from NPPD as well. But that's basically what the purpose of this interim study is. It's not to be confused with the interim study we have later tonight that deals specifically with return flows and how return flows may affect surface water levels. So with that,... [LR288]

SENATOR LOUDEN: Questions for Mark? Okay, thank you, Mark. [LR288]

MARK LUDWIG: Thank you. [LR288]

SENATOR LOUDEN: First testifier, please? [LR288]

LYNDON VOGT: (Exhibits 1-4) Good morning. My name is Lyndon Vogt, that's L-y-n-d-o-n V-o-g-t. I'm the manager of the Upper Niobrara White Natural Resources District in Chadron, and I was asked to supply you guys with some maps. So I believe you're going to get about four handouts. The first one is actually...the largest one, I should say, is a statewide map that shows the groundwater level changes in Nebraska from predevelopment to 2007, and the other three are just dealing with the Upper Niobrara White Natural Resources District. As you can see by the statewide map, we're sitting right now in the middle of our biggest decline area within our NRD in the Panhandle of Nebraska and Box Butte County. We do have a substantial decline in that area. We have a number of irrigation wells in our district. We have about...not quite 2,200 active irrigation wells, and of those 2,200 wells, approximately 1,600 of them are under an allocation. We're just finishing up our second year of a 16-inch allocation. You do have a map that's got...I was trying to narrow this down to about two maps for you, but they were so busy I couldn't quite do that. So you have a map in front of you that's got the blue and the green colors on it. The green is actually the fully appropriated area in our district that was designated in '04, and the blue is the fully appropriated area that was designated in '07. With that said, the fully appropriated designation has had very little effect on our district, mainly because in '03, our board had taken action to...we had put a moratorium districtwide for all new high-capacity wells. It was actually a year prior to LB962 becoming law. When LB962 was passed, it kind of made us start over on the project. We ended up having to hold another public hearing and reimpose the same moratorium a year later. That does make you popular when you do that twice (laugh), but we did have to do that and it worked out just fine. So as I said, because of our actions prior to LB962, the fully appropriated area did not have a huge effect on us. We...I believe DNR met on Monday and reviewed our IMP. We do not have an

approved IMP, but we feel we're 95 percent done with it. It's in DNR's hands and we're waiting for some comments back, and we don't expect that to amount to too much, because we have been working with them on that IMP for four years, since 2003. So I believe it's gone fairly smoothly in that process. The reason we put on the moratorium and requested DNR take a look at our relationship between groundwater and surface water flows in our district prior to LB962 is some concerns we had with Niobrara River flows and our declines, and as you can see on the statewide map, our declines actually don't go clear to the Niobrara River. We actually have a fairly wide strip along there where there's no wells, there's no water, there's no aquifer. There's actually an aquitard there, and we're lucky enough to the south of us to have a natural groundwater divide, according to Conservation & Survey, that we're not attached to the Platte anyway, so we're actually quite happy about that (laugh), needless to say. But regardless, we do have a substantial decline that we need to address. As I said, we're had a moratorium on new wells since '03. We have not let anyone at any acres since '04. We do not allow helper wells, so we do lose a few wells every year on the edges of our aquifer. On the north edge up in the Hemingford area, we lose one or two or three wells a year. We don't necessarily lose them; they get to the point where they're not efficient enough to irrigate anymore. They may drop down to a 250-gallon minute well, and those are being converted to dry land. So...and that's been going on for a number of years. With that said, the rest of our district is...you can see the map. The green and blue map also has our subarea. We have six subareas for management of our groundwater, and we broke them out because of the different geology in our district and the...as you can see, number one, is the Pine Ridge area, and we have very few...we only have 18 irrigation wells in that area, and they're all actually clear to the...the majority of those irrigation wells are clear to the eastern edge of that, in northern Sheridan County. The map shows three or four irrigation wells above Crawford, but that's actually deceiving. They are registered as high-capacity wells. None of those wells are used, and actually three of them have been converted to stock wells. So we actually have no active irrigation wells on the White River itself, until the last mile or two before it runs into South Dakota. And I know the White River does go dry every year. I should say every year. I've been

here seven years. It's been dry ever since I've been here. And I gave you a map that showed the surface water rights in our district and the groundwater wells in our district, and you can see that where we don't have groundwater wells we have surface water rights, and where we don't have surface water rights we have groundwater wells, if you overlay the two maps. And so...normally the White River goes dry at Crawford or shortly past Crawford, so it's just the upper reaches of the White River where we there's any flows in the summer, usually in August anyway. That is because of the surface water rights, the prior appropriation, how that works. The older rights use their water and that's how the system is set up. We have a similar situation on the Niobrara River. The Niobrara River normally does not go dry. We've had a couple of years where we've had some short stretches of it go dry. It's the same issue. Our older rights...and most of our rights on the Niobrara River are older rights. Most of them are older than the...I think there's only a couple that are junior to the reservoir itself. Most of them are older rights, and some of those rights have been replaced with groundwater wells in that area, too. We've got about 115 groundwater wells in that Subarea 5, and as you can see, that runs for oh, probably 60 miles of Niobrara River on our Subarea 5. So we are working with DNR currently on a triggering mechanism for controls in Subarea 5. The rest...all of our subareas, our triggers, are based on groundwater declines of when we require meters and when we go to allocation. In Subarea 5 we know that the majority of our wells are within a mile of the river or less, and we're working with DNR on some type of trigger mechanism based on surface water flows; and we're trying to take the effects of drought out of that and everything else, and that's pretty hard to do when you've been in a drought for the last 8 or 9 years. It's hard to get an average flow on the Niobrara River. With that said, we do have a lot of people that assume, because of the decline in Box Butte County, that we're affecting flows in the Niobrara River, and I assumed that too, prior to moving here. But in working with UNL and Conservation and Survey on a groundwater model, our flows coming into the state of Nebraska...I actually just converted these two last night to CFS, cubic feet per second. One CFS is 450 gallons a minute; most of you, I'm sure, are well aware of that. But coming into the state, we range anywhere from 1.5 to 2.5 CFS, coming out of Wyoming. Going out we have a

gauge south of Gordon, which is just a few miles from the Cherry County border, and our average there is about 75 CFS. And you can look back to the fifties and sixties to the day, and those numbers vary very little. There's...if we have a dry year or two, they might drop five or six CFS. If we have a wet year or two, they might go up. We're had some years where we've had 86 CFS going across, and we've had some years where we've had 68 or 69 going across. But our average is about 75 CFS going out of our district, and that's been very stable over the last 40 years. So we're very fortunate that our decline is not tied to our surface water. Some of the studies show that it may result in a 4 percent reduction in surface water flows. The last study that was done by UNL showed it could cause up to a 4 percent, but as I said, we're really not seeing any effects. So it is a localized decline that's affecting the people that live there. I heard your legal counsel say that you were interested in how it's affecting domestic wells and livestock wells, and it is affecting them. It's...we've had a number of domestic wells...I don't know that we have anybody that can't get water. The issue becomes is, they have to go deeper to water. One argument we hear a lot is, why are you even worried about it? We still have 350 to 400 foot of saturated thickness, and that's true in our deepest decline areas, where we're sitting right now. But it's not true on the fringes. As you get closer to the Niobrara River on the fringes, that's just not true. So we are having to go deeper with some of our domestic wells and some of our stock wells as well. We're very fortunate that the quality of our water is very good. We take between 800 and 900 water samples a year within our NRD, and the last three years our averages ran between 3.2 and 3.5 parts per million in nitrate, and I think we've had maybe three atrozine hits out of all of them, is all. So we don't test all them for atrozine; we just test a percentage of them. But we are very lucky in our quality, on the quality end of it. I know the city of Alliance is having some concerns right now with some arsenic issues that they're working with, but that's a naturally occurring substance that unfortunately is a problem right here. So I could speak a long time here. I don't know for sure where you guys would like me to go with this. You know, as I said, we have a little over 2,000 wells. I think as of right now all but about 100 of them are metered, and we have dollars to cost share on the remainder. We received a $300,000 Environmental Trust grant. We

metered most of Subareas 4 and 6 with that. The NRD used probably about $60,000 of their own dollars to assist in metering, and then we've...we got a grant from the Bureau of Reclamation this year for $100,000...for $200,000, I'm sorry. We had one year to use that $200,000 grant. We've got about $70,000 left on that grant that's available until the end of this year, which should meter everyone in our district that would apply for meters. So we are pretty much completely metered. We do in Subareas 4 and 6 in the...south of Hay Springs and the Box Butte area, we do read those meters annually. That's our allocation area, and we do send a report to every landowner saying, this is your well, this is your meter reading, and this is your use. Our average use...last year was our first complete year of metering. Our average use last year in Box Butte County was 15 inches, and our average use in the Mirage Flats in Subarea 4 was about 13.5 inches, which makes sense, because they had about 2 inches of surface water from the Box Butte Reservoir. That's also a surface water project. You see number six, kind of a box right in the middle of your map there, and the reason that's separate is because that is where the surface water...on that green and blue map, that's the Mirage Flats irrigation district, and that's where the surface water from Box Butte Reservoir is applied. So we do see a lot more variation in their groundwater levels and when we get a rain, they get twice the effect, because they're not only getting the effect of the recharge that falls on them, they're also capturing into the dam and applying it to their property. So we never had too much for declines in that area. Actually, from the late sixties to 1998 or 1999, we were still...they had gone up just a little ways and they'd come down a little ways, and they were still at the exact same point they were in about 1960. And the last eight years of drought have dropped them about eight feet. So we're hoping if we can get back to some normal precipitation that that Subarea 6 would actually come out of an allocation. It very well could; it's going to depend on our weather patterns. But as I say, Box Butte County has had a steady decline for...actually, since the late fifties. And we...I don't know that it's gotten worse; I don't know that it's gotten better. It seems like it's steadily been right at a foot a year, and we're hoping that...we know a 16-inch allocation is not going to stop that decline. We know 16 inches is not the answer. We had to start somewhere. We're most likely going to be at 16 inches for two more years, and then it

will probably go down from there. We're working with Conservation and Survey on...or UNL, I should say, on a model to show us kind of where (inaudible) decline would be and what that effect would have on our economy and on our producers. So...and one other...I was at a presentation at Chadron State College about a month ago, and there was a student had done a model, and he kind of showed that in 20 years there would be no one left living in Box Butte County, because there wouldn't be any water. And that's just not true. I mean, this is...the aquifer is not a bathtub, you know what I mean? It's not smooth on the bottom, it's not flat, it's not a perfect big, fat tub. It's...you know, in areas where we've lost our wells, our irrigation, we still have a lot of wells that pump 100, 150 gallons a minute. I mean, we still have water, but we're losing on those fringes. We don't have water for irrigation, to support the full pivot. And even if we go to allocation, we if we were to ratchet our allocation down to eight or ten inches, most likely, because of the (inaudible) of depression in our district we will continue to see declines for a number of years. We were actually...Conservation and Survey actually made the comment that if we would actually stop irrigation, we'd probably continue to see declines for up to five years for that to level out. So I think we're going down the right path. We get criticized for not doing something 20 years, and we get criticized for doing something right now. So I think our board feels they're headed the right direction. One thing I do want to point out, and I'm not using this for an excuse for my board not doing something sooner, but 15 years ago our board met with a number of geologists and hydrologists to address this issue. And actually they were told the best thing they could do was nothing, that the issue will take care of itself. And they're right--it will. It's just that instead of having 1,300 wells in Box Butte County, we might have 200. And I don't think that's something our board wants to see. I don't think that's something the state wants to see necessarily. But they were actually told...the feeling they worked under for probably 10 or 12 years was that the best thing we could do is kind of leave this thing alone. We'll lose a few wells, the water table will drop 30, 40, 50 feet, it will become too expensive to pump the water--it will take care of itself. And that's just not true. With the efficiency of the pumps we have today, you know what I mean, and we have--I hate to say it--but we have fairly cheap electricity (laugh), and the efficiency issue has not come into play. I mean, it just

hasn't, so our board decided that we're going to have to do this through an allocation, and that where we're at. So as I said, our IMP for a fully appropriated area is in DNR's hands, and we're hoping over the next couple of months to get that approved and move forward. And then actually the biggest...we've already certified all of our acres in our district. We have about 252,000 groundwater irrigated acres in the entire NRD. We have certified all of our acres except for about eight or ten people, and we've actually had contact with them and are working with them. We're just waiting for some maps and they're not in Subarea 4 or 6 (inaudible) an allocation. They're in a different part of our district, so by the end of the month, most likely we will be completely done. And even those eight or ten we're dealing with, we've got all their information. We're just waiting for either a map from FSA or a county assessor for them. It's a lot of work certifying those acres. We've worked with the county assessors on that as much as possible. We actually sent out...we sent a letter to every producer with what the county had for their taxed irrigated acres, and if they agreed with it they could sign it and send it back to us. If they didn't they had to bring us an FSA map that showed their actual acres. And actually 95 percent of them were within three or four acres, and the ones that were off are usually off quite a ways. But it's gone well. So if you have any questions, I'll be happy to answer them, or if there's anything else you'd like me to address. [LR288]

SENATOR LOUDEN: Questions for Lyndon? Senator Christensen? [LR288]

SENATOR CHRISTENSEN: Thank you, Chairman Louden. Lyndon, what's your average rainfall up here? [LR288]

LYNDON VOGT: Our average is probably right at 14 inches. [LR288]

SENATOR CHRISTENSEN: Okay. Has your board considered forcing meters, to make sure that you don't lose that grant to finish off the meter. They're a great tool for management. Being a producer myself, I realized once I had them, they were a great management tool, and some people don't realize that till they have to. [LR288]

LYNDON VOGT: Yeah. Actually, the area that we have the handful of wells that are not metered are required to have them on by March 1 of 2009, and so they can either take advantage of the cost share or not take advantage of it, but if they don't have one on by March 1, we will file a cease-and-desist order and they will not be able to irrigate until they put one on. So we've....and we've done direct mailings and radio ads and everything we can to try to get them to take advantage of it, because if we don't use it, we're going to have to send it back anyway, you know, and we'd just as soon see it spent in our district, so. Yes? [LR288]

SENATOR CHRISTENSEN: Okay. Thank you. [LR288]

SENATOR LOUDEN: Senator Harms. [LR288]

SENATOR HARMS: Thank you, Senator Louden. Are you in the Ogallala aquifer? Or are you on the outer fringes of the aquifer? [LR288]

LYNDON VOGT: Actually, the aquifer kind of comes right to the south edge of Alliance, right here where we're sitting, and it's...we don't have a tremendous number of wells in the Ogallala. Most of our wells are in the Arikaree, you know, which is a part of the Ogallala, I guess. But it's actually... [LR288]

SENATOR HARMS: Well, what aquifer are you in? [LR288]

LYNDON VOGT: What's that? [LR288]

SENATOR HARMS: What aquifer are you in? [LR288]

LYNDON VOGT: Most of it is in the Arikaree. [LR288]

SENATOR HARMS: Okay, and how deep is that aquifer, and how much...what's the sum of water that you think you might have captured in that? [LR288]

LYNDON VOGT: You know, I can't tell you how much water is in that. We have...in our deepest areas in our district we have between 350 and 400 foot of saturated thickness. [LR288]

SENATOR HARMS: What research do you have available that shows, on an average, how much that drops per year? [LR288]

LYNDON VOGT: We have about 120 wells that we take water levels out of every spring and fall, and we actually have them broke out by subdistricts within those six subareas, the wells that we're measuring. And so we've been doing that since...actually, Conservation and Survey, I believe, started doing some of that in the late fifties, early sixties, and we took it over in, I think, 1975. [LR288]

SENATOR HARMS: How much has it dropped then, do you know, as an average? [LR288]

LYNDON VOGT: Per year? [LR288]

SENATOR HARMS: Per year. [LR288]

LYNDON VOGT: Our average...in Subarea 6, where we...in the Box Butte County area, we've dropped right at a foot a year. [LR288]

SENATOR HARMS: A foot a year? [LR288]

LYNDON VOGT: One foot a year, yes. [LR288]

SENATOR HARMS: Okay. How about the research in regard to how that aquifer actually recharges itself? Because that's what it all boils down to, is the real issue. [LR288]

LYNDON VOGT: Right. [LR288]

SENATOR HARMS: Does it recharge? Does it not recharge? How fast does it recharge? Is it like a sponge and it's very slow, or will this area end up like part of the aquifer in, you know, the Ogallala aquifer down in Texas,... [LR288]

LYNDON VOGT: Yeah. [LR288]

SENATOR HARMS: ...where they drained it so low that it couldn't recharge, regenerate, and... [LR288]

LYNDON VOGT: Right. We have very minimal recharge. Our recharge is from a quarter to one inch a year. Part of it is because of rainfall, part of it is because of our soil type, and part of it is because of our depths to water in our aquifer. [LR288]

SENATOR HARMS: So in a long term, if you look at it, and kind of stay in the condition that we have here, we would have a serious problem, you know, anywhere from eight to ten years, if what you have captured in that aquifer...I mean, how long will it take us, at the rate we are now, to be in a position where we have a serious problem here. [LR288]

LYNDON VOGT: As far as irrigation is concerned, yeah. Like I said, we do lose a few irrigation wells on the fringes every...not a lot, but two or three or four every year. I think that's probably...from what we see in working with Conservation and Survey on that, we're probably going to continue to lose a few of those wells, but the last data they showed us is the majority of our wells probably have a hundred years of water left. And to be perfectly honest, we don't like to promote that issue, that we have 100 years of

water left. We would more like to address it that it's an issue that we need to address now, not in 30 years or 50 years. [LR288]

SENATOR HARMS: How do they determine that? We going to hope that they're right. [LR288]

LYNDON VOGT: (Laugh) [LR288]

SENATOR HARMS: So that's what my question is: How do they actually determine that, because when you look at the Ogallala aquifer, they will tell you you've got 100 years of water there. [LR288]

LYNDON VOGT: Yeah. [LR288]

SENATOR HARMS: But when you talk to some other scientists, which I have taken the time to do, water scientists will tell us...will also tell you, you know, there may only be 50 years,... [LR288]

LYNDON VOGT: Right. [LR288]

SENATOR HARMS: ...because the issue is the recharging, regeneration, and how much we're pumping out of there, and the fact we've not had the right kind of policies and rules to control this across the state. So I think that in the long run, it may be more serious than what we're saying today. [LR288]

LYNDON VOGT: Sure. I'm not trying to play down the seriousness of it. I mean, we have a serious issue, our board is aware of it, and we need to address it. We've been having quite a few informational meetings throughout the district to try to educate our producers. You're going to hear from an individual tonight that we work with promoting "no till" that's average irrigation use is around ten inches. You know, we know we have

a problem. We need to address it. The issue becomes is,...I think the issue my board struggles with is, how much of an economic impact do we want to have today, you know what I mean, in going to maybe an eight-inch allocation or six-inch allocation, because that will have a serious impact on not only Box Butte County but sugar beet industry, to be quite honest with you, is some of our biggest concerns. But it is an issue that into the future, we're going to have to get below...We're not going to be able to fully irrigate our crops. There's no doubt about that. I know I visited with...when Mr. Osborne was a congressman I visited with him numerous times about why we do not have subsidies for low water use crops. You know, why does the federal government encourage high water use crops in a semi-arid desert, and we live in a semi-arid desert. I mean, that's the bottom line, and so we're kind of...I would like to work with our senators and congressmen on trying to get some changes at the federal level on farm subsidy issues, dealing with lower water use crops, past a certain rainfall line. [LR288]

SENATOR HARMS: Well, thank you. [LR288]

LYNDON VOGT: Thank you, Senator. [LR288]

SENATOR LOUDEN: Senator Carlson. [LR288]

SENATOR CARLSON: Senator Louden. Lyndon, to start with, you used terminology that I'm not familiar with and you kind of alluded to it with Senator Harms. What did you call the process of losing a few wells a year? I think you gave a term to that when you started. Maybe I just missed it. [LR288]

LYNDON VOGT: I'm not sure. I don't think I used the word attrition, but I mean...I don't know what word... [LR288]

SENATOR CARLSON: Well, at any rate, you were talking about you naturally lose a few wells a year. [LR288]

LYNDON VOGT: Right. [LR288]

SENATOR CARLSON: But you lose a few wells a year because of the 12-inch decline in the aquifer. [LR288]

LYNDON VOGT: That's exactly right. [LR288]

SENATOR CARLSON: And so I don't think you meant this, but it almost sounded to me like part of your plan is, we're going to lose a few anyway. But that's not part of your plan; that just happens that way. But do you have any idea, in talking about water available in the aquifer, how many acre feet, a foot a year, would represent? Now I got a reason for asking. [LR288]

LYNDON VOGT: Over our total acres, you mean? How many... [LR288]

SENATOR CARLSON: If the water level is dropping a foot a year, how many acre feet does that represent? [LR288]

LYNDON VOGT: I don't know. [LR288]

SENATOR CARLSON: Maybe you don't know. But to me, it looks like one of the ways of attacking this or looking at it, to get to a point of sustainability...now I may not have the definition of sustainability totally correct,... [LR288]

LYNDON VOGT: Right. [LR288]

SENATOR CARLSON: ...but in my mind the first step would be, at least get to a point where we're not using more than we've got available. [LR288]

LYNDON VOGT: Right. [LR288]

SENATOR CARLSON: Well, that would be in that foot. So if we got to a point where it's not going down, we're sustainable. [LR288]

LYNDON VOGT: Correct. [LR288]

SENATOR CARLSON: Now we're still not building it back up, which long term, I think needs to happen. But whatever the number of acre feet is that that represents, and you spread that out over the 2,200 wells in the county, that might give a little bit of help on what the allocation ought to be... [LR288]

LYNDON VOGT: Sure. [LR288]

SENATOR CARLSON: ...to save that much water. [LR288]

LYNDON VOGT: I agree with you. [LR288]

SENATOR CARLSON: Okay. [LR288]

LYNDON VOGT: I know exactly what you're saying. You know, like I said, we know 16 inches is not the answer for allocation. It's kind of...our board started at 16 inches as a way to kind of get everyone on board, get them used to the idea, and allow them to bank a little bit of water. And if they're using their full 16 inches and not banking water, it's going to be very harmful to them in the next...into the future, because you know, we don't know exactly where our allocation needs to be to sustain our aquifer, but we're assuming it may be down around that six-inch mark. [LR288]

SENATOR CARLSON: I lost my brain here for a minute, so if Senator Fischer would give me hers, that might help. [LR288]

SENATOR FISCHER: I doubt it. [LR288]

SENATOR CARLSON: Are your current allocations year by year, or you get 16 inches for a three-year period, or what? [LR288]

LYNDON VOGT: Four. [LR288]

SENATOR CARLSON: Four-year period. [LR288]

LYNDON VOGT: It's over a four-year period. [LR288]

SENATOR CARLSON: So you've got 64 inches in a four-year period. [LR288]

LYNDON VOGT: That's correct. [LR288]

SENATOR CARLSON: And so with that kind of an allocation, then conceptually, if I used 12 inches a year for three years--that's 36--I could use 28 inches the fourth year. [LR288]

LYNDON VOGT: That's correct. [LR288]

SENATOR CARLSON: Okay. Thank you. [LR288]

LYNDON VOGT: Yep. [LR288]

SENATOR LOUDEN: Senator Fischer. [LR288]

SENATOR FISCHER: Thank you, Senator Louden. Thank you, Lyndon, for being here today. You gave us a lot of information. I'd just like a couple of clarifications. You said

you have 252,000 irrigated acres in our NRD; is that correct? [LR288]

LYNDON VOGT: Two hundred fifty-two thousand, yes. [LR288]

SENATOR FISCHER: What percentage of that is of your total acres in your district? [LR288]

LYNDON VOGT: We have 4.5 million total acres. [LR288]

SENATOR FISCHER: All right. I'll figure that out later. [LR288]

LYNDON VOGT: (Laugh) And I don't have a calculator, so. [LR288]

SENATOR FISCHER: Okay. You also mentioned that the average is 75 CFS that go out at Cherry County. [LR288]

LYNDON VOGT: Yes. [LR288]

SENATOR FISCHER: And that that's been stable the last 40 years? [LR288]

LYNDON VOGT: Yes. [LR288]

SENATOR FISCHER: I didn't get the number coming in. What is that? [LR288]

LYNDON VOGT: It varies from 1.5 to 2.5; 1.5 to 2.5 CFS coming into our district. [LR288]

SENATOR FISCHER: And why don't you...first of all, has that been stable the last 40 years? [LR288]

LYNDON VOGT: It has been fairly stable, yes. [LR288]

SENATOR FISCHER: And why don't you give more? [LR288]

LYNDON VOGT: Why don't we get more from Wyoming? [LR288]

SENATOR FISCHER: Yeah. (Laughter) [LR288]

LYNDON VOGT: Well, there actually is a compact between Nebraska and Wyoming on the Niobrara River from the sixties that's never, ever been followed up on. Nothing has ever been done with it. We...as an NRD, we've sent letters to the Governor and the Attorney General's Office, and I think Senator Louden has seen a copy of one or two of those letters, and the past director of DNR we also sent a couple letters to at the same time. And alls we've ever been told is that it's being worked on, and we've been told that now for almost five years, so. [LR288]

SENATOR FISCHER: There's a lot of irrigation in Wyoming? [LR288]

LYNDON VOGT: There is, and with the commodity prices, there's starting to be a lot more. [LR288]

SENATOR FISCHER: Is it surface and groundwater irrigation? [LR288]

LYNDON VOGT: It's...most of it just going in now is groundwater irrigation. [LR288]

SENATOR FISCHER: And along what river? [LR288]

LYNDON VOGT: Along the Niobrara. The Niobrara River actually only starts just last Lusk, Wyoming, four or five miles. [LR288]

SENATOR FISCHER: Do you know how many acres are under irrigation in Wyoming? [LR288]

LYNDON VOGT: I do not. [LR288]

SENATOR FISCHER: Okay. Thank you. [LR288]

LYNDON VOGT: Yeah. [LR288]

SENATOR LOUDEN: Senator Kopplin. [LR288]

SENATOR KOPPLIN: Thank you. Clarify a little bit on banking water for me. It's always been an issue for me, because I don't completely understand it. [LR288]

LYNDON VOGT: Sure. [LR288]

SENATOR KOPPLIN: But the 16 inches, you use 12 so you build that up. But then you said it was a four-year period. Well, that's not really true. It doesn't disappear at the end of that four-year period, does it? [LR288]

LYNDON VOGT: We allow them to carry 80 percent over. The max they can carry...it's actually...the max we allow to carry over is 80 percent of our four-year allocation. So the max they can carry over is 53 inches. I think that's about 80 percent of 64. So if our allocation would drop to 12 inches or 10 inches, the max...if it dropped to 10 inches, just for easy figuring, the max they could carry over would be 80 percent of those 40 inches. So the max they could carry over at any time is 32 inches. So we do limit that, which is still a substantial amount of water. [LR288]

SENATOR KOPPLIN: Yeah, but that would still be, then, in a six-year period. They would still have the 16 inches, or roughly. [LR288]

LYNDON VOGT: At 12 inches it would be a three-year period. [LR288]

SENATOR KOPPLIN: Okay. [LR288]

LYNDON VOGT: At our current...yes, 16 inches. If we allowed them to carry over 53 it would. But you've got to remember, for them to carry over 53, they're pretty much not pumping for those four years, to do that. [LR288]

SENATOR KOPPLIN: Okay. [LR288]

LYNDON VOGT: You know...yeah. But we do...our rules and regs do limit the carry-over to 80 percent of what the four-year allocation is. [LR288]

SENATOR KOPPLIN: Okay. [LR288]

LYNDON VOGT: And a little bit easier way to think about that four-year allocation--we say a 16-inch allocation for four years--you could say it's a 64-inch allocation that they can use any way they want over a four-year time period, is what it is, so. [LR288]

SENATOR LOUDEN: Senator Dubas. [LR288]

SENATOR DUBAS: Thank you, Senator Louden. Thank you, Lyndon. What's the average carry-over? What's the average banking? [LR288]

LYNDON VOGT: As I said, our average use last year in this area was about 15 inches. So we had...I mean, our average was carried over about an inch. [LR288]

SENATOR DUBAS: They're not... [LR288]

LYNDON VOGT: Yeah, so...you know, with our rainfall...16 inches in Omaha would be a lot of water to grow a crop of corn. The consumptive use...the difference between the irrigation requirement between us and Elm Creek is seven inches, or seven inches' difference between Elm Creek and us, you know. So the 16-inch allocation for us is like an 11-inch allocation at Elm Creek, for our producers, for a fully irrigated crop. So yeah, the carry-over...we're going to see very little, very little carry-over at the end of a four-year period. [LR288]

SENATOR DUBAS: It's pretty difficult to bank water there. [LR288]

LYNDON VOGT: It is very difficult, yes. [LR288]

SENATOR DUBAS: Thank you. [LR288]

LYNDON VOGT: Yep. [LR288]

SENATOR LOUDEN: Senator Christensen. [LR288]

SENATOR CHRISTENSEN: Thank you, Senator Louden. Lyndon, basically you said your recharge was a quarter inch to an inch. If you've got 252,000 acres irrigated at 4.5 million, you've got 5.6 percent of your irrigated acres are irrigated. So basically, at a quarter inch you could apply 4.5 inches, and then to recharge to could apply almost 18 inches a year. Is that basically...am I understanding what you're saying? [LR288]

LYNDON VOGT: That is correct, if our irrigation wells were evenly spread across our district. [LR288]

SENATOR CHRISTENSEN: Correct. Yes. [LR288]

LYNDON VOGT: But they're not, you know what I mean, so. [LR288]

SENATOR CHRISTENSEN: Correct. [LR288]

LYNDON VOGT: But yes, that's...yeah. [LR288]

SENATOR CHRISTENSEN: I wanted to make sure I was...but you're saying there's a lot of your area has no underground water, so it's not contributing to that pool? [LR288]

LYNDON VOGT: That's correct. Actually, we have hardly any underground water in the Hat Creek Basin, which actually is clear up in the northwest corner of our district, flows into the Cheyenne into South Dakota. There's no groundwater up in there, and there's no groundwater in the White River area, either. I mean, there's...you're very lucky to get a (inaudible) well up there. A lot of those wells are on rural water system of some type, so that's correct. [LR288]

SENATOR CHRISTENSEN: Okay. Thank you. [LR288]

SENATOR LOUDEN: Senator Carlson. [LR288]

SENATOR CARLSON: Senator Louden. Under the Freedom of Speech Act (laugh), Republic record, I want to make a statement here, that I think that I'd encourage you to look into and any NRD to look into, and it hasn't been done, to my knowledge, at this point. But I don't care for the carry-over concept. I can understand a three-year carry-over, and then I think it ought to be wiped out after three years and we start a new three year. But one of the ways that I think that we could encourage that type thing to work would be if you come up with a creative plan to develop a cash fund, and if you got 16 inches for three years and 48 inches, and you get to the end of the third year and you've used 36, you've got 12 inches that you didn't use, that out of that cash fund you get some kind of a refund back, based on water you didn't use. There's an incentive not to use it, and there's an incentive not to carry it over. And long term, I think that could

have a positive impact on saving water and hopefully returning our aquifer to a healthy position. So I think that's a concept I'd like to see us study pretty seriously. [LR288]

LYNDON VOGT: Sure. I will take back to my board. [LR288]

SENATOR CARLSON: Okay. [LR288]

SENATOR LOUDEN: Senator Fischer. [LR288]

SENATOR FISCHER: Thank you, Senator Louden. Senator Carlson just handed me back my brain. I have a question on the carry-over. Do all NRDs use that? [LR288]

LYNDON VOGT: I cannot tell you. [LR288]

SENATOR FISCHER: Okay. Why do you use it? [LR288]

LYNDON VOGT: It's a little bit like what Senator Carlson said, only there's no cash involved. It's actually a bonus for not using that water. We allow them to carry it over. Our biggest concern was, if we don't allow any carry-over, we're encouraging to use it all that year, you know what I mean? So there has to be some type of incentive to not...either we drop our allocation to where you absolutely can't, you know what I mean, or there has to be an incentive not to irrigate. [LR288]

SENATOR FISCHER: Do you see a lot of the irrigators just pumping 24/7? Is it efficient for them to do that, with the prices that we have? I don't know anybody who's pumping unless they have to. Do you see people pumping if they don't have to, just because they can? [LR288]

LYNDON VOGT: We really don't. I mean, we used to see that, I'll be honest with you. But (laugh) not to make anyone upset, but as an NRD manager, the fuel prices have

kind of been our friend, you know? (Laugh) They have made people pay attention to how much they're running, you know,...not only as diesel fuel went up, but so has the electricity, you know. It went up pretty substantially over the last three to four years, on a percentage basis. [LR288]

SENATOR FISCHER: And fertilizer. [LR288]

LYNDON VOGT: Right, you know, and so just the overall economy has kind of forced everyone to take a look at their management practices, you know what I mean? And if we do have people operating like that, they probably won't be operating for long. [LR288]

SENATOR FISCHER: That was going to be what I was going to say. Do you see poor operators staying in business? [LR288]

LYNDON VOGT: We don't, you know? And the economy is going to...I hate to say it, but the economy is going to bring that more and more to the surface, I'm afraid. [LR288]

SENATOR FISCHER: Right. Thank you. [LR288]

SENATOR LOUDEN: Questions I have...excuse me. I'm going to ask a few here for awhile! (Laughter) When you talk about depletion in Box Butte County, and that's in the Arikaree, but as you get over into Sheridan County you're in the Ogallala aquifer over there; is that correct? [LR288]

LYNDON VOGT: Yeah. The southern...I wish I had brought a map that showed that. The Ogallala actually kind of comes right to the south edge of Chadron and then goes up into Sheridan County just a little ways. We have a few wells in Sheridan County that are in the Ogallala but not...in that whole southern half of Sheridan County we've only got...we only have about 40 wells, 35 wells. [LR288]

SENATOR LOUDEN: True. And what...I guess, well, the reason I know we're in the Ogallala aquifer because Jim Goeke with the university drilled wells right there were I live, and that's where is found it at 60 feet, is where the Ogallala was from the surface. [LR288]

LYNDON VOGT: Yeah. [LR288]

SENATOR LOUDEN: And we had a thousand foot of nothing but sand and water. Anyway, those areas there could have a different allocation than you have here in the Box Butte County. And are you planning on changing that so that right there...of course, that's the farming area in Box Butte County, and that's where you're pumping all the water. [LR288]

LYNDON VOGT: Yep. [LR288]

SENATOR LOUDEN: But nevertheless, are you going to have a different allocation in those areas that don't have the recharge rate, rather than those that are on the outer end here, as your red, green, and blue maps show? [LR288]

LYNDON VOGT: Actually, that's why we have the six different subareas, to be quite honest with you. That's the only reason we have six different subareas, is because the geology and the cropping types...you know, where you're at, it's mainly range. We have a few wells scattered in. We don't have any declines in that area. We're probably not going to go to an allocation there, you know what I mean, as long as we don't have declines. But that is why we broke our district up into six subareas, is so we could address specific issues within those subareas. And so the answer to your question is, yes. As we move into the future, we probably will have different allocations in those areas. Sixteen inches just...it kind of came about as, we had our water committee and we have, I think, an 18-member advisory committee, just people from the public that sit

on, and that's where that 16 inches came out of. We showed our average rainfall and our irrigation requirement for all of our crops, and the issue became...was let's start exactly where our rop requirement is for corn, and go down from there. [LR288]

SENATOR LOUDEN: Did that advisory committee, did they specify 16, or did they specify 14? [LR288]

LYNDON VOGT: Sixteen is actually exactly where that number came from. It was an average. Everybody... [LR288]

SENATOR LOUDEN: That's the reason I'm asking, because I talked to some people that were on that committee and they said, well, we were talking about 14, but when it came out from the NRD, it came out at 16. [LR288]

LYNDON VOGT: Yeah. That's absolutely not true. [LR288]

SENATOR LOUDEN: Okay. [LR288]

LYNDON VOGT: It varied from 5 to 24. The allocation request varied from 5 to 24, and when we averaged everyone's, we got to 16. But the reason it's at 16 is, as I said, we...before we went to that point, we actually showed the irrigation requirements for all of our crops in our district, and that's well below the requirements for potatoes and beets and alfalfa, you know what I mean? And it's about right where corn would be. [LR288]

SENATOR LOUDEN: Do you have any test wells out here, oh, like three or four miles east of Alliance? [LR288]

LYNDON VOGT: Yes. [LR288]

SENATOR LOUDEN: And is the water level dropping in those wells? [LR288]

LYNDON VOGT: Yes. [LR288]

SENATOR LOUDEN: And is that the reason...does Box Butte Creek still run? [LR288]

LYNDON VOGT: The lower stretches of Box Butte Creek run yet, but not...Box Butte Creek actually starts at about Hemingford and kind of makes a loop down...you know, crosses...what is it? Highway 2 out here just a little ways, and then runs into the Niobrara River. It does not flow in the upper reaches, no. It only flows in the lower reaches. [LR288]

SENATOR LOUDEN: And do you have... [LR288]

LYNDON VOGT: After...excuse me, Senator. It actually starts flowing about where it runs into Sheridan County. [LR288]

SENATOR LOUDEN: About where? [LR288]

LYNDON VOGT: About where it runs into Sheridan County. [LR288]

SENATOR LOUDEN: Okay. Do you have any explanation why that doesn't run as far back as it did before, I guess? [LR288]

LYNDON VOGT: Sure. We have a groundwater decline. I mean, there's no...that's... [LR288]

SENATOR LOUDEN: And that's mostly whether it's pumping or drought or whatever. But the... [LR288]

LYNDON VOGT: Right. [LR288]

SENATOR LOUDEN: But the groundwater has declined. [LR288]

LYNDON VOGT: That's correct. [LR288]

SENATOR LOUDEN: And with...you mentioned you tested some of your wells and stuff. You just test for nitrate? Do you test for arsenic in any of your wells? [LR288]

LYNDON VOGT: We don't. We...last year the city of Alliance was looking for some new locations for wells, so just to assist them, we tested for arsenic in our samples that we took within a...it was in a pretty wide radius, probably a 10- or 12-mile radius around Alliance, trying to help them find a location for municipal wells. But normally we do not. [LR288]

SENATOR LOUDEN: Would it be beneficial to the people, if the NRDs...is it hard to test for arsenic, would be my first question. [LR288]

LYNDON VOGT: It's not hard; it just takes money. And I actually can't tell you what...you know, a nitrate test costs us $2.50. A bacteria test we run in our office. They cost us about a buck-and-a-half, two bucks. We run them in our office. But anything else we have to send to a certified lab. Actually, our nitrate tests we do send to Ward Labs, but if we guarantee them over 500 samples they only charge is $2.50, so. [LR288]

SENATOR LOUDEN: I guess where I'm going with that questioning is, since they've put that down to what? Fifty parts per billion, you know, and changed it from 30...no, from 50 to 10, I guess. [LR288]

LYNDON VOGT: Yeah. [LR288]

SENATOR LOUDEN: Anyway, I was wondering if it would be beneficial if the NRDs

probably for quite a ways around, would test some of their wells. They wouldn't have to do it all the time, but to find out how much arsenic is actually in that water around there, so that when we have an argument when we go to the federal government, to maybe get this changed back up a ways, because I mean people have been drinking that water for a long time. It evidently isn't harmful. [LR288]

LYNDON VOGT: Sure. [LR288]

SENATOR LOUDEN: And I was wondering if there's something there that would help on that line, on the arsenic for these towns that are having so much problem with it. [LR288]

LYNDON VOGT: Yeah. You know, it depends on the cost of those, but we can, you know, we can do a percentage of our tests for arsenic. The reason I don't know what the cost is, the ones that we did for the city of Alliance, they actually paid...we collected all the samples and GPS (inaudible) plotted them for them on a map. But we didn't...they actually paid for the tests for them. [LR288]

SENATOR LOUDEN: Do you have the results of the tests? [LR288]

LYNDON VOGT: We do, yes. [LR288]

SENATOR LOUDEN: And did it show concentrations of arsenic any place, or uranium or anything? [LR288]

LYNDON VOGT: We didn't test for uranium. We did have some arsenic hits, yes. Some of them above the...actually, a couple of them above the drinking water standard were in stock wells west of town, probably 8, 10 miles. East of town, I'm sorry. [LR288]

SENATOR LOUDEN: My next question is, how many of these domestic wells on farms

and ranches all over the country out here are above that level or drinking water? [LR288]

LYNDON VOGT: Yeah, it very well could be. I mean, we do encourage people to sample their domestic wells, and we sample a couple hundred domestic wells a year. We'll sample them for anybody that requests it. We'll do the nitrates and bacteria for free, and if they want to go beyond that, we actually supply them with a bottle and an envelope and everything to send a sample in, either to the Department of Health or Ward Labs. [LR288]

SENATOR LOUDEN: Okay. Senator Dubas. [LR288]

SENATOR DUBAS: Thank you, Senator Louden. What's the highest water use crop you have in your NRD? [LR288]

LYNDON VOGT: Probably alfalfa. [LR288]

SENATOR DUBAS: Okay. What's your lowest? [LR288]

LYNDON VOGT: Probably wheat. [LR288]

SENATOR DUBAS: I know most farmers just want to farm (laughter), they want to grow, they want to grow a crop, and then they'd like to make a little money when they do that. So I appreciate your comment, and I think it's part of the conversation that we haven't had enough, about how do we incent farmers to maybe look at alternative crops and provide a market access for them to plant crops that aren't as dependent on water and also allows them the opportunity to make a living on those crops? Is there much of that, looking at alternatives in these areas, or access to markets for those types of crops? [LR288]

LYNDON VOGT: Yeah. You know, I don't know if anyone from the university is going to speak on that today or tonight, but I know the UNL Research Center out of Scotts Bluff is doing some of that type of research up here. There are some oil seed crops, some rape and chicory and mustard crops that are being experimented with, that are pretty low water use crops. And that actually goes back to why we went to a four-year allocation, is it allows our producers to grow a wheat crop and maybe use six, seven inches of water one year and fully irrigate a corn crop the next year. And whether that's good or bad, I don't know, but that was our thinking when we went...to give our producers some flexibility, you know what I mean? And I don't know if we'll stay that way or not, but that's where we started, so. [LR288]

SENATOR DUBAS: Because I think the incentive is already there for us not to use water. Economically, we just can't. [LR288]

LYNDON VOGT: I think it is, too. [LR288]

SENATOR DUBAS: So now where can we put that incentive to either look at alternative crops that don't use as much water? You know, how can we encourage farmers to give them that opportunity to grow something and still make a living off of it? [LR288]

LYNDON VOGT: Right Yeah, and I know you're going to hear from an individual tonight that's just right north of town that we've worked with on doing quite a bit of no-till promotion that's using probably five inches of water less than our conventional till, even in corn production, so yeah. [LR288]

SENATOR DUBAS: Thank you. [LR288]

SENATOR LOUDEN: Okay. Senator Christensen. [LR288]

SENATOR CHRISTENSEN: Thank you, Chairman Louden. Well, Lyndon, are you

promoting any water-saving measures beyond allocations and things this direction? Because I know that's part of another study this evening, but I think we need to start on your level, even trying to find...just like you had a grant for water meters, we need to incentivize maybe (inaudible) and the drops clear to the ground. Maybe it's the tea tape. You know, there's a variety of things we can do to save us additional water. Are we trying to incentivize people to get them to do things? [LR288]

LYNDON VOGT: You know, over the last 15 years we've cost-shared on low-pressure drops, of course, going to pivots, and actually the last two years is the only time...we actually put between $25,000 and $30,000 a year into that and we have for quite a few years. And the last two years is the first time we ever have not used all of those dollars. And it's because most of our...most everyone is converted. Most everyone has gone to a low-pressure system. We are...actually next week within our CS we're touring our first subsurface drip irrigation system within our district. You know, those are very expensive systems. I'm sure I don't have to tell you that, and without...I believe they had 75 percent assistance through EQIP, through a federal program to install that. But...and as I said, we've...the last five years we've actively promoted some "no-till" operations and soil quality issues dealing with water-holding capacity of your soils. And we do have a cost-share system, too, for...and I know someone is going to talk to you about this tonight also, but...and I promise it won't be me (laugh), that actually...I can't think of the proper name, though. It's actually using soil moisture, you know, blocks to do their scheduling, and we cost-share on ET gauges, or ENT anemometers (phonetic) that actually mimic the evaporation, the consumptive use of the crops and stuff. And so we do have a number of them out there, too, that people are using. And we actually record them on a weekly basis and put them on our web site, so if their neighbors aren't using them, they can actually go onto our web site and see what the nearest ET gauge to them, what their crop water use was, based on that ET gauge, for the week. So we actually do...we put all that on our web site on a weekly basis. [LR288]

SENATOR CHRISTENSEN: Do you have any LIPA (phonetic) system out here, foot off

the ground? I've got one myself. I know the savings. [LR288]

LYNDON VOGT: I don't know. I can't think of one, let's put it that way, Senator. I'd be surprised if we don't have two or three or four out here, but I don't know if we are. [LR288]

SENATOR CHRISTENSEN: Okay. Thank you. [LR288]

LYNDON VOGT: You bet. [LR288]

SENATOR LOUDEN: Well, seeing no more questions, thank you, Lyndon, for your testimony. Appreciate it. [LR288]

LYNDON VOGT: Thank you. I appreciate you guys coming out to the Panhandle. [LR288]

SENATOR LOUDEN: Okay, how many wish to testify on this LR288? One, two, three. Three? Okay, come ahead, then. We won't start putting the time limit yet, then, if there's just going to be three or so. [LR288]

REED WELKE: (Exhibit 5) Thank you, Senator Louden and Natural Resources Committee. I'm Reed Welke, R-e-e-d W-e-l-k-e. I'm testifying on behalf of the Middle Niobrara NRD, and I have a written testimony but some graphs attached, and basically what I'm going to do is just have you flip to page 4, and I'm just going to go through these graphics and describe them. If you have any questions, you can refer to the written testimony, or if you want to look back, it's just another explanation of what I'm going to go through with you here now. So basically the graphs are surface water and groundwater related. What I've done is take five USGS gauging stations and run some linear regression analysis on them, and I've broken it down from the period of record for each of those gauging stations, as well as looking at potential significant diversions and

what effect that might have on the flows of the river. So the first graph you're looking at is Niobara gauging station near Sparks, and the regression analysis is that line that you see drawn with the data and the equation that is related to that, that Y equals, and there's a number next to the X, plus another number, and then R-squared value, and what that equals. What that means essentially, in that first graph, is that -1.6998 means that if that line represented reality, every unit over--which in this case is a year--every year over in forwarding time you see a -1.69 cubic feet per second decline in flows. And what that R-squared value means is how confident you can say that that is what is reality. The closer that number is to 1, the more confident you are with that actually the case. So what you have here is a decline of about...a little over 1.5 cubic feet per second every year, with very low confidence. Now the reason it's probably really low confidence, I mean, you can see, if you just look at the dots, that it looks like it's going down. But the reason there's really low confidence is probably because of changes in precipitation on a yearly basis. With any river system like this, you know, it's going to be very hard, unless it's really significant, to get a real straight line in a decline or an incline. So that is the entire period of record, from 1946 to 2007. Then what I've done on Graph 2 is look at that period from 1946 to 1963. The reason I chose 1963 as the cutoff date is because Merritt Reservoir was put in, in 1964. That's a very significant diversion that is upstream of this gauging station on the Snake River, and as you can see, from that when you run the analysis, it shows an increase or an incline of about 1 cubic foot per second per year, with a really low confidence level. So if there is anything, it's potentially an increase in flows, but at the very least, it's very stable. Now if you look at the third figure, from 1964 to 2007, that's after Merritt Reservoir was put in, you see that the incline is about, just slightly higher, 1 cubic foot per second, with a very low confidence, as well, but slightly higher than what it was before. So you're seeing a very similar trend post- and pre-Merritt, I mean, obviously with very low confidence. But if there is any sort of trend, it's either increasing or very stable. So it correlates very nicely with that reduction. I mean, the flow is less on that third graph, by about 100 to 150 cubic feet per second, on average, but the trend is very stable to potentially increasing. So what that really means is that on your high or low precipitation years, you know, you run the risk

of having a lower low, and probably not as high of a high as you would have had, you know, pre-Merritt. So that, you know, probably increases the potential for a low year. But the trend, which is the important thing, it's very stable to increasing. Now if you'd flip to the next page. [LR288]

SENATOR LOUDEN: Can I ask a question on this front page here? [LR288]

REED WELKE: Yes, absolutely. [LR288]

SENATOR LOUDEN: On Figure 2 and Figure 3, one is 1946 to 1963, and the other is from 1964 to 2007. How come on your graph you're up here at 800 cubic feet a second, and then when you get down in Figure 3, you start down here at 700 cubic feet a second? [LR288]

REED WELKE: Yeah. That's what I was talking about, the 100 to 150 cubic feet reduction in actual flows. The flows have gone down since Merritt Reservoir was in place, on average, by about, you know, 100 cubic feet per second per year. And that's what I'm saying. That gives you the potential to have a lower low year in actual flows, or you know, a slightly less high year in actual flows, and it's never going to be, I would doubt, as high as it was post-Merritt on an average. But the trend is showing very stable, although the reduction is there on an annual basis. It's just been reduced. [LR288]

SENATOR LOUDEN: Okay. Thank you. [LR288]

REED WELKE: Now on Figure 4 on the second page, we have the second gauging station in our district that has a good period of record is on Long Pine Creek near Riverview, which is toward the eastern end of our district. The first graph shows the period of record 1949 to 2007, and you see that Y equals 1.36, so about a little over 1 cubic foot per second increase in flows over the period of record for every year you go

forward, and the R-squared value, as you can see, is almost .6, so it's a lot closer to 1. This is the strongest R-value of any of these graphs. It means that quite likely, especially with seasonal variation in precipitation, that what we're seeing here could potentially be more than a coincidence, or just...unless precipitation is just continued on a steady incline for 30, 40, 50, 60 years. So there's something going on here probably, that is causing these flows to increase. Now you look at Figure 5. You have 1949 to 1963. The incline is one-tenth of a cubic foot per second and a very weak R-value, so it's basically saying it's straight line. No identifiable increase or decrease in flows over that time period. After 1963 to 2007 you have a Y equals 1.6, so about 1.6 cubic feet per second increase per year, and the R-value there is also very high. It's not as high as in that first graph, but it's...these are the strongest confidence levels that you'll see on any of these graphs I'm showing you, so it certainly indicates that something is going on here, I think, that is increasing flows that is different from what a normal variation in precipitation would give you. [LR288]

SENATOR CARLSON: Can I interrupt for a question before we leave these? [LR288]

REED WELKE: Yes, absolutely. [LR288]

SENATOR LOUDEN: Yes, Senator Carlson. [LR288]

SENATOR CARLSON: It's kind of easy to get confused here, but... [LR288]

REED WELKE: Yeah, if I'm going too fast just let me know. [LR288]

SENATOR CARLSON: That would be Figure 4, and then Figure 6. Those two look like the highest level of confidence in what you're getting here, of any of the graphs that you've got. [LR288]

REED WELKE: Yeah. [LR288]

SENATOR CARLSON: Okay, so Figure 4 looks like from 194-whatever to 2007, sometimes you read that Y figure there and you say 1.36 CFS. [LR288]

REED WELKE: Yeah. [LR288]

SENATOR CARLSON: It's really...looks to me like it's more like 90, an increase. [LR288]

REED WELKE: Oh, well, yeah. That just means that...the 1.36 means every year over, that is what the increase is. So yeah, over that many years, it would be close to 60, 70. The average now is 70 (inaudible)... [LR288]

SENATOR CARLSON: But from the forties to 2007, this graph shows about a 90 cubic foot per second increase. [LR288]

REED WELKE: Yeah, yeah. [LR288]

SENATOR CARLSON: Okay. [LR288]

REED WELKE: So the yearly average now, compared to 1949, is probably around 60, 70 cubic feet per second higher. [LR288]

SENATOR CARLSON: And you go down to Figure 6, and you're starting in '64, '65, from about 120 to 200, so about an 80 cubic feet per second increase over that period of time. [LR288]

REED WELKE: Yeah. [LR288]

SENATOR CARLSON: Okay. [LR288]

REED WELKE: And the significance of this, I believe, is that Merritt Dam, that diversion, the canal, all runs into this drainage, which is where all of the irrigation district water goes essentially. If there is any runoff from the surface water irrigation, it goes into this tributary, and it's also where we have our most significant groundwater irrigation as well. Now if you'll flip to page 3, these are...or the third page of the graphs, Figure 7, these are the downstream gauging stations that are not in our district but in Lower Niobrara's. This Figure 7 is Niobrara River near Spencer. It has a period record of 1920 to 2001. It was taken off line in 2001 and it has recently been put back on line, that has about 60 days of data. There you see about 6.4 cubic feet per second increase per year, with a pretty low confidence level, .2, .3. But the level of increase is higher, but then more than likely because there's a lot more water downstream and it's an adding stream, so you're going to a higher increase, more than likely; 1928 to 1963 on Figure 8, you see that the increase is greater at that time period, with higher confidence interval; and then 1964 to 2001 an even greater increase in yearly average, 15 cubic feet per second, and a fairly high confidence level, not quite as high Long Pine Creek. But if anything, it looks like flows are increasing or very stable in that area. [LR288]

SENATOR CHRISTENSEN: On Figure 8 there,... [LR288]

REED WELKE: Um-hum. [LR288]

SENATOR CHRISTENSEN: ...what's the missing figures there? [LR288]

REED WELKE: Those are years where they just...they don't have any data. [LR288]

SENATOR CHRISTENSEN: So it wasn't no flows; it was... [LR288]

REED WELKE: There was no data. [LR288]

SENATOR CHRISTENSEN: No data, okay. [LR288]

REED WELKE: Yeah. And I don't know if it went off line during that time, or the data was just no good and it's not on the web site. [LR288]

SENATOR CHRISTENSEN: [LR288]

REED WELKE: And you can see that in Figure 7, too. It's just a lot smaller gap. And you flip over to the next page, you have Figure 10, which is the gauging station just below Spencer Dam, near Verdel. And I just did one graph for this because it goes from 1939 to 2007, but from '39 to '59 there is no data. So you have '59 to '63, it's not really enough years to draw a line and have any sort of clue what's going on. But you can see the increasing trend with pretty low confidence levels. There's a lot of variation down here, and you'd expect more variation with higher stream flows. And if anything, though, it's stable to increasing. And Figure 11, I thought it was a good graph to show you. This is in South Dakota on the Keya Paha River, but up there this creek is not fed as much by groundwater as the Niobrara. It's a lot more intermittent and relies more heavily on rainfall, and so I think that, just looking at the points on the graph, shows you how much variation you can have in a stream like that. I mean, one year to the next...if it's a wet year you can go from 200 CFS to 50 CFS on average, depending on precipitation, primarily. Now you flip to the next page. I'll just go over some of our groundwater information and tie it back to the surface flows. Figure 12, this shows our long-term groundwater data in the district. From the 1970s we have 62 wells with data from somewhere in the mid-1970s to this year, and these are the average changes per county and then the district average over that time period in those 62 wells, or groundwater levels. [LR288]

SENATOR LOUDEN: Now when you say changes, is that dropping, or... [LR288]

REED WELKE: Those are all increases. [LR288]

SENATOR LOUDEN: Increases, okay. [LR288]

REED WELKE: Yeah, these are all from that time period to now. And you can see Brown and Cherry, almost no change whatever. It's been very stable. Brown, a slight increase, and Keya Paha 7 feet increase in that time period. And overall, district average is about 2.5 feet higher than what it was in the seventies. Now Figure 13 is those same 62 wells with data from 1996, 1998 to the current date, and all you see is negative numbers. Those are drops from...1996 is when we started doing biannual testing in all these wells, so 1996 essentially, till now. This is a drop in groundwater levels that we've seen in those same wells. Now that information is contained within the first graph, so those losses are reflected in the long term, as well. And what I think really sticks out about this is that Keya Paha County shows the greatest decline over the short term, but also the greatest incline over the long term, which seems to indicate extremely high variability. And I know the aquifer gets thin and it's more pocketed up there, so I'm not exactly sure, you know, what is going on. But it seems like a very volatile area as far as groundwater is concerned. You can see really high fluctuations from one year to the next, or potentially severe drops. And Figure 14 shows just levels in all of our wells. I have another county out of there, Rock, because we don't have any long-term data from that area of our district, but we have increased our monitoring efforts from those 62 wells; now we have 114 wells that we take biannual measurements at. And the changes from last year to this year, you can see Keya Paha was up over a foot from last year up in that area; Brown, Cherry, very stable, slight declines; Rock, about a half a foot decline; and then the district average is just slightly high, most likely affected by the well-over-a-foot increases in Keya Paha County. But I think that also, that short term there in Keya Paha County, shows how wildly that area can swing from one year to the next, where Brown and Cherry and Rock are a lot more consistent and stable from one year to the next. But how this ties into the surface water data, you can see over the long term we don't have reductions in groundwater levels. You do see yearly fluctuations and in some place they can be quite drastic, but over the long period of time really it's been

very stable. Our area is very stable, and you see that the only potential decline in our surface water flows in our district, as identified by the graphs and the linear regression, is more than likely explained by a large surface water diversion, and not...you couldn't really say that it has anything to do with groundwater pumping, unless we saw some significant declines in groundwater levels in that area. But we haven't seen that, and it correlates really well with the building of Merritt Reservoir and diverting that water to the Long Pine drainage, which has shown fairly significant increases in flows since that time. And that's also where...the majority of our groundwater pumping is where we have the biggest increase in flows in that drainage, so I think it's a very dynamic system, but it's very, very stable, as far as I'm concerned. It looks very good and I think we should be happy about that. I know I'm pretty happy about it. It's more positive than negative, that's for sure. You know, even though...from any of the analyses that I've done, it's hard for me to identify a real problem area or where we should be concerned at this point. We're still working with DNR and the other basin NRDs to examine the existing data that we have--seepage runs, monitoring wells, gauging station locations. We're trying to pull together all of our information, anything that's available and out there, and identify data gaps and see where maybe we want to put in new monitoring wells to further monitor groundwater levels, new gauging stations to fill in holes in our district, where we might be able to gather further information. We're also looking at putting data loggers down our monitoring wells so we can monitor groundwater levels on a yearlong basis, so it's not just twice a year, but you can see seasonal fluctuations and chart it out very nicely. We've also been working with the ELM project, and we've put in three new monitoring wells just last week, and they're wanting to do an aquifer test in our district to potentially identify...if there's any confining layers in our aquifer or how that might interact with stream flows. We're also...something we did recently, we went after LB701 funds to remove woody vegetation in the Minnechaduza Creek. We got turned down, so that won't be happening, but we did make an effort to remove some Russian olive and cedars along that corridor, which has become a concern. We are also certifying our irrigated acres in the district. Within a month after we were declared fully appropriated we had rules in place to certify our irrigated acres, and we've certified about 30,000,

35,000 acres right now, out of an estimated 110,000, 120,000 acres in our district. Districtwide, about, you know, 3 to 4 percent of our district is actually irrigated, so we're a pretty low development district, and I think that probably is the reason why we have very stable groundwater levels, surface water flows, you know. The fluctuations are primarily due to precipitation changes, I believe. With that, I will take any questions. [LR288]

SENATOR LOUDEN: Okay. Thank you, Reed. I guess one question I have on your Figure 13 and Figure 14, when you have the static water level like there, from 1990 to 2008, Cherry County has showed about...well, about 20-inch drop. [LR288]

REED WELKE: Um-hum. [LR288]

SENATOR LOUDEN: That's an awful lot of county there to find a 20-inch drop, and there's part of that county that I'm familiar with, and I'm sure it didn't drop, especially in the south. How did you arrive...how did they arrive at that figure of a 20-inch drop? [LR288]

REED WELKE: Well, that's average. I mean, there's places in the county that have increases; there's place in the county that might show a little more. [LR288]

SENATOR LOUDEN: But I mean you have wells all over Cherry County to test them with, or...? [LR288]

REED WELKE: Yeah. We have...oh, I think...I want to say 39 wells in Cherry County that we sample. [LR288]

SENATOR LOUDEN: Okay. I just wondered how accurate your information was for Cherry County. [LR288]

REED WELKE: It's...you know, actually, that's one of the...probably my biggest concerns as far as data gaps. Cherry County, there's a lot of space and there are certainly some areas where I know we could use more monitoring wells or...yeah, they could use more monitoring wells. The problem there is it's so sparse and sparsely populated, and the road system is very poor, that to actually get those wells in and functionally go out and test is very difficult, and I think that's probably why where is those gaps. [LR288]

SENATOR LOUDEN: Yeah, that whole Loup River headwaters there, surely the water level didn't drop in that, because that Loup River has run all the time. Okay, thank you. Other questions for Reed? Senator Fischer. [LR288]

SENATOR FISCHER: Thank you, Senator Louden. Thank you, Reed. You gave us a lot of information here. [LR288]

REED WELKE: Yeah. [LR288]

SENATOR FISCHER: You did a nice job in trying to explain it to us. To follow up with Senator Louden, can you tell me how many wells you have in Cherry County, registered or not registered, but with the monitor on them or not, that if you do a straight line through Merritt Reservoir, how many wells are there south of that? [LR288]

REED WELKE: Merritt Reservoir? [LR288]

SENATOR FISCHER: Which is about 25 miles south of Valentine. [LR288]

REED WELKE: Yeah, that we take samples at? [LR288]

SENATOR FISCHER: No, just how many wells are there? [LR288]

REED WELKE: Oh, boy! In our district I'd say there's... [LR288]

SENATOR FISCHER: Three? [LR288]

REED WELKE: Maybe. I know there can't be more than a handful. Of course, you know, that's close to the end of our...southern end of our district. [LR288]

SENATOR FISCHER: From the Niobrara River south to Merritt, if you do a straight line, how many wells are there there? [LR288]

REED WELKE: Just in Cherry County? [LR288]

SENATOR FISCHER: Yes. [LR288]

REED WELKE: Oh, there's several hundred, I think. [LR288]

SENATOR FISCHER: How many miles would you say from the Niobrara do you even see wells in Cherry County, irrigation wells? 20 miles from...well, that's too far for you. Ten miles from the river, either side, north or south, how many irrigation wells are there in Cherry County? [LR288]

REED WELKE: I'd have to...I would guess, you know, 300 to 400. That might be high. I think that's probably high, because the majority of them are all in Brown County. [LR288]

SENATOR FISCHER: And why are they in Brown County? [LR288]

REED WELKE: Soils, best soil and...yeah, more rainfall as well. [LR288]

SENATOR FISCHER: Why was Merritt Reservoir built? [LR288]

REED WELKE: To divert water to the best soils. (Laugh) [LR288]

SENATOR FISCHER: Okay. [LR288]

REED WELKE: And that's probably not the answer you're looking for, but (laugh)... [LR288]

SENATOR FISCHER: I'm not a very good teacher here. Merritt Reservoir was built for the Ainsworth Irrigation District. [LR288]

REED WELKE: Yeah, Ainsworth Irrigation. [LR288]

SENATOR FISCHER: And where is the Ainsworth Irrigation District located? [LR288]

REED WELKE: In Brown County. [LR288]

SENATOR FISCHER: Yeah, Brown County. Would you say that has the majority of irrigation in our NRD? [LR288]

REED WELKE: Yeah, by a long ways, both surface and groundwater. Most everything is in there. [LR288]

SENATOR FISCHER: On the map that Lyndon handed us in the four counties that you had mentioned--Brown, Rock, Cherry, and Keya Paha, it shows ground water changes. There really is very little in ground water changes. I see, if you look along the Niobrara, in mid- to western Cherry County, north and south of the river there's a small area. Is that consistent with your findings, where you see ground water changes when you monitor the wells? [LR288]

REED WELKE: Yeah, that's...I think...and this, you know, our information goes into the making of this map, as well as in with the irrigation district, and USGS, I'm sure. They...and it all... [LR288]

SENATOR FISCHER: But it does show some increases, doesn't it also? [LR288]

REED WELKE: Yes, an increase in Brown County area, and then Merritt Reservoir is where you see that big blob in the middle. But yeah, everything is fairly stable over the long term. There's not any changes to really speak of. Seasonal fluctuations are always going to be there. And we've been in the middle, you know, of a seven year drought. Looks like we've kind of popped out of that this year. [LR288]

SENATOR FISCHER: How's...you said we've been in the middle of a drought. How was rainfall this year? [LR288]

REED WELKE: In my part of the district it was definitely up. I know in Valentine it was up quite a bit. We had, other than Johnstown, we had more rain in July than we had in June. And I don't remember that happening for a long time. And August is already right up close to that. So about 3, 3.5 inches each of those months. [LR288]

SENATOR FISCHER: So probably 7 inches in June and July? [LR288]

REED WELKE: Yeah, right at 7 inches. [LR288]

SENATOR FISCHER: What's your yearly total of moisture in that area? [LR288]

REED WELKE: I know it's 17 to 20 inches, maybe, on a good year. But I think it's about 17.5 inches this... [LR288]

SENATOR FISCHER: And how's the Niobrara fed? [LR288]

REED WELKE: Ground water primarily. The vast majority of it is ground water. I mean when you watch the gauging station on a daily basis, if there's a 2 inch rain at the right spot on the Niobrara, I mean it will shoot flows up 200 feet per second for about two or three days. You shoot right back down and then it's fed by ground water and it maintains it throughout the year. [LR288]

SENATOR FISCHER: Do you know how the Platte and the Republican are fed? [LR288]

REED WELKE: I know they're...a lot more has to do with rain water and runoff. I don't know what the percentages are ground water fed to surface water, but I know it's a completely different system. It's definitely not anything like the Niobrara River. [LR288]

SENATOR FISCHER: Did you say our soil types are different than the Platte and the Republican? [LR288]

REED WELKE: Yes. I know they have soils that aren't nearly as permeable, you know. The Sandhills are great, water flows down through them quite easily and fairly quickly. You don't see much runoff. [LR288]

SENATOR FISCHER: Do you think it's fair when people compare the Niobrara to the Platte and Republican? [LR288]

REED WELKE: No, not really. It doesn't make a whole lot of sense. [LR288]

SENATOR FISCHER: Okay, thank you. [LR288]

SENATOR LOUDEN: Senator Carlson. [LR288]

SENATOR CARLSON: Senator Louden, figures 12 and 13 read, I think it would be interesting if on figure 12, each one of those counties you have the number of wells in the 1970s, and the number of wells then, on figure 13, today. That would be an interesting...because you've made a statement that long term things look good, and hopefully they do. But these drops, 1990s to 2008, it would still be interesting to look at the number of wells in those counties. [LR288]

REED WELKE: Yeah. And you know I've never ran numbers. My feeling is that they're probably very comparable to maybe even slightly less irrigation in our district now than there was in the 1970s. A lot of the wells that are registered, and they're still registered as active, haven't been irrigated since the boom and bust period of the mid-1970s. You know, so...and that's something we're trying to clear up with the certification process, as well as get exactly a handle on how many wells are really bumping, you know, where are there locations? How many acres are they really irrigating? And there has been a push as of late. You know, the moratorium scare got people a little riled up. Not riled up, but you know, slightly more irrigation going.... [LR288]

SENATOR FISCHER: Really riled up. (Laugh) [LR288]

REED WELKE: Slightly more irrigation now. You know there's been a push, and I think that's expected, especially with higher corn prices. Some people are getting excited about that. But, you know, I'm concerned about long-term sustainability of that anyway. So I...in our district, you know, where there isn't a whole lot of viable crop land, I just don't think we're going to see it level, get out of control by any means. But I definitely look at actual numbers and see (inaudible). [LR288]

SENATOR CARLSON: Okay. Thank you. [LR288]

SENATOR LOUDEN: Senator Hansen. [LR288]

SENATOR HANSEN: Thank you, Senator Louden. Reed, did you say...did you state that the Middle Niobrara NRD is fully appropriated? [LR288]

REED WELKE: Yes. [LR288]

SENATOR HANSEN: At what percent of your ground cover is irrigated, and you also said that's at 4 percent? [LR288]

REED WELKE: Yeah, 3 to 4 percent. [LR288]

SENATOR HANSEN: Three to four percent? [LR288]

REED WELKE: Yeah. [LR288]

SENATOR HANSEN: And those are the registered wells, and some of those aren't even used? [LR288]

REED WELKE: Yeah. [LR288]

SENATOR HANSEN: How many total wells are there in the NRD? [LR288]

REED WELKE: There's just over 1,000 irrigation wells. Total wells all together? [LR288]

SENATOR HANSEN: No, no, irrigation wells, pipe capacity. [LR288]

REED WELKE: Not...irrigation, just over 1,000. I haven't looked at the latest numbers. Maybe 1,100 registered irrigation wells. I think 900-and-some active registered irrigation wells. [LR288]

SENATOR HANSEN: So your fully appropriated moratorium covers the entire NRD?

[LR288]

REED WELKE: It's...there are some holes in it that aren't covered. There's a few pockets here and there. The vast majority of our district is covered. I don't know what the percentage is. I'd have to look at acres. But... [LR288]

SENATOR HANSEN: But you're saying now on this map that we have here that was passed out, is this in the middle, Brown? [LR288]

REED WELKE: No, that's...that would be Upper Elkhorn or Lower Niobrara area. [LR288]

SENATOR HANSEN: Okay. So in your Middle Niobrara NRD, you have hardly any depletion of the ground water? And your graphs point that out, too. [LR288]

REED WELKE: Yeah. [LR288]

SENATOR HANSEN: But yet you're fully appropriated and no new wells to go in. [LR288]

REED WELKE: Yeah. [LR288]

SENATOR HANSEN: Thank you. [LR288]

SENATOR LOUDEN: Thank you, Reed, for your testimony. Thank you for bringing that forward today. You [LR288]

REED WELKE: Thank you, Senator Louden. [LR288]

SENATOR LOUDEN: You may keep that map, if you wish. [LR288]

REED WELKE: I have one in my office. [LR288]

SENATOR LOUDEN: Okay, thank you. Next testifier, please. [LR288]

JIM SKAVDAHL: I want to thank you for the opportunity to address this many senators. I'm Jim Skavdahl. I've lived on the Niobrara River for 58 years. And we've (inaudible) we have four surface water rights, and we can't even get half of the allocation for those. [LR288]

SENATOR LOUDEN: Just a minute, Jim. Could I have you spell your name for the clerk, please. [LR288]

JIM SKAVDAHL: S-k-a-v-d-a-h-l. [LR288]

SENATOR LOUDEN: Thank you. [LR288]

JIM SKAVDAHL: The main reason that I want to bring to your attention that Senator Fischer brought it up. There is an interstate compact between Wyoming and Nebraska on the Upper Niobrara River which (cell phone rings)... [LR288]

SENATOR LOUDEN: Uh-oh. (Inaudible). [LR288]

JIM SKAVDAHL: ...which went into effect in 1963. To the best of my knowledge nothing has been done on...as far as the state of Nebraska side to comply with the ground water provisions of that compact. Are you familiar with that compact? [LR288]

SENATOR LOUDEN: Yeah. We ask the questions. But, yes, Jim, I have been working on it with the Department of Natural Resources. And wondering, for your information, wondering why something hasn't been done. And they were supposed to start doing

some negotiations. But go ahead with your testimony. [LR288]

JIM SKAVDAHL: Okay. I'm on the advisory committee for the NRD. And the NRD did send a letter to the head of the natural resource district. And when I...three months later when I questioned Ann Bleed, she said it was still sitting on her desk. So I don't feel like anything has being done in that area. And the compact is between Highway 29 and the state line. There is 12 wells, irrigation wells, on that...in that area. To the best of our ability, it's hard to pin it down, but there's between 110 and 170 at the headwaters in Wyoming. And the first of May, whenever they...the electric company turns on the meters and they...everybody starts irrigating, we can see a drop in the river. And we certainly feel like this compact needs to be visited. And the...the compact area is primarily the lower part of Niobrara County. And we're supposed to formulate a plan of enforcement once the data indicates it is necessary. Well, if the state of Nebraska has never collected any data or tried to comply with the provisions of that compact then here later on this river is going to dry up. And so that's my main concern here and what I wanted to testify to that to our knowledge nothing is being done. And we would like to see something. [LR288]

SENATOR LOUDEN: Okay. Thank you, Jim. Do you...yes, I've done some work on this. Do you know the names of some of the ranchers over on the Wyoming side? I mean are they large ranchers? Are you familiar with any of those people over there? [LR288]

JIM SKAVDAHL: Oh, just one ranch, Duck Creek Ranch, they have 16 pivots on it. [LR288]

SENATOR LOUDEN: Who? [LR288]

JIM SKAVDAHL: Duck Creek. [LR288]

SENATOR LOUDEN: Duck Fit? [LR288]

JIM SKAVDAHL: Duck Creek. [LR288]

SENATOR LOUDEN: Duck Feet? [LR288]

JIM SKAVDAHL: No, no. [LR288]

SENATOR LOUDEN: Who owns it? [LR288]

JIM SKAVDAHL: I think Larsen Feed Incorporated. They're a Nebraskan out of Scottsbluff. [LR288]

SENATOR LOUDEN: Okay. They went over into Wyoming and... [LR288]

JIM SKAVDAHL: Yeah. [LR288]

SENATOR LOUDEN: Okay. You say they have 13 pivots? [LR288]

JIM SKAVDAHL: Sixteen. [LR288]

SENATOR LOUDEN: Sixteen pivots. And are they just right across the state line or are they... [LR288]

JIM SKAVDAHL: Yep, they're right across the state line. [LR288]

SENATOR LOUDEN: Just right across there. Okay. And then in other words you don't what that NR...whatever they call themselves in Wyoming, there are no moratoriums on well drilling or anything like that? [LR288]

JIM SKAVDAHL: No, no moratoriums, no allocations, nothing, it's wide open. [LR288]

SENATOR LOUDEN: In other words, you'd have this line, Nebraska and Wyoming, and if you step over one foot here you can't drill a well, but you step over one foot here you can drill as many as you got money to buy, huh? [LR288]

JIM SKAVDAHL: Right. You know when the surface water started depleting well then we had to start drilling wells to supplement our surface rights to keep irrigating the acres that we always did irrigate on our side. But we're on the right track with the allocations, with the moratorium in Nebraska. The NRDs are doing a great job. But we need to force Wyoming to honor this compact. [LR288]

SENATOR LOUDEN: Okay. Thank you. Other questions for Jim? (Inaudible) irrigators and you get up into Wyoming in our country here, they're all worried about Kansas, they're not worried about us up here in Wyoming. [LR288]

JIM SKAVDAHL: We sent a letter to the Attorney General. And he sent a self-addressed envelope back with a pledge card, which for the next election. Which I think meant that there's not enough votes here to (laugh)... [LR288]

SENATOR LOUDEN: Well, I agree, Jim. And I think we do need to work on that. The discussion has been brought up with the Department of Natural Resources, because I've talked to Lyndon Vogt and some of those. And I've done some work on it. But, yes, it's going to be long and tough to get something going on it. But any other... [LR288]

JIM SKAVDAHL: Well, I just wanted to be on record that... [LR288]

SENATOR LATHROP: Okay, thank you. Any other testimony (sic, questions) for Jim? Seeing none, thank you for bringing that forward today, Jim. Next testifier. Do we have any? We got one more. [LR288]

CHARLES SKAVDAHL: (Exhibit 6) I'm also Skavdahl. My name is Charles Skavdahl. I'd like to thank the state for having these hearings and showing concern. Often times on this end of the state we're kind of left out. And I really appreciate the opportunity to talk. This is an emotional... [LR288]

SENATOR LOUDEN: Can you spell your name again for the clerk. [LR288]

CHARLES SKAVDAHL: S-k-a-v-d-a-h-l. [LR288]

SENATOR LOUDEN: And it's Carl? [LR288]

CHARLES SKAVDAHL: Charles, Charles. [LR288]

SENATOR LOUDEN: Okay. [LR288]

CHARLES SKAVDAHL: This is an emotional issue. And we're all going to beat the same horse until it's completely dead. I am a third generation rancher on the Niobrara River. I've lived on the river my entire life of 47 years, minus the 4 years I attended the University of Wyoming where I received a degree in farm and ranch management. My ranch is located east of Highway 29, probably 15 to 20 miles from the Wyoming border, and it would be hundreds of river miles. I've lived through the changes in the river in that time frame. I'm very familiar with it. My water right on the river is the Harris East Canal, and it dates 1892, and there's a junior right in 1932. And I'm not positive, I meant to check. I think it's 7.1 CFS. The important thing to me it's .98 on the meter flow, which would be as wide as this table and about 5 deep, it's quite a little bit of water. I have 150 acres of flood ground that is predominantly in alfalfa with a rotation of corn. I also have canals that irrigate between 250 and 350 acres of meadow if you count the high spots that water sometimes doesn't get to. I know this river and I love...it's not an understatement to say it is the life blood of my ranch. Now I deal with three basic problems. And we all know what the first one is, it's been the drought. It's been really

tough, and it's affected the river a lot. The other one, just upstream from me, that I border is the Agate Fossil Beds National Monument. It has about seven to ten river miles, it's only three miles long. And since 1960, when they developed that park, they haven't had any haying or grazing on the river through that area. It's become overgrown with cattails, Russian thistles grow in the summertime. They go in the wintertime, they blow into the river and they...it's worse than the beavers. There is no canal, there is nowhere for the water to go, so it just has created this large marsh area. The channel tries to maintain itself. If we have a wet year or a wet spring and it washes a road through there over the years several times for the (inaudible). And the channel has changed several times. But there is...in a few spots there is still good channel, but for the most part over half of that monument has no river channel through it. It is a national park. I've talked...years ago I'd give up. You know, you would ask why, and they would say, because, and they really don't have to do anything to maintain the stream flow through the monument. That's how the Park Service feels about it. That's natural, which it isn't. And then as Jim stated, as May 1, when the wells go on in Wyoming the water flow of my river goes to half. So what...basically how it lines up in the spring before it's hot, in April and up to the first of May, I get all my water right. When the wells go on in Wyoming, that goes in half, and that's my water right. After July, when the weather gets hot, the loss from the monument is another half. So I get a quarter of my water right. I've had to change my water uses. I irrigate further in the fall if the weather allows. And I have to...and I irrigate earlier every spring, which causes some erosion. Now just as a benchmark, and I know it's not scientific or anything, just for your information, to give you an idea, when I was a kid, like seven to ten-years-old, in the middle of the summer, for the most part, there was more water in the river when everybody was irrigating. This was in the middle of summer, in July, when we'd go tubing on the river, than there is now in the wintertime when nobody is irrigating. At that time, when I was a youngster, you could go fishing. And if it was a good day you'd catch your limit, but you'd always catch one or two nice trout. Today there are no trout in the river. There's chubs, there's a few crawfish, and some minnows. Now we first started experiencing this in the late to mid-seventies, when I was in high school. And at that time it became a concern. And my

dad drilled some irrigation wells. I do have ground water and I have to use that to supplement the water flow, and partially we run some side rolls on the side. So I'm on both sides of the coin, I use both. Earlier the guy from NRD said that there was no significant change. And my nephew has gathered some statistics. I apologize that we don't have copies for everyone. I'll give this to Senator Louden. It shows the acre feet per year. In 1956 it was 26.86, the statistical calculation for the whole year. In 1957 it was 39, in 1974 it was 39.79, in 1975 it became...it was 18.98. It's had a few bounces up to 23, 24 on wet years. But it's gone down ever since the...or stayed right in that level. And I think that if you would go back and research, that was when the first cycle that we're in right now, when commodities started becoming valuable, I bet you'll find that across that Wyoming border you saw several wells go in. Now in conclusion my concern and it's, you know, my instincts, and I've irrigated, I've lived on that ranch year-round most all of my life. I know it real well. I think you could shut off every well between the Box Butte Reservoir, which is the Mirage Flats deal, and the Wyoming border, as well as every surface irrigator in...and do nothing west of the border with that compact, probably in my lifetime the river will cease to flow in the summer if not year-round. I just...you know I've lived probably a little over half of my life, and just what I've seen in that...and I think it's getting worse. It would be alleviated if the drought breaks. I just...this is a pretty important issue, and I want to be equitable for everybody, for those people in Wyoming and for us. But if you want to keep the Niobrara River flowing from the Wyoming border on in, you're going to have to address that situation up there. [LR288]

SENATOR LOUDEN: Okay. Thank you. Question for Charles? Senator Fischer. [LR288]

SENATOR FISCHER: Thank you, Senator Louden. Thank you, Charles, for being here. I really appreciate your testimony. You mentioned the numbers and if I heard you correctly in one year there was a huge drop. [LR288]

CHARLES SKAVDAHL: Yeah. [LR288]

SENATOR FISCHER: In the mid-seventies, was that correct? [LR288]

CHARLES SKAVDAHL: In the mid-seventies, yeah. [LR288]

SENATOR FISCHER: Do you believe that was due to irrigation really getting a boom in Wyoming, basically? [LR288]

CHARLES SKAVDAHL: Yeah, yeah. Right when that cycle, 20 years ago when corn prices and agriculture really went off. [LR288]

SENATOR FISCHER: You also mentioned national park, Agate Falls National...or National Monument. [LR288]

CHARLES SKAVDAHL: Um-hum. [LR288]

SENATOR FISCHER: What date did you say that... [LR288]

CHARLES SKAVDAHL: In the early sixties, I don't know, maybe it was '58 when it was established and they bought the local rancher out. And there's just...they haven't allowed any grazing. There's just been wildlife on it. No mowing. [LR288]

SENATOR FISCHER: Okay. Preserve and protect. [LR288]

CHARLES SKAVDAHL: Yeah. [LR288]

SENATOR FISCHER: Yeah. I found that part of your testimony really interesting. Have you spoken to the federal government about that? [LR288]

CHARLES SKAVDAHL: Yeah, I visited with them, but they...I wouldn't say that they're unconcerned. But they're the federal government and they're not... [LR288]

SENATOR FISCHER: Have they ever... [LR288]

CHARLES SKAVDAHL: When...when...first, early in the seventies there when it first became a big problem, we had...they went in and they made an effort to clean some of the weeds out. But it's a monumental task. I mean, you...and they don't want...I have a special user permit to get my cattle across the park service. I get in a lot of trouble if I move my cattle across the park with four-wheeler. They don't want anybody in there. They're not going to let you take a track hoe in there, they're not going to take any mechanization in there and keep that stream open for us. [LR288]

SENATOR FISCHER: How many total acres do they have? Do you know? [LR288]

CHARLES SKAVDAHL: Three thousand acres, it's in that neighborhood. You know, they got it either side of the river, a mile for three miles there. It varies. [LR288]

SENATOR FISCHER: And how many miles of river do they have? [LR288]

CHARLES SKAVDAHL: It's three miles as the crow flies. But I saw a deal that they have, a path with there are eight to ten river miles, you know, how it "gerimands" around. [LR288]

SENATOR FISCHER: Okay. Yeah. Have you ever heard anybody with the federal government claim the water in the Niobrara River through that park, that monument? [LR288]

CHARLES SKAVDAHL: No, not to my knowledge. I don't know how that works. [LR288]

SENATOR FISCHER: Do they claim responsibility of managing the water through that monument? [LR288]

CHARLES SKAVDAHL: Well, yeah, they do. And their claim of management is to let it be natural, that that be the natural ebb and flow of the river, that would be natural for it to do that. But if you...the guy that established Agate Fossil beds or the Agate Springs Ranch, when he came, Dr. Graham, he said that the river was a blow out. That all the buffalo and all the wildlife they come there to water. And so what the monument has done is as far as what's been natural for that river for years. There was a good canal through there up until they came because it was hayed every year, the weeds were kept down, the cattle goes, the banks were packed. [LR288]

SENATOR FISCHER: Have you ever mentioned to employees of the federal government that the state of Nebraska owns the water? [LR288]

CHARLES SKAVDAHL: No, I haven't. [LR288]

SENATOR FISCHER: Okay, thank you. [LR288]

CHARLES SKAVDAHL: It would be a big argument. I mean... [LR288]

SENATOR FISCHER: I think it's a valid argument. Thank you. [LR288]

SENATOR LOUDEN: Senator Carlson. [LR288]

SENATOR CARLSON: Senator Louden. Charles, the only figure that we've heard from Wyoming, on the other side, is 16 pivots. Now it's got to be a whale of a lot more than that. [LR288]

CHARLES SKAVDAHL: Oh no, it's in the hundreds, hundred and ten to hundred and

seventy. [LR288]

SENATOR CARLSON: Well, this one ranch had 16 pivots or something. [LR288]

CHARLES SKAVDAHL: Well, yes, yes. And a lot of those pivots have gone in, in the last ten years. [LR288]

SENATOR CARLSON: Okay. Are there...from the Nebraska border on west, are there any reservoirs? [LR288]

CHARLES SKAVDAHL: No. [LR288]

SENATOR CARLSON: Okay, because the river originates not too far in, correct? [LR288]

CHARLES SKAVDAHL: Yeah. The basin, as I understand it, and I've looked at the map and I've visited, the Niobrara goes...the headwaters start at Lance Creek, which is north and west of us a little bit. And the Niobrara water basin, though, the origin of it kind of sits in there and it's kind of like a great big tea cup and there's a spout. Where the drainage is, is like where you'd pour the tea out. And then the handle would be a little lower. And there are...there will be a concern at some point, that affects the Pine Ridge area, north of Harrison. It's very deep water out there, and there are several creeks and streams that flow out there. And in talking to those people, those streams flow has diminished greatly. And it's a pretty big concern to them because at some point they won't be able to water their livestock and they'll have to do extensive pipelines to get in there, because the water is so deep, and then they do get it as alkali. So the flows off the back side of that were always minimal, but they're becoming even more minimal as I understand it. And we do lease land out there, and I have seen that first rate. Creeks that we used to have to jump across are just six inches wide now. [LR288]

SENATOR CARLSON: If, as far as the flow is concerned into your ranch what percentage of your problem would be eliminated if the vegetation were cleared out of the channel from your place to the state line? [LR288]

CHARLES SKAVDAHL: Well, on the flow meter, the first of May this year, I got .98. And I took every drop out of the river. Then when the wells come on it went down to .67. After about the 15th of July, this year was a cooler summer which helped. But after the 15th of July and right now if you went it would range between, depending upon how hot the day is or if you had any thunderstorms, between .9 and .31. So it would get me back approximately between 25 and 30 percent of my water right if that channel...and it might do better than that. I just don't know. It probably even...it would probably even do better than that I would say. [LR288]

SENATOR CARLSON: Well, I think it's a travesty that the National Park Service ignores the effect of vegetation on the flow of a streambed. That vegetation shouldn't be there in my opinion. And the other thing I would agree with is that the compact with Wyoming needs to be investigated, and they need to be held accountable. And in that I thank you for your testimony. [LR288]

SENATOR LOUDEN: Okay. Yeah, just a minute, Charles. [LR288]

CHARLES SKAVDAHL: Okay. [LR288]

SENATOR LOUDEN: Yeah, I've been up to Agate and through there. And I was up there when they did their centennial or whatever it was for one thing. But I was surprised that they don't allow any cattle, or you can't even hardly...I guess you can just ride a horse across there and get cattle across. [LR288]

CHARLES SKAVDAHL: Yeah. [LR288]

SENATOR LOUDEN: I was talking to someone up there that day about that. [LR288]

CHARLES SKAVDAHL: And I would elaborate on that. At this point it's almost dangerous to do that, that ground is so soft and it's so marshy along that river, you can stifle a horse real easy. You got to pick and choose and be pretty careful. [LR288]

SENATOR LOUDEN: What kind...is there any tree vegetation growing, or is it... [LR288]

CHARLES SKAVDAHL: There's just some what we call pussy willows right along there. And at one end of it there's an old cottonwood tree that grows, that slowly I think is dying. And more so probably from old age than anything else. [LR288]

SENATOR LOUDEN: But you don't have any... [LR288]

CHARLES SKAVDAHL: But you know, like the good bluegrass and the bluestem and all the good meadow grasses that you'd hay and grazed every year, they've been taken over by what I call horse weeds--Canadian thistle, Russian thistle. There's more weeds and gray sagebrush on that park service now than there is increases of good grasses. [LR288]

SENATOR LOUDEN: Do they do any control on the Canadian thistle or anything? [LR288]

CHARLES SKAVDAHL: They're trying, but that's very difficult because there's so much vegetation. And you know, unless they went in there with something like Roundup and just killed everything, they just can't get it. They go in, they try to mow, and then in the fall the rosette will green up and spread out, and then they try to go in. And I don't know what chemical they use, but they tried just to kill the Canadian thistle. But it's an uphill battle. It's...the only...and they have tried to do a prescribed burn. They tried to do that last fall, and they burned more of my place than they did of theirs and then they quit.

[LR288]

SENATOR LOUDEN: That was my next question, where did they come down on that? [LR288]

CHARLES SKAVDAHL: Yeah. And actually, the way they'll go about burning that park, 400 or 500 acres at a time, by the time they get it all burnt, then it will need to be burned again. And the only logical solution would be...it would improve everything, would be to graze it. [LR288]

SENATOR LOUDEN: Or just plainly hay it. [LR288]

CHARLES SKAVDAHL: Yeah. Boy, that would be a tough go. If you establish the canal and got that marsh area down and you have the dry years that we've had, you would eventually reclaim that through haying. But you'd have to have a long tow rope and a good tractor for the first few years. (Laughter) [LR288]

SENATOR LOUDEN: Turned into marsh. [LR288]

CHARLES SKAVDAHL: If there isn't a summer...when they try to control those Canadian thistles they take a bush hog mower on a little John Deere tractor. And there isn't a summer go by that we don't take our four-wheel drive tractor up there and get them out of a tight spot. Some...it's getting tougher and tougher. [LR288]

SENATOR LOUDEN: Pull them out of the mud. Okay. Well thanks, Charles, for your testimony. So with that, is that the last one to testify on LR288? [LR288]

_____: (Inaudible.) [LR288]

SENATOR LOUDEN: Did you guys raise your hands up awhile ago? [LR288]

JOHN GEISER: No, I didn't. I'm sorry. [LR288]

_____: I was back in the corner. [LR288]

JOHN GEISER: John Geiser, J-o-h-n G-e-i-s-e-r. And I also will...the Niobrara Compact is...I won't beat it. I'd just like to be on record that it needs to be looked into. Our ranch is a mile from the Wyoming border. And the 33 Ranch has the very first water rights of the Niobrara River. And we do not get our appropriated amount of water once the wells are turned on. And so it's, as Charlie and Jim have said, once you know, first of May when they turn the wells on you can just see that...the river drop. And so it just needs to be looked into. On the...with the wells Nebraska has, you know, we're not getting our surface water right, so we need...you know, we almost need to have a well. But Nebraska passed, you know, the moratorium. And so our hands are tied. We don't have the surface water right, but now we can't drill a well to go ahead and irrigate the acres that the ranch has always irrigated. And so we're sitting there. Wyoming can drill wells, and they can, you know, they're taking the...depleating our surface water, but yet we can't compete with them because we have the moratorium that says we can't drill a well. And so we're kind of caught in the middle of, you know, what do we do? And it's...in our area alfalfa, you know, you the same way, you can go to a different crop. Well, we pretty much need the alfalfa to feet the cattle. You know wheat is not too much of an option for us. We're out the wheat area and so it's hard to get combines in. And so alfalfa is pretty much our choice. And then also we have converted from flood irrigation to center pivot. And in the process of that, trying to change the acres to where you can, rather than just watering the acres that are right along the river, it almost takes an act of Congress to get your acres changed so that you can better utilize your water. It took us over two years to get some of that done. And so some of the red tape maybe needs to be cut, or I don't know what, you know. It just takes a long time for that to get done. And it was a thing we wasn't adding acres. We was just trading acres from one place to another so we could use a center pivot. And so it's...that's...and that's pretty much all I have to say,

just we'd like the compact to be looked into. [LR288]

SENATOR LOUDEN: Okay thank you, John. Since you live close to Wyoming, do you know the names of some of those people that ranch over there in Wyoming? [LR288]

JOHN GEISER: Oh I can sure get them for you. There's Ellicott's (phonetic), there's the Duck Creek Ranch, there's Burgers' (phonetic). And I mean most of those wells are not, I won't say most of them, but a lot of them have went in, in the last five years, you know. When they put the moratorium on our...in Nebraska, they could see the writing on the wall that, you know, pretty soon they were going to have a moratorium. And so they've just been putting in wells and wells and wells. So... [LR288]

SENATOR LOUDEN: Okay, thank you. Other questions for John? Seeing none, thank you for your testimony. And I agree, this compact has to be looked at. [LR288]

JOHN GEISER: Thanks for your time. [LR288]

SENATOR LOUDEN: Dean, are you the last testifier on this? [LR288]

DEAN EDSON: I've got ample time to visit with you, Senator. [LR288]

SENATOR LOUDEN: No, I... [LR288]

DEAN EDSON: (Exhibits 7 and 8) Thank you, Chairman Louden, members of the committee. My name is Dean Edson, D-e-a-n E-d-s-o-n and I'm executive director for the Nebraska Association of Resources Districts. Appreciate you coming up here to take the testimony from folks up here in the Panhandle. And I wanted to make sure everybody had a chance, (inaudible) more often have a chance to visit with you than others. So I'm not going to take much of your time. I have two handouts for you going around. John Turnbull, from the Upper Big Blue NRD, out of York, wanted to come up

for the hearing, couldn't make it and just wanted me to hand out a sheet and kind of go over it quick with you on groundwater levels and what they are finding out through their research and data collections. The sheet that's coming around, and maybe I'll wait until Cynthia gets those to you, but the ground water levels come up last year 1.58 feet. The district has 519 observation wells in their district. They average the data from all those wells. In 2007, we had a decline of .86 feet. I want to point out the next little bullet that they have in that, their average rainfall was up 7.7 inches above normal, 2007. Their average irrigated water use from their estimated and metered water use on 1,074,415 acres, which is the most irrigated acres in any district. In any of our NRDs average use is 4.95 inches. That breaks down to...they broke it down to 40 percent of their acres use less than 4 inches, 89 percent use less than 8 inches, 97 percent use less than 12 inches. They had one small tract of land that used 39.1 inches, which is way out of the norm. But that was kind of the historical irrigation levels of a lot of people that I grew up with, when I was still farming. And farming in the sixties, seventies, and up in the eighties we used to put on about that much water. We flooded the fields as much as we could, but we're learning a lot now. We can do it a lot more efficiently through center pivot irrigation and control the amount of water we're putting on. The important thing I want to show you on the chart is what they did is they tracked rainfall and precip. to ground water level. And you can see that the rainfall, when we get below average on rainfall the ground water levels decline. Once they start going above average or start climbing, the ground water levels start increasing again. And it tracks pretty close. And that chart goes back to 1961 through 2007. The other handout I had for you is just pointing out one of the challenges that we have and trying to educate producers and users how to maximize their yields on less water. This is an editorial that was in the Omaha World-Herald on the 15th of August this year, 2008. And they're kind of advertising here a little bit about a farmer in Missouri whose average yields...or the yields he's getting off his soybeans are 154 bushels per acre on several plots of his farm, of his 11,500 acre farm. The average soybean yield was actually 45 bushels. So he's over that average by 100 and some plus bushels. But look what he does. He waters the soybeans daily to get that kind of yield. He uses more water, more

chemicals, and this is in the article, or in the editorial here. But it closes off with that even more small practical yield increases are good for the nation and the world. So look what's possible with irrigation. But I'm not here advocating that we water all our crops every day. But producers are going to pick up on this and it's going to be advocated in other areas that you can increase your yields by just putting on more water. Our challenge is to try to educate them not to do that. Try to optimize your yields with the minimum amount of water we can get by with. So with that, I'll close and answer any questions you might have. [LR288]

SENATOR LOUDEN: Thank you, Dean. When you say, water crops every day, here a few years back, when it was so dry in western Nebraska and hot all the time, why they were watering all day long, every day around the clock. [LR288]

DEAN EDSON: Yeah. [LR288]

SENATOR LOUDEN: Questions for Dean? Senator Hansen. [LR288]

SENATOR HANSEN: Thank you, Senator Louden. Dean, is there anybody in the Upper Big Blue irrigate bluegrass lawn every day? [LR288]

DEAN EDSON: Probably, there's probably some residents that do that. [LR288]

SENATOR HANSEN: Is there anybody in the Upper Big Blue over fertilize their lawns? [LR288]

DEAN EDSON: Probably. [LR288]

SENATOR HANSEN: Where did they learn that? Is there a national contest for bluegrass lawns? (Laughter) [LR288]

DEAN EDSON: There is if you live across the street from somebody that's got one better than yours. (Laughter) [LR288]

SENATOR HANSEN: Thank you. Those acres total up. [LR288]

DEAN EDSON: They do. They do. [LR288]

SENATOR HANSEN: There's a lot of them. Thank you. [LR288]

SENATOR LOUDEN: Senator Fischer. [LR288]

SENATOR FISCHER: Thank you, Senator Louden. Just a comment. Dean, it would be nice if you would save this editorial so during session when the Omaha World-Herald puts out an editorial on water, you can remind them of their stance that they were so proud of this gentleman who watered every day. [LR288]

DEAN EDSON: I'll do that. [LR288]

SENATOR LOUDEN: Other questions? Thank you, Dean, for your testimony. [LR288]

DEAN EDSON: All right, thank you for your time. [LR288]

SENATOR LOUDEN: Thanks for coming out here. [LR288]

SENATOR FISCHER: Thank you. [LR288]

SENATOR LOUDEN: Is that the last on LR288? Yeah. Okay, that will close the hearing on LR288. And we'll start the hearing on LR291. With that mark we'll open with it. [LR291]

MARK LUDWIG: Thank you, Chairman Louden, and the remaining members of the committee. My name for the record again is Mark Ludwig, M-a-r-k L-u-d-w-i-g, legal counsel for the Natural Resources Committee. And the next interim study we have up is LR291, which is for purposes of examining the process for obtaining an instream flow right by either a natural resources district or the Game and Parks Commission. So for purposes of this interim study, we're going to look at the process as a whole including issues like the costs involved of applying for an instream flow right, the number of applications historically, past and to the current day, who currently has the stream flow right, and to how much water, when these rights have been granted, how long does the process take, as I said, the costs involved. And then, of course, for purpose of the committee in looking at this issue should the process be changed in any way, shape, or form? Should it be made more restrictive, made less restrictive? Is there any way to streamline the process? Are there any...for comparison purposes, is it worthwhile to maybe look at what other states are doing in this area compared to how Nebraska operates its instream flow laws? I think for purposes of this interim study it might be beneficial to maybe, with Chairman Louden, with your acquiescence to maybe have Brian Dunnigan, from the Department of Natural Resources testify first so that he can kind of explain... [LR291]

SENATOR LOUDEN: Rex is going to testify first. [LR291]

MARK LUDWIG: You're going to have Rex testify first? Okay. Rex, from Game and Parks. Okay. I know both of them are here to testify on this particular issue. We may have some testimony from the NRDs as well, from NPPD. It's a very, very important, potentially very contentious issue. So I expect we'll have some interesting testimony. And with that, I'm done with my opening. [LR291]

SENATOR LOUDEN: Questions for Mark? Thank you, Mark. [LR291]

MARK LUDWIG: You bet. [LR291]

SENATOR LOUDEN: And agency director from the Department of Game and Parks, Rex Amack, would you wish to... [LR291]

REX AMACK: (Exhibit 9) Thank you, Senator Louden, and members of the Natural Resources Committee. We are pleased to be here today to provide testimony for you on this issue. And as a layperson I would like to extend a special thank you to all the committee for coming to western Nebraska to discuss these issues. I learned a lot from the last interim hearing. And I know how important it is for people of this state to have access to their government officials, and more importantly their senators. So in that way, I will start and say, Senator, you opened the door last night for me. Senator Louden, you opened the door last night for me to talk to several constituents here in Alliance. And I was pleased to report to them that the Nebraska Game and Parks Commission will hold their business meeting here on October 30. And I have a good, strong feeling that most of those people are going to be at that meeting. And we'll discuss a lot of interesting issues. So we, too, travel around the state and meet with constituents. And it's a very good form of dealing with important issues with all of our citizens. So with that, time is of the essence this morning, and so there are a number of people here have traveled great distances to talk to this committee. And so I will keep my remarks very brief. As the clock ticked away, I discarded page after page of testimony. So this should be a good thing. I would like to start with a little bit, just briefly, very briefly, what is instream flow? We somewhat take it for granted that everybody in the state and everybody in the room would know what instream flow is. Instream flow is the quantity, it's the quantity of water allocated to remain in a river or stream to conserve public fish and wildlife resources and the habitats they depend on. The Natural Resources Commission did a policy issue study on instream flows, state water planning and review process in 1982. This was precipitated by interest from the public and, of course, the Legislature. And so this study concluded that the state of Nebraska's policy issue study on instream flows lists fishery resources, recreation and aesthetics, compliance with interstate compacts and judicial decrees, hydroelectric power, aquifer

recharge, subirrigation, navigation, wildlife, wild and scenic rivers, and water quality as instream water uses. Those were the uses well-defined by the policy research paper. Fast forward to 1984 from 1982, the Legislature did find in fact that the maintenance, conservation, management, storage, and etcetera was important. And so they passed legislation, LB1106, which allowed natural resource districts and the Nebraska Game and Parks Commission to obtain surface water appropriations from the Nebraska Department of Natural Resources from keeping water in streams for fish, wildlife, and recreational purposes. Since the original passage of that legislation, there has been a number of amendments, but I won't go into those. They're not the issue we're talking about today. They're part of it, but not totally. Briefly, in 1989 the Game and Parks Commission applied for the first instream appropriation on Long Pine Creek, a tributary to the Niobrara River, for the purpose of sustaining a natural reproducing rainbow and brown trout population. After a contested administrative hearing, it went back again, and the efforts were confirmed by the Department of Natural Resources and prevailed. In 1994, the Central Platte Natural Resource District, on the Central Platte River, applied for an instream flow to maintain fish and micro invertebrates as food for turns and plovers, maintain staging and roosting habitat for sandhill's cranes, and maintain staging and roosting stopover habitat for whooping and sandhill cranes. They were granted that application. In 1998, the Nebraska Game and Parks Commission was granted additional instream flow appropriations for the Central Platte River for the purpose of maintaining the fish community and for the whooping crane roost habitat in the lower reach of the Platte River for protection of the fish community. So in the 24 years that instream flow legislation has been on the books in Nebraska there have three successful instream flow applications. And there have been three, period, and they've all been successful. That's some...it's easier in Nebraska to win a national championship than it is to get an instream flow right. (Laugh) I think we have four national championships. In May of 2006, the Nebraska Game and Parks Commission Board of Commissioners met in Bassett, Nebraska and passed a resolution directing staff to develop instream flow recommendations for the Niobrara River. Upon application and receipt...well, we're moving forward on that process. So the rest of our

discussion today is to discuss the process. In one sentence, the process is extraordinarily rigorous, and extraordinarily expensive. The major components for applying for an instream flow are, firstly, there must be unappropriated water available to provide the approved instream flow rate at least 20 percent of the time during the period requested. Since the majority of our river basins are now fully or over-appropriated, future opportunities to protect instream flows will be extraordinarily challenging. Next, the application must be in the public interest. Next the application must be based on sound science. The application must be weighed against social and economic values. And, if granted, the application must be reviewed every 15 years. These rigorous requirements are the strongest components of the application. They are not required of other public or private requests. Generally speaking, the time needed to meet these requirements takes five years or more and is very expensive. This is the statutory process as it exists today. We're hoping that this interim study to review this process will allow some ideas to make the process more user friendly and certainly not more difficult. Some ideas that we would like to share with the committee include the removal of the unappropriated and 20 percent provision in current statute. Requesting adequate instream flow supported by science is a much easier process without the constraints of the 20 percent rule. We do have the Department of Natural Resources that will make a ruling on the applications as they stand free standing. There's also another part that I didn't mention that was another addition, an amendment that you have to have...in order to do this we also have to have a...if the issue is contested, there has to be a nonbinding mediation and arbitration before the department will hear the case. All of the three that are successful have been contested. So if we are going to do that, we would ask that the committee consider limiting that arbitration to 30 days, because as it stands today it could go on 30 years. It could be a little bit like the Wyoming compact on the Niobrara that we just heard about. But also the...the...well, this is remove the public interest section of the statute seems to go a little bit against the statute itself, because the enabling statute declared that the Legislature found that it was in the public interest to do this. Otherwise, we wouldn't have the statutory authority to do it. The last thing we would ask is that we would change the priority date for an

instream flow application to be the date that the official board of the Nebraska Game and Parks Commission or a natural resource district declares its intention to identify stream flows for a stream ranch rather than, after extensive studies are developed and then submitted to the Department of Natural Resources. Again, it will take five years or more to do this. And then it has to be set within the department's time constraints and it's a long, long process. So there might...the process is fine. But we might be able to at least when the application is made set a priority date, because instream flow application is like any other application to surface water, it's junior to anybody else that has one. So with that, I think...I do have, which I will present to you, I've given it to Cynthia, a copy of Professor Sandi Zellmer's instream flow legislation outline, which talks about all of the issues. And this was presented by the University of Nebraska's Water Resource Center as a...what was felt at the time, and I still hope that everybody still feels that today, as a neutral look at the law without trying to say well, weight it one way or the other. It's just to look at...your legal counsel, Mark Ludwig, mentioned whether or not you might want to look at other states. She takes a look at some other states. She talks about the west. And I think her opening statement...well, I don't know if it's her opening statement or not, but there was a thought that prevailed in the west for a long, long time that any water that wasn't...any water that flowed out of your state was a waste, it was a big mistake on the state's part. And so obviously we hope that...in a number of cases that we would be in...we've fought with Wyoming for years and years over these issues. And I think we might be in some issues with Kansas right now. But in any event, those are all part of legislation that develops to control issues of surface water. And with that, as I said, I know there's a number of people that want to testify on this. So I'll stop right here. [LR291]

SENATOR LOUDEN: Okay. Thank you, Rex. Questions for Rex? Senator Fischer. [LR291]

SENATOR FISCHER: Thank you, Senator Louden. Nice to see you again, Rex. [LR291]

REX AMACK: Nice to see you, Senator. [LR291]

SENATOR FISCHER: Just a couple things, I think. The first, I guess the first requirement that you mentioned for an instream flow was that it must be in a...or there must be unappropriated water available. The Niobrara, where you are in the process of gathering your materials to apply for an instream flow, is a fully appropriated basin. So why are you going ahead with spending all the money that...you said it's a very expensive process. [LR291]

REX AMACK: Excellent question. This has been brought to the attention of the Board of Commissioners a number of times. And the only thing we're relying on is we had directed the question to the Department of Natural Resources. And then director, Ann Bleed responded to us that there is...because it's a nonconsumptive use, there is some possibility of allowing an instream flow water right, because it's nonconsumptive. If it was consumptive it would not be available to do it. So that's what we're going on. [LR291]

SENATOR FISCHER: You mentioned that an instream flow right is junior to anyone that already has one. In a fully appropriated basin no rights are being granted. So if an instream flow right is granted, wouldn't that mean if the basin would lose the designation of being...it would no longer be fully appropriated, and instream right had been granted to Game and Parks, that right is not junior to any other rights coming forward. So wouldn't...I guess Game and Parks wouldn't be playing under the same rules as everybody else, because you would have been a senior right to anybody else then who is able to get a water right if a basin is in the future not fully appropriated. [LR291]

REX AMACK: I do not know the legal answer to that question, Senator. [LR291]

SENATOR FISCHER: Well, you'd have a water right if you got your instream flow. Would that be correct if I said that? [LR291]

REX AMACK: Well, there's a number of different...again, as I understand this, the reason we're proceeding because this would be a variance. And there's a number of different issues involved in that. I can...I have the documents to go through that. [LR291]

SENATOR FISCHER: Okay. [LR291]

REX AMACK: But it's a long process. [LR291]

SENATOR FISCHER: Right. But I'm just saying if you continue in looking to acquire an instream flow right in a fully appropriated basin and that was granted, you would have a water right. Correct? [LR291]

REX AMACK: Yes. [LR291]

SENATOR FISCHER: If that basin then in the future is...receives enough water, and we are no longer under a fully appropriated designation, you would have a senior right to any one applying after the basin is no longer fully appropriated. Would that be correct? [LR291]

REX AMACK: Well, again I do not have the legal knowledge to tell you that, because this...this...there's never been the...as I understand it from working with the Department of Natural Resources, the application that we're trying to...we haven't...we're working on to see if it is possible to make the application. If it is, it's a different type of appropriation. It's a variance to an over-appropriated stream. [LR291]

SENATOR FISCHER: But the variance, I guess if I understand it correctly, a variance would be given to Game and Parks in order for you to acquire a water right. Is that correct? [LR291]

REX AMACK: Let me look through this for just a second. There's only...and I didn't prepare. I just prepared for the... [LR291]

SENATOR FISCHER: Oh you knew you were coming and I was going to be here. Come on! (Laugh) [LR291]

REX AMACK: There is somewhere about...I got 700 pages of...but anyway, I just... [LR291]

SENATOR FISCHER: Well, maybe if we could have that discussion in the future. [LR291]

REX AMACK: Well, we sure can. I mean we can provide you...we have enough legal counsel here in the building to...we have two Attorney General's here, Assistant Attorney General's and... [LR291]

SENATOR FISCHER: I know, I see people out here. I guess for the record I would say that I believe that if you would receive such a right and the basin then is no longer fully appropriated, your right, in my eyes, would be senior to anyone trying to acquire a right after the basin is no longer fully appropriated. [LR291]

REX AMACK: See, I can't answer that because they have... [LR291]

SENATOR FISCHER: So maybe you could...since I put it on the record, maybe you could look into that. [LR291]

REX AMACK: They have dozens and dozens...the reason I say that is, and again, we do have our water or our instream flow water manager here, Larry Hutchinson, might answer that. He might be able to answer that. [LR291]

SENATOR FISCHER: Okay, I guess... [LR291]

REX AMACK: But it's...my understanding is there are dozens, or let's just say there's an application that the department hasn't honored because it's an over-appropriated basin. So it would seem to me logically, if they came in to say, okay, we got all this water now all of a sudden, then it would seem to me like all the people that are already on the table would be senior to our application, which is probably five or six years down the road at best. [LR291]

SENATOR FISCHER: I don't know if they go...how the department does that. If they go in order when applications are filed, how they grant them? We'll have to ask Mr. Dunnigan. [LR291]

REX AMACK: I think that's what they do. Well, you're going to have the main brain, you know, the whole brain trust up here in just a minute. [LR291]

SENATOR FISCHER: I know, I love that. [LR291]

REX AMACK: I do too. [LR291]

SENATOR FISCHER: But, I guess, I would say that possibly a reason it was put into law first was that an instream flow right must be in an unappropriated...or must be unappropriated. There must be unappropriated water available. I believe that's in statute just for the very discussion that we are having right here and the concern that certain rights may be granted and, as I say, give Game and Parks a leg up or whatever in fully appropriated basins. Thank you very much. [LR291]

REX AMACK: Okay. [LR291]

SENATOR LOUDEN: Question I have, Rex, is how many cubic feet are you talking

about when you want that on the Niobrara, an instream flow right? I mean are you...is it unspecified how much you have, or just want so much water in the river, or what? [LR291]

REX AMACK: Senator Louden, again an excellent question. I cannot answer that. And this is why in order to be able to come forth with an application we have to do a variety of studies. We have to study the social, economic impacts of this, we have to know what the cultural values are, what the regional values are. And this is why it takes a long time to say if in fact there is no...if this study determines that there is no need for an application here for protection of an instream flow, then the commission assuredly won't make one. [LR291]

SENATOR LOUDEN: Okay. [LR291]

REX AMACK: And so there's no sense...I mean there's no magic number that anybody picked out of the sky and said we have to have x number of cubic feet per second flowing down river. This is the same way with fish and wildlife on the Central Platte, exhaustive studies by the Central Platte Natural Resources District and the Nebraska Game and Parks Commission to determine just what flows do these species need to exist. And so that's... [LR291]

SENATOR LOUDEN: In other words, you got a... [LR291]

REX AMACK: In this one we're primarily focusing on the recreational aspects of it. [LR291]

SENATOR LOUDEN: In other words, you got to decide how much water you need to keep the fish or keep the boats on the water or keep a certain depth in the river. Is that what your instream flow... [LR291]

REX AMACK: Well, we're looking at all those aspects. That's exactly right. [LR291]

SENATOR LOUDEN: Yeah, but somewhere along the line do you have to put a number? [LR291]

REX AMACK: Yes, somewhere along the line we'll have to put a number. [LR291]

SENATOR LOUDEN: And how does that...how will that compare with your water rights or flow rights compared to, say, the generation that's on that river? Because, I mean, both of you, the water goes right on down the river. You don't have a consumptive use. Same way with generation, it goes on down the river. But you're still entitled to so much of it. How do those two compare, or do they? [LR291]

REX AMACK: I can't answer that question. Again, that's a legal question that we have enough water lawyers in Nebraska to fill this room, and I'm not one of them. But that's a legal question, Senator, that I do not have the answer for. [LR291]

SENATOR LOUDEN: I guess what I was thinking of is if that generation plant, I think, they got, what, 2,200 cubic feet a second or something like that. And is that enough to take care of what you want done? [LR291]

REX AMACK: Again, that's why we're doing these studies, to figure that out. And, of course, their water rights and how they exercise them is up to them. I believe that water right is owned by the Nebraska Public Power District. And how they choose to exercise that water right is their decision. [LR291]

SENATOR LOUDEN: Okay. Other...Senator Christensen. [LR291]

SENATOR CHRISTENSEN: Thank you, Chairman Louden. Thank you, Rex. You said that you wanted that 20 percent number changed. I guess I haven't got through it all to

read all or didn't notice it in here. What is that 20 percent, and where are you wanting it changed to? [LR291]

REX AMACK: Well, it's...what it is, Senator, is that the requirement that the flows be there 20 percent of the time during the period that we ask for. And science will show that it's a duplication, I think, is what happens is why we're saying it. It's a duplication. It would just be simpler to let the science show how much water you need. And if the water...if the stream is already fully appropriated...existing state statute, we have very little opportunity today to ask for fish and wildlife and instream flow. And if that...if the science could just show rather than have to deal with...I think a good example of this is the gentleman that was just here; said the Niobrara River flows sometimes really good and sometimes not so good. Sometimes he gets a third of his water right, sometimes more. It's just...and so trying to figure that out on a...whether or not the water is there 20 percent of the time is almost...it's a very daunting task at best. [LR291]

SENATOR CHRISTENSEN: Okay. You just want something like that scratched then is what you're saying? [LR291]

REX AMACK: Well, that would be the least of the problems with instream flow. Not the least of the problems, but it's one of the hurdles, let's put it that way. [LR291]

SENATOR CHRISTENSEN: Okay. If you get an instream flow and where you have some, do you have any obligation on maintenance and making sure that vegetation...of cleaning streams out to maintain your flows, or what is...if you get an instream flow right, you're done, you have any responsibility once you get that right? [LR291]

REX AMACK: The only rights that we have with an instream flow are well defined in state statute. And that's not a part of it. If that was a part of it then we would accept that responsibility, but currently that's not a part of it. And that may be something that could be a part of it. It certainly could be. In other words, that could be...in looking at the

process, that certainly could be part of the process or in addition to the process. But currently, no, we have no statutory authority to do anything, to manipulate or do anything with the stream flow and the instream flow right. [LR291]

SENATOR CHRISTENSEN: Where would you come on the issue if maintenance was, say, you paid for maintenance to clean out the river and maintain it, and it increased the flow to gain a right. Where would you come on that? [LR291]

REX AMACK: Well, that's an interesting question. But again, the Game and Parks Commission is a statutory agency created by the Legislature. And the only authorities we have are what the Legislature presents us. So if you would present us the statutory authority to do that sort of thing, to try to expend monies and put more...yeah, absolutely. We're on your side. I mean that's where the whole thing is about instream flow. Without instream flow we have no viable aquatic resources. And you heard one of the gentlemen up here today could catch trout at any time in the Niobrara River. Can't do it today. So actually very important to Nebraska, all of our citizens to have surface water in our rivers and streams. [LR291]

SENATOR CHRISTENSEN: Because, I guess, Senator Carlson, that we need to clean the streams and that definitely increases flows. But it's not only cleaning them, it's maintaining them. [LR291]

REX AMACK: Absolutely. [LR291]

SENATOR CHRISTENSEN: And that varies the flow greatly. So thank you. [LR291]

REX AMACK: I discussed at length last night with Senator Carlson the efforts the Legislature is making to take away some of the riparian vegetation that uses a lot of water. And clearly you've heard testimony today, not only does it use water, it stops, it diverts stream flow. It's an actual...it's a real diversion. [LR291]

SENATOR CHRISTENSEN: Well, I'm glad to hear your change, you know, Game and Parks to be there, because I applied for an instream to clean the stream about seven years ago. And Game and Parks opposed it. So now I'm glad to hear that. [LR291]

REX AMACK: What kind of stream are you going to clean? [LR291]

SENATOR CHRISTENSEN: Republican River for two miles, I've got all the letters. I didn't have one person on my side. I was going to pay for it. Game and Parks fought me, U.S. Fish and Wildlife fought me, you name it, they all fought me. [LR291]

REX AMACK: I was unaware that you ever had any effort in that (inaudible), but that's... [LR291]

SENATOR CHRISTENSEN: Yeah. I got a folder of (inaudible). [LR291]

REX AMACK: That would be a monumental task that you were going to take on. [LR291]

SENATOR CHRISTIAN: Um-hum, very expensive. So thank you. [LR291]

SENATOR LOUDEN: Other questions for Rex? Seeing none, let's see I have one. Oh, I think I got all my questions answered for now anyway. Thank you, Rex, for your testimony. [LR291]

REX AMACK: Okay, good. [LR291]

SENATOR LOUDEN: Next testifier. Okay, do you or have Brian Dunnigan, what... [LR291]

MARVIN THORNTON: Some of my short comments, I think, will refer directly to what director Amack said. [LR291]

SENATOR LOUDEN: Okay. How many wish to testify on this? Two, three, four. We may have to start putting some time on it, because (inaudible) to six. Depends on if you folks want (inaudible) past (inaudible) o'clock or not. [LR291]

MELVIN THORNTON: (Exhibit 10) Good morning. My name is Melvin Thornton, T-h-o-r-n-t-o-n. My wife and I are both retired teachers and we are living in two different places, Sparks in Keys Paha County, and in Lincoln, Nebraska. I'm really pleased to be here today. I have written down three pages of my comments with three other forms and another editorial from the Omaha World-Herald. I'll assume that you all can read. If you would like to read that, let me just jump ahead and make some comments. First, while I was listening to director Amack, several figures popped into my mind. About five hours ago when we left the motel, the Niobrara was running at 517 cubic feet per second at the Berry Bridge, what's called the Sparks Station. We kayak or canoe on the Niobrara several times during the summer. Our experiences today would have been a pretty good day, not optimal. When it gets up to 600 or 650 it's really a wonderful trip. It gets down below 450 at that station, it's a little bit dicey and I wouldn't bother to drive up here for under 400 cubic feet per second. Now compare that with presently before the fully appropriation...fully appropriated designation went into effect there was on the whole reach of the Niobrara approximately 500 cubic feet per second of pumping rights that were already issued. But that's on the whole stretch. A lot of those are downstream from the national scenic river. Some of them are on the national scenic river, but 300 of those 500 are above the national scenic river. In my comments I first wanted to make the point that the reason I'm here is because, as Senator Fischer has mentioned, the water is owned by the state of Nebraska, hence by the citizens of Nebraska. And so I feel like I am a stakeholder, as everyone in the state is a stakeholder. Then I have...in thinking about this I went onto the Web site and wanted to know, well, what does it take to get an instream flow right? So I downloaded the application forms. And just for comparison,

to see if we're anywhere close to a level playing field, on page 4 of your handout should be the application to appropriate water. This is what a producer would use to apply to pump surface water out of one of our streams. The next one is what it would take to appropriate water for power generation. Oh by the way, the question was also asked about the power generation downstream at Spencer Hydropower. I believe they have 2,035 cubic feet per second appropriation. But that, of course, is way downstream from the Sparks Station. And then the third one is the application to permit water for instream flows. Now just looking at this, and I went through the experience, I thought it would probably take about half a day to fill out the appropriation form for pumping instream water for irrigation. You just have to put down the specifics--when, and where, and how much, and where the equipment is going to be located, and when you can start, and what you'll be irrigating. Sign it, send a fee of $200, and you probably want to send it overnight, so next day when it arrives at the Department of Natural Resources will be logged in, that will be your seniority date. And then you'll be able to pump if there were water and if they would accept it, of course, in the stream. You'd be able to irrigate up to 1,000 acres. For appropriating instream flow rights for power it's the same sort of thing. Just name and address, who owns it, how much you want, where, when you can get started, sign it, and the fee is $5 per every 50 horsepower. I don't have a clear idea of what that would amount to. And then the last form that you have there, the next to the last page, is even shorter. This is what it takes for instream flow appropriation for fish and wildlife or for recreation. Just the name of the applicant, identify the stream. You check maybe recreation, when you want to start, when you want to finish, how much you want, sign it, and then you notice that, in the upper left-hand corner, there are all these things that you have to attach. Six of them there, and those are laid out on the form and also in the second page of my comments. And this is where the real work begins. And I understand that the instream flow appropriation on the Platte, back in I think 1993, cost about $1.5 million to complete all those studies and get it through. The present attempt for the Niobrara is going to cost apparently well over $1 million. And I know it's going to take at least two years and probably director Amack is better that it's going to be, you know, maybe closer than that. So we can see that this is far and away

not a level playing field for requesting water for instream flow right. Now, I wanted to be specific and on our own the Friends of the Niobrara and the Nebraska Wildlife Federation and I kind of convinced also of these things, we have three specific suggestions to make. And I was amazed that they're almost exactly the same suggestions that director Amack said. First, we'd like to streamline, and this is middle of the second page here, like to streamline the instream flow application process. I really feel that the NRDs and the Game and Parks Commission should not be required to relieve the Department of Natural Resources of the responsibility for evaluating the availability of unappropriated water, or from evaluating the effect on senior appropriations. This really, I think, should be handled by the Department of Natural Resources. Secondly, I think there should be an automatic review of all granted instream flow rights. And I didn't know it was required by statute. That wasn't on the application form, 15 years. I think it ought to be done every five years. If a power plant is removed, I think their flow rights ought not remain. If recreational use, for some reason, is prohibited somewhere I think that the flow rights ought not remain. But if recreation is still there, flow rights are to remain there. I think also an automatic review of all rights and all usage, whether it's nonconsumptive or even new consumptive, ought to be reviewed periodically, because I'm sure that we must have an awful lot of water rights on the books that are not currently being used. And thirdly, since it takes so long to complete an instream flow application, many consumptive users may rush to apply for water when it is known that an instream flow application is being worked on. And we're suggesting that instream flow rights should be given seniority dates determined when the board votes to work on the application. I was amazed when those were exactly the same words director Amack used, not on the date of completion and submission. Now the idea is we don't want a rush to the courthouse suddenly when people think all the water might be done. Now a reasonable question is, is this happening? Well, I looked back at the data since 1980. And the decade from 1980 to '89, in the decade of the eighties there were just six new water appropriations on the Niobrara. In the decade of the nineties there were again, the whole decade, six applications, new applications were granted. From 2000 to 2006 there were 19 applications, and they totaled almost 70

cubic feet per second, 19 applications that were approved. That's through 2006. Now as director Amack mentioned, in May of 2006 the commissioners of the Game and Parks voted to start working on a possible application for instream flow. So what happened? Well, in the first six months of 2007 there were a total of 12 new applications; they total at 65 cubic feet per second. Now all of those are still pending. All of those have senior...if they are eventually granted, they'll have a seniority date of when they were accepted or, you know, when they were received. And they were all received after the notification. Yet under the current law the instream flow right has to...application has to be received in order to get a seniority date. And that will be at least two years and maybe as long as five years. I think that's a serious discrepancy. And so we certainly would hope that that date could be changed. Now one also I think really should consider the question, are instream flow rights even useful or necessary? Using a great deal of hindsight, you could I think argue that if the Lower Republican NRD would have had enough of an instream flow right, we wouldn't be sued by Kansas. But according to the current law they couldn't have gotten that because you can't put it under recreation or fish and wildlife. I think we should agree that probably our problems on the Platte River would be much different had there been enough instream flow designated for fish and wildlife and other things. And we wouldn't have the problems we're having now under your recovery program. But these are in the past. I think the present and the future might be now the instream flow right on the Niobrara. One advantage I see on that is it will prevent the federal government from suddenly deciding to use their, what's it called, federal reserve water rights. I think reserving the flow on the Niobrara ought to be a function of the folks in Nebraska. We don't need that kind of outside assistance. Now one might argue, look, is it really reasonable to try to compare the Niobrara or compare the Republican with the Platte, or compare all three of these? I would say yes and no. Our current laws and our current ownership are the same of all streams in Nebraska. And so the Niobrara is like the Platte and the Republican in that sense. How if the Niobrara different? Well, the hydrology is certainly different. And until this morning I thought the fact that the Platte runs dry and the Republican may very well run dry makes the Niobrara different, because it will never run dry. And here are some people

telling us, no, that's not true. It may very well run dry in some places. And so that's a problem. Another difference is that the...in problems it's not too late for the Niobrara. The Niobrara is still a very healthy river and we can be proud of that. The Republican has got serious problems, Platte has got serious problems. It's not too late for the Niobrara to do something. And I think another difference in the Niobrara is the outfitters. The recreation outfitters around Valentine, and there are a lot of them, have been running canoes and tubes on the Niobrara for over 30 years. It's a major economic impact. And yet the outfitters have absolutely no legal standing to any kind of water. I think in all fairness we ought to have an instream flow available on the Niobrara for recreation to recognize their long use and care of the Niobrara. So I urge you to read what I submit here. And I have introduced some statistics that I didn't know would be useful or not. And now that I see the hour, and with your permission, I'd like to just e-mail those to you. [LR291]

SENATOR LOUDEN: That will work. [LR291]

MELVIN THORNTON: They're not in this, and just request that you distribute them to the committee. [LR291]

SENATOR LOUDEN: That will work. Thank you. [LR291]

MELVIN THORNTON: Thank you. [LR291]

SENATOR LOUDEN: Questions for Melvin? Senator Carlson. [LR291]

SENATOR CARLSON: Senator Louden. I've been looking at your report. I'm going to make a statement at a little bit of a risk here. But you state that the water is jointly owned by all Nebraskans. I don't agree with you. [LR291]

MELVIN THORNTON: Okay. [LR291]

SENATOR CARLSON: The state of Nebraska owns the water, you and I as citizens have a right to a beneficial use of that water. [LR291]

MELVIN THORNTON: Right. [LR291]

SENATOR CARLSON: We can't bottle it and sell it, so our ownership is very limited, but we have the right to use it. [LR291]

MELVIN THORNTON: All right, certainly true. [LR291]

SENATOR CARLSON: Thank you. [LR291]

MELVIN THORNTON: Thank you. [LR291]

SENATOR LOUDEN: Other questions for Melvin? Thank you for your testimony. [LR291]

BRIAN DUNNIGAN: (Exhibits 11 and 12) Senator Louden and committee members, my name is Brian Dunnigan. Spelled B-r-i-a-n D-u-n-n-i-g-a-n and I'm the acting director of the Department of Natural Resources. I'm here today to provide information to the Natural Resources Committee on the process the department uses for instream flow applications and current appropriations for instream flows that are in effect. My testimony is based on the department's actual experience reviewing applications for instream flow permits. The last instream flow permit was issued in 1998. There had been several statutory changes to the laws regarding instream flow applications since the department last reviewed such an application, but only one substantially changes the process from that which was used for the last group of applications. I will point that out...I will point that change out as I go through the process. First, the department receives an application or set of applications for an instream flow appropriation or

appropriations. For the remainder of my testimony I will use application, since all previous instream flow requests included multiple applications. This is because there are often different stream reaches identified or different amounts of water requested for different uses. As I'm sure you are aware, only the natural resources districts or the Nebraska Game and Parks Commission may apply. The purpose of the instream flow appropriation must be to protect the amount of water necessary for recreation or fish and wildlife. Prior to filing, the applicant is required to conduct studies to identify specific stream segments which they consider to have critical need for instream flows. The Nebraska Game and Parks Commission has used a method originating from the U.S. Geological Survey, referred to as "The Instream Flow Incremental Methodology." I have included in your packet a description of this methodology. After completing the studies, the applicant is required to give notice to the public that it intends to apply for an instream flow permit. The applicant must also take public comment and hold public hearing prior to filing the application with the department. The applications must identify the stream reach or reaches, the time of year when such water is required and the amount of water requested. After receiving the application the department may conduct any studies necessary to evaluate the applications. Evaluating applications for instream flow takes time and effort. Once the department has completed its review it must publish notice of the pending applications. The notice states that any person having an interest may object to the request and request a hearing on the applications. If there are objections a public hearing will be held. Following the public hearing a decision to grant or deny the application will be made. At that point, any person withstanding may request a contested case hearing under the Administrative Procedures Act. However, prior to beginning the contested case hearing procedure, the parties must complete mediation or nonbinding arbitration. This statutory requirement was enacted before the last instream flow permit was issued but after the hearing was completed, therefore, it has not been used by the department, although to the last instream flow hearing did attempt a settlement outside the hearing process. The attempt was not successful and the lack of success was the impetus for the statutory changes. I won't take time to go through all of the findings that the director is required to make before granting or denying an

application as they are described fully in Nebraska statutes. I will describe to you one method the department has accepted to making the determination as to whether there is unappropriated water available to provide the instream flow rate at least 20 percent of the time during the period requested in the application. The method was used by the Nebraska Game and Parks Commission's last set of applications and has been acknowledged by the Nebraska Supreme Court as an acceptable method for determining unappropriated water for instream flow applications. This may give you an idea of the complexity of the specific requirements. For describing this process, I will use an example. A natural resource district wants to obtain a permit on all of Spring Creek in the amount of 200 cubic feet per second for all 12 months of the year to preserve fish. Spring Creek has a stream gauge located on it that have been there since the 1930s. Under the historical flow method, the NRD would present to DNR tabular information showing on a month-by-month or on a day-by-day basis the different rates of flow that have been reported at that gauge. In the same table, based on the number of times that flow has been there either during a specific month or a specific day, and looking at some specific period of record, they will show the percent of time each flow rate was exceeded. So the information for June 14 may indicate that the requested amount of 200 cubic feet per second has historically been exceeded on June 14 90 percent of the time. However, the table might show that for July 14 the 200 cubic feet per second was exceeded only 25 percent of the time. And 200 cubic feet per second has never been recorded or exceeded any day in August. Thus, the department could not grant an appropriation for 200 cubic feet per second for the month of August. In addition to the tabular information described above, the NRD may present information on whether all the water recorded at the gauge is natural flow, or whether some of it is storage water release from an upstream reservoir for a downstream user, or whether some of the water is ground water released into the stream upstream of the gauge and being conducted downstream for irrigation. If the director determines that there is insufficient unappropriated natural flow available for an application, with the consent of the applicant, the department may conduct a study to determine whether the instream flow needs can be met through the use of stored water in new storage facilities. If such

studies show that the instream flow needs can be met through the use of stored water, the applicant may request financial assistance for the construction of storage facilities from the Nebraska Resources Development Fund. The rest of my written testimony describes the three existing instream flow applications, and I think Rex Amack covered that testimony. So I would be glad to answer any questions that you might have. I also have staff here that have experience with the actual process and may call on them, if that would be okay, to answer any of your questions. [LR291]

SENATOR LOUDEN: Okay, thank you, Brian. Any questions for Brian? Senator Fischer. [LR291]

SENATOR FISCHER: Thank you, Senator Louden. Just a couple things, Brian. When we were discussing earlier about when the department grants water rights, do you grant those in the order that you receive them? [LR291]

BRIAN DUNNIGAN: They would be grant...if they are granted, they would be granted with a priority date of when they are applied for. They're not necessarily granted in the exact order that they come in. [LR291]

SENATOR FISCHER: Okay. You just mentioned stored water, that the department would consider that if there is not enough water available. Are you talking dams? [LR291]

BRIAN DUNNIGAN: It could be, and under the provision that I was talking about if water wasn't available and there was a storage proposal to make that water available yes, we could be talking about dams. [LR291]

SENATOR FISCHER: So when the department would grant or, I guess, would look into the possibility of water being stored and with the construction of dams, what kind of process is involved with that? [LR291]

BRIAN DUNNIGAN: Related to the instream flow process, that would be the applicant's proposal, probably, to have those flows available. And then the applicant could come through for funding through the Resources Development Fund or other funding mechanisms that might be available to them. [LR291]

SENATOR FISCHER: If there are not adequate flows according to the application process, part of their proposal to the department could include dams then. [LR291]

BRIAN DUNNIGAN: Yes. And all of the things related to dams would have to go through the department for the appropriate permits also. [LR291]

SENATOR FISCHER: Okay, thank you. [LR291]

SENATOR LOUDEN: Other questions for Brian? Seeing none, thank you for your testimony, Brian. [LR291]

WES SHEETS: (Exhibit 13) Good morning, Senator Louden and members of the Natural Resources Committee. I'm really pleased to be here on this nice day in western Nebraska. And I thank you for holding the hearing. I think it's a huge issue that the citizens of Nebraska are responsible for. Spell my name, Barb, S-h-e-e-t-s, for the record. I'm here for you on behalf of the Nebraska Division of the Izaak Walton League. We consist of 19 chapters, you've probably heard this before, across the state of Nebraska between Imperial and Wayne, Nebraska. We're a nongovernmental organization and are concerned about fish and wildlife resources and all the rest of natural resources and proper conservation thereof. I appear before you today just to point out probably some of the obvious. But I think we're all aware that naturally flowing streams have some very important intrinsic values, as well as real value, to all Nebraskans living in this great state. Quality of life means something different to each and every one of us, I'm sure. But to a number of us having fish in a stream is very

important. I think having fish in a stream, as Mr. Skavdahl pointed out earlier in the previous hearing, is similar to a bird and a canary, or the canary bird in the mines, of a coal mine. You know it's a symptom of the whole. So I'm here to suggest that what we're doing now is very appropriate. The natural resource districts and the Game and Parks Commission and the wisdom of the Legislature in previous years have entrusted those organizations as servants to our government, servants to our citizens to uphold the public trust, protecting these natural resources for all of us. I'd like to point out that a recent, and I don't remember the day, and I can get reference for you, if you care to, a recent NASA survey, which is the annual social indicator survey that the University of Nebraska completes, trying to indicate what Nebraskans are all about and what they like to know, what they like to have, indicated that 88 percent of all Nebraskans thought it was important to keep flowing water in the streams. I think the interesting part is that 80 percent plus of rural Nebraskans supported that. Obviously, if you live where I live, in the city of Lincoln, a nice quality river is great to be able to go to, to come out to the Panhandle and chase the trout perhaps. But I think it also points out where we've come from in the history of our state. When Nebraska was settled, and I wasn't here then, but I can identify that almost all of our citizens camped on the banks and streams. And almost all of our citizens, other than the individual farmers and ranchers that are producing crops, currently live along the banks of a stream. I think the reason there is because that stream is important to our life, it's important to our feeling good about ourselves. So I'm here to second the suggestion that we need to simplify, if we possibly can, the methodology that we can maintain those flowing streams. You know, I'm not going to go into all the recommendations. But I certainly support the recommendations that director Amack and Mr. Thornton have outlined as far as simplifying the process. I think one of the most important ones for myself is the one of priority date. I'm not a water lawyer but I have a feeling for western water law that that priority date is all important. And as Mr. Thornton pointed out, there may be some hurry up and let's get ours in line before an instream flow permit may be issued. So I would certainly suggest that...find a method where that priority date could be identified, when the thought was hatched perhaps, or when the Board of Commissioners in the Game and Parks

Commission said it's important to Nebraska, we've made that conclusion. That might be the appropriate time. One last specific recommendation is why shouldn't the playing field be level? Why shouldn't I as a citizen of Nebraska be able to...if I was wealthy, which I'm not, but to acquire water rights for keeping water in the stream? Perhaps my uncle had a water right and would like to donate it to a different cause, mainly my wellbeing and being able to chase a trout up on the Niobrara River. So I would just leave you with those thoughts. I've provided a handout which may be a bit philosophical. But I think it really, you know, my belief is that it points out what Nebraskans are all about and what we should be considering for the state of Nebraska--to simplify that process. Certainly five or eight years, whatever it takes, in the current methodology to acquire water rights for a purpose that we're talking about must be wrong. And perhaps that can be shortened. I dare say that sound science doesn't have to take that long but sometimes proving it in courts takes an awfully long time. So I'd first and foremost like to change that priority date system so that it becomes real and becomes equal to everybody else. So with that, I would just leave you with a thought and urge you to continue the investigation of the subject of this hearing and look for ways that we can do our business better. And thank you for the opportunity to be here today. [LR291]

SENATOR LOUDEN: Thank you, Wes. Questions for Wes? Seeing none, thanks for your testimony, Wes. Next testifier. [LR291]

DAN STAHR: Members of the Natural Resources Committee, Senator Louden, my name is Dan Stahr and I'm the executive director of the Nebraska Wildlife Federation. My last name is spelled S-t-a-h-r. I just got a little bit of a personal touch to put on my perspective on instream flows. I'm here today to urge you to continue the process of obtaining an instream flow right by either Game and Parks Commission or a natural resources district. We'd like to see this process fine-tuned to protect the fish and wildlife resources and the habitats they depend upon. I've seen what happens when a small stream disappears. I grew up in Chappell, Nebraska where the Lodgepole Creek used to run right outside of town. As a youth, I spent countless hours fishing, exploring and

enjoying nature and camaraderie of my peers next to a stream that meant so much to us. The Lodgepole Creek has been dry now for over 30 years, except for storms dumping large amounts of rain. I just talked to my Dad the other day and we had about three inches of rain out there and it was running again temporarily. But, you know, it's far and few between when there is water running in that stream. And I look back, the other youth in Chappell and the surrounding area, over the past 30 years, have not had that chance to experience the nature that the Lodgepole Creek brought to so many before me. There is no one that had the foresight of what happens with the public right to a certain stream is not protected. Why did the Lodgepole Creek dry up? I think we all have our ideas on that. I've used that experience to formulate my opinion on the right of the public to have a healthy stream flow and other streams across our great state. What happens with the Platte River, the Republican, the Niobrara, the Elkhorn no longer flow or support fish or wildlife? What quality of life will be in store for Nebraskans when that time comes? When and if that day comes will be a sad day for everyone. My father is a wheat farmer, and my father-in-law is a retired farmer in Furnace County. So I realize the economics of the water for farming and their livelihoods. But what about the other 70 percent of the population that aren't using the rivers for growing crops? These rivers and streams provide much more than figures can show. The economics of rafters on the Niobrara, the bird watchers observing the sandhill crane, the fisherman on his favorite stream or the youth that just wants to get closer to nature and explore and learn what nature has to offer. Because of these people's rights we will continue to represent them and work on protecting the public's right to the water in the rivers and streams across the state. How many small streams, such as the Lodgepole Creek and the Pumpkin Creek, will we lose before the larger tributaries start suffering? We need to act now for the future. And just to dovetail on what's been said before. I'm in favor of the streamlining of the process for the instream flows. And if...you were talking, Senator Christensen, earlier about cleaning up two miles of the Republican. It costs $1.5 million to do an instream flow. If we can cut that back to a half a million dollars, we have a million to clean up some of those rivers. And so...but that's all I have to say. And I appreciate the opportunity to be able to come out today and talk to you on that. [LR291]

SENATOR LOUDEN: Okay. Thank you for your testimony, Dan. Questions for Dan? Seeing none, thank you. [LR291]

DAN STAHR: Thanks. [LR291]

SENATOR LOUDEN: Next testifier. [LR291]

BRIAN BARELS: (Exhibit 14) Good afternoon, Senator Louden, members of the committee, other senators that are present. Appreciate the opportunity to address you today with regarding LR291. I'm Brian Barels, the water resources manager for Nebraska Public Power District. That's spelled B-a-r-e-l-s. As you're aware, NPPD utilizes water, both ground water and surface water across the state in the generation of electricity. In addition, we deliver surface water to three irrigation canals and own and operate a reservoir system to provide supplemental water for hydropower, cooling and irrigation as well. I need to start out with an apology on my written testimony because I see the first sentence, under the introduction, the computer gremlins got. But essentially what that was, was an introductory sentence to the statute references below. And it's those statute references that I think have caused a lot of the consternation, debate, the cause for the expenditure of the money by the Game and Parks Commission. Just to note a few: 46-2108 says that the instream flow appropriation should be only for the amount of water necessary for recreation, fish and wildlife; 46-2110 said: "The application shall also provide detailed description of the amount of water necessary to provide adequate flows." And 46-2115 said: "The appropriation is necessary to maintain the existing recreational uses or needs of existing fish species. And the rate and timing of the flow is the minimum necessary to maintain the existing recreational uses." You will notice in the last reference of 46-2115 it utilizes minimum necessary as the standard, while other references in the statutes talk about adequate or necessary. I think on the Platte River when previous instream flows have gone before the department that's been a large amount of the debate is how much flow is necessary to

be protected. The legislation has also had some unintended consequences in costing the state large amounts of money to conduct extensive studies to aid in the determination of the flows that represent the minimum amount necessary. Another unintended consequence, at least in some opinions, is that the instream flow appropriations are driving fully appropriated determinations conducted by DNR. And this controversy has also resulted in some legislation that was introduced last year in an attempt to try to address this very issue. An approach the committee might want to consider would be similar to the process that Kansas has adopted for the identification and protection of stream flows. The Nebraska...there were many Nebraskans on the water tour this summer that went to Kansas. While we were on that tour we heard a number of people from Kansas talk. And one of those people mentioned minimum desirable stream flows as a process that Kansas utilizes. Basically, they have done that to designate stream flows for the benefit of the residents of the state. The Kansas Legislature has adopted an approach that enables these policy decisions to be made in a collaborative manner and with a process that provides much public input to the establishment of minimum desirable stream flows through this legislation. The legislation set priorities and guidelines which enabled an interagency advisory committee of Kansas state agencies to make recommendations back to the Legislature. And I might note that there's a fact sheet on this process attached. And I think if you read that you can see what some of those state agencies were. The legislation establishes the policy as the identification of minimum desirable stream flows to maintain or enhance base flows for instream water uses relative to water quality, fish and wildlife, aquatic life, recreation, general aesthetics and domestic uses for protection of existing...and for protection of existing water rights. So it considers all uses of the river, not just those for fish, wildlife or recreation. And I might suggest, as we've heard many times this morning in Nebraska we might also want to consider how much stream flow is necessary for recharge of aquifers in part of this state as well. The Kansas agencies involved in making those decisions were the Wildlife and Parks, the Environmental Quality Agency, the State Water Regulatory Agency, and the State Water Planning agencies. Those agencies made their recommendation at existing

gauging stations. So the gauging stations themselves were used as the point of reference in this process in Kansas. The recommendations were based on the needs. And in talking to people from Kansas generally they ensured that those flows were there 70 to 80 percent of the time. After the public comments were considered, and there was quite an extensive public hearing and comment process held out in the region of these different streams, a final recommendation was formulated and submitted to the Kansas Legislature for enactment. Basically, it would codify the recommendations for flows to be achieved at various stream gauging stations. Kansas also has an interagency committee that annually can review the minimum desirable stream flow values and make additional recommendations or modifications to the Legislature if necessary. There are some potential benefits of this type of an approach. It might save time and money versus the instream flow appropriation process you've heard about from the previous testifiers. It lets the publicly elected legislature make the policy decision regarding how much stream flow should be maintained. Kansas has implemented this process over a period of about five years. My reading of it looks like they've identified about 23 streams in the state. It's by far not all the streams in Kansas that have minimum desirable stream flows. This value could...a minimum desirable stream flow value would protect existing water users and existing recreational users in both. It would also help in compact compliance in the Republican River, as has been mentioned, if there were minimum desirable stream flows. And it would provide a local public interest process to incorporate into the policy making decisions. The establishment of a minimum desirable stream flow relative to the contribution of ground water to the streams was also considered by Kansas. When administration is needed, and basically when the Kansas Legislature passed these flows at these gauges, it also granted a water right for that minimum desirable stream flow. And basically then if there is any junior surface or ground water use that follows that designation by the legislature that would be administered, in Nebraska's case, by the Department of Natural Resources. As I mentioned, I've attached a fact sheet. And in closing, I just would recommend that the committee might give some consideration to this. One option might be that the committee could recommend this to the Water Policy Task Force to chew on and see

whether there's any merit in this kind of an approach. And that would end my testimony. It's a different process. You heard about some of the problems we have with ours. This probably has its own problems as well but it may be worthy of some looks. I'd be glad to answer any questions you might have. [LR291]

SENATOR LOUDEN: Okay, thank you for your testimony, Brian. Questions for Brian? Senator Christensen. [LR291]

SENATOR CHRISTENSEN: Thank you, Chairman. Brian, I was on that tour too. And found a number of things interesting. They, too, also have lost a number of their streams. You know, a name and number of them come into the Republican. And going back is difficult, but do you know about how many acre feet of water flows into the state of Nebraska every year? [LR291]

BRIAN BARELS: Yes, that flows in, no, I probably don't know how many flows in. I know that the total precipitation is probably in about the 80 million acre feet range. [LR291]

SENATOR CHRISTENSEN: Yeah. And you know, that's one of the points. We've got about between 1 million and 2 million acre feet of water flow into the state every year. And we've got over 8 million following out now. I don't know how much we want to go out but any excess we lose is lost opportunity. And I, for one, live on the Republican. Have loved seeing the river run, you know, this year and last year and love to see it maintain some flows. But there's so many compounding factors on this. No till farming, I think, is one of the largest things that has affected it, vegetation, well, you know, you go on. And I don't know just as some of the Kansas people told me they don't think you can go back to some of them small streams and never bring them back because of the advancements in farming, being no-till, being vegetation growing on the streams and taking it. And I'm quick to point out that if you cut a tree off you're going to have grass grow back in that small area. The amount of consumptive use is very small compared to that huge tree and that huge canopy of the consumptive use in that area. There are so

many factors in here and I find it difficult. If we could come up with a way of maintaining more of this 80 million acre feet of water that hits the state, we would do the state more benefit than...and get our stream flows that we want, plus more because 90 percent of the water that hits Nebraska evaporates, goes on east. Number one area we need to look at is how do we keep more of it here to be used. And that would take care of our stream flows, that would take care of our compact issues, that would take care of so many things. I think there are a number of challenges that need to be sent to our university and things this way on what can we do to better utilize the vast water resource that lands on this great state and leaves. You know, and you know, I'll go back and pick on myself being a no-till farmer. (Inaudible) stream flow greatly. So but we don't want higher priced food and less food. [LR291]

BRIAN BARELS: Yeah, it's a very complicated matter. [LR291]

SENATOR CHRISTENSEN: It is. [LR291]

BRIAN BARELS: There's no if's, and's or buts about it. You're correct about the fact that there is water that leaves the state. But as you're also aware, precipitation increases from about 12 inches in the western part of the state to 36 inches. [LR291]

SENATOR CHRISTENSEN: Right. [LR291]

BRIAN BARELS: So unfortunately a large amount of that water that accumulates and leaves the state probably occurs in the eastern half or the eastern third of the state. It's a wetter part. There's not been the need to develop projects there. You probably find fewer dams there, probably more flood control type dams and smaller gullies. I found it interesting, and it's been in the statutes all along, but the Legislature in its wisdom did envision the potential of using dams to provide for instream flows on streams and reservoirs. And that's something that we may not have progressed to at this point in time. Sometimes those who promote instream flows aren't necessarily supporters of

dams. But maybe it's a win-win. Maybe dams can be used to supply water for additional uses for instream flow for endangered species and other purposes as well. [LR291]

SENATOR CHRISTENSEN: I agree. [LR291]

BRIAN BARELS: And so those are all opportunities I think we need to look at. We need to look at how to manage these resources. If you look at the water budget in the state so much comes out, so much gets consumed. Approximately 93 percent of the water that falls on the state is consumed at the surface of the state. And so any change we have in consumption has a dramatic effect on the overall water balance. And that's what we need to keep in mind when we look for theses solutions--how can we manage those water resources? [LR291]

SENATOR LOUDEN: Senator Fischer. [LR291]

SENATOR FISCHER: Thank you, Senator Louden. Brian, when you talk about this Kansas plan, this...where they made changes to their statute, one of the ideas you brought up on how it can work in Nebraska is that it's going to help us get in compliance on the Republican River. How? [LR291]

BRIAN BARELS: Well, if you had a desirable stream flow at a gauge on the river then your management actions would be aimed at making that happen. And so that would focus... [LR291]

SENATOR FISCHER: There are no gauges on the Republican River right now that you would call reliable? [LR291]

BRIAN BARELS: I didn't say that. [LR291]

SENATOR FISCHER: Oh, okay, What did... [LR291]

BRIAN BARELS: What I said was if you had a minimum desirable stream flow...if I understand the Kansas model, you couldn't set a desirable stream flow for something greater than exists as flow. So the time may have come, but you would...if one was set today at some level you would prevent further deterioration of that flow level. It wouldn't bring water back or help, but it would sure help maintain a stream flow that could be utilized for compliance with the compact and prevent further degradation of that stream flow. [LR291]

SENATOR FISCHER: Don't you think the Legislature has tried, in the last few years in passing laws such as Senator Carlson's with the riparian vegetation in order to increase stream flow? [LR291]

BRIAN BARELS: Those are all tools in the toolbox, yes. [LR291]

SENATOR FISCHER: Okay, thank you. [LR291]

SENATOR LOUDEN: The question I'd have, Brian, I talked to the Department of Natural Resources. And I have been concerned about the gauging process in Nebraska. Do we have...when you talk about an increase in their...or maintaining stream flows, do we have enough gauges in there to even know how much stream flows we do have and where it's at and that sort of thing? Even when Ann Bleed was still there, I was asking, do you need more gauges? And she said, yes. And also if you have more gauges, you have to have more people to monitor what you have, and you also have to have more people to find out how much water that is being pumped out of the river. We don't even know how much water is being pumped out of the Niobrara River. We know how many water rights there are and acre feet, but we don't know if that's...how much is being pumped. What is your thinking on that? Will that dovetail in with some of your stream flow if those problems were solved? [LR291]

BRIAN BARELS: It definitely would help us understand, and especially would help, I think, the department in the administration of the river. I think if we look back 20 or 30 years ago, we probably had a larger number of stream flow gauges within the state. A combination of those run by the state of Nebraska, and probably more so those run by the federal government through the USGS. They've had funding cut back over the years. They have cut back the amount of money they have put forward. They've looked for cooperators to maintain gauges. They do come in if they have resources available, but there are costs, as you said, Senator, associated with putting them in. The good news is in today's modern technology era many of those gauges can be put in. They can collect data electronically, transmit data electronically, definitely someone has to go out and check the stream flow to calibrate it on occasion so it does increase the labor from that perspective. But yeah...and I would believe the department would be a good one. They know the rivers and the administration. They could probably pinpoint a number of areas that it would be more beneficial to have a stream gauge. A gentleman testified earlier about flows at the Spencer Dam and that there was a gap in the data there. That was a USGS gauging station. And when the funds dried up for that it went away. One of the reasons that it went away is USGS had calibrated the gauges...or the gates at the dam. And as we record hourly data on those gates there was some belief that there was at least a record of relative relation to stream flow based on the calibration USGS had done at the structure while the gauge was still there. I believe there is now one being put in by the bridge for the very reason you mentioned, Senator. More information definitely is beneficial to inform folks and help the department. [LR291]

SENATOR LOUDEN: Okay, thank you. Other questions for Brian? Senator Carlson. [LR291]

SENATOR CARLSON: Senator Louden. Brian, I appreciate your report and so the remarks I'm going to make here are not critical of your report at all. And I have to get over a bias that I have that Kansas can come up with some pretty good suggestions, but they don't have all the answers. And in our earlier hearing this morning we had

some serious testimony about the depletion and declining water levels in Box Butte County. We are concerned about those and we should be concerned about them. And we've got other places in the state that we need to be concerned and lowering of ground water levels. But then Senator Fischer pointed me to a map of southwest Kansas. And they've got depletions in there of a pretty extensive area, over 150 feet. We're not even approaching that. We've got a couple of areas where it's greater than 60 feet and that's serious and we need to address that. They've got a real challenge in southwest Kansas. So I still have to agree that they may have some good suggestions and we might profit by paying some attention to them. But I bristle when they try to tell us how to get into compliance on the Republican basin, because we've got to get there in the best way that we can. So again this is not a criticism of your report. [LR291]

BRIAN BARELS: And I understand that fully. I considered that in offering this example that it is a touchy subject. But it is an intriguing process that considers a lot of things, including fish and wildlife. And maybe there are some benefits to it. And as we've learned, whether it's in Box Butte County, the Republican River, the Platte River, the sooner we address these issues and kind of have a management plan for them, the better off we'll be in the long run. [LR291]

SENATOR CARLSON: Thank you. [LR291]

SENATOR LOUDEN: Other questions? Well, seeing none, thank you for your testimony, Brian. [LR291]

BRIAN BARELS: Thank you. [LR291]

SENATOR LOUDEN: Okay. Are there any testifiers after this one? Seeing none, okay, thank you. I guess you're the end gate. [LR291]

MIKE MURPHY: (Exhibit 15) That's great. Well, good afternoon, members of the Natural

Resource Committee. I guess it is that time. And, Mr. Louden, I appreciate the opportunity to talk in front of the group. I'll wait until everything gets distributed. [LR291]

SENATOR LOUDEN: Ah, go ahead and start. We'll catch up. [LR291]

MIKE MURPHY: Okay. Well, I guess, I see this as kind of a simple deal here, that we need to... [LR291]

SENATOR LOUDEN: You'll have to spell your name and do all that. [LR291]

MIKE MURPHY: Mike Murphy, M-i-k-e M-u-r-p-h-y. I'm the Middle Niobrara Natural Resource District general manager. As I said, I see this as kind of a simple deal. We have two entities that can pursue instream flow--Nebraska Game and Parks, and the NRDs. Everyone sitting in this room today has and is a partner. We have all partnered at some time in some form, some fashion. This is as simple as two heads thinking and working together that are better than one. And that's what in today's society, regarding economic and social and recreation impacts, we have to look at and consider all aspects of natural resource conservation. We have to begin thinking outside the box and begin working together to look at the big picture. The Upper, the Middle, and the Lower Niobrara have and continue to support coordinated effort with the Nebraska Game and Parks Commission toward jointly to see if an instream flow right is or is not appropriate in the Niobrara River Basin. We do feel that it should be a mutual decision that should be generated through a coordinated efforts process. We also feel that when considering instream flow that all uses of natural resources be considered, not just recreation, fish and wildlife. An instream flow does not put water in the river, as we all know, it only caps the use to the water. As in the case of the Niobrara River, instream flow currently serves no purpose because of the fully appropriated determination made by the Department of Natural Resources in January. At this point only Mother Nature is going to increase or decrease our flows on the river. We do feel that the Natural Resource Districts in the state do need to be able to provide consideration for protection

agriculture, industry, and municipalities in regard to economic impacts that decisions on instream flows could have. It has been stated at prior meetings that Nebraska Game and Parks Commission that there are 15,000 miles of streams in Nebraska that need instream flows placed on them. I believe this only begins to show what a large area of Nebraska could be positively or negatively impacted if we do not consider all sides of the issue at hand. Another reason why both agencies need to work together, and as Rex stated, this process is extraordinarily rigorous and expensive. And that cost associated with pursuing instream flow right and why not--better opportunity than work together. It only makes sense to share that burden. If an instream flow right was granted on a river or an entire basin would definitely have some detrimental effects. Reductions or stoppage in development would dramatically effect the tax base in all counties and municipalities that would be impacted by an instream flow in their area. The wise use of water through production agriculture has been the state of Nebraska's and the Game and Parks Commission's best factor to improve fish and wildlife habitat, which has greatly increased fish and wildlife populations, and ultimately increased the state recreation uses. We view this as an opportunity to work together to determine if instream flow is feasible or not, no different than what we're required to do with working with the Nebraska Department of Natural Resources on the integrated management plan. As we all sit here and realize the importance, the time, the cost that are associated with this, we cannot single out factors and issues that cannot be addressed. Everything needs to be looked at equally. And as the 1982 study pointed out that all those different aspects from fish to recreation, aesthetics to compliance, hydropower, navigations, aquifer recharge, wildlife, well right there, that's all-encompassing. Aquifer recharge--legislatively NRDs are in charge of ground water regulation. Why not would we want to be...have a seat at the table in those considerations and determinations? It's been brought up with the possibility of recommending the removal of the 20 percent of available water. This, I believe, was developed after 1996 Central Platte River instream flow request and the Game and Parks' additional flow request. At that time the groups that sat at the table had concluded to this, that this would be, you know, what was feasible. In regards to the Niobrara River, 20 percent isn't even feasible. As you heard

earlier today, we have...in the Middle Niobrara we have 3 to 4 percent agriculture production and water uses. If we stopped all of that, we couldn't even come up with that. That number probably needs to be 70 to 80 percent, probably closer to like what Mr. Barels said as far as what Kansas was looking at. Maybe then having the adequate amount of water in the river does become feasible, maybe not. That needs to be determined. But with that, I just want to conclude the importance that we all sit here together. We have to make decisions and we need to continue to work together. Thank you. [LR291]

SENATOR LOUDEN: Thank you for your testimony, Mike. One question I would like to ask, on the Middle Niobrara, in your NRD, do you know how many people are diverting water out of the Niobrara? I mean there's got to be a big bunch. [LR291]

MIKE MURPHY: Not that many, no. I want to say there's probably...well, the biggest diverter is Merritt Reservoir. They have surface water rights for storage and diversion of up to 505 CFS. [LR291]

SENATOR LOUDEN: Okay. [LR291]

MIKE MURPHY: And they've also compensated NPPD for that water right, just as Mirage Flats Irrigation District did in 1942. Those are your biggest diversions. The other ones are, you know, really...you know, if there are 100 diversions in our district, I would be surprised, and then for a very little amount of water. [LR291]

SENATOR LOUDEN: Well, okay. That to me is a bunch, 100. [LR291]

MIKE MURPHY: Well, it depends on how much water right they are. The thing is, and I know the department if working on this, is how many of them are actively being used. Currently, as of well probably a month ago, when I talked with NPPD, they had 48 current individuals that were subordinating their water rights above Spencer Dam, out of

all. And I think there are 700 and some surface water rights on the Niobrara River, 48 people. Does that mean that only 48 people need water? What are the rest of the people doing? Are they not using their water? [LR291]

SENATOR LOUDEN: Okay. You saying there was 700 and some or whatever, who's... [LR291]

MIKE MURPHY: That's total on the total stretch. [LR291]

SENATOR LOUDEN: Yeah. [LR291]

MIKE MURPHY: But those 48 people have a combined water right of about 117 CFS. [LR291]

SENATOR LOUDEN: And here's what I'm wondering is, you talk about the other 700 or whatever, and even the 48, is there anybody that monitors to know if they're getting 117 CFS, or are they getting 234? [LR291]

MIKE MURPHY: That would be the Department of Natural Resources obligation. [LR291]

SENATOR LOUDEN: I know it. But do you feel they have enough people, or do they monitor those situations enough to actually know? [LR291]

MIKE MURPHY: They have one field staff in Ord that is in charge of that. I would...I guess, if you've got questions, they need to be asked of that individual. [LR291]

SENATOR LOUDEN: I guess my concern is we're talking about trying to have some stream flows, and do we even know how much we're diverting out of the water or out of the rivers and how much is going down? [LR291]

MIKE MURPHY: That's an excellent question. [LR291]

SENATOR LOUDEN: Do we need to have that information before we ever talk about instream flows? [LR291]

MIKE MURPHY: I think that would be wise; highly advisable. [LR291]

SENATOR LOUDEN: Okay, thank you. Other questions for Mike? Senator Fischer. [LR291]

SENATOR FISCHER: Thank you, Senator Louden. Senator Louden mentioned that he thought 100 irrigators, surface water irrigators in our district, that that's a bunch. What's the size of Middle Niobrara district? [LR291]

MIKE MURPHY: Two point nine (2.9) million acres. [LR291]

SENATOR FISCHER: How does that compare to other districts, NRDs? Are they about all the same size? I know... [LR291]

MIKE MURPHY: No. Fortunately and unfortunately we and Upper Niobrara/White have two of the biggest districts in the state, and also some of the least populated areas. And because of that the least amount of agriculture and industry in the state, which is why we don't have a significant use of water. [LR291]

SENATOR FISCHER: Have you worked with Dr. Steve Shultz (phonetic), who is doing a study for Game and Parks this summer on the Niobrara, on the economic impact? [LR291]

MIKE MURPHY: I have had some communication with him. He's attended numerous

functions to describe what he's been doing. [LR291]

SENATOR FISCHER: Have you had a chance to look at the maps? I know you...the district had input in them. But have you had a chance to look at his maps where he has pinpointed where the irrigation is on the Niobrara River? [LR291]

MIKE MURPHY: No. [LR291]

SENATOR FISCHER: Or in the district as a whole? [LR291]

MIKE MURPHY: No, the only map I had seen was his breakdown of the land sales so far that he was trying to look at. I have not seen the map of the irrigation. [LR291]

SENATOR FISCHER: Okay. I believe that that map will be available soon. I had a chance to look at it. And, yes, in our NRD there is not, comparatively speaking to the rest of the state, we have very little not just service water irrigation, but also ground water, as Reed was telling us earlier. At a hearing last year, when I was speaking to the Game and Parks representative who was there, I questioned him about working together with the NRDs. And I questioned pretty strongly because I did not feel, from what I heard, I represent seven NRDs. And what I heard is in the Niobrara, with the three there, that there wasn't any cooperation in working together and compiling some of these drafts that will be used for the instream flow appropriation process. How is that coming along now? [LR291]

MIKE MURPHY: That's a good question. We...at this point there's been no other further informational, sit down meetings. You know... [LR291]

SENATOR FISCHER: Since when? Or have you had any in the last six months? [LR291]

MIKE MURPHY: Other than their economic study meeting, that was probably the last meeting that the Game and Parks has had. We as NRDs attended a commission meeting in Ogallala to request them to review if an instream flow application was even feasible or not by the department. [LR291]

SENATOR FISCHER: If an instream flow appropriation or an instream flow right is granted in the future, what responsibilities would the NRDs have in regard to offsets? [LR291]

MIKE MURPHY: Well, we'd have to regulate uses, which would mean we'd have to try to cut back what water uses we have. As we all have sat here and been told, when we have such few water uses, even if we shut it all off, how are we ever going to come up with water in a river that's never been there? It isn't going to happen, it's not feasible. [LR291]

SENATOR FISCHER: Where do you get your funding in order to meet the requirements that you are under by law in order to accomplish those offsets? Where do you get your funding? [LR291]

MIKE MURPHY: Through our tax base. [LR291]

SENATOR FISCHER: Local taxpayers, property taxes? [LR291]

MIKE MURPHY: Correct. [LR291]

SENATOR FISCHER: Okay, thank you very much. [LR291]

MIKE MURPHY: I would like to add, I guess, during the LB924 hearing, on February 7, I guess I think everyone in the room at the time was kind of taken aback by Mr. Nelson's response to your questions regarding instream flow. And to the point...I guess, I brought

a copy of that testimony here. And his statement was, so our concern is that if we are mandated to negotiate or to work with the NRDs that are going to be affected by the area, it's going to make the process more cumbersome, more expensive than it is. We probably are not going to do it just because we can't hardly bring it off now. That was kind of disappointing. [LR291]

SENATOR FISCHER: My feelings, too. Thank you, Mr. Murphy. [LR291]

SENATOR LOUDEN: Other questions for Mike? Seeing none, we thank you for your testimony. [LR291]

MIKE MURPHY: Appreciate it. [LR291]

SENATOR LOUDEN: (Exhibit 16) And, I guess, that will conclude our hearing on LR291. Thank you all for coming here. I thank all of you for your testimony. Been a lot of information, and good luck. [LR291]

The Committee on Natural Resources met at 7:00 p.m. on Wednesday, August 20, 2008, at the John N. Harms Advanced Technology Center for Nebraska in Scottsbluff, Nebraska, for the purpose of conducting a public hearing on LR366, LR286, and LR377. Senators present: LeRoy Louden, Chairperson; Tom Carlson; Mark Christensen; Annette Dubas; Gail Kopplin; and Norm Wallman. Senators absent: Carol Hudkins, Vice Chairperson; and Deb Fischer. Also present: Senator Tom Hansen, Senator John Harms, and Senator Philip Erdman. []

SENATOR LOUDEN: Good evening. If I could have your attention, we will get this show underway now at this time. I'm LeRoy Louden. I'm Chairman of the Natural...the Legislature's Natural Resources Committee. With that, I will first give the introduction to the senators I have. Senators to my left is Senator Tom Carlson from Holdrege, next to him is Senator Mark Christensen from Imperial, next is Senator Tom Hansen from North

Platte, and Senator Harms from Scottsbluff. On the end then is Senator Erdman from Bayard, and he's presently taking his seat. To my right is Senator Gail Kopplin from Gretna, and next to him is Senator Annette Dubas from Fullerton. And sitting on my near right is Mark Christensen (sic), committee counsel on the end...(laughter) Mark, oh damn, it's been a long day...(laughter) Mark Ludwig, the committee counsel. And on the end... []

BARB KOEHLMOOS: Barb. []

SENATOR LOUDEN: (Laugh) []

SENATOR DUBAS: Barb. []

BARB KOEHLMOOS: Koehlmoos is my name. (Laughter) []

SENATOR LOUDEN: Barbara Stansbury Koehlmoos. Nobody knew I knew that. (Laughter) And sitting down there, the lady next... []

CYNTHIA MONROE: The old lady. (Laughter) []

SENATOR LOUDEN: ...is the administrative lady from our office, Senator...or not a senator but she is Cynthia Monroe. Anyway, with that, we have to shut off all of our cell phones and go from there. As I've been telling everybody now that I went to a convention in...from some senators from another state, one of the senators told me the way he handles it in these hearings is if anyone's cell phone goes off they have to donate $1 to the Food Bank, and if they answer the phone they have to donate $5. So we may start something like that pretty soon, so take care of your cell phones, I guess. Those wishing to testify on a resolution should come to the front of the room when that resolution is to be heard. If someone finishes testifying, the next person should move immediately into the chair at the table. The green sign-in sheets for all testifiers are at

tables by the doors and need to be completed by all people wishing to testify. Please complete the form prior to coming up to testify. When you come up to testify, put it in the box, and do not turn the form in before you actually testify. Please print. It is important to complete the form in its entirety. If our transcribers have questions about your testimony, they use this information to contact you. If you do not wish to testify but would like your name entered into the official record as being present at the hearing, there are white sheets for you to sign by the door. The list will be part of the official record of the hearing. As you begin your testimony, state your name and spell it for the record, even if it is an easy name. Please keep your testimony concise and try not to repeat what someone else has covered. If there are large numbers of people to testify, it may be necessary to place time limits on testimony. If you have handout material, give it to the staff and it will be circulated to the committee. If you do not wish...do not choose to testify, you may submit comments in writing and have them read into the official record. No vocal display of support or opposition of the resolution will be tolerated. I would also like to remind you that the purpose of the hearing is to gather information for the benefit of the committee. It is not appropriate to respond to what someone else has testified to unless a committee member asked for clarification. With that, we will have committee counsel go ahead and open on LR366, brought forward by Senator Christensen. []

MARK LUDWIG: Thank you, Chairman Louden and members of the Natural Resources Committee. For the record, my name is Mark Ludwig, M-a-r-k L-u-d-w-i-g. I am legal counsel for the Natural Resources Committee. And because we have a large group here and three interim studies tonight, in the interest of time Senator Louden has asked me to not succumb to lawyers' disease by being overly wordy and verbose, so I'll keep this real short and simple. As Senator Louden said, this interim study is LR366. It was introduced by Senators Christensen, Carlson, Avery, and White, Senator Christensen and Carlson both present here tonight. I think what I'll do, just for the benefit of the audience that may not be familiar with this interim study and to read into the record, I'll read a portion of the interim study into the record that I guess gets to the gist of what

this interim study is basically about, and it's basically to investigate the impact that improved irrigation efficiency could have on Nebraska's water shortage. This is to help the Legislature determine whether improved efficiency can be achieved through education of farmers on the most efficient uses of water, incentives to convert from surface irrigation to low-pressure irrigation systems, tax credits or other incentives to convert from high-pressure irrigation systems to low-pressure irrigation systems, promotion of development of more drought-resistant crop strains, and other methods of improving efficiency of water use. And I know Senator Christensen may speak to the subject matter of this interim study and I think we have some...maybe at least one member of the pivot manufacturing industry to testify here tonight as well as any party. So with that, I'll end my opening remarks. [LR366]

SENATOR LOUDEN: Okay. Thank you, Mark. Senator Christensen, would you like to make any remarks on this subject, since it is your interim study? [LR366]

SENATOR CHRISTENSEN: Sure. Just, you know, many people have seen the value of changing from gravity to irrigate...or to pivots and the benefit that has given us, and the industry has evolved from the high pressure, high arching, down to the low angle impacts to...then to the drops that are truss rod level, about seven foot off the ground. And we've seen even new nozzles that have increased water droplet size, reduce the amount of evaporation, and even LEPA system that takes drops down to about a foot off the ground. And there's still areas that need to have the conversion from gravity, the pivots, but I think there's also additional things we can learn from the industries out here and from you folks, and that's the kind of information I'm hoping to see. Well, our hope in drought-tollerant corns and things come that we can reduce the water use to help us in compliance and maintaining stream flows, but also there's new technology of using computers that will shut pivots off when it rains and things this way. And I'm sure there's things I've left out and that's the type of thing I'm hoping to gain here. Is there additional technologies? Is there ways to incentivize this through tax credits, EQIP programs, additional things this way that would benefit you guys? So that's kind of what I'm hoping

to learn and you guys probably have additional ideas beyond mine. Thank you. [LR366]

SENATOR LOUDEN: Okay, first testifier, please. [LR366]

ROBERT MEANEY: (Exhibit 1) Thank you, Senator Louden and members of the committee. First, my name is Robert Meaney. I'm senior vice president at Valmont Industries. I'm based in Omaha. And I would first apologize to all the members of the committee who know a lot more about center pivots and agriculture than I do, but I'll give you an overview of the activities of our Center Pivot Manufacturers Association. [LR366]

SENATOR LOUDEN: Can you spell your name for us? [LR366]

ROBERT MEANEY: Yes. M-e-a-n-e-y. []

SENATOR LOUDEN: Okay. []

ROBERT MEANEY: Okay. Well, starting a couple years ago, we just became...the people who run the different center pivot companies in Nebraska got together just to discuss our concern over the water shortage issue in Nebraska, recognizing that a lot of the water that goes on to fields in Nebraska goes through center pivots, and tried to figure out what we should do or could do to communicate more to people about the aspects of center pivots related to water conservation and contribute to perhaps reducing or improving the efficiency of the use of water in Nebraska, recognizing Nebraska is the home state for...where center pivots were first developed, and it's the home state for four companies that have the majority of the world market for center pivots. And it's important to use that we contribute to water management in our home state. So we started by just discussing and recognizing that irrigation is the foundation of the economy of Nebraska. Really, irrigated agriculture is very important for the state's economy. We looked at the Lamphere (phonetic) study from University of Nebraska

which pointed out that actually agriculture is not only a very, very important part of our economy but becoming more important, and the reason it's becoming more important is because Nebraska is so efficient in its agricultural production and actually gaining share against competitors at home and abroad. We also, of course, are very articulate about pointing out how efficient center pivots are with relationship to other means of irrigation, flood irrigation, even drip irrigation, which is also quite efficient in its use of water but not really a proven technology for large field production agriculture, especially grain agriculture. I've given to the clerk a few PowerPoint slides that show one of the studies that has been done comparing center-pivot irrigation to flood irrigation in the state of Nebraska. It's a study done in Hall County by the university several years ago, actually awhile ago, but it's a very clear study and it shows that using less than half the water that flood uses, center pivots...the fields involved with center pivot, that had center pivots on them produced comparable yields. And we've seen this in many, many places and we have many, many studies. This is just one that's particularly clear, but there are many studies that are just as persuasive, maybe a little bit more detailed. So the fact that center pivots are more efficient than the traditional methods of irrigation used in the states, in this state and around the world is, we think, very important to recognize. And we're hard at work all the time to improve that technology, to add more control, better controls and to better understand the interface of the technology with the crops, and that knowledge keeps advancing. At a certain...early in our efforts we met with Governor Heineman and talked to him about this, about the fact that center pivots are an efficient way to irrigate compared to other means, and his challenge to us was, well, what are you going to do about it, and we talked about that too. Of course, a lot of it goes back to policy, which is more the province of the Unicameral and the DNR and the NRDs. We're pretty well occupied trying to make good equipment and improve it, and not really the best qualified to engage in policy. Of course, many of our dealers throughout the state are involved in discussions with the NRDs and the DNR and they probably have quite a bit of knowledge in this area, but we ourselves are more focused on manufacturing, of course, and not on policy. But we did, after some discussion, come to the realization that if we could influence the efficiency with which pivots are used and improve the

knowledge of growers about how to use/schedule pivots and maintain pivots in a way that could improve the efficiency by, say, 4 or 5 percent, when you multiply that by the very large number of pivots in the state you come up with a lot of water. So we felt that we should concentrate on that and that's what we've done for about the last year, working with the university, the water faculty at the university, and the DNR. And we applied for a grant with the Nebraska Environmental Trust and we...it's kind of a joint effort and we have set up a trial training program with some dealers during this past winter which went very well. The evaluations were very positive. The growers who came to the training sessions were very happy about it and wanted to learn more. These were sessions we set up through our dealers, which is a good way to animate and motivate, we think, the growers to get involved. And so we're in the process now of we've hired an executive project manager, really. We call it the Center Pivot Water Conservation Project and the manager is working on putting together a three-year progressive curriculum, really starting at the beginning with the basics of evapotranspiration and water management, and then moving on to more complex subjects the second year, getting into measurement and analysis techniques, and then in the third year going to a higher level of sophistication and getting into things like controls and what's coming down the pike in terms of information management, etcetera. So that's an overview of what we've done. It's a very focused activity and we're trying to make some progress and actually get something done. We will have sessions this winter with the growers, so... [LR366]

SENATOR LOUDEN: Okay, thank you, Robert, for your testimony. Questions for Robert? Senator Harms. [LR366]

SENATOR HARMS: Thank you, Senator Louden. Robert, when I look at your first sheet here on why center pivots, can you help me better understand how do you determine that pivot gives us better crop quality? What criteria do you use to make that kind of statement here? [LR366]

ROBERT MEANEY: I'm not... [LR366]

SENATOR HARMS: I can understand the yield and how you might be able to run that, but I don't understand how you can do the better crop quality because I'm not sure I agree with that. [LR366]

ROBERT MEANEY: I'm not a technical expert, but it's got to do with having water in the right place at the right time and applying it to the crop in a way that is...the method of application can be varied. It can be done at the root, near the ground level; it can be done on the canopy for certain crops; and it can be changed during the growing season. [LR366]

SENATOR HARMS: Do you have any research that supports that? [LR366]

ROBERT MEANEY: I think there's research in our...we have really quite a bit of research. The biggest challenge is to find something that perfectly answers the question,... [LR366]

SENATOR HARMS: I'd like to see that, if I could, okay? [LR366]

ROBERT MEANEY: ...but we can get that out and give it to you. [LR366]

SENATOR HARMS: Okay. Thank you. Thank you, Mr. Chairman. []

SENATOR LOUDEN: Senator Christensen. [LR366]

SENATOR CHRISTENSEN: Thank you, Chairman Louden. With variable rate planning technology and yield monitoring where we can see the benefits to heavier population on your better ground, poorer or less population on weaker ground, we can do the same thing if it's uniform through a field with application with a computer system speeding the

pivots and slowing them down. This technology is all here right now to better apply water with pivots and increase yields where it's profitable on different types of soil than others, correct? [LR366]

ROBERT MEANEY: Yep. And we're working on making that easier and smoother as we go forward, too, being able to control different sprinklers on a pivot, etcetera. [LR366]

SENATOR CHRISTENSEN: Is there anything new this direction that you can share with us that's coming? [LR366]

ROBERT MEANEY: There are things that we're working on but...things that address the amount of water applied at any particular part of the field, things that...but I don't really have the specifics on it. I think we can get you a listing of some of the things that are being developed, though. One of the things you have to recognize, I'm speaking for the association so I tend to fall into the trap of talking about what my company is working on because I really am not party to what the other companies are working on, so... [LR366]

SENATOR CHRISTENSEN: Thank you. [LR366]

SENATOR LOUDEN: Senator Carlson. [LR366]

SENATOR CARLSON: Senator Louden. Robert, I know many places of the in Nebraska but I'm not sure of all of them. Where is Shelton? [LR366]

ROBERT MEANEY: It's in Hall County. [LR366]

SENATOR CARLSON: In Hall? [LR366]

ROBERT MEANEY: I think it's on the border of Hall County and Buffalo County. [LR366]

SENATOR CARLSON: Okay. It's Shelton with a T. [LR366]

ROBERT MEANEY: Maybe. [LR366]

SENATOR CARLSON: And I'm not trying to be a smart aleck, but... [LR366]

ROBERT MEANEY: Yeah. No, I... [LR366]

SENATOR CARLSON: ...the reason I ask, because it makes a difference where it's located in terms of what you could expect on average use over a period of time. So it is Shelton that's between Kearney and Grand Island. [LR366]

ROBERT MEANEY: I...yeah, I'm not exactly sure where it is. [LR366]

SENATOR CARLSON: Yeah. Okay. Thank you. [LR366]

SENATOR LOUDEN: Questions I have: When you...I'm a rancher so I don't have a center pivot, but when I drive around, on your end guns and stuff, is that still an efficient way of delivering water to a crop, with that end gun that shoots it up in the air? And what have you done for technology? Do we improve that efficiency? [LR366]

ROBERT MEANEY: I know that there are end gun shutoffs and I know that there are various ways to manage an end gun. I also know it's probably the most difficult piece of a pivot to defend when you're talking about water conservation. But there are circumstances, I'm told, that end guns are appropriate and so...but there are also areas where end guns have been restricted, so... [LR366]

SENATOR LOUDEN: Then is your company that makes them, you're making end guns like you always have? [LR366]

ROBERT MEANEY: We actually don't make... [LR366]

SENATOR LOUDEN: Have you...I guess have you increased...improved the technology on end guns from what they were five years ago or something? [LR366]

ROBERT MEANEY: I think the technology on end guns is pretty much the same, but I'm guessing. [LR366]

SENATOR LOUDEN: It's a pipe at the end of the pivot that shoots water and that's about it, huh? [LR366]

ROBERT MEANEY: Yeah, hopefully not on to the road. (Laughter) [LR366]

SENATOR LOUDEN: That was probably one of my other questions, but...(laughter) and I guess that's where I was wondering, because that's kind of an issue in places where they're talking about increasing or decreasing irrigated acres and it's whether or not you allow end guns. And then I'm wondering if there has to be a decrease in acreage. Is that the first...would that be the first place to look for a decrease in irrigated acres if you get into some of these NRDs that are having ground water depletion? [LR366]

ROBERT MEANEY: Yeah, that's really out of our province. I mean we supply them as required and the judgment on how to do that is...it's a very local...as you know, water is a very local issue and we manufacture pivots for the world. So that's how we ended up backing ours...you know, we really...there's not that many things we can do, so we're trying to do one thing very well, which is this educational program. [LR366]

SENATOR LOUDEN: When you ship circle pivots to other parts of the world, do you ship them with end guns? [LR366]

ROBERT MEANEY: Yeah, often. Yeah. [LR366]

SENATOR LOUDEN: Okay. Thank you. Other questions for Robert? Senator Hansen. [LR366]

SENATOR HANSEN: Thank you, Senator Louden. It's good to hear that the manufacturing industry and center pivots are all coming together, but my question would be if you discover new technology at Valmont, will you share that technology with the other manufacturers in the, you know, just in the marketplace to actually conserve water, or will you patent some of those and continue just doing those in Valmont or (inaudible), whoever invents the technology, or will you share it? [LR366]

ROBERT MEANEY: No, we would exploit it for our own gain. I mean that's the way that we're built and we will do a very good job. We'll make it available to people everywhere in Nebraska and everywhere in the world. [LR366]

SENATOR HANSEN: Okay. Thank you. [LR366]

SENATOR LOUDEN: Other questions? Seeing none, thank you for your testimony. Thank you for coming here tonight. Next testifier, please. [LR366]

STEVE SMITH: (Exhibit 2) Chairman Louden, members of the committee and staff, I'm Steve Smith, S-t-e-v-e S-m-i-t-h, and I'm appearing here on behalf of the North Platte Valley Irrigation Association, which includes most of the irrigation districts and canal companies in the North Platte River system and the Nebraska Panhandle. These canal companies and irrigation districts provide surface irrigation water to approximately 350,000 acres above Lake McConaughy. I have submitted written testimony. I do not intend to repeat the entirety of it and would ask that that be made or read into the record so that the committee can consider it. I would like to make very brief comments about LR366. And to avoid repetition, most of the comments about LR366 tie into LR286, which deals with return flows, because my concerns about LR366 relate to the effect on

return flows. So I will, in more detail, and I have provided written comments, I will in more detail address return flow issues when I discuss LR286, with the committee's permission. We ask the committee to keep in mind that the entire North Platte Valley above Lake McConaughy depends upon recharge from canal systems and use and reuse of return flows from surface irrigation projects to maintain the viability of our domestic, municipal, irrigation, and industrial water uses. Accordingly, and I'm quoting from LR366: "Incentives to convert surface irrigation to low-pressure irrigation systems" and related issues must also fully recognize and consider the potential adverse consequences of reducing or eliminating surface water diversions, historic usage, and return flows in the North Platte Valley. This proposal may be more appropriate if applied only to ground water. What may be viable in one basin or irrigation project will not necessarily make sense elsewhere. We believe that a one-size-fits-all approach cannot work in this state due to the wide variety of locally unique conditions affecting our surface and ground water supplies. Again, I would like to address in more detail how we depend on return flows out here, and I think those members of the committee that are taking the time to go on the tour tomorrow will see firsthand exactly what we're talking about. So I'll defer further comments, with your permission, Chairman Louden. [LR366]

SENATOR LOUDEN: Okay. Thank you, Steve. Any questions? Senator Christensen. [LR366]

SENATOR CHRISTENSEN: Thank you, Chairman. Steve, when you're concerned about return flows that you mentioned, efficiency is still there to do it by pivots. I irrigate several pivots out of ditch water and use screen for the end of the pivot and have increased my efficiency yields in this way. Are you referring to return flows that need to come back for others to use, which inadvertently would be made up by using less, that's not going through the field, or is there another return that you're concerned about here? [LR366]

STEVE SMITH: Well, again, I'd like to address that in more detail but that's a good

question. There's two types of return flows that get back to the river, basically, and that's from direct surface water application from the fields that run out at the ends. There's also spills from the canals, and there's also seepage from the canals that gets into our aquifers and eventually gets back to the river. So it's all those return flows. And our association isn't taking a position against this resolution which we think has merit, because you're studying it, but we only want the committee to make sure it addresses the specific and unique characteristics of various parts of the states and determine whether any proposed legislation would have an adverse effect on return flows. And this part of the state, from the state line to Lake McConaughy, probably including Lake McConaughy, depend on undiminished return flows more than any other part of the state, is my only point, Senator. [LR366]

SENATOR CHRISTENSEN: Thank you. [LR366]

SENATOR LOUDEN: Other questions? Thank you, Steve, because we'll discuss that on the other one, yeah. [LR366]

STEVE SMITH: Okay. Okay. Thank you. [LR366]

SENATOR LOUDEN: Thank you. Next testifier. [LR366]

BRIAN BARELS: (Exhibit 3) Chairman Louden, members of the committee and other senators who are present, my name is Brian Barels, B-r-i-a-n B-a-r-e-l-s. I'm the water resources manager for Nebraska Public Power District. We utilize surface water and ground water in the generation of electricity. We also deliver natural flow irrigation to three irrigation canals from essentially Gothenburg to Kearney. We also operate a reservoir storage system, the Sutherland Reservoir, Lake Maloney, to provide supplemental storage water for hydropower, cooling of our Gerald Gentleman Station, and for storage water downstream. The dependency on return flows doesn't just end at Lake McConaughy. It continues on down the Platte River all the way to Kearney,

Nebraska, and that is...so I'd like to continue a little bit with the line of comments that Mr. Smith touched on in his previous testimony. In order to discuss the implications of improved efficiency, it is important to understand the concepts and the circumstances and conditions associated with proposed improvement. Improved irrigation efficiency is typically defined as any action to reduce water demand that can be expressed in a reduced need for diversion, pumping or handling of that water supply. Many actions typically referred to as efficiency improvements provide no opportunity to reduce water consumption and some actually increase consumption. There are numerous instances where wasted water, or return flows as it might be called, from the upstream water supply is relied on for a downstream water user. There are a number of efficiency improvement outcomes that could be desired or produced, including improving the delivered amount, increasing the consumption amounts, increasing the yield amounts, and improving the available water supply. Historically, efficiency improvements have been made to increase yields and reduce supply shortages, or to provide water for additional irrigated acres. Efficiency improvements must result in a reduction in consumption to provide any water supply benefits. To provide any increase in water supply, the efficiency improvements must be managed to ensure that a benefit is actually achieved. Also, it is important to look at the surface water and ground water separately, as Mr. Smith indicated, when you consider efficiency improvements. Let me begin by addressing ground water efficiencies. One of the most likely outcomes is a reduction in the amount of ground water pumped. This can be beneficial in two ways. First, it reduces the cost of energy consumption and, second, it can protect ground water levels in the local areas where this might be an issue, and maintaining the ground water levels may also, in turn, maintain base flow return to the streams. The potential for increasing the available water supply may be fairly small depending upon the action taken. This is because the only real water savings potential is that amount that results in a reduction in consumption. From a surface water perspective, an increase in efficiency generally results in a reduction in runoff or recharge and, again, I'll touch on that a little bit more in my testimony on that specific item as well. But in summary, if your goal is to increase the available water supply, the efficiency improvement must result in a

reduction in consumption, and management constraints must be included to ensure the water saved is not used in a manner that will cause an increase in consumption, and that may reduce a supply to downstream water users. Reductions in the need to divert water by upstream irrigators, surface water in this case, would also have negative effects on those supplies. We have attached to this testimony some slides presented by Dr. Dean Eisenhauer of the university that get into some things that are considered to be efficiency improvements, and through these examples, and I won't go into any great detail in them, you can see that some of the efficiency improvements may actually result in a better application of the amount of water and, as such, increase yield and consumption. As such, you probably haven't saved any water and haven't benefited the water supply. When you take a look at moving to the center pivots, which was a discussion earlier, you've got to look at both the impacts as well as the benefits. And I would just touch on the last slide in Dr. Eisenhauer's information and point out that some of the common methods that will actually increase your water supply and reduce consumption would be a reduction in the drift overspray, or moving from high-pressure to low-pressure nozzles, as was discussed; use of drip irrigation; and removal of end guns. The other way to achieve a reduction in consumption is to reduce the irrigated acres or reduce the crop density. And so the bottom line is, in summary, you've got to look at both sides of the equation and is the efficiency actually reducing consumption, and it's only through the reduction in consumption that you get a benefit to the water supply. With that, I'd be glad to answer any questions. [LR366]

SENATOR LOUDEN: Questions for Brian? Senator Christensen. [LR366]

SENATOR CHRISTENSEN: Thank you, Chairman Louden. I guess I've been through the full circle of gravity irrigated, where I used 18 to 24 inches, to where I'm down to 8 inches now with pivots. I've been through the surge that you...surge valves and such you've got in here, efficiency. I guess I understand that if you're taking this same 18 inches and spreading it over more acres, you've lost return flows. That part I understand. That's a given. But are you not looking...if this was done with the proper

management, if people put in pivots, went down to 10-12 inches, instead of 18 or whatever it takes, 14 instead of 18, whatever, run through, you're going to benefit the whole system because that water is going to become available. And so if it's done through proper management, you can't help but want to increase these efficiencies because it's going to be beneficial. Because all my water that runs through the field on gravity now soaks all the road ditches, all them weeds, all them grew better and that a lot of it had to go miles before it got to a stream, or it had to soak down, but you're losing so much with the increased CU of things this way. I would think this could be very easily developed to put the efficiencies of pivot where it's gravity now, or T-Tape or whatever direction you want to go and reduce the amount of water and increase the total supply. Yeah, are you just looking for... [LR366]

BRIAN BARELS: I don't... [LR366]

SENATOR CHRISTENSEN: ...make sure there's management with it? [LR366]

BRIAN BARELS: I don't disagree with the concepts, if you're on ground water and you're maintaining ground water levels and maintaining base flow returns to the stream and you've resulted in a reduction in consumption. Now if your old ground water method didn't get the maximum yield and your pivot now can be retimed to optimize the yield, you've increased your consumption. You have to look at the net benefit of the specific situation you're talking about. And I agree with you. You can manage to increase the water supply. If you take that over on the surface water side and say, well, now I'm going to deliver less surface water to that irrigation canal, that seepage and those return flows were someone's downstream supply and that's going to have an effect that ripples down the river system, all the way from the western side of the state with the supplies from the reservoirs in Wyoming, to Lake McConaughy, to Sutherland Reservoir, to Grand Island, Nebraska, and Omaha, Nebraska. And so you have to look at the specific situation, see what those changes are, and make sure that the management doesn't cause unintended consequences. [LR366]

SENATOR CHRISTENSEN: I understand the point you're getting to there, but specifically, as a farmer, you're going to want to get to the maximum efficiency because our water supplies have decreased. [LR366]

BRIAN BARELS: Well, if you're on the canal downstream, you might not want your neighbors doing that. [LR366]

SENATOR CHRISTENSEN: Well, that could be very true. [LR366]

BRIAN BARELS: Because it may be their water supply. [LR366]

SENATOR CHRISTENSEN: But you can...there's a lot of trade-offs here between not letting it run off and doing... [LR366]

BRIAN BARELS: I don't disagree, but you got to concentrate on a reduction in consumption and look at what the overall effects are and what the net benefit within the basin is. [LR366]

SENATOR CHRISTENSEN: Yeah. Well, I think we're on the same page. [LR366]

BRIAN BARELS: I think so. [LR366]

SENATOR LOUDEN: Senator Carlson. [LR366]

SENATOR CARLSON: Senator Louden. Brian, I'm going to ask it a different way, as I think I'm following the concept of reduced consumption, but I don't understand how. Let's take ground water, if I pump 8 inches instead of 12 and I grow the crop, that's beneficial to the water supply. And let's take the same 8 inches versus 12 inches on surface water. If I divert 8 inches out of the river instead of 12 and grow my crop, the

other 4 inches has gone down the river. How is that not beneficial to the whole supply? [LR366]

BRIAN BARELS: Well, if it was released from an upstream reservoir only to deliver the four inches you asked for, it might not continue down the river. So again, the source of the water and the effects of the changes have an effect on the overall river, and it's more part of the LR288 testimony, but these water systems have developed to the state they're in today by utilizing these return flows as they come down the river systems, and the management and the administration of the rivers reflects that. Some of the more senior water rights may be in the central part of the state and you don't have to manage all the way up and down the river system to achieve some of the water those senior water rights need by the operation of the canals up above them, and you don't have to release as much water from some reservoir systems downstream as well. All I'm saying is, yes, we want to move to increase efficiencies and reduce consumption. Just be sure we look at all the ramifications throughout the basin of those changes in efficiencies and what they might mean. [LR366]

SENATOR CARLSON: Well, then where we can certainly be on the same page with this whole thing in reducing consumption is to get rid of the vegetation that robs everybody. (Laughter) [LR366]

BRIAN BARELS: Vegetation does consume water, whether it's in the road ditch or the river. [LR366]

SENATOR CARLSON: Thank you. [LR366]

SENATOR LOUDEN: Senator Erdman. [LR366]

SENATOR ERDMAN: Brian. [LR366]

BRIAN BARELS: Oh, I'm sorry. [LR366]

SENATOR LOUDEN: You got one more. Thank you. [LR366]

SENATOR HANSEN: He just woke up. [LR366]

SENATOR ERDMAN: Careful, Tom. (Laughter) You're out here in western Nebraska now. If I'm hearing you correct, I think there's an assumption or there's an insinuation that the solution under LR366 is center pivots, but I know from farming and irrigating in western Nebraska and the examples you give it's a matter of taking the right tool and applying it to the right situation. But one of the other things that I think is key is in the management is the timing of this, and that gets into return flows. It's not just a matter of consumption and use. It's a matter of them relying upon that water downstream and when that water arrives. And a different function or a different way of delivering that irrigation to that crop not only affects that crop and consumption, but it affects the timing of when that next user receives it, which has an impact on management but also has an impact on delivery and all kinds of factors that are probably more complex on a surface water system than obviously on a ground water system. And we're experiencing that out here, whether there's a drought or otherwise, because of our reliance on that surface water delivery. [LR366]

BRIAN BARELS: Exactly. And I agree totally and get into that a little bit more in the LR288 testimony. And you're exactly right in that that timing continues on downstream. The system with the storage clear in Wyoming, again, it's nice to store water for folks in Wyoming, but let's make sure that our efficiencies don't short people in Nebraska along the way, or change the timing such that it can't be utilized in a beneficial manner. I agree totally. [LR366]

SENATOR LOUDEN: Okay. Thank you, Brian, for your testimony. Next testifier. Okay, one...before we get started here, why, the clerk mentions that with the fans going you'll

have to speak up into that little square deal pretty good so that she can pick it all up. [LR366]

BARBARA KOEHLMOOS: Senator, and if the senators could, too. I have to pick up the exchange between everyone and I can't do that, so... [LR366]

SENATOR LOUDEN: Okay. [LR366]

BARBARA KOEHLMOOS: ...if you guys here could speak up, too, I'd sure appreciate it. [LR366]

SENATOR LOUDEN: Okay. Either that or we got to shut the fans off. [LR366]

BARBARA KOEHLMOOS: Afraid so. [LR366]

SENATOR LOUDEN: That's the choice you have. You either talk or sweat. Okay, go ahead. Thank you. [LR366]

DENNIS STRAUCH: (Exhibit 4) Thank you, Senator. Welcome to western Nebraska, all senators from east of here, because most of you have to be east of here because we are right at the state line. My name is Dennis Strauch, spelled D-e-n-n-i-s, last name S-t-r-a-u-c-h. I am the general manager for Pathfinder Irrigation District here in the Panhandle. The district provides irrigation water to over 850 customers, serving about 100,000 acres in Morrill, Sioux, and Scotts Bluff Counties. I didn't think I was going to testify on this bill, I prepared some comments, but some of the questions I hear obviously show some confusion and I hope my comments will help clarify that. I think the question and the answers or the comments from Senator Erdman I think were right on target with what the concern is for surface water on this issue, so I'd like to go ahead and read my comments. As with any strategy developed to address water supply shortages, conservation or on-farm efficiency improvements should be part of any good

management plan. But key to the plan must be an understanding of the unintended impacts such improved efficiencies may have on other resources. Conversions from gravity irrigated systems to more efficient center-pivot systems will reduce the amount of water diverted or pumped but not the amount consumed by the crop being irrigated. For ground water irrigation, this will reduce the amount of ground water withdraw, thereby extending the life of the aquifer and possibly improving streamflows. Now consider surface water irrigation. If less water is diverted there should be more water left in the stream. But if the supply comes from storage water, it will most likely result in more water left in storage at the end of the season. When the latter occurs, less water enters a particular reach of the river system and, consequently, less water returns to the river for the next appropriator's use, thereby creating shortages downstream. This would most likely be the case for the North Platte Valley, since the majority of the water that enters the valley is storage water. The North Platte Valley could also see impacts to ground water supplies since that water system is...our surface water system is the primary source of recharge to the aquifer, including recharge from the application made to the field. Less recharge will result in diminished ground water supplies, reduce stream flows for downstream uses, lost fish and wildlife and recreational benefits, and impacts on water quality. I'm not saying that improvements in irrigation efficiency are bad, but what I am saying is we need to understand what the negative impacts may be and how do we address them. What is obvious is that what may work in one river basin or part of the state may not work in another due to the varying conditions. My district is about 75 percent or 80 percent storage water user. We already...we have significant conversion to center pivots already in our district and I don't oppose them, and if I did I'd get shot by my board of directors because every one of them has center pivots. (Laugh) I think the key to this is understanding that there could be some consequences we don't intend and may not be always obvious when we make these conversions to more efficient uses or applications of water. It's just that we have to consider them as we develop these management plans to ensure that there may be thing we can do to help offset those unintended consequences. I'd be glad to answer any questions. [LR366]

SENATOR LOUDEN: Okay. Questions for Dennis? Senator Christensen. [LR366]

SENATOR CHRISTENSEN: Chairman Louden, thank you. Dennis, what was your allocation, say in the seventies, versus nineties, versus now? Is it the same? Has it changed any? [LR366]

DENNIS STRAUCH: Allocation basically provides for a full supply, did in the seventies. We had a reduced supply late eighties, early nineties. We had a full supply basically from '93 until 2001. During the drought period here of 2002 through last year, our supply was reduced to about 80 percent of normal. [LR366]

SENATOR CHRISTENSEN: And what is the full? [LR366]

DENNIS STRAUCH: Full irrigation supply in our district is whatever they need, to be quite honest. Our contract for federal storage water is only limited by beneficial use, so we can't deny water supplied to our users under contract. We try to manage as best we can to limit their ability to use water in ways that help restrict that use. Our average delivery prior to the drought was probably in the neighborhood of 20 inches. [LR366]

SENATOR CHRISTENSEN: Was 20? [LR366]

DENNIS STRAUCH: Twenty inches. [LR366]

SENATOR CHRISTENSEN: Because I know our full delivery, Frenchman-Cambridge down there, is 36 inches, but we've been under an 8-inch allocation or 9 now for 6-7-8 years. [LR366]

DENNIS STRAUCH: Uh-huh. [LR366]

SENATOR CHRISTENSEN: But the original contract I believe reads 36 inches. That's

why I wondered what you were actually delivering and if you're seeing a decrease like we are in the amount available. [LR366]

DENNIS STRAUCH: We're seeing...we're actually seeing a decline in demand, and I think it is tied to the conversion to center pivots that we have. Keep in mind, the less water we bring into our canal system, the less water goes into ground water recharge, the less return flow that results from it. So we have to be careful how we manage the resource in this valley because we could have damaging effects on the aquifer if we're not careful. [LR366]

SENATOR CHRISTENSEN: If you have the water supply, let's say you've got the supply for the 20 inches, somebody, because of a pivot or an efficiency, only wants 12, can you have them call for the other 8 inches and just send it through the canal system? [LR366]

DENNIS STRAUCH: No. By contract, I can't release water for an in-stream need. I mean our contracts are with the Bureau of Reclamation and, as such, they are for direct irrigation. [LR366]

SENATOR CHRISTENSEN: But the farmer technically could receive it on his ground and then run it through the end and make return flow. [LR366]

DENNIS STRAUCH: He would have to apply it to the land. [LR366]

SENATOR CHRISTENSEN: Yeah. He's just have to turn it out of gated pipe or something and make the return flow. [LR366]

DENNIS STRAUCH: What you're getting at, I think what you're getting at is there are solutions, and I agree. I just think that we have to look at what they might be and make sure we plan for them as we make conversions to a more efficient use of water. [LR366]

SENATOR CHRISTENSEN: I understand the consequences in return flows and the system. I'm sure I'll learn more tomorrow. But I'm just trying to resource a little. [LR366]

DENNIS STRAUCH: Like I said, I'm not against conversion to center pivots (laugh) because I do have a board of directors that all utilize center pivot, more efficient systems, and we've seen a major conversion to center pivot in the last five to ten years in this valley. You'll see that tomorrow if you're part of the tour. [LR366]

SENATOR CHRISTENSEN: Thank you. [LR366]

SENATOR LOUDEN: Okay. Well, seeing no more questions, thank you for your testimony. [LR366]

DENNIS STRAUCH: Thank you. [LR366]

SENATOR LOUDEN: Next testifier on LR366? Okay, seeing none, then we will probably close it on LR366. I will make one comment here, that I agree that center pivots...this came about, what is it you say, necessity is the mother of invention, and when we got in the dry years that was how we...how necessity came about, was putting center pivots in and then using that more surface water more efficiently. The problem comes up then, what do we do about return flows? And my observation is that we've come up with the technology to be more efficient with water but we're using, what, a hundred-year-old water system and do we have to bring the way that hundred-year-old water system delivered water up to match the technology we have now in order to make it more efficient? We can put it...we can be more efficient with putting it on the land, but are we more efficient with bringing the water down for our recharge and to go on down the river for other irrigation districts? With that, I'll close LR... [LR366]

CYNTHIA MONROE: Barb says there's another testifier. [LR366]

BARB KOEHLMOOS: One more testifier. [LR366]

SENATOR LOUDEN: Oh! On LR366? [LR366]

MARK WATSON: Yes. [LR366]

SENATOR LOUDEN: I'm sorry. I thought you were going to testify on the next one, but we'll go with you now. [LR366]

MARK WATSON: Do you want me to? [LR366]

SENATOR LOUDEN: No, whichever one is going to work the best. [LR366]

MARK WATSON: (Laugh) It don't matter to me. Do these go down here? [LR366]

SENATOR LOUDEN: Okay. Go ahead. [LR366]

MARK WATSON: Well, thank you, Senator Louden, for having me and giving me the opportunity to speak to you and your committee. First and foremost, I'm a farmer, so that's what I do. Speaking in front of a senate committee has got me a little thrown off, so bear with me here. [LR366]

SENATOR LOUDEN: Spell your name for the clerk and... [LR366]

MARK WATSON: (Exhibits 5, 6, 7) Oh. Mark Watson, M-a-r-k W-a-t-s-o-n. What I came here to talk to you about basically is kind of our farming operation and what we do. We farm up north of Alliance about ten miles. A little information on myself: I do work with the North Platte, South Platte, and Upper Niobrara-White Resources Districts as a no-till educator for our area. I have winter and summer meetings with local producers,

discussing no-till farming with them. I do go around and do quite a bit of speaking in Colorado and Nebraska and Kansas as well. So basically what we do, my brother and I, we began no-till farming back in about 1990 and we started it on our dryland acres initially, and the reason we really got into it was for profitability. We thought we could make our farm more profitable. Didn't have anything to do with soil quality or water savings or anything like that. We were trying to become more profitable and that's still the main reason that we no-till farm. In 1994, we went ahead and converted all of our irrigated acres to no-till and, since that time, the farm has been continuous no-till. We operate about 3,500 acres. About 1,100 acres of that is irrigated ground, and about 2,400 acres of dryland. I wanted to point out to you the types of soils that we farm with because it is important, when you're managing water in a farming operation, to know what the water-holding capacities of your soils are. Our better soils are Alliance silt loams, which will store about 1.8 inches of moisture per foot. The problem is our soils are only a couple feet deep. Below that, it's a calcareous soil type which will store about an inch per foot. Part of our farm is in...with fine sand. It's about as sandy a sand as you can get. It will store about an inch of moisture per foot. So basically our water-holding capacity in a four-foot profile is about four to six inches across our farm. Our average precipitation is about 15 inches in our area. Over the last seven or eight years, I'm sure it's less than 10. We've been in a pretty significant drought. In '94 we...or in 2004 we began monitoring our water use. Prior to that we really didn't have any idea how much water we were pumping with our center pivots. We started installing flow meters on the wells and during that time since 2004, with probably average rainfall of, oh, I would guess 8 or 9, maybe 10 inches or total precipitation, we've been using about 8 inches per center pivot to fully irrigate our corn, edible bean, and winter wheat crops. One thing I'd like to point out is we do fully irrigate where at this point we're not doing any of the timely irrigations or whatever. We don't hesitate to turn the wells on if we feel the crops need some water, so during this time crop yields have been pretty good. We've had some, oh, 200-bushel corn and 100-bushel wheat and 40- to 45-bushel beans. Provided it doesn't hail, we can keep our yields up pretty good with no-till farming. So far this year we've had just a little bit over 8 inches of rain. About a inch and a half of that came last

weekend, which we were awful glad to see. Prior to that, we've been awful dry. We're still running about 3.75 inches below normal, so we're still in a drought. But the reason I want to point this out to you is that on our better irrigated soils with the silt loam, we've applied 7 inches of water so far to our corn, 4.5 inches to our edible beans, and we've put 7.5 inches on our winter wheat. And I will show you here shortly, I've over irrigated those crops so far. We haven't used a lot of water, but I also know I've over irrigated. So with no-till farming, our water use efficiency is even surprising to me how well it works. On our fine sandy soils, so far at this point we've applied 6.5 inches to our corn in those soils, and two pivots of beans, we've put 5.5 inches on one and 6 inches on the other. The reason partly for that is on those where we farm the very fine sandy soils, we've also got some pretty poor wells. One well pumps 600 gallons per minute and we're irrigating a full circle of corn and about a 75-acre half circle of beans with that one well, so we can't over irrigate. We just don't have the ability to. The other center pivot that we're farming pumps about 450 gallons per minute. We can put on, at best, about .7 of an inch per week. That's about all we can do. So those two wells, we can irrigate with. And I'll show you here later, it's real interesting, because that has been...we're doing a real good job of irrigating down there. On my heavier soils, where we got plenty of water, we're pumping too much water and I'll show that to you. But the way we can do all this is with no-till farming, leaving that residue on the soil surface, improving the soil structure, the soil aggregation, the water infiltration into the soils, all of this goes...combines so that it turns out we can get by with some relatively low water use and still produce profitable crops. And as we go forward in farming in Nebraska, I think it's going to be real important, when we talk about water allocations and restrictions, that we keep agriculture profitable. It's just critical to the state that we're able to do that and I think with no-till farming we'll be able to achieve that goal. Some of the ways we do it, our lack of tillage saves valuable soil moisture since we don't disturb the soil. Tillage operations, you can use...lose between .5 inch and 1 inch of water with each operation, depending on what you're doing. So we've saving water in that respect by not doing any tillage. Soil moisture evaporation, the university has done some studies at the North Platte research center. Having residue on the soil surface will...can save you up to 6

inches when there isn't a crop canopy. Even underneath a crop canopy that residue can save you up to 3 inches during the irrigation season. You can increase your water-holding capacities about .5 inch per foot. For every percent you increase your organic matter, .5 inch of storage in the soil is quite a bit when you're only starting out with 4. If you can increase that another .5 to 1 inch, that's a huge amount of water-holding capacity. So we're doing that with no-till farming. That's the efficiency that the no-till farming provides. Another thing that we're doing on our farm that we just started last year, the university brought out some soil moisture sensors. We put them on our center pivots at our main farm and use those to monitor the soil moisture in the ground so we could do a better job of irrigating. We place the sensors at 1-, 2-, 3- and 4-feet deep in our soil profile because I feel that that top 4 feet, it's critical that we utilize all that water that we've stored during the fallow period of when there isn't a crop growing on the ground, and make sure we utilize all the water that's in that soil. So this year we went ahead on...we have 9 center pivots. We put the monitors on all these pivots. I really think they're an absolute wonderful tool to help irrigators manage their subsoil moisture. Nobody goes out and puts a probe in 4-feet deep, see how wet it is. But if you can get that soil moisture sensor down in the ground, run it out to a monitor and all you have to do is punch a button to see how wet it is, it makes you a lot better at judging how much moisture is really in your soil. So those are some of the things that we've been able to do on our farm. I really just strongly believe that no-till farming can go a long way in helping, helping us better manage water across the state and stay profitable while we're doing it. So with that, I wanted to give you...or if you look at this second handout, these are some graphs that I went...I pulled the information out of the monitors today, so these are updated graphs. And what I wanted to show you with these is how these monitors are working for us. The first one is in our heavier soils, the silt loams, and like I say, we can store about 1.8 inches of moisture per foot. And what these sensors do is take soil reading...moisture readings in centibars, which doesn't make a whole lot of sense to a farmer what a centibar is. But the university has developed or they're in the process of developing some charts for this, which is on about your third page. You can go and look at that centibar reading and look at this

chart and get a fairly good idea of how much moisture is available for your soil type. And they're developing these for different types of soils across the state. So it's been a real beneficial tool. Now what's interesting, if you look at this very first sheet, that's for our corn in the silt loam. That's the field that we've put 7 inches of water on and you can see we're starting to deplete that first and second foot pretty good, third foot is starting to decline, and we haven't even got tapped into that fourth foot yet. But if you go to that second one, this is something I wanted to show you that I thought was pretty interesting. This is just for the month of July. This is just the graph for the month of July in that field. Prior, we had put three-quarters of an inch of water on the field in June and then you can see again there about the 1st of July we put another three-quarters of an inch on because we spiked that top foot clean up to 0 centibars. And in this soil, the field capacity is about 30 to 35 centibars, so the soil was actually overly wet. But anyhow, we drained it down and we got it down to about 40 centibars in that first foot. My brother and I were out there probing the ground because we're still trying to get used to these moisture sensors, so we take a probe out and stick it in the ground and do the ribbon check and see how moist that soils feels to us, and then we'll decide when to irrigate. Well, we thought, well, we better start irrigating that; shoot, it's the 8th of July and we've only put 1.5 inch of moisture of our corn so far. And then we thought, well, if we're going to run the pivot around, let's put an inch on, since we're going around the field anyhow. So on the 8th of July we put an inch of water on and you can see we spiked that first foot all the way up, and the second, third and fourth foot, they're all just staying relatively flat. Well, the corn started using the water out of that first foot and drained it down, but if you look there on the 15th of July, we spiked that fourth foot all the way up to 0. Basically, we ran water through the soil profile. That's one way you can really watch what you're doing, and as we get more accustomed to these sensors we'll get better at it. We basically didn't trust the sensors and we overwatered the crop. Now you're out here in western Nebraska where we've had about 4 inches of rain at this point and we've put 1.5 inch of water on our corn in the middle of July and we overwatered it by putting an additional inch on. It can really, with no-till farming and utilizing these, I really think we can drastically cut our water consumption of what we need to raise profitable

crops. If you go on through to the next page on our edible beans, you can see that soil. At $40 beans, we're pretty reluctant to stress them. I keep telling my brother we don't need water. He's bigger than I am so we water because we're not, you know, it's just the nature of our business that when you get good prices like this we want to try to get maximum yield and we're not going to take any chances. But we have overwatered that crop or we could have gotten by with less water. The one thing that we can do now that the crop is in the production stage is start cutting that water back and let the crop pull the water out of the subsoil and, hopefully, by...in another month we'll have utilized quite a bit of the water that's in that soil. But the other interesting thing I wanted to point out to you, you can take...the way these sensors work, I can look at this chart now and I can see in that first foot we're up to about 50 centibars and second foot is running around 110. I can go to this university chart and get a rough idea that I've got about 4.5 inches of moisture in my subsoil right now. That may be about enough to finish that corn crop off. We may not have to water it a whole lot more. Now we probably will because corn is $5 or $6 bucks and we want to make sure (laugh) it gets enough, but you can utilize this. Last year we did it with these. It was around the 1st of September. The corn was fully dented. We had about 3 inches of subsoil moisture, so we shut the wells off and it worked out real well. We had real good corn yields and, by the end of the season, we depleted all the water out of the subsoil, which is important, too, because you don't want to leave too much excess water in that 4-foot layer. You want Mother Nature to refill it for you by next year. So that's one way we're doing...utilizing these monitors. The other real interesting thing that I found with these is on these sandy soils that we got, because we don't have the ability to overwater, we haven't. And you can see we're doing a real good job. This is the corn field down there that we've put just a little over 6 inches on this year. The corn is utilizing the irrigation water, but it's also been really good at pulling out the subsoil moisture. And we had that first, second and third foot...we drained those pretty well and the corn was starting to use that fourth foot, and then the rains came and that's why everything spiked up there again to the top, because we did get pretty significant rain there over the last couple weeks. My third- and fourth-foot later, they dropped off the chart because I had a critter chew through the wires on it and I just

found it yesterday, so they aren't accurate right now. But anyhow, the same has went on with the beans down on this farm, and I was surprised. This is the first year we've farmed this farm with the poor wells, and we knew they were poor going into it, and the sandy soils. I really didn't know what we could expect down there, but we've got some awful good-looking corn and beans down there and we had wheat that was over 100 bushels to the acre, and we're getting by pretty well even though we've got some pretty inefficient or low well, you know, low-water wells. You couldn't do that if you weren't no-till farming. I know that. You can't irrigate a circle of corn and a big half circle of beans with a 600-gallon well. If you weren't no-till farming, it wouldn't work. But it's a real good example, I think, of what we can do with no-till farming. So I just wanted to point that out to you. Boy, I really think, as the university gets this developed better with these centibar readings and these soil moisture sensors, you know, I just really think there would be a great addition for all the pivots across the state. The other thing I'd point out to you is on our winter wheat down there, if you look, we did a real good job of irrigating that. By the time...by the end of the season, that soil was pretty well depleted of moisture, which is the ideal. If you can get the big yields and utilize all that subsoil moisture, get it out of the soil so you wind up the irrigation season with a dry subsoil, that's the ideal, and then let Mother Nature recharge it over the winter for you. It doesn't do you good to no-till farm if you leave 4 or 5 inches in your subsoil at the end of the year. So I really, really like those sensors. That would be something I would, you know, take a look at when you're looking at water efficiency. Between that and the no-till farming, why, I think we can get along pretty well with a lot less water than what we've been using. The last one, and I'm not going to...I brought that for you, I write weekly articles for the local publications and they get sent out to the local papers and things like that, and this is a series of articles that I put together on how I feel. And if we have normal rainfall, I can get by pretty well with about 6 inches of irrigation water per pivot, raising wheat and corn and edible beans and utilizing a no-till farming operation. So with that, that's really about all. That's kind of a short, brief no-till (laugh) lesson for you. I'd be glad to come down some time and spend a few hours with you or, if you'd like at some time, the other thing that I would invite you to is we're having a no-till field day at

our farm on the 3rd of September. If you happen to be in the neighborhood or you just want to come back to western Nebraska again, why, feel free to stop by and there will be...Ray Ward from Ward Laboratories, Dr. Kristie Nichols out of North Dakota will be there, and it will be a real educational day on no-till farming. So if you happen to be in the neighborhood, why, be sure to stop by. [LR366]

SENATOR LOUDEN: Thank you, and thank you for the invitation, Mark. The one question I would have is how expensive are these sensors? I mean, is this something that's going to be a major, major cost to... [LR366]

MARK WATSON: No, they're...with the company that we bought them through, they were normally $550 a pivot. We ordered them through our government agency so that...and they took $100 per monitor off for us. So it's about $450 per pivot. So if you can save yourself .5 inch of water, you've paid for it, and you can use them year after year. So they're really inexpensive for what everything else is costing us. [LR366]

SENATOR LOUDEN: Okay. Questions for Mark? Senator Carlson, since you're the closest. [LR366]

SENATOR CARLSON: Senator Louden. Mark, very, very interesting. I think this is really an important concept for our state, but two quick questions. What are the drawbacks of no-till, and how may of your neighbors do it? [LR366]

MARK WATSON: Well, there's getting to be...the drawbacks to it, I really haven't seen any other than the fact that you have to go out and purchase some different equipment somewhat. Most planter row crop...most row crop planters will work. Really, we do...we've done a little tweaking to them, but most right out of the factory, they aren't too bad and if you tweak them a little they'll work really well. The grain drills are a little different story. You about...or my opinion, a single disk drill works the best. And if you've been doing conventional wheat fallow you probably have a hoe drill, so you have to

purchase a new drill or at least rent a new drill, and sometimes that isn't particularly easy to do. Other than that, I really don't see any drawbacks to it. I think as more people adopt it, they're going to really enjoy no-till farming. It's, you know, you're improving your soils, you're saving the water and it's easy. I mean it's really...all you do is plant and spray and harvest. It doesn't get much simpler than that. And we don't really use a lot of herbicide. In fact, our herbicide use has been going down, and in some instances we use less herbicide than the people that are doing conventional farming. As far as neighbors, there's a lot more that are looking at it that are adopting it. I think we'll see more and more of it. [LR366]

SENATOR CARLSON: Thank you. [LR366]

MARK WATSON: Yeah. [LR366]

SENATOR LOUDEN: Senator Christensen. [LR366]

SENATOR CHRISTENSEN: I just wanted to say thank you for your information and sharing with us, very enlightening. I've been no-tilling since '95. [LR366]

MARK WATSON: Oh, okay. [LR366]

SENATOR CHRISTENSEN: I agree with you, so...but I've never used the moisture blocks. [LR366]

MARK WATSON: Corn and beans? [LR366]

SENATOR CHRISTENSEN: Corn, wheat, beans. [LR366]

MARK WATSON: Corn, wheat, beans, perfect. [LR366]

SENATOR CHRISTENSEN: Soybeans though, so... [LR366]

MARK WATSON: We won't hold that against you. (Laughter) I'm glad you're raising them. [LR366]

SENATOR CHRISTENSEN: So...but thank you very much. [LR366]

MARK WATSON: Yeah. You bet. [LR366]

SENATOR LOUDEN: Well, thank you, Mark, for your testimony. [LR366]

MARK WATSON: I think Senator Hansen had... [LR366]

SENATOR LOUDEN: Oh, you got to raise your hand out. Yeah. [LR366]

SENATOR HANSEN: Just one real quick question. Thank you for your information you gave us tonight. If you...if these sensors become more available and even more economical, could you get by without a meter on your well? [LR366]

MARK WATSON: Without a flow meter? [LR366]

SENATOR HANSEN: Uh-huh. [LR366]

MARK WATSON: Well, I could, but I'm not sure Lyndon and the NRD could. (Laughter) [LR366]

SENATOR HANSEN: Well, I'm think of an area without flow meters now. I mean there are NRDs that don't have flow meters now and don't require them. [LR366]

MARK WATSON: Oh, yeah. [LR366]

SENATOR HANSEN: Now if you had a sensor, could you get by without a flow meter? [LR366]

MARK WATSON: Well, I don't even use a flow meter. I mean I don't utilize it other...I guess I look at them to see if our wells are pumping at the capacity they should. Other than that, I don't even pay any attention to them, I guess. Well, I shouldn't...I mean, at the end of the year we'll read them and I do, I'll take readings on them just to see our water use, but as far as using the flow meter to determine if I'm going to irrigate or not, why, I don't. But, you know, if, you know, if we...in western Nebraska, if we can cut our water use back to 6-8 inches and raise profitable crops, you know, and you carry that across the state, it would be pretty significant water savings. I talked to a friend of mine up in Norfolk today that put these water sensors in and he no-till farms and he's only put 2 inches of water on his corn this year, and it's unheard of up in that area. To me, I can't believe they need that much water, but... [LR366]

SENATOR HANSEN: Thank you. [LR366]

MARK WATSON: So thank you. [LR366]

SENATOR LOUDEN: Thank you, Mark. Next...let's see, no more testifiers on that, then we'll close on LR366 and now we will go to LR286. First testifier, Brian Dunnigan, do you want to bring...testify on that, from the Department of Natural Resources? [LR286]

BRIAN DUNNIGAN: Senator Louden and committee members, my name is Brian Dunnigan, spelled B-r-i-a-n D-u-n-n-i-g-a-n, and I'm the acting director of the Department of Natural Resources. I'm here tonight to provide information to the Natural Resources Committee relevant to LR286. Return flow is a very broad topic, so I thought it would be most helpful to you if I explained a few of the basic concepts about return flow and then answered any questions you may have. What the department considers

to be return flow is water that is returned to a stream after having been used for some purpose. There is return flow from industry, such as ethanol plants. The water used at the plant is usually pumped from a well and some of it is piped directly back to the stream as an end product. There is return flow from municipalities after waste water has been treated and released back into the stream. There is return flow to streams when under...when ground water is pumped by an irrigation well and applied to a crop through a center pivot. There's a lot of return flow from surface water irrigation, particularly large irrigation projects. The irrigation water is diverted from a stream and transported by canal or pipe to fields it is used on. When a gravity irrigation system is used, a lot more water has to be applied to the field to the field than is used by the crop in order to make sure that sufficient water reaches the ends of the rows. The water not used by the crop can be retained in a reuse pit and reapplied to the same field, or it may run into a channel and back into the stream. Some of the water soaks into the ground and eventually gets back to the stream as ground water return flow. Regardless of how the water gets back to the stream, this return flow is used by another irrigator downstream. The reliance on return flow by appropriators is reflected in existing law. It is the reason why a surface water appropriation cannot, in most instances, be transferred to another location unless the public is first given notice of the proposed transfer and an opportunity to object. Anyone using water downstream has the potential of losing his or her water supply if an upstream irrigator no longer creates return flow. Therefore, the transfer process includes an opportunity to object to the transfer. Another protection for persons relying on surface water return flow to irrigate their crops is a requirement that only the portion of the water that has...that was historically consumed may be transferred. What that is not consumed is return flow. So in theory, when only historic consumptive use can be transferred, the same amount of water that was previously return flow will still be available for downstream users. There may be a difference in timing, but the law attempts to leave the downstream appropriator in the same position they were before the transfer. This applies to purchasing a surface water appropriation and transferring the use downstream for another purpose. Under Nebraska transfer statutes, only the consumptive use can be transferred. Changes in return flow can also

happen because of a change in ground water use. The department intends to work with the natural resources districts through the integrated management process to find methods to allow such actions with minimal or no harm to surface water appropriations, and likewise to be sure the changes to surface water appropriations do not impact ground water users. I'd be happy to answer any questions that you may have. [LR286]

SENATOR LOUDEN: Questions for Brian? Senator Christensen. [LR286]

SENATOR CHRISTENSEN: Thank you, Chairman Louden. Brian, is there any way that you can work with the bureau, work with Wyoming in this case, to get rules changed so if you increase in efficiency you can send the excess down? [LR286]

BRIAN DUNNIGAN: I'm not sure of the answer of that but we can sure look into it. I think the people here would have a better idea of that. [LR286]

SENATOR CHRISTENSEN: Because it just makes sense to become as efficient as you can you and then use less and be able to use...continue support of the return flows. [LR286]

BRIAN DUNNIGAN: I think it all comes down to whether or not it's considered a beneficial use, and that's what would have to be considered. [LR286]

SENATOR CHRISTENSEN: Thank you. [LR286]

SENATOR LOUDEN: Okay. Is there any way that if you get more efficient use out of it and you're using less that someone could put in for that extra water on...that's available or should be available? [LR286]

BRIAN DUNNIGAN: I'm not sure that I under...the... [LR286]

SENATOR LOUDEN: Oh.... [LR286]

BRIAN DUNNIGAN: The savings of the water? [LR286]

SENATOR LOUDEN: Yeah. Can some other irrigation district on downstream apply for that, for that water that isn't being used? [LR286]

BRIAN DUNNIGAN: I'm not sure that I understand. I guess if an irrigation company downstream... [LR286]

SENATOR LOUDEN: Okay. Yes, you have one irrigation district and they've, you know, improved their efficiency so that they're using probably 30 percent less water than they ordinarily did, okay, what are you going to do with that 30 percent water? Can some other irrigation district apply for that, that was probably relying on return flow, apply for that 30 percent and receive it that are on downstream? [LR286]

BRIAN DUNNIGAN: Senator, I don't know the answer to that. [LR286]

SENATOR LOUDEN: Can you find the answer to it? [LR286]

BRIAN DUNNIGAN: I sure can. [LR286]

SENATOR LOUDEN: Okay. Good enough. Other questions for Brian? Thank you, Brian, for your testimony and getting us started on this thing. [LR286]

BRIAN DUNNIGAN: And I'll get back to you on that. [LR286]

SENATOR LOUDEN: That would be fine. Next testifier. Should see some of the new faces again, I guess. [LR286]

DENNIS STRAUCH: Again for the record, my name is Dennis Strauch, D-e-n-n-i-s, last name S-t-r-a-u-c-h, and I guess I'd like to just provide some information on return flow systems in general, as well as in the state, as well as in our Panhandle. As surface water irrigation developed in the western United States in the late 1800s to the early to mid-1900s, surface water was diverted and put to beneficial use on lands along the river and in the valleys. Lands irrigated first were adjacent or close to the river because the lands were the easiest to develop and irrigate and later further and further away from the river as demand for irrigation water grew and storage reservoirs were built. As the systems diverted water and applied it to the lands, not all the water diverted was consumed. Much of it seeped from the canals and laterals into the underground and found its way back to the river through tributary flow. Also, as water's applied to the fields, not all of it was consumed. Some ran off into nearby drains and streams, some percolated into the soil and, likewise, returned to the system. This water returning to the river provided a source of water for appropriators downstream. This system of use and reuse continued all the way down the river. Western states long ago recognized this system of use and reuse and its importance to other water appropriators downstream whose water supply depend on return flows from upstream uses. As these estates developed their water policy and laws, they put in place measures that would protect appropriators that depend upon this system of return flows and reuse. [LR286]

DENNIS STRAUCH: Good examples include our neighboring states of Wyoming and Colorado. Both states allow for the transfer of surface water rights, not only within the same preference category but also between categories. It is well-known that water rights and water use in Colorado is migrating from agricultural uses to municipal and domestic. And both states are very careful to limit the transfer to the consumptive use of the right only, thereby protecting or leaving in the stream the return flow component of that use. Nebraska is no different than any other western state. Surface water use in Nebraska has created systems of return flow, use and reuse in every basin that surface water projects exist. The largest and most well-known return flow system is here in the North Platte Valley, which many of you will have an opportunity to view tomorrow if you

attend the tour. An interesting face about the North Platte River system is that about 85 percent of the water that enters the state of Nebraska from the North Platte River enters through four major canals that divert at or near the state line or above. These canals constitute the first use of water. It is the return flow from their systems that provides the water supply for diversion by appropriators downstream all the way to McConaughy. As mentioned earlier, seepage from the canals and laterals percolates into the ground, returning to the system through drains and streams, contributing to the flow in the river for reuse downstream. This water that percolates in the ground made its way into sand and gravel formations which resulted in the creation of an alluvial aquifer and a significant rise in ground water levels, in some areas more than 200 feet here in the valley. This aquifer provides water suppliers for municipal, domestic, livestock, and additional irrigation uses here in the valley. The aquifer is referred to as a fill-and-spill system, whereby it fills during the irrigation season when the canals are in operation and spills back through ground water-fed tributary flow during the nonirrigation part of the year. This returning flow from the aquifer is the main source of inflow for storage in lake McConaughy during the winter months. As we all know, Lake McConaughy is the main source of surface irrigation water for much of central Nebraska. With the passage of LB962 into law in 2004, things have changed dramatically within Nebraska when it comes to managing our integrated surface water and ground water systems. LB962 put into place a mechanism where the state would take a proactive approach to managing integrated water systems within our river basins. Using an annual review by DNR, the state would identify when a river basin, subbasin, or reach could no longer support development of new uses. Once a river basin, subbasin, or reach was determined to be fully or overappropriated, new uses would be curtailed to avoid negative impacts to then-existing surface and ground water uses. This protection is evidenced in Section 46-715(3)(c). 46-715 outlines the minimum requirements of an integrated managed plan and that the ground water and surface water controls of the plan must do several things, including "(c) protect the ground water users whose water wells are dependent on recharge from the river or stream involved and the surface water appropriators on such river or stream from streamflow depletion caused by surface water uses and ground

water uses begun after the date the river basin, subbasins, or reach was designated as overappropriated or was preliminarily determined to be fully appropriated in accordance with section 46-713." When a basin becomes fully or overappropriated, it doesn't mean no new uses of integrated water can be developed. It just means the stream flow depletions for the new use must be offset to the extent they negatively impact over ground water uses or surface water appropriators. Transfers of existing uses were part of what was envisioned in LB962 and addressed in 46-739(k). 46-739 addresses the authorized controls available to an NRD. Subsection(k) addresses transfers of ground water or ground water allocations and that such transfers must "(A) ensure the consistency of the transfer with the purpose or purposes for which the management area was designated, (B) prevent adverse effects on other ground water users or on surface water appropriators, (C) prevent adverse effects on the state's ability to comply with an interstate compact or decree or to fulfill other provisions of any other formal state contract or agreement, and (D) otherwise protect the public interest and prevent detriment to the public welfare." As Nebraska continues to evolve its water policy, we must be diligent in protecting existing uses from injury, whether they are surface water or ground water uses. Demand for new water uses in Nebraska will continue to occur, and we need to implement policy that allows for those new uses while protecting existing water use. If injury cannot be avoided, then the injured party should be justly compensated. As new water policies and processes are implemented in Nebraska, they must be completely transparent and subject to intervention by affected parties. That is the only way that they can become acceptable to the citizens of Nebraska. In closing, I remind the committee that LB962 was a major step forward in water policy for Nebraska. The Water Policy Task Force that developed LB962 recognized that water policy in Nebraska needed to change if Nebraska was going to avoid the kind of problems we are dealing with in the Republican and Platte rivers, and Pumpkin Creek. As Nebraskans, we must never forget we are dealing with a finite resource, and as such we must ensure that the policies we put in place will protect the resource for future generations. With that I conclude my comments and answer any questions. [LR286]

SENATOR LOUDEN: Okay. We have questions for Dennis? Senator Christensen. [LR286]

SENATOR CHRISTENSEN: Thank you, Chairman Louden. Dennis, you mentioned back here that the main source of inflows for storage at Lake McConaughy was return flows? I guess I had always heard it was snow melt. That's not true? [LR286]

DENNIS STRAUCH: It starts as snow melt, Senator, and it actually fills our reservoirs in Wyoming and then it becomes diverted supplies for us, and it's the water that percolates from our system back into the ground. It returns as ground water returns during the nonirrigation season, which there is no demand for irrigation between here and McConaughy, so then it constitutes their inflows. [LR286]

SENATOR CHRISTENSEN: I knew our supply comes from snow melt, but I guess I didn't realize there was never any snow melt ever got down this way in any major... [LR286]

DENNIS STRAUCH: There is snow melt. Local precipitation adds to the inflow into McConaughy, yes. I mean, the major source of water supply in the North Platte River Basin is the federal storage facilities in Wyoming. It's where it comes from. [LR286]

SENATOR CHRISTENSEN: Thank you. [LR286]

SENATOR LOUDEN: Some of the stuff I was...I had noticed on some of your first testimony, and that's where we kind of led when we were talking to Brian Dunnigan about...you mentioned if you don't bring that storage water out of there, why, you don't get it--and I understand that. You've got to bring it down here or else Nebraska doesn't receive it. So what do we do with it if we bring it down here and we're really fishing with it? And my understanding was, when you testified before, that there was no way that you could legally hand it off to somebody else. Now, can that...you mentioned about

transferring water rights in your second testimony--or surface water rights. Is there a way then, if you weren't using all of your water--your efficiency improved--could you transfer some of that surface water rights to other irrigation districts? [LR286]

DENNIS STRAUCH: I haven't researched the legality of that, but I believe it would be difficult because our water supply is strictly governed by the federal contract. I mean, where the contracting districts...you know, they would have to...anybody that would want additional storage would have to apply for a contract to the Bureau of Reclamation, and I doubt if they would open a contract at this time, since most of the time, in extreme shortages, there's not enough water to serve the lands that are being irrigated now. We've just endured eight years of below-normal water supplies and extreme shortage. So to add another user might put an additional strain, plus that water supply is shared with Wyoming and it's not shared...in other words, we don't have individual accounts in the storage facility. My district doesn't have an individual account sitting in Pathfinder Reservoir that says I'm entitled to X number of acre-feet. I'm entitled to divert, within the capacity of my system, water that I could have put to a beneficial use. That's what governs my water use by contract. [LR286]

SENATOR LOUDEN: Then how come they put in the newspaper that your irrigation district is entitled to so many acre-feet up there, or you've used less so you've banked so much up there? How come...what does that mean then? [LR286]

DENNIS STRAUCH: In water-short years, we put in place--and it's actually part of the Nebraska v. Wyoming settlement--a method of allocation and carryover, whereby if you do conserve part of your allocated supply--which this is in short-water years only--you carry it over for the benefit of your district to the next year. And that's only available to you if that year is short and allocated again. If it's not, it goes back into the general pool and all 13 districts that contract from Pathfinder share in that water supply. [LR286]

SENATOR LOUDEN: Okay. Have you thought of any solution to if you start using more

circle pivots to irrigated your water, on what you're going to do about return flow? What is your answer for taking care of return flows? [LR286]

DENNIS STRAUCH: I don't have a real good answer. I think part of what needs to be looked it is how do we find a way to provide some benefits as far as return flow--and how we operate. I don't think we legally can just release water from our system, down river. You know, under current contracts and laws I just don't believe we can do that. But we maybe could do something within our operations that improves return flow. We maybe improve on farm efficiency but maybe we do something to benefit recharge in the system within current law to provide return flow without just directly releasing it down the river. [LR286]

SENATOR LOUDEN: One more question. Are you quite well-acquainted with the people in the Bureau of Reclamation? [LR286]

DENNIS STRAUCH: Yeah, I know most of them. [LR286]

SENATOR LOUDEN: Okay. And I asked this to someone from the Harlan County Bureau of Reclamation down there, a federal person; I asked him last winter; I said, what do you as the Bureau of Reclamation want to do about these circle pivots that are using surface water to irrigate with? And he says, oh, well, that's more efficiency; we're all for more efficiency. And I said, all right, then what are you doing about return flow? And he had a blank look on his face, and he wouldn't answer because nobody had ever, evidently, brought that up in the Bureau of Reclamation, and he didn't want to risk his job to make any kind of a comment. Now that happened to us down there in Lincoln. And I'm wondering, has anybody asked, the people you deal with, have you ever asked them that question: What are you going to do about return flow? [LR286]

DENNIS STRAUCH: No. I mean, we continue...as a district we continue to make improvements in our system. [LR286]

SENATOR LOUDEN: I know, but nobody has brought that up to the Bureau of Reclamation on how they're going to address... [LR286]

DENNIS STRAUCH: How it affects...? No. [LR286]

SENATOR LOUDEN: ...the problem with some of the other irrigation districts that work off of return flow? [LR286]

DENNIS STRAUCH: And there are several irrigation districts down stream that have storage rights, but not all of them. [LR286]

SENATOR LOUDEN: Right. [LR286]

DENNIS STRAUCH: There's several that don't have storage rights. They totally depend on return flows and direct flow irrigation. You know, as we would...those that are affected that have storage rights, of course, will have less natural flow available. They, in turn, will call more storage through. So, I mean, it's a circle. They will call in water, by, if they need it. You know, I get... [LR286]

SENATOR LOUDEN: But those are the ones that we would be concerned about, is those irrigation districts downstream that don't have any storage rights that are relying on diverted water or something like that. [LR286]

DENNIS STRAUCH: Right, right. [LR286]

SENATOR LOUDEN: And do you have any idea how many acres that would involve in western Nebraska? [LR286]

DENNIS STRAUCH: I'm not positive. I think it's around 40,000 to 50,000 acres. [LR286]

SENATOR LOUDEN: It's a significant piece of ground. [LR286]

DENNIS STRAUCH: It's a fair amount. That might include Wyoming, because a lot of times we consider ourselves the same with eastern Wyoming. We're all part of the North Platte project. So between us... [LR286]

SENATOR LOUDEN: Yeah, but Wyoming isn't downstream. [LR286]

DENNIS STRAUCH: I know, (laugh) but they have natural flow districts, as well. [LR286]

SENATOR LOUDEN: Okay. [LR286]

DENNIS STRAUCH: And that number probably includes some of the Wyoming natural flow districts at about 45,000 or 50,000 acres. [LR286]

SENATOR LOUDEN: Okay. Other questions for Dennis? Senator Christensen. [LR286]

SENATOR CHRISTENSEN: Thank you, Chairman Louden. Have you been using all the water you can get? Has it been the limiting factor you can't get any more, the past several years, through the drought and things this way? [LR286]

DENNIS STRAUCH: We have not used every drop we've had. We've tried to manage our supply as best we can to provide supply and possibly some carryover. [LR286]

SENATOR CHRISTENSEN: So you're feeling like, in a way, you might be hurting Lake McConaughy because you haven't had the opportunity to bring more return flows through? [LR286]

DENNIS STRAUCH: Well, if we would have diverted our entire supply, which several years we did--our entire allocated supply was short enough we diverted the entire amount. Now there's been some years where we've carried some water over. We've tried to build some carryover to ensure the water supply for the people I work for, which are the farmers I serve. Now, by not diverting that water, of course, there is no return flow on that until the following year. [LR286]

SENATOR CHRISTENSEN: Right. The Platte River, right now, it's kicking a decent amount of water into Lake McConaughy as you drive over it. Is that all return flows? Is this...where is this coming from right now? [LR286]

DENNIS STRAUCH: Well, it's basically return flows, but also we've had some local precipitation the last week, anywhere from an inch and a half to three inches, which that helps pick up the river system. Tomorrow, during the tour, you'll have an opportunity to listen to Tom Hayden from the department who knows this system inside and out, and he'll tell you that probably a half-inch of rain is amazing what effect it does have on the river system, just picking the system back up when it's short. [LR286]

SENATOR CHRISTENSEN: Because I guess it seems to me like the flow right now is considerable above what it's been the past several years (inaudible) in the summers. [LR286]

DENNIS STRAUCH: Right. And the canals up here have been diverting more water than they have in the past. I mean, we actually diverted water in May for our early irrigation of alfalfa which we haven't done for several years. So bringing that water in the system early brings those tributary flows up earlier, therefore providing more flow starting earlier in the season for downstream for users. [LR286]

SENATOR CHRISTENSEN: Thank you. [LR286]

SENATOR LOUDEN: Okay. Seeing no more questions, thank you for your testimony, Dennis. Next testifier. Steve. [LR286]

STEVE SMITH: Chairman Louden, members of the committee and staff, I previously introduced myself. Do you I need to do that again? [LR286]

SENATOR LOUDEN: Yes. You've got to spell your name and go after it. [LR286]

STEVE SMITH: Okay. It's the same. S-t-e-v-e S-m-i-t-h. I had previously given the clerk a handout that I think all of you have on all three of these LRs. Concerning LR286, I mentioned that I represent the North Platte Valley Irrigation Association, which includes most of the irrigation districts and canal companies on the North Platte River system and the Nebraska Panhandle. The 25 irrigation districts and canal companies diverting water from the North Platte River and its tributaries above Lake McConaughy provide surface water irrigation to approximately 350,000 acres. We very much appreciate the committee's interest in learning about how legislative proposals will affect the North Platte Valley. We comment members of the committee and staff for planning to tour some of our facilities to see how our systems were originally designed and continue to operate, all based on full diversions, deliveries, and reuse of return flows from our surface irrigation water projects. You will all be fortunate to be guided on the tour by Tom Hayden and Dennis Strauch, who have over 70 years' experience between them in the administration and operation of the river and the irrigation systems in the North Platte Valley. There are no two people more knowledgeable. During the irrigation season, as Dennis mentioned, there are four big canals that bring water into the state from storage reservoirs in Wyoming. Approximately, during the irrigation season and right now, there are 4,000 cubic feet per second coming in the Interstate Canal far north of the river: that supplies Pathfinder; the Fort Laramie Canal, far south of the river: that supplies Gering-Fort Laramie; the Tri-State or Farmers Canal, which supplies Farmers and Northport Irrigation Districts; and the Mitchell Canal supplies Mitchell and Gering Irrigation Districts. Those four big canals provide irrigation water to approximately

250,000 out of those 350,000 acres in Nebraska. The majority of the water is storage water accumulated and held in the Wyoming Reservoirs until the irrigation season starts. When it is released on order by the contractors--you've got to ask for it, and when you ask for it if you have it in your account as a storage contractor, it's released. When that water is brought into this state, much of it seeps through the canal and lateral systems into our aquifers. You've all heard that. A significant portion is returned to the river and its tributaries after initial use in the form of return flows during the irrigation season. The water that's diverted into those four large canals recharges the aquifers, not only for the benefit of irrigation wells, but domestic, municipal, and industrial water users in our valley. Studies have indicated--by the NRD, the USGS--there are numerous studies that our ground water supply out here is primarily recharged from the surface water irrigation systems, without which we wouldn't have a ground water supply of significance. The stream flows and these drains and tributaries that were created by return flows also provide habitat for fish and wildlife in the valley. Without the recharge there would be inadequate ground water to supply our existing uses and requirements, and in addition, water quality in our aquifers would also degrade without the annual influx of surface water carried by these canals. The studies have shown that without this flushing that we get every year, water quality deteriorates to a level--and maybe Ron Sasek (phonetic) or somebody else here can tell you about which chemicals start approaching impermissible levels according to water standards--without that influx. Return flows and seepage from these projects which divert from the North Platte River at and above the State Line, reenter the North Platte River in streams and drainage ditches in the North Platte Valley. These flows then have been historically and diverted by other surface water appropriators downstream of the State Line. Out here above McConaughy--that includes the Alliance Irrigation District, the Beerline Canal Company, the Bridgeport Irrigation District, Browns Creek Irrigation District, Castle Rock Irrigation District, Central Irrigation District, Chimney Rock Irrigation District, Empire Canal Company, Enterprise Irrigation District, Lisco Irrigation District, Midland-Overland Canal Company, Minatare Mutual Canal and Irrigation Company, Nine Mile Irrigation District, Northport Irrigation District, Short Line Irrigation District, and Winters Creek Canal

Company--again approximately 100,000 acres totally dependent on return flow. This has been recognized for a long time. In 1945, the United States Supreme Court in Nebraska v. Wyoming, which governs the administration of the North Platte River in Nebraska and Wyoming, recognized that prior to the North Platte Project, there were virtually no return flows in the North Platte River. The North Platte Project was right after the turn of the century in the early 1900s. The court also recognized that the irrigation districts and canal companies lying below the North Platte Project and state line canals depended on return flows for the operation of their canals. The operation of the North Platte Project and the implementation of the decree in Nebraska v. Wyoming, provide that no flows in the North Platte River pass the Tri-State Dam during the irrigation season, with the only exceptions being excess or flood waters, big rains, or contracted storage water earmarked for the few Glendo and Warren Act contractors downstream of the state line. In other words--and this will be brought home tomorrow for those of you going out there--during the irrigation season the normal operational situation is that there is no water in the North Platte River at Henry, Nebraska, below Tri-State Dam, with the exception of about 10 second-feet or so that leaks through the headgate. However, after that, significant water gets back to the river and its tributaries below the state line in the form of return flows upon which those irrigation districts between the state line and McConaughy totally depend. And I agree with Mr. Barels from NPPD that the benefits go on downstream from there, as well. The preservation of this regime is essential the operation and survival of our surface water irrigation projects and all those who benefited by and are dependent upon them. The critical need to protect these return flows form the basis for objections filed by irrigators above Lake McConaughy and many others to portions of last year's LB924, which would have protected theoretical gains to the river created by the retirement of existing surface or ground water uses. I think that all members of the committee will understand more fully the basis for those objections and our concerns about the preservation of our return flows upon touring the North Platte Project and downstream facilities. To summarize those reasons that remain a concern with any proposals concerning return flows: Any flows restored to the North Platte River or its tributaries by the retirement of irrigation wells are

subject to appropriation by senior surface water appropriators with vested rights, most of which have priority dates between 1882 and 1904 out here. Those irrigation wells which have created depletions to these streams, of course, were installed decades later--many of them 100 years later. Irrigation wells have undoubtedly been...I should say some irrigation wells have undoubtedly been one of the causes of reduction in stream flows, and accordingly when such a well is retired, any depletion to the river or tributary caused by that well will eventually be restored to the stream--there will be a lag effect--for the benefit of those historically entitled to and dependent upon its use; namely, the senior surface water appropriators. Secondly, the appropriative system in the North Platte Valley is dependent upon reuse of return flows that are not consumed in the irrigation process. Therefore, in the event a surface water use is acquired to offset a new use, it should be limited to the consumptive use of that surface water right, not the entire district or company diversion entitlement for the retired acres. Removing by protecting the diversion entitlement for the retired acres would have an adverse effect on the ability of the canal designed to operate...it would have an adverse effect on its ability to operate as designed and would again penalize all the downstream senior appropriators. I think Mr. Dunnigan's comments reflect those same concerns, as well as the previous comments about the Department of Natural Resources and the NRDs already have statutory mandates to protect surface water appropriators from depletions caused by surface and ground water use. We very much appreciate this committee's efforts to obtain the necessary background to enable its members to make fully informed decisions concerning possible legislation on the subject of these return flows, which are essential to the survival of our valley. And I hope Senator Christensen asks me some questions about the storage contracts, because I know that's a concern of the committee and it's something that needs to be explored. But briefly said, the federal storage contracts are two kinds...or three kinds, basically, out here. First of all, there are contracts with the original government project that was built by the United States of America. That project--and they built Pathfinder Reservoir, later Guernsey Reservoir, to irrigate lands out here, to bring people out here to settle this part of the state--that project now consists of Gering-Fort Laramie and Goshen. Goshen is Wyoming;

Gering-Fort Laramie is in Nebraska; Pathfinder in Nebraska; and Northport in Nebraska. Those federal storage contracts are held by the districts. They are a contract with the United States of America. My conversations in the past, not that anybody was interested, but subjects have come up like the senators have raised here, is that the Bureau of Reclamation on the North Platte Project is not going to assign or release those storage contracts for any other use unless there is a change in federal law or...and a change in the contracts, which would get into all sorts of issues concerning compensation for people to whose lands the storage contracts attach and the districts which have contracted with the United States. There are a couple other types: Warren Act contracts, which are a lesser amount of water. And the Warren Act contracts came about because the bureau, mistakenly or not, at one time determined that there was excess water available in the project for their main project--Pathfinder, Gering-Fort Laramie, and Goshen--and therefore, it would be a good idea to contract for excess water. So they had a law passed, saying that the bureau can contract out any excess water to eligible people, basically in the Panhandle of Wyoming on the North Platte. And that excess water was contracted out to Farmers Irrigation Distinct, several other irrigation districts. Later, the Glendo Project came along, and they had a limited amount of water. And there are a few Glendo contractors of storage water, again, in the North Platte Project--Mitchell and Enterprise and a few others. Those contracts are between irrigation districts and the federal government, and neither federal law nor the contracts would permit that water to be transferred elsewhere. And because we are in a desert climate out here, as has already been pointed out, the only significant water we have out here to irrigate with in the form of surface water is storage water. Our projects couldn't survive on natural flow alone. So while natural flow rights may be transferred under Nebraska law under certain circumstances--the consumptive use--in my opinion there are prohibitions against transferring the use of any storage water, and it's not that, especially in the last ten years, there's been any surplus of water in our system. Senator Christensen, Senator Harms, and maybe a few others went up and toured the facilities, I know recently, and believe it or not, those reservoirs look pretty good compared to what they've looked in recent years. But where our water is stored in Pathfinder and

throughout the system, the biggest reservoirs that are up there are still less than half full. They're about a third full right now. So the problem is, in a dry year we could use up our entire supply; two dry years, no water. So there's going to be very little interest out here even if there was the legal ability to transfer storage water. And as Dennis Strauch mentioned, yes, we realize that we have to conserve, and to the extent we have to conserve and stop our supply from coming down from the storage reservoirs, there's less return flows in the river. And the people below, that have been dependent upon them, suffer, but that's part of the cycle of nature, unfortunately. And the way most of them have compensated is to put in irrigation wells, which, you know, help them--at least, that's a short-term solution--but sometimes contributes to the problem further on down. It's a very difficult question. Anyway, I appreciate you taking the time to listen to this, and I'm encouraged by the questions. And I know this committee. I'm confident that you folks are going to try to do what's right for the entire state, keeping in mind that every little part of the state...the Panhandle is a lot different than eastern Nebraska, and probably the Republican Basin, so there's no one-size-fits-all approach that can work. I'd sure be glad to answer any questions if I could. [LR286]

SENATOR LOUDEN: Thank you, Steve. I would like to point out to you that Senator Carlson and myself toured that last year, so right now you're looking at four senators sitting up here that have had a tour of that in the last couple of years. [LR286]

STEVE SMITH: Good. Good. [LR286]

SENATOR LOUDEN Yes, it was a very good tour and it was well worth it, and I think Mr. Bush (phonetic) is the one that narrates most of that and he does a very find job of it. And I want to thank...I think the Chamber of Commerce is the one that pays for that trip and I think they do a very good job, and I want to thank them for it and appreciate what they do. The question I would probably ask you is something similar to what I ask Dennis awhile ago. What is your answer to using these--when they're using circle pivots, to use their surface water irrigation water? What is your answer to return flows?

[LR286]

STEVE SMITH: Well, you know, if anybody had an answer, an easy answer, I think...though the thought you folks have put into it, most of you are farmers and irrigators yourself, somebody would have thought of it. I don't know there is an answer, but what we have to realize, that by applying some more so-called efficient application methods which result in less return flows, you're going to affect the system. And we've also got to remember, this whole system was designed and operated and an economy and environment grew up out here based upon return flows. So while...you know, there's center pivot application in the valley, other conservation measures that have reduced return flows. Those have had an adverse effect on the people that are using return flows. At this point I don't think it's critical but what is...I think all we can do at this point or all I'm aware of at this point is to make sure there is no new legislation passed which restricts...which further encourages reduction in return flows or ostensibly tries to protect retired uses from the senior appropriators downstream who rely on those flows. So if I had an answer, I would have told you a long time, Senator. (Laughter) [LR286]

SENATOR LOUDEN: Well, when you say pass any laws, I don't think we have to pass any laws. The economy is what's driving this thing. Until people decided they had to have a more efficient use of the water, why, they were flood irrigating and they thought they were doing pretty good with gated pipe and those rolls of plastic tubing they put out there. Now they're using center pivots. So I think the economics of the farming is what's driving that, the more efficient use and labor saving, and as the man from Valmont pointed out on your circle pivots. Now when we get into that, and you say it isn't critical at this time, I would hope not, but I would like to see some real deep thinking on it way before it ever gets critical. Because once it's critical, we're back like we were in the Republican deal, you know. [LR286]

STEVE SMITH: Well, I was going to say, that's not the history of this state in terms of water policy--thinking about it ahead of time. But I hope we can start...(laughter).

[LR286]

SENATOR LOUDEN: This is a new deal. We have term limits now; we think ahead. [LR286]

STEVE SMITH: Well, I think that what we have hopes for out here, and it's been a very difficult process, is that integrated management between the state and the NRD can manage our commingled resources and make reasonable rules and regulations about rules for people that have both surface and ground water supplies on their property, to at least slow or stop the bleed--if not stop the bleeding, at least slow it considerably in terms of reducing the return flows to the people who rely on them. And, of course, we can't escape the truth. We can't blame everything on irrigation wells or improved efficiency. This drought which affects this part of the state more than any other has been the primary cause of the problems we've had. And, you know, one thing it's doing is making us face these tough questions and look for answers. You know, on the one hand, everybody would like a wet cycle, but the truth is, as history has proved, if we get another sustained wet cycle then we'll quit worrying about this stuff again until the next drought. So I hope you gentlemen will take the lead in this state and help us get through this, and we sure appreciate what we perceive to be sincere and good-faith intentions to help us out here. [LR286]

SENATOR LOUDEN: Well, this is...yeah, this is a problem that I and the committee have recognized, and this is the reason we are having this study. And we're out here to get answers from the people that are surface-water irrigators that will be affected by return flow. With that, has anyone got any questions for Steve? Senator Carlson. [LR286]

SENATOR CARLSON: Senator Louden. Steve, thank you for your testimony. And is there a little bit of perceived defeatism here that I'm hearing, that I know that it's not intended that way, but you certainly don't want to see farmers become less efficient with

their use of water? I don't believe you do. [LR286]

STEVE SMITH: No. [LR286]

SENATOR CARLSON: No. But one of the unintended side effects of this or consequences is this return flow problem. Now, you talked about the water that is in the Platte River at the state line, during irrigation season, being a very small amount. [LR286]

STEVE SMITH: Virtually nothing. Yes, Senator. [LR286]

SENATOR CARLSON: And so the problem...I'm asking this. The problem, I think, is...on a return flow...is one way or another there needs to be more water in the stream, downstream from this point to Lake McConaughy, for the systems that need water, plus getting water in McConaughy. We just need more water in there. [LR286]

STEVE SMITH: Correct. [LR286]

SENATOR CARLSON: Well, one of the ways that we can get more water in there, starting at the state line and moving all the way to McConaughy, is get rid of all the Russian olives. [LR286]

STEVE SMITH: I agree wholeheartedly, and I think the state is well on the path to do that, including our NRD and the High Plains Weed Management out here. [LR286]

SENATOR CARLSON: And that's a project we can all agree on that has beneficial effects and still allows everyone else to use their water in the most efficient way that they can, and we've got, I think, a good start on this, and we've got to continue. And I think those of you that believe it's a good thing, don't be bashful, because I'm beating the drum as hard as I can beat it, and a lot of people are listening. But that's one of the

answers, and it's something I think we can all agree upon and work together on, and it's not depriving anybody of anything. It's simply adding to the supply. [LR286]

STEVE SMITH: I agree, and I think that's the consensus out here. I mean, there's some that disagree because they think it's wildlife habitat or whatever, but I think High Plains Weed Management has a lot of contracts now in our area out here to remove olives, and are actively doing it right now--and salt cedar. [LR286]

SENATOR CARLSON: And the phragmites. [LR286]

STEVE SMITH: And phragmites, yes. [LR286]

SENATOR CARLSON: A totally different question: Where did you grow up? [LR286]

STEVE SMITH: I grew up in far eastern Nebraska, in Sarpy County, but I've been out here about 30 years. [LR286]

SENATOR CARLSON: Thank you. [LR286]

STEVE SMITH: They had rain back there...(laughter). I can remember that. (Laugh) [LR286]

SENATOR LOUDEN: Any more questions for Steve? Well, thank you for your testimony, Steve. [LR286]

STEVE SMITH: Thank you, gentlemen. [LR286]

SENATOR LOUDEN: The next testifier. [LR286]

DON KRAUS: (Exhibit 9) Senator Louden, members of the committee, I appreciate you

being here and I appreciate the opportunity to speak tonight. My name is Don Kraus, D-o-n K-r-a-u-s. I'm the general manager of the Central Nebraska Public Power and Irrigation District. I'm going to provide copies of my testimony to you all, and so I'll hit some of the high points. I'm not going to read it all. Lake McConaughy--and I'm going to talk about primarily Lake McConaughy--we own and operate Lake McConaughy. We deliver to 100,000 acres directly. We provide another supplemental delivery or direct delivery to another 100,000 through contracts, approximately; and provide recharge benefits for over 350,000 acres. I appreciate the efforts that the committee has taken to better understand the importance of return flows to Nebraska. Brian has done a good job and others have done a good job of giving the definitions, so I'm not going to go there. But we estimate that return flows provide 80 percent of the water supply from McConaughy, and almost 100 percent during these drought years. So it's very important to us. It's the basis upon which that project was constructed. In the book, Flat Water: A History of Nebraska and Its Water, it is noted on page 54--and a copy of that is on the back of that handout that I've given you--that by 1929, the August natural flow of the North Platte River had increased by 95 percent, and the September natural flow had increased by 225 percent as a result of application of water between Whalen, in Wyoming, and North Platte. These return flows became the supply for water projects in Nebraska, including Lake McConaughy. And I want to follow up on Steve Smith's comments and emphasize them also. The importance of return flows was recognized by the Special Master in the Nebraska v. Wyoming litigation. In that lawsuit, Nebraska originally requested interstate priority administration on the North Platte River from North Park, Colorado, to Grand Island, Nebraska--all the way to Grand Island. Nebraska revised its request on administration, and said, we're going to back it up to Bridgeport; we are no longer going to request administration to Grand Island, Nebraska. And they did that because they felt that the lands east of Bridgeport could rely upon the water availability, the return flows that would be coming into Lake McConaughy. So that was a decision that the state of Nebraska made in that decree. And we have to sit back and say, well, what were we thinking about there? Did we really take a good look at everything? In the 1945 decree, the Supreme Court referenced the Special Master's

report regarding flows in the reach from Tri-State Dam in Wyoming to Bridgeport, and noted that the Special Master concluded that local supplies, even during the drought period, were adequate to take care of the needs of these canals without calling on upriver water. And just as Steve Smith talked about, they depend upon--there's no water coming past the Tri-State Dam--they're depending upon return flows from the other deliveries. And so the decree recognized that and made provisions for that, and said you can rely upon that. That was a provision of the decree in 1945. This assumption, in our view, has proven to be workable until the most recent drought. The effects of ground water pumping, conservation activities, and the drought have impacted the availability of return flows in the Panhandle. As a result, Central has been forced to allocate the delivery of surface water from McConaughy for four consecutive years, and an allocation is likely for 2009. Over 105,000 acres of ground water-only irrigation and 110,000 acres of supplemental ground water irrigation within the North Platte Natural Resource Districts upstream of McConaughy have reduced the inflows. While drought cannot be prevented, we do have the ability and responsibility to properly manage ground water use. Lake McConaughy provides benefits for recreation, irrigation, hydropower, and cooling of the largest coal-fired plant in the state. Where water management systems have been built that rely upon return flows, those systems should not be destroyed because of inadequate ground water management. The state needs to protect the water supply for those systems that rely on return flows. And I want to just diverge from the LR a little bit. I know you talked a little bit about inflows into McConaughy, and you're right, they are up now. And you know, I can't say exactly what the cause is or what it all is, but I know...I talked to Cory Steinke before I came up today, and he said in mid-July they were in the 200 cfs range for a period of time. And since late July, early August, and up to now, they've ramped up pretty good and we're over 1,600 cfs today, so they are in good shape. We are really appreciative of that, and, you know, thank Mother Nature and all those responsible for the rainfall and whatever else is involved. But with that I would stop and answer any questions there might be. [LR286]

SENATOR LOUDEN: Okay. Thank you, Don, for your testimony and for coming down here. I guess one of the questions I would ask is, in your Central Power and Irrigation District, are there people down there putting some of their surface water in pits and then pumping it out on circle pivots, with circle pivots, using that method of irrigation? [LR286]

DON KRAUS: We have over 300 pivots on our system, and some of it goes into a pit and it, you know, perhaps distributed that way. Some of it is pumped directly out of a canal. We've got different approaches on how we apply water with center pivots to our area. So it is a couple different methods. [LR286]

SENATOR LOUDEN: Okay. Is there any irrigation districts below you that rely on return flow? [LR286]

DON KRAUS: There is none below us but I would refer you to NPPD's Elm Creek canal which is kind of in the middle of our irrigated area, and they would benefit from return flows. And so the question is, what is the...? What is the...? One question I would like to think about as you talk about, what should we be thinking about? I would like to think about the conflict between the ground water pumping, what effect that has, or conservation, and the downstream water right, and then how is that different now than it was when that water right was granted. I mean, just as a way to think about it. And think about priority dates, you know, of how things came forward. And I don't have an answer for the what should you do about conservation measures. You know, the first thing that...and our focus is, we look at three issues that affect our water supply: the drought, which is the most important, and there's no question that is the biggest impact on our water supply; conservation activities is another component; but the next bigger in our mind is probably ground water pumping and the focus on the integrated management plans as to how do we deal with those impacts of ground water pumping on these natural flow systems, these return flow systems that have been there a number of years, that we're relying upon that return flow for the construction of those projects. So I

don't have a good answer for it but I think it has to be dealt with. [LR286]

SENATOR LOUDEN: You're not concerned with the lack of return flows from these irrigation districts up here in the north...up here in the Scottsbluff area? [LR286]

DON KRAUS: Absolutely. [LR286]

SENATOR LOUDEN: Okay. Then when did you start your allocations? You cut down your allocation... [LR286]

DON KRAUS: Four years. This is our fourth year. [LR286]

SENATOR LOUDEN: Your fourth year. Then how come these guys up here have been, what, nine years with half as much? How come you didn't start your allocations nine years ago when you knew you were going to get less return flow from up here? [LR286]

DON KRAUS: Well, I mean that's a good question. Should we have known that return flows were impacted. As we move through--I'm going to have you look at a cycle here--move through the '80s and '90s, you went through, in my opinion, a very wet cycle, and particularly the last half of the '90s were some of the wetter years in this basin. And I think there's a...and quite frankly, from an interference perspective--and we've got a proposal on the table that says in the wetter years we're not so concerned about those impacts but in the drier years then we have to try to deal with them differently. That's one concept that we think makes sense, is that we try to open things up a little bit, allow ground water pumping, allow some of the--and it's hard to turn pivots on and off--but allow more...and even look at recharge projects in the wetter years if there is water that is unappropriated, but then take advantage of those in the drier years. So I guess from a...should we have looked back and said, oh, gee, we've got this problem coming and can't we see it--we could have--but if we would have come to the Legislature in 1995, 2000, and said we've got a problem and waved the flag, we would

have had a full water supply delivery that year, and I don't think there would have been much consideration. [LR286]

SENATOR LOUDEN: Why would you have had to go to the Legislature to decide whether you're going to get full water supply? Don't you have control over how much water you're... [LR286]

DON KRAUS: Well, I'm just saying about should we have come in and said do something about conservation activities--if we would have asked something about that. Now, can we allocate early? Sure we can allocate. I mean, we looked at the drought that came through in 2000 and 2001-2002--2002 was probably our hardest year, where you... [LR286]

SENATOR LOUDEN: And that was seven years ago. [LR286]

DON KRAUS: Right. And we... [LR286]

SENATOR LOUDEN: But you didn't have any allocations then. [LR286]

DON KRAUS: We did not have allocations. I mean, we started cutting back. And the way it works is like that: What we will do is take it in steps. We do a water management plan every year on Lake McConaughy, and we look at what are our winter releases--and we used to make winter releases. Water would come of that lake during the winter for hydropower production. The Fish and Wildlife Service recognized that and said, oh, by the way, here are minimum targets you have now during the winter. During winter season, depending upon the level of Lake McConaughy and as a part of your FERC license you will try to do historical release patterns from Lake McConaughy to maintain flows at North Platte on our system during the winter. So that became a FERC-license component, and so...you know, it's not...we got our FERC license in '98 or following that, and we met all of those FERC-licensed releases. But nonetheless,

could we have cut back? Sure, we could have cut back more. I mean, that's...your question is, could we have cut back more? And we did cut back, but there are minimum releases and we're only allowed to cut back at certain times when we get into those, what I'll call, dry years or very dry years; otherwise, we've got release requirements on McConaughy. So it's not as though we could do whatever we like. There's a lot of regulation on releases. There's...when the Federal Energy Regulatory Commission looked at that reservoir and said, how are you going to operate under the new Endangered Species Act, it's a different ball game. [LR286]

SENATOR LOUDEN: Thank you. Other questions for Don? Seeing none, thank you for testimony, Don. [LR286]

BRIAN BARELS: (Exhibit 10) Chairman Louden, members of the committee, senators, I just want to...Brian Barels, with Nebraska Public Power District; B-r-i-a-n B-a-r-e-l-s. I just want to continue the last discussion on return flows on downstream a little bit, and give some historical examples and a couple of the unintended consequences that could occur as we increase our efficiencies. Prior to the establishment of storage reservoirs and storage water to irrigate more land that recharged the ground water that created return flows, the Platte River was a losing stream from North Platte downstream. There's a 1933 Supreme Court decision related to allocation of water on the Platte River system, and the Supreme Court recognized in that decision that if you want to get an acre-foot of water to Grand Island, Nebraska, you have to put three acre-foot of water in the stream at North Platte. In today's world...and one more example of that, if you look at the stream gauge at Grand Island, Nebraska, prior to 1940 it was dry most every year for some part of the year. Some years longer than others, some years in a very wet year it didn't go dry, but to a large degree it went dry at Grand Island, Nebraska. Since 1940, storage water being delivered to Central and NPPD's customers, except for the extreme drought in the 2000s, there's only been one or two other years where the Platte River has gone dry at Grand Island, Nebraska. Mr. Kraus just mentioned that as part of our FERC relicensing, the Platte River's Kansas became the Endangered Species Act.

When we were going to get our new licenses for our hydro projects, which also provide irrigation water, we had to deal with the Endangered Species Act. Presently, all the canals that get water from the Bureau of Reclamation are continuing to operate under the three-state Platte River program to continue to provide benefits for the Endangered Species Act. What I wanted to point out was that they want flows between Lexington and Grand Island, and the system that's out there now is providing flows from Lexington to Grand Island. During our relicensing, the environmental groups came in and said, you need to implement efficiencies, and it was hard to have them understand but they ultimately did, that the inefficiencies in the existing system provide flows that benefit fish, wildlife, and endangered species. A potential way to demonstrate it might be what I've labeled sometimes as a black pipe theory. As we all know, underground pipe is an irrigation efficiency tool. If you wanted to start out by meeting the needs of the endangered species from Lexington to Grand Island out of Lake McConaughy, you'd run a black pipe to Lexington. And the environmental groups said, well, it's okay to irrigate the existing acres. So we run more black pipes out and we run them to each individual irrigation canal. And that's not enough efficiency, so we make each, lateral black pipe; and not only is that not enough efficiency, we put a black pipe to every cornstalk. Now we are efficient. What happens? There's not enough water for endangered species at Grand Island. The wetlands along the Platte River dry up. The ground water recharge that occurs from the Platte River on downstream, dries up. What do we do? We put more pipes in. We put more pipes to the wetlands. We put more pipes to recharge the ground water. What have we done? We've spent millions of dollars and created the system that's there today. And so those return flows are very important for multiple uses, not only beneficial uses for irrigators, for power generation, but for endangered species as well. I also wanted to touch just briefly on the fact that if you become so efficient you don't have return flows, right, wrong, or indifferent, the most senior water right for a canal system is at Kearney, Nebraska--way downstream. We've been very fortunate with return flows because, to get the water needed for those senior water rights, we haven't had to ask for administration of the Platte River. And so one of the unintended consequences as you go down through the river system, whether it's in

the North Platte reach or the Central Platte reach, is if you become so efficient you don't have return flows, then they'll start to be calls on the river--and I won't get into the details of those again. Mr. Hayden, with the Department of Natural Resources can answer far better what some of those ramifications might be, but those are the unintended consequences. Lastly, and briefly because I know it's getting late, Senator Louden, you've asked a number of times, well, what do we do when we become efficient with center pivots. And don't get me wrong; I managed our irrigation system for a number of years, and I firmly believe that for every irrigator the true benefit, whether you're a surface water or ground water, is to be able to use a computerized center pivot system with moisture sensors and everything that goes with it, and I would like to see that for our customers. How do we maintain these flows? We believe it's through what's called conjunctive management, utilizing our surface water resources and our ground water resources to maintain the system that's out there. It's not been tried to any extent yet, but NPPD, along with the Central Platte Natural Resource District and the Department of Natural Resource, are undertaking a study to find out how we can do that. What does that mean? It means we might take some of this surface water and transfer that consumptive portion to store it in a reservoir, and that reservoir will seep to recharge the aquifer so someone can pump out of the ground water in a dry period. In the wet period they can use the surface water. So we maintain the return flows. Not only that, that reservoir could be released to maintain those instream flows downstream. Unfortunately, folks, that's going to come at an expense. That is going to cost money, not only to put the center pivots out there for those irrigators, but to create the system to maintain the system we have today through the inefficiencies of today's system. So I think it can be done. It's called conjunctive management of the interrelated surface water and ground water. We're just on the initial edges of figuring out how best to do that in the irrigated area that NPPD and Central Platte Natural Resource District both serve. With that I'd be glad to answer any questions you might have. [LR286]

SENATOR LOUDEN: How are you going to fill the reservoir if you can't get the water from upstream to do it? [LR286]

BRIAN BARELS: Well, that's one of the things that would have to be looked at. If you wanted to implement that same thing up here...and what I'm concerned about is those limitations that Mr. Strauch and Mr. Smith talked about. I'm not sure you can convince Congress to change how they operate those bureau projects to maintain the inflows that are so necessary to Lake McConaughy. And so those are legal issues on top of the hydrological issues. [LR286]

SENATOR LOUDEN: Okay. Questions for Brian? These guys are going to sleep on me, I guess. (Laughter) Thanks for your testimony. [LR286]

JASPER FANNING: Mr. Chairman, my name is Jasper Fanning. That is F-a-n-n-i-n-g. After Brian's testimony, I think I'm maybe going to repeat a little bit of what he said, so I'll try and cut that out to be brief. I think this discussion is very important as we formulate future water policy for the state--this issue of return flows. It's nothing that's new in the discussions. And some questions that were maybe left unanswered by previous testifiers: Senator Louden, you asked if this had ever been brought to the Bureau of Reclamation's attention. It was, back in about 1902, when they were constructing the North Platte Project. I'll see to it that every member of the committee has the book, Flatwater, which is essentially a history of water in Nebraska, and have that delivered to your office in Lincoln. I'll read a little bit of an excerpt of that. Nebraska's laws were based on Wyoming's statutes, which were to encourage rapid growth and economic development in agriculture as the cattle industry had collapsed due to bad weather and low prices. They thought that the promise of abundant free water would bring people there quickly. The problem was that prior appropriation did not take into account the efficient use of stream flow. And I think that is very key, that the prior appropriation system, if you look at the South Platte River and add up the appropriations, it's much greater than the average flows of the South Platte. And in this book, that explains maybe why the South Platte goes dry when it reaches Nebraska. The prior appropriation system is set up to use the water. And as they've said, return

flows require inefficient use of that water. And as we develop more efficient water policy, we have to find a way to take that water in storage that they referred to and move it down so that we can eliminate the most inefficient uses and provide for more efficient use of that water. The very first director of the U.S. Bureau of Reclamation, in 1902, was quoted as saying: There must come a time when water must be apportioned with justice to all, and a century or more hence we will have it distributed, not upon priority rights but upon technical rights. We cannot have a farmer getting more water than he is entitled to because his great-grandfather or somebody else happened to secure the water right two months ahead of somebody else. Water must ultimately be conserved in the most just manner for the general welfare of all citizens. And I think that's the policy that all of us who deal in water on a daily basis have been trying to strive for some time. And Mr. Smith noted that the current regime of prior appropriation requires some of those inefficiencies to protect downstream users, and noted that legal barriers exist that maybe prevent us from making more efficient use of our water. And I certainly hope that that's what this committee and the Legislature of the state of Nebraska choose to address. Because in managing a limited resource as valuable as Nebraska's water, it is not sufficient simply to make beneficial use of that water, but rather it is our duty to see that our limited amount of water supply is put to the most beneficial use for the people. And I think that starts with some of these issues that these gentlemen have testified to in terms of return flows, and that starts...you've asked, what can we do. We need to start with eliminating nonbeneficial consumptive uses of water--the water that does us very little good and costs us so much. And some of these issues, letting water set in a reservoir and evaporate because they can't release it because they become more efficient, is quite simply a waste of water. And thank you for your time. I promised I would be brief. [LR286]

SENATOR LOUDEN: Okay. Questions for Jasper? Well, thank you for your testimony. The next testifier. Okay. Seeing none, I guess that will close the testimony on LR286, and now we will go to LR377 and have counsel open it for us. [LR286]

MARK LUDWIG: (Exhibit 11) Thank you, Chairman Louden and members of the Natural Resources committee. I'm again Mark Ludwig, M-a-r-k L-u-d-w-i-g, legal counsel for the committee. Just to be really brief and set the stage for this last interim study of the evening, this is a continuation of hearings that were commenced a couple months ago in North Platte, last June I guess. And the purpose of this interim study is to examine the, overall as a whole, the organizational structure and responsibilities of the Nebraska Department of Natural Resources, and specifically to look at the department director's dirties and qualifications, and specific to that, the requirement under current law that the director of the department be a professional engineer. It is also to look at whether the department has sufficient staffing, funding, and resources to perform its various duties, and just, I guess, overall, to examine the department's responsibilities and the processes by which is looks at water issues and other natural resources' issues under its authority. I know Brian Dunnigan, the current acting director of the department, is going to testify again tonight, and I believe...you're not going to...? [LR377]

BRIAN DUNNIGAN: My testimony is here. [LR377]

MARK LUDWIG: Oh, that's right. His complete and unabridged testimony from the last hearing is... [LR377]

SENATOR LOUDEN: Are you done? [LR377]

MARK LUDWIG: No...well, I was just going to say, his testimony is available on the table over here for anybody that wants his testimony that was delivered in North Platte. With that I'll end my opening. [LR377]

SENATOR LOUDEN: (Exhibits 12, 13, and 14) Okay. Thank you. At this time I will mention that there are three letters here: one from Mark Pegg , president of the Nebraska Chapter of American Fisheries Society; one from a person by the name of Betty Sayers from Holdrege; and one from Rick Preston, general manager of

Gering-Fort Laramie Irrigation District, and they are in favor of having a professional engineer as part of the qualification for being a director of the Natural Resources Department. Any testifiers? [LR377]

JOHN MASER: (Exhibit 15) Senator Louden and members of the Natural Resources Committee, thank you for giving us the opportunity to present our presentation in front of you here tonight. I am John Maser; that's J-o-h-n M-a-s-e-r, current chairman of the North Platte Natural Resources District headquartered here in Scottsbluff. We appreciate the committee coming to western Nebraska for these hearings. I wish to present some testimony regarding LR377. The North Platte NRD has considered the matter of the qualifications for the director of the Department of Natural Resources. We have taken the position of keeping the engineering requirement for the director. We are aware that this is a position contrary to that of the Nebraska Association of Resources Districts and we do respect the position of the other NRDs on this issue. However, we do believe there are good reasons for keeping the engineering requirement. While we recognize that it does not take an engineer to run the everyday affairs of the department, our concern lies with our relationship with being able to protect Nebraska's interests when we are negotiating with other states over interstate water issues. There is certainly too much at stake for Nebraska not to have the very best person in this position. When dealing with other sates, our representative is usually meeting with their State Engineer. We need to have someone who can "talk the talk" when it comes to water issues. We all know Nebraska has significant issues on the Republican, but I am going to limit my remarks to the Platte River issues between Nebraska and the state of Wyoming. The state of Wyoming is very well-represented by a state engineer and a deputy state engineer who are both civil engineers. Both of these people are very knowledgeable about the nature of water. They both understand irrigation and the importance of it to agriculture and also the many needs for water and the ways it is used in their state. They are well-qualified to represent their state on protecting their needs for water. If the Nebraska representative is not as knowledgeable and does not have the same level of understanding as the representatives of other states, that certainly puts us

at a disadvantage. We have just spent several million dollars protecting our interests in a lawsuit that we brought against the state of Wyoming. Nebraska prevailed because we had good people representing us that were knowledgeable on water, plus good attorneys that could present our case. There is just too much at risk to do with less. We also support additional funding for the Department of Natural Resources. With the need to develop integrated management plans and to carry out those plans, funds are certainly needed. There is the need to continue to study the water resources of Nebraska to gain a better understanding of this valuable resource. The Integrated Water Management Plan Program Fund administered through the Department of Natural Resources has been a great asset for the state and the NRDs that have been able to utilize these funds to study the ground water and the associated aquifers. The North Platte NRD has used this fund to develop a canal study to determine the geophysical resistivity of the subsurface and the evapotranspiration in this area, and develop an optimization model building on the COHYST model for the management of ground water. Then in continuing to build on this, we and the South Platte NRD were successful in obtaining funding from the Nebraska Environmental Trust to conduct an aerial geophysical study which has determined the resistivity and the characteristics of underground formations using a helicopter and the latest techniques available. These Heliborne Electro Magnetic Surveys will determine where ground water might reside. Because of the success with the Aerial Geophysical Study, the federal government is conducting additional geophysical studies in the North Platte NRD and the Upper Loup NRD entirely at the expense of the federal government. One of the uses of these studies will be to determine where we can utilize intentional recharge projects. Thank you for your time and consideration to these important issues and concerning one of Nebraska's natural resource--our water. [LR377]

SENATOR LOUDEN: Thank you, John, for coming tonight, and your testimony. When you say an engineering requirement, you're talking about a civil engineer? [LR377]

JOHN MASER: Civil engineer, or (inaudible) engineering--basically an engineering

degree. [LR377]

SENATOR LOUDEN: Okay. But, I mean, in statute now, see, it doesn't specify what kind of...it just says a professional engineer and they should have some experience with water, and that's what it says in statute. Now when you say experience with water in statute, does that mean setting tubes for your dad when you was a kid, or where is that? And I mean, we feel that there has to be some clarification in there. Now should we be looking at an hydrologist instead of an engineer, or should we be looking at a negotiator? Because then you talk about if you're going to do stuff with other states you need a top-notch negotiator. Where do you think that should all fall in at? [LR377]

JOHN MASER: I think all three of those factors ought to be involved when you choose a director. But number one, I think he should have the education, like the engineering, and also the background in water issues. And I have to relate that to something that went through in the Nebraska and the state of Wyoming lawsuit. At that time I was a fairly junior member on one of our major irrigation districts, and a group of people were brought out here from the University of Nebraska to serve as special witnesses, expert witnesses, to testify in that lawsuit. And lo and behold, and this sounds unbelievable, but two of these Ph.D. gentlemen were brought out here; our past director and the system director basically educated them in how this system worked. All of the things you've heard here tonight about return flows, etcetera, was presented to these people so they could understand the system. I would...my guess...and I had a terrible fear at that time how this person who had to be educated and brought up-to-date, even though he was a professor--he did not have any experience on the ground I guess is what I'm saying. And that's why I think someone should have some water...definitely some water experience. I don't know how you would determine that definitely, but they should have worked in the surface water or ground water field somewhere in their past. [LR377]

SENATOR LOUDEN: Then they wouldn't necessarily, because I talked to some of these colleges now, and they're offering some type of a course, and it's more of a hydrologist

and geology-type deal, and a lot of those people are going into the oil field--oil production business. And I wondering, you know, when you say we should find somebody with all three of those qualifications, you know, if there that kind of an animal out there. [LR377]

JOHN MASER: We discussed that at length at our board meeting the other night, and most of the gentlemen felt that that would definitely be available. It's a fairly sizeable salary. It's a challenging job; we know that. It's an interesting job. And we just firmly believe that it could be fulfilled. I didn't add...I did want to add one other thing. One of the other factors was the political end of it. He should have some negotiating skills--he or she--negotiating skills. We definitely believe in that; somewhat of a politician. It's hard to find a person with all those qualifications, I agree, but when there's so much at stake I think it needs to be. The question came up, how would you discuss a serious issue if you're just talking about Wyoming and all of a sudden your director of Natural Resources had to turn to his assistant and ask a question as to what he was talking about, how did this actually operate. I don't think that's the kind of a leadership position the leaders of the state of Nebraska should let up to another state. [LR377]

SENATOR LOUDEN: Well, I agree, we need the best person we can find, but I'm wondering what the qualifications should be, and when you...I guess some of the...one of the letters that I got form one of the persons here, I noticed as I was skimming through it, and they talked about if we're searching for a football coach we certainly ought to be find a director of the Department of Natural Resources. But I tell you what: I'm not going to ask Steve Pedersen to do the searching. (Laughter) Anyway, this is where we are. You realize that it's a cabinet-level job. [LR377]

JOHN MASER: Yes, I do...we do. [LR377]

SENATOR LOUDEN: They serve at the pleasure of the Governor. And if you found one of the best persons in the world and they got crosswise with the Governor, it could be all

for whiff. [LR377]

JOHN MASER: We understand that. But the other side of that coin is if you have a politician appoint a politically motivated person, is he or she...we're looking out for the best interests of what he's watching or is he or she looking out to maintain his or her job--working for the government. [LR377]

SENATOR LOUDEN: Okay. Now then one last question, and I've asked this at one other hearing: The Governor, that person serves at the pleasure of the Governor, and of course they do what the Governor asks or they make the Governor look good or bad. Do you trust the Governor to go ahead and hire the best person possible for that position? (Laughter) [LR377]

JOHN MASER: That's a tough question but I think that the man at the top of the totem pole in the state of Nebraska ought to have that ability and be able to operate it within those parameters. He appoints many other positions. [LR377]

SENATOR LOUDEN: Well, I'm not asking whether or not the Governor should do it. I'm asking do you trust him to find the best person available for that position? [LR377]

JOHN MASER: That's a tough answer. (Laugh) That's a difficult answer. [LR377]

SENATOR LOUDEN: (Laugh) Okay. I won't ask you. Any other questions for John? Seeing none, thank you for your testimony. [LR377]

JOHN MASER: Thank you. [LR377]

SENATOR LOUDEN: Next testifier. [LR377]

ROBERT BUSCH: My name is Robert Busch of Mitchell, Nebraska; R-o-b-e-r-t

B-u-s-c-h. I have retired from active farming but all my life we irrigated with surface water from the Gering-Fort Laramie irrigation canal. In 1989, I participated in the very first United Chamber of Commerce Agribusiness Committee Water Tour. Because of that tour, I became more interested in surface water issues. I was very surprised to learn, after Ann Bleed's retirement, to learn that there is sentiment to change the director's position to that of a manager. I feel very strongly that the director of DNR needs to be a licensed civil engineer or a licensed hydrologist. We must not go backward on a competent water-educated director. The states we do business with all have licensed engineers at the helm. The argument that there isn't anybody out there qualified, in my opinion, is wrong. A national search is what is needed, and a qualified person will be found. Another comment that I read in the World-Herald that times have changed, that a manager form of director position would suffice. I agree with the change but more than ever we need an educated licensed civil engineer--and I emphasize civil engineer. The statute clearly states a licensed engineer, but does not depict...you can have an electrical engineer, agribusiness engineer, an architectural engineer. If you guys want to do something, put the word civil in there and that will take care of a lot of this. The state of Wyoming was mentioned. The director, the assistant director, and their surface water manager is also a licensed civil engineer. I had an hour chat with him today. But the change, like I say more than ever we need the very best qualified professional people at the helm of this agency--and I recognize that it is a cabinet position. I was asked in the past, is our Governor a lawyer. Well, I can no, he's not. For the first time in awhile, we don't have a lawyer for a Governor. But Senator Louden, ask me the same question you asked Johnny Maser about the Governor appointing this gentlemen. [LR377]

SENATOR LOUDEN: When you're done, I will. [LR377]

ROBERT BUSCH: Okay. (Laughter) [LR377]

SENATOR LOUDEN: Don't kid yourself. I'll ask it. [LR377]

ROBERT BUSCH: Well, I'm basically done. Thanks for allowing me to speak and I trust common sense--I emphasize common sense--will prevail for the benefit of the citizens of Nebraska. Thank you. Shoot. [LR377]

SENATOR LOUDEN: Okay. Thank you, Robert, for your testimony. You realize, of course, in the Department of Natural Resources there are hydrologists in there and there are other people that are engineers. In fact, as our assistant director was one of the hydrologists for the dam part of it and that sort of thing. [LR377]

ROBERT BUSCH: Safety dams. [LR377]

SENATOR LOUDEN: But you still think that the director should be an engineer. [LR377]

ROBERT BUSCH: Absolutely. Let me give you an example. [LR377]

SENATOR LOUDEN: Wait, let me mention to you that some of the other departments, like the Department of Roads, don't require an engineer to be director of the Department of Roads. Whether that's good or bad. But, I mean, there are other...the Department of Natural Resources is about the only one that has qualifications of something like this. Go ahead. [LR377]

ROBERT BUSCH: I'll give you an example. Right now, we're in a big tussle with Kansas, and it was in the World-Herald about Chief Engineer Barfield. Now, sitting at a table negotiating, you know, you've got...like you say, you've got an assistant director who is a hydrologist. You might have an engineer that hasn't got much experience, sitting at the table. And negotiate. You don't come to an agreement and you go home. The next morning your phone rings and it's Chief Engineer Barfield and he wants to talk to the director of DNR about some very specific details that are very pertinent to the problems we're facing. And the director who is just a manager get into the technical

portion, and he says, oh, just a minute, I can't answer that; I'm going to run down the hall and get our engineer. That don't work. You need to have a professional, licensed civil engineer sitting at that table, at that desk, talking on that phone. That's one example. [LR377]

SENATOR LOUDEN: Now give me an example of what an engineer can talk about on that negotiation that probably a good negotiator or someone that's familiar with the case couldn't talk about. Don't use Stenberg as an example. (Laughter) [LR377]

ROBERT BUSCH: Well, I was going to add another name, too. I'm not college-educated, Senator. Civil engineers, from what I know, are educated in water issues. I farmed for a civil engineer for a long time, and he knew things about water measurement that even our superintendents of our ditch companies didn't know. But he was educated on water issues. He was tremendous at weirs, irrigation siphons, what an 18-inch versus a 24-inch volumes would carry. He learned that in college, and he learned it in college with hands-on experience. And so he was educated in water issues as a civil engineer. [LR377]

SENATOR LOUDEN: Now, are we ready for the big question? [LR377]

ROBERT BUSCH: Yeah. Shoot. [LR377]

SENATOR LOUDEN: Do you feel that the Governor would hire the best person available for that job? Do you trust the Governor to hire the best person available for that job? [LR377]

ROBERT BUSCH: No. I would say this: If the Governor is smart, if he is smart we have got, without a doubt, some of the best people in this state that understand surface water, inside out, upside down, backwards and forward. He needs to reach out and he needs to reach out beyond O Street. He needs to come out here and pick two or three

people to sit on a committee to assist him in looking for that qualified person. Those folks in the Capitol, no. The Governor doesn't know. He relies strictly on what he learns from his aides. And, no, the Governor needs to...you know, that's part of this search team. [LR377]

SENATOR LOUDEN: Now how should they...? How much money should they be allowed to pay for a person like this? I mean, that was a problem when--what was his name? Roger or whatever. [LR377]

ROBERT BUSCH: Roger Patterson. [LR377]

SENATOR LOUDEN: Roger Patterson. They searched a long time and finally when they found Roger then they had to...my understanding was--it was before I got down there--but I thought they had to go to the Legislature to get more money to bring him in. How would you handle that deal? Because, I mean, when you go out searching, you better not put a $70,000 limit on it or else you're wasting your time. You're going to either tell them, well, here's the piggy bank, do what it takes; or how are we going to handle that? , [LR377]

ROBERT BUSCH: No, I agree. Your question is a very good one. The largest interests in this state is agriculture, driven by water, and I'm very conservative, but what did...what was Ann getting when she left us? $75,000? [LR377]

SENATOR LOUDEN: No, $120,000 or something like that. Yeah, and Roger Patterson, when he left, his income went way up. I mean he left a low-paying job when he left Nebraska. [LR377]

ROBERT BUSCH: Yeah. He left the bureau to come here. [LR377]

SENATOR LOUDEN: And my understanding is that Ann Bleed is doing the same thing.

[LR377]

ROBERT BUSCH: Double it. Double it. I mean, you're talking...I mean, I'm very conservative, but the largest industry in this state is agriculture, and water is the driver of agriculture. And then...but now I need to qualify that. What does Kansas pay? Wyoming, Colorado, Idaho, what do they pay? You know, you guys know what state senators get all over the USA; you know, what you guys get is pathetic. (Laughter) You know, that's horrible. [LR377]

SENATOR LOUDEN: We're dedicated. (Laughter) [LR377]

ROBERT BUSCH: Yeah, sure you are. No, Senator, that's a really tough question. [LR377]

SENATOR LOUDEN: But this is something that we have to deal with because... [LR377]

ROBERT BUSCH: I know, I know. [LR377]

SENATOR LOUDEN: ...that's been the problem is the compensation and what do we do and where to do start because it's not different than if you were on the school board back there in the '60s when you was trying to hire school teachers, you know, you come out with whatever you could afford because whatever it was, you probably weren't going to get the one you wanted. So anyway. [LR377]

ROBERT BUSCH: Yeah. Now the salary is very difficult and so, but you've heard my position and... [LR377]

SENATOR LOUDEN: Yeah. These guys want to get to you, Bob. [LR377]

ROBERT BUSCH: Oh yeah. I'm waiting for this one. [LR377]

SENATOR LOUDEN: Go ahead, Senator Christensen. [LR377]

SENATOR CHRISTENSEN: Thank you, chairman. Bob, is there any other degrees you feel would be justified to be up at the top? Professional, geologist or the engineering? Is there any others to broaden the field that you feel would be qualified for that position? [LR377]

ROBERT BUSCH: Well, of course civil engineers might top. [LR377]

SENATOR CHRISTENSEN: Um-hum. [LR377]

ROBERT BUSCH: Or a licensed hydrologist. I guess to be honest with you I have to stop there. When you get into geology, then your talking about the earth, the soil, depth and all of this, you get out of your realms with water. [LR377]

SENATOR CHRISTENSEN: But where does groundwater fall in that? That's a big part of this state too. [LR377]

ROBERT BUSCH: But we're dealing with surface water issues when we talk about the director DNR. [LR377]

SENATOR CHRISTENSEN: But they also work with approving all the INPs. [LR377]

ROBERT BUSCH: Yeah, through the INP...no, I agree with that. I guess I'm not that...I know some geologists, (inaudible) would really have to be very qualified and my emphasis would not be on geologist. I'd still... [LR377]

SENATOR CHRISTENSEN: Anything else? [LR377]

ROBERT BUSCH: No, no. I'd still stick with my professional civil engineer or hydrologist and, gentlemen, there are some very good civil engineers out there. [LR377]

SENATOR CHRISTENSEN: Have you recommended? This spring during the session, the Governor said he'd never had anybody recommended to him. He's had two now because I did it, but have you recommended or do you have any names? [LR377]

ROBERT BUSCH: No I don't. No I don't. But on the other hand though, I haven't tried. [LR377]

SENATOR CHRISTENSEN: Get to looking. Send them to me or send them to him. [LR377]

ROBERT BUSCH: No. (Laugh) [LR377]

SENATOR LOUDEN: Senator Hansen. [LR377]

SENATOR HANSEN: Thank you, Senator Louden. My question was just to clarify that hydrologists was still on your top two. [LR377]

ROBERT BUSCH: Yeah. [LR377]

SENATOR HANSEN: And the background of a hydrologist will have a lot of geology in his background. [LR377]

ROBERT BUSCH: Yes indeed, that's part of... [LR377]

SENATOR HANSEN: And probably not a lot of civil engineer. [LR377]

ROBERT BUSCH: That's very true. Yeah. Ann Bleed was a hydrologist. [LR377]

SENATOR HANSEN: Thank you. [LR377]

SENATOR LOUDEN: Other questions? Well, seeing none, Ron (sic), thank you for your testimony. [LR377]

ROBERT BUSCH: You bet. [LR377]

SENATOR LOUDEN: We enjoyed it. [LR377]

ROBERT BUSCH: I've enjoyed having you...I guess Harms left, but you guys on the water (inaudible) last year and this year. [LR377]

SENATOR LOUDEN: Next testifier? Is there anymore testifiers for this now? Okay, Jeff. Go ahead. [LR377]

JEFF METZ: (Exhibit 16) Senator Louden, members of the Natural Resource Committee, my name's Jeff Metz, J-e-f-f M-e-t-z. I'm a farmer and rancher from Angora and serve on the Nebraska Farm Bureau Federation board of directors, and I am here on behalf of Nebraska Farm Bureau and offer some comments on the LR377. Farm Bureau's member adopted policy supports dropping the engineering requirements in regards to the director, but keeping a requirement that the director, assistant director or person in charge of surface water administration be an engineer. We believe a change is needed to ensure the best candidate be hired to serve as director. The engineering requirement, in our opinion, is limited to the number of persons who could be considered a candidate for the position. The responsibilities of the positions have changed over the years. The DNR director must formulate policy concerning surface and groundwater, administered laws passed by the Legislature, and represent the state in multistate negotiations. A qualified candidate must have a thorough understanding of

hydrology water laws and the Legislative process, administration of the department and be able to effectively communicate and articulate positions and ideas. Any number of professional degrees, including hydrology, geology, legal, economic or others could meet the need. Dropping the engineering requirement would broaden the candidates the Governor could consider with these skills. It is our understanding that in recent searches for a director, the pool of candidates was thinned and lacked depth. We believe this could become a greater issue in the future. Some people argue the engineering requirement should be kept to continue to ensure decisions made by the director based on technical evidence. We certainly don't think anyone that advocates for dropping the engineering requirement wants a director's decisions made under undue political influence. We believe that there are means to be sure decisions continue to be factual-based while opening the door for the candidate with the best qualifications to be considered for the job. Requiring the assistant director or persons in charge of surface water administration have a professional degree in technical field is one way. Or requiring the input of a staff technical person in a director's decision to be sure they are technically sound could be another. The Farm Bureau believes we can open the door for candidates with the best qualifications, while at the same time protect the credibility of the position. We would be happy to work with the committee and other interested parties toward this end. Thank you. []

SENATOR LOUDEN: Thank you, Jeff. Questions for Jeff? Senator Kopplin. [LR377]

SENATOR KOPPLIN: Do you believe that if we increase the financial incentive that that pool of candidates may rise quite a bit? [LR377]

JEFF METZ: Certainly. [LR377]

SENATOR KOPPLIN: So then if we added enough money and still kept the engineering degree, we could hit the same goal that you want? [LR377]

JEFF METZ: Correct. [LR377]

SENATOR KOPPLIN: Okay. Thank you. [LR377]

SENATOR LOUDEN: Other questions? What I was wondering, Jeff, then, your idea here if I understand it, it would be that one of the either the director or the assistant director should be an engineer. [LR377]

SENATOR KOPPLIN: Yes. [LR377]

SENATOR LOUDEN: One or the other. But it wouldn't necessarily have to be the director is what come across here. [LR377]

JEFF METZ: Right. We want the best guy or gal for the job. [LR377]

SENATOR LOUDEN: Okay. And just in all fairness to everybody else, do you trust the Governor to hire the best person available (laughter) to be the director of natural resources? [LR377]

JEFF METZ: I do. I think his reputation is on the line and he must...you know, he's not going to hire just anybody. [LR377]

SENATOR LOUDEN: Okay. Thank you. [LR377]

JEFF METZ: You bet. [LR377]

SENATOR LOUDEN: Next testifier. []

DENNIS STRAUCH: (Exhibit 17) I guess I'll go three for three. My name again is Dennis Strauch, D-e-n-n-i-s S-t-r-a-u-c-h, representing Pathfinder Irrigation District. I guess first

of all it's difficult for us to understand why Nebraska would want to reduce the qualifications for the director that oversees our most valuable resource, in reality, our only resource is water that we have available. I just struggle with that thought because I don't understand how that benefits Nebraska by reducing those qualifications. Second, the director of DNR serves as a hearing officer in permit and adjudication process proceedings before the department. These proceedings are very technical in nature and require the director have technical expertise in rendering the proper decision. Third, a licensed engineer is required to operate under a code of ethics, which would ensure the decisions are based on technical merit and not political whims or pressure. Forth, since Nebraska has merged the Natural Resource Commission and the Department of Water Resources into the Department of Natural Resources, we have increased the responsibilities of the director. With this increased responsibility, we should be looking to strengthen the qualifications, not lessen them. Fifth, with the passage of LB962, Nebraska is finally moving towards properly managing the hydrologically connected waters of this state. Important decisions will be made in the next few years to put in place management plans that adequately protect the water resources of the state of Nebraska. Having a director that has the technical knowledge and experience in these matters is vital to establishing sound water policy and management for Nebraska. Sixth, we have heard it is difficult to find a qualified professional engineer that will take the position for the salary that is being offered. First of all, we haven't even truly advertised the position and tested the waters to see what qualified individuals are available. Secondly, if salary is restricting the quality of the applicants, then we should find a way to provide an adequate salary to attract good applicants. Finally, we have yet to hear from anyone how lessening the qualifications for the director will benefit Nebraska water resource management. If you were on trial for a serious crime, you wouldn't hire an irrigation manager like me to represent you; you would go hire the best legal counsel you could find. And likewise I think Nebraska needs to find the best person, and I believe it needs to be an engineer, at the helm of the Department of Natural Resources. With that, I'll close my remarks. [LR377]

SENATOR LOUDEN: Thank you. Okay. Then are you, like Robert mentioned, should they be a civil engineer or just any kind of an engineer such as in statutes now? [LR377]

DENNIS STRAUCH: I think you'll find...Roger Patterson was a civil engineer, but his expertise or his qualifications were in water management. Those people are out there. Bureau of Reclamation, that's what most of the engineers have worked for the Bureau of Reclamation, other than on the hydropower side of it are civil engineers. They're out there. They have expertise in water. I think we just haven't spend the time and the resources to really truly go out and search the waters for the proper person. Roger Patterson was an excellent director. He was a professional engineer. He was a civil engineer. But he brought a lot of expertise with him, and we have to find somebody like that, in my opinion, that will represent Nebraska's interests when we deal with interstate compacts, whether we deal with administration in Nebraska, whether we're dealing with integrated management plans. Those people are out there. We may have to spend more money to get them. I mean, we're talking about water resources, and that's the...well, to quote the Governor, the issue of the center. So why aren't we spending the money to get the best individual we can? [LR377]

SENATOR LOUDEN: What if we find a person like that and they don't...part of the problem, they have to work with that Attorney General and that probably was a trigger on this deal here was what the Attorney General wanted to do about water and what the Department of Natural Resources director wanted to do about water and what the Governor wanted to do about water. It wasn't all in the same nest and there you were. I mean, no matter...how you are you going to handle things like that when this is a cabinet-level position? [LR377]

DENNIS STRAUCH: Well, I think the person has to be...not only his professional engineering background provides him expertise. I mean, I don't care who the attorney is. You can hire attorneys and what are they going to go do if they're in a water legal battle? They're going to go hire an engineer to advise them. Now, they may not always

take the engineers advice, but it would be wise to have that person there advising that legal counsel whether they're negotiating interstate compact or they're in court. I watched Roger Patterson operate in the negotiations in Nebraska v. Wyoming, and I'll guarantee you one thing, he kept the Attorney General in tow. He knew how to deal with the Attorney General. I don't think Ann Bleed knew how to do that and that's what created the problems we got in the Republican River, in my opinion, as far as the issues between the Governor and the AG and the director. [LR377]

SENATOR LOUDEN: Well, I agree. One other thing just for the sake of discussion, you mention that your third deal here, licensed engineer is required to operate and engineers are required to operate under a code of ethics. Now, when you see road department engineers and in other words, that code of ethics is it means they'll use the best possible material that can be used and they won't cut corners and that sort of thing. Does that always work that well? I mean if you left it up to engineers to invent something, there would be a lot of stuff that wouldn't get invented because they're working under a code of ethics. I mean, how many engineers would tie a log chain together to pull a tractor out? (Laughter) [LR377]

DENNIS STRAUCH: Not many and not many safety consultants would advise you to do that. [LR377]

SENATOR LOUDEN: But yet it's been done. [LR377]

DENNIS STRAUCH: Yes. No, I think if a professional engineer or even a professional geologist operates under some code of ethics. If he believes the science isn't there to sustain a decision, he's not going to recommend or make that decision contrary to what he, his science brings. I think they operate under that because...and I think they truly believe that what they're doing as professional engineer, what they're doing is right and what they're trying to do it to the best of their ability. Are they always going to make the right decision? Probably not. [LR377]

SENATOR LOUDEN: I agree with you. We'll take that to the Department of Roads. (Laugh) Anyone else have any...Senator Christensen. [LR377]

SENATOR CHRISTENSEN: Thank you, Chairman Louden. Dennis, you're setting here saying a code of ethics for a PE or a PG, don't you think anybody in the position is going to operate that way, anybody that we're going to choose for that position is going to operate that direction? [LR377]

DENNIS STRAUCH: Oh, I think you're right, Senator Christensen. I think that if they have that position, they would do it to their best ability. But I guess my problem is I don't know if they have the ability. I really question whether the...the person that's calling the shots needs to understand the technical side well enough that he knows that if his people are telling the truth or not. I mean, if he's not an engineer and maybe...and I agree, they may have engineers that maybe they're not qualified. But if they're under them and how's he going to know if what they're advising him is right if he doesn't have some technical basis to make his final decision? [LR377]

SENATOR CHRISTENSEN: Okay. If you had a state-run hydrologist with this degree and manager got the phone call, couldn't he not have him handle it? If he was the manager, the boss, he could delegate. Why couldn't he take the phone call of the example we had over here and deal with the question from both of you? [LR377]

DENNIS STRAUCH: Well, I think probably...I think there is some room to work within the department as far as...I think the Farm Bureau hit on something that may be workable as far as permitting, and some of these issues maybe needs to be a professional engineer at the helm of that. And it may not have to be the director, but I truly believe the director should be your first choice before you'd make that move down. I still question why would you want to go after somebody less qualified. Nobody's been able to explain to me how that benefits anybody. [LR377]

SENATOR CHRISTENSEN: Well, I think the only reason is if we can convince people to spend enough money on it. If we can spend enough money on it. If we can spend $200,000, quarter of a million, not going to be an issue. I agree. But we know how cheap this state is. My staff ain't paid well enough. I ain't paid well enough. I mean it's a fact we don't pay well enough and taxes are too high and that's all I hear. That gets to be part of the problem. [LR377]

DENNIS STRAUCH: So $100,000, what's the state budget? I don't know what the state budget is. What is $100,000 to the state? [LR377]

SENATOR CHRISTENSEN: Three and a half billion. [LR377]

SENATOR LOUDEN: Yeah, but $100,000 isn't going to buy one. []

SENATOR CHRISTENSEN: I agree. I'm not going to argue. [LR377]

DENNIS STRAUCH: On top of an existing $100,000 won't get you an... [LR377]

SENATOR CHRISTENSEN: One hundred more. [LR377]

SENATOR LOUDEN: Oh, you mean $100,000 more? [LR377]

SENATOR CHRISTENSEN: Yeah. [LR377]

SENATOR LOUDEN: You're talking about $200,000. [LR377]

DENNIS STRAUCH: Additional. Yeah. [LR377]

SENATOR CHRISTENSEN: I think $200,000 would get you one. [LR377]

DENNIS STRAUCH: I mean, I think one will get you, $150,000 may get you there. We don't know yet because I don't think we've really tested to see what we could find. [LR377]

SENATOR CHRISTENSEN: No, I don't disagree with you. But I also know it's not a priority of a number of senators and a number of people in the state of Nebraska. If it was a priority... [LR377]

DENNIS STRAUCH: So water is not a priority to the Legislature? I think water would be a... [LR377]

SENATOR CHRISTENSEN: This priority, we would be paid better than our staff. [LR377]

DENNIS STRAUCH: No. What I'm saying is I think water is a priority to the state because it continues to dominate discussions in the Legislature. I think if the Governor would approach properly, I think he would support an increase in the salary for the right person if the right person's there. [LR377]

SENATOR CHRISTENSEN: Oh, I think so. [LR377]

DENNIS STRAUCH: What I'm saying is we have to make that attempt. I mean... []

SENATOR CHRISTENSEN: Well, I don't have any problems make attempt to get more money. I just don't know what all to go after if I write the bill. You know, whether the... [LR377]

DENNIS STRAUCH: We have been successful, however, in a director that has these qualifications in the past. [LR377]

SENATOR CHRISTENSEN: I will debate that one, but that's all right. I had a lot of objections with one, but that's all right. But you know I don't know. That's why we're having these hearings. What all needs to be changed besides the salary, do we need to civil there? Do we need to remove the...you know, that's what this is about. I get another question. When all the dam projects were being built and we were doing a lot of engineering, did we have an engineer at the head of the Department of Water Resources? [LR377]

DENNIS STRAUCH: I couldn't answer that for sure. I don't know. [LR377]

SENATOR CHRISTENSEN: They haven't always had. [LR377]

DENNIS STRAUCH: They haven't always had. Okay. [LR377]

SENATOR CHRISTENSEN: It was something that was added later on when we combined, but I was just curious who all knew that. That's all my questions. [LR377]

DENNIS STRAUCH: I guarantee it wasn't an engineer that designed the dam. [LR377]

SENATOR CHRISTENSEN: Sure. But they worked under a head that didn't have the PE. [LR377]

SENATOR LOUDEN: Other questions? Senator Carlson. [LR377]

SENATOR CARLSON: Senator Louden. Dennis, I appreciate your testimony and that of several others. And I think if I wanted to refrain from exposing myself. But I think we've had enough discussion now that I can. But I want to say one thing. I think this is a little difficult maybe for Brian to be sitting here. I'd feel that way if I were him. I appreciate what Brian is doing. I hope that Brian decides to become a candidate. I wouldn't want

Brian to be hired without a search. I'd like Brian to come to the top if that the way it works amongst a group of other very, very qualified candidates. I'm a Nebraskan. We don't go for second best. We hired Tom Osbourne. That was a wonderful decision. He hired Bo. I hope that's one of the best decisions he ever makes. We don't care that Bo makes over a million dollars. And we shouldn't care that the director of Natural Resources makes a quarter of a million. And I'd be very happy to try and justify that and convince other senators we want the best. Thank you for your testimony. [LR377]

SENATOR LOUDEN: Senator Kopplin. [LR377]

SENATOR KOPPLIN: I'll try to phrase this as questions so that I don't show where I stand on the issue. Do you think the integrity of the position would be jeopardized in the eyes of many if he had to turn to this assistant every time he needed an answer? [LR377]

DENNIS STRAUCH: I think to some extent, yeah. I know when you're negotiating with other states on issues, you know, they're interested in what the director's got to say, not what his counterpartner would be whispering in his ear. You know I know when we negotiated Nebraska v. Wyoming, Roger and Ann were both part of that group. And Ann provided a lot of technical background to help Roger. But Roger knew enough about it to know when he could make a decision that wasn't necessarily what the technical side totally supported, but was in the best interest of Nebraska as far as finding a settlement to the problem. [LR377]

SENATOR KOPPLIN: My other question would be, in many of the things we discuss in the Legislature, we come down to the point of if you spend a little bit of money now, you save a whole bunch in the future. Do you think that same concept is in play here? If we spend a little bit of money on the director, we may save a whole lot of money down the road. [LR377]

DENNIS STRAUCH: Well, there's not doubt if we get a director employed, you know, and who's to know whether the next director, even if we follow these qualifications, will be...how they will perform. We don't know. But I know if we try to put the best person in that position we can, we have a better chance of avoiding future problems which can cost us money. [LR377]

SENATOR KOPPLIN: Okay. Thank you. [LR377]

SENATOR LOUDEN: Other questions? Well, seeing none, thank you for your testimony. Next testifier. [LR377]

DEAN EDSON: (Exhibit 18) Senator Louden and members of the committee, the testimony I'm handing out to you was testimony from Jim Meismer from North Platte. He was planning on coming up and giving a testimony today and he couldn't make it and had some little technical difficulties with this too. So that's still got the date on it from the North Platte hearing, so I want to correct that error. And there's also an error in the testimony there that references North Platte and it should be Scottsbluff in the second paragraph. [LR377]

SENATOR LOUDEN: You want it read into the record and with the corrections? [LR377]

DEAN EDSON: Oh, yeah. [LR377]

SENATOR LOUDEN: Or do you want to just... [LR377]

DEAN EDSON: I'll take care of it. [LR377]

SENATOR LOUDEN: Okay. [LR377]

DEAN EDSON: But I'm going to skim through some of his testimony here. [LR377]

SENATOR LOUDEN: Okay. Then this is your testimony, it isn't Jim Meismer. [LR377]

DEAN EDSON: Yes. Yeah, it is from the association, Nebraska Association of Resources Districts. [LR377]

SENATOR LOUDEN: Okay. Thank you. [LR377]

DEAN EDSON: Yup. And my name's Dean Edson, D-e-a-n E-d-s-o-n, and I'm the executive director of the Nebraska Association of Resources Districts presenting testimony here on behalf of association and on behalf of Jim Meismer, the chair of our legislative committee on LR377. First, I'd like to thank you for coming to Scottsbluff today to take comments on the issue. We appreciate the Legislature reaching out to the constituents in holding hearings in western Nebraska. The Nebraska Association of Resources Districts adopted a policy in 2002 to eliminate the engineering requirements of the director of Natural Resources. It's a policy very similar to what Farm Bureau was referencing where someone in the agency would have an engineering degree and have those qualifications, but not necessarily the director. That was passed in 2002 at our annual meeting unanimously by all 23 districts. It was reaffirmed again in 2007 unanimously. There was not negative votes on that. It was all positive votes to reaffirm that a year ago in September. I want to point out our position is not based on the current interim director or the immediate past director. This dates back to when the policy...or policy change was made when the Department of Water Resources and the Natural Resources Commission were merged in 2001. That engineering requirement was merged into the current statutes from the Department of Water Resources. At the time, there was no such requirement for the Natural Resources Commission. Since the department was created in a merger, the duties have changed. The former Department of Water Resources administered and adjudicated surface water rights. The former Nebraska Natural Resources Commission was an agency established to serve as the official agency for state soil and water conservation, watershed protection, water

resource development, flood prevention and control, and statewide resources planning. Under current law, many candidates are eliminated from consideration because they don't hold an engineering degree or maybe don't have the fives years of irrigation experience. I'll give you a good example, Jim Cook would have been an excellent candidate. And many of you may not know him, but Jim's now retired from the department but had worked very extensively on the Platte River issues and worked with the surface water interests and the ground water interests and pulled together several consensus agreements on a lot of very complex and controversial issues. Somebody like that would have been an excellent candidate. He just didn't have the engineering degree. What I want to get to here is this department is not only about engineering and irrigation. This includes a wide variety of resource management objectives, such as legal, economic, and public education aspects. Although there are more water issues to deal with since the passage of LB962 in 2004 and the passage of subsequent cleanup bills, much of this engineering and hydrology work is now being done in conjunction with other DNR staff, the private sectors, engineers from NRDs, and other organizations. We see what we see as the skill set needs of the director does not solely focus around engineering. The role is to become more focused on water resource planning, funding issues, facilitating and mediating disputes over water resource management and use. There's much less focus on engineering work directly for the director as others can perform that task. This director needs to have good skills and personnel management, communication, business management, knowledge of water law, and the ability to communicate with all people across the state, not just surface water folks. Need to communicate with everybody. The best person to fill this role may or may not be an engineer. By eliminating the engineering requirement does not preclude an engineer from getting the position. The next paragraph down I want to point out is the statutory requirements for the state engineer, which heads up the Department of Roads. You will note that an engineering degree is not listed. Rather note in subsection 5, that section that the director has the ability to employ engineers and others for proper transaction into the business. Subsection 5 of 81-701.02 reads...gives this director the ability to employ all engineers, assistants, clerks, agents, and other employees required for the

proper transaction of the business of his office or of the department and fix their titles, determine their duties of compensation, and discharge them in his discretion. We believe that the Governor should have the ability to choose from a wide range of qualified candidates to run this department. Again, eliminating this engineering requirement does not preclude an engineer from being appointed to the position. The only thing it does is makes them compete with other qualified candidates for the position. Candidates for this position should not be limited to a protected special class. I would like to also address a few other issues related to the interim study. We would support additional funding of staff for the department. There's a lot of work involved in developing water management plans in the Republican, Platte, and Niobrara Basins. There may not be enough staffing at the state level to assist in all the basins in a timely fashion to complete all the work that needs to be done. So we'd like you to take a look at that and make sure that we have adequate funding and staff there. The Natural Resources Commission also has a lot of projects and programs to implement. Many of these program are underfunded, including the development fund use for flood control purposes. We're fortunate in Nebraska that we have not had this severe flooding that has occurred in Iowa and Missouri this past spring. But many of the existing flood control structures have protected communities across the state. However, there's a lot of communities that still need protection. We'd like to work with the Legislature and other interested parties to assure funding is available to construct and maintain these critical structures. I'd like to thank you for your time and consideration. We urge the committee to move forward on these changes to the director qualifications and consider making other changes to the department. And I'll answer any questions you may have. [LR377]

SENATOR LOUDEN: Thank you, Dean. Questions for Dean? Senator Christensen. [LR377]

SENATOR CHRISTENSEN: Thank you, Chairman Louden. Dean, do you know if there was ever been a director in this state that didn't have a professional engineering

degree? [LR377]

DEAN EDSON: That did not? [LR377]

SENATOR CHRISTENSEN: Yeah. [LR377]

DEAN EDSON: For the agency? [LR377]

SENATOR CHRISTENSEN: Yeah. [LR377]

DEAN EDSON: There's been an interim director that did not have an engineering requirement. Don Blankenau served as interim director, what we call the years. But he did not have an engineering requirement or an engineering degree. [LR377]

SENATOR LOUDEN: Senator Carlson. [LR377]

SENATOR CARLSON: Senator Louden. Dean, I don't know Jim Cook well, but I have seen him operate and I wouldn't disagree with you. Did he have education other than in addition to the law degree? I don't know. [LR377]

DEAN EDSON: He didn't have an engineering degree. He relied on a lot of other staff for any engineering or technical expertise and may be involved in the project, as did a lot of the NRDs. We and the NRDs, we have engineers hired on staff in several of the districts. As a matter of fact, we have two managers that are engineers. Well, we tap into those resources when we need to. [LR377]

SENATOR LOUDEN: What I might mention when they talk about the comparing the other states, Dean, and I suppose you're familiar with it, but they talk about Colorado and of course that's the director of divisions of water resources and he's required to have a professional engineering. But the executive director is a cabinet-level position

and they don't have to be. In other words, the way Colorado does it, they evidently hire their engineers or their hydrologists or something, and then the director of the department isn't a professional engineer. Now, who does the negotiation when we were negotiating with Colorado? Is one of the people from the department or is the director himself there? [LR377]

DEAN EDSON: Well, I couldn't tell you for sure because I was not involved with those discussions. But I can tell you with the Republican River issues, the Attorney General's Office in the legal team from the department are heavily involved in those discussions. [LR377]

SENATOR LOUDEN: The Attorney General from Kansas? [LR377]

DEAN EDSON: In Nebraska. [LR377]

SENATOR LOUDEN: From Nebraska is. [LR377]

DEAN EDSON: Um-hum. [LR377]

SENATOR LOUDEN: Right. But what about from Kansas? Who are the people that come over from Kansas? [LR377]

DEAN EDSON: Their Attorney General Office is there as well and they have engineers there and then Mr. Barfield... [LR377]

SENATOR LOUDEN: And then this Barfield? And what is Barfield? Is he the chief engineer for the state of Kansas? [LR377]

DEAN EDSON: That's my understanding. [LR377]

SENATOR LOUDEN: Okay. And that's a civil service job, isn't it? [LR377]

DEAN EDSON: I couldn't tell you for the state of Kansas what their... [LR377]

SENATOR LOUDEN: Okay. Well, what research we found is that is a civil service job and it's...I guess it comes under their Department of Agriculture is where that comes out of in Kansas. And so I mean when you...how the other states do it, we may just have to decide on how we want to do it ourselves. I was looking at Wyoming, and see Wyoming just has a state engineer and they don't have not Department of Natural Resources. Evidently he handles everything. I don't know what he does in road work or dam building or what all is necessary there. He's got to be a professional engineer, but I don't know what all his job description would be, whether it's just water and that or something. And do you have any idea on any of those? [LR377]

DEAN EDSON: On those, no, I don't. I mean, you reference back to my testimony when the director of the Department of Roads. The director of the Department of Roads is the state engineer in Nebraska. [LR377]

SENATOR LOUDEN: In Nebraska. [LR377]

DEAN EDSON: He's not required to be an engineer. [LR377]

SENATOR LOUDEN: Right. That's right. Yes, he doesn't have to be an engineer. Yeah. Okay. Any other questions for Dean? Seeing none, thank you for your testimony, Dean. [LR377]

DEAN EDSON: Yeah. Thank you. [LR377]

SENATOR LOUDEN: Other testifiers for LR377? I guess that... [LR377]

LYNDON VOGT: I promise I will be very brief. My name is Lyndon Vogt, that's L-y-n-d-o-n V-o-g-t. I'm the manager of the Upper Niobrara White Natural Resource District in Chadron. And Dean just told you what our position was and I'm not going to repeat that. I just had one item I wanted to say is that the corps of engineers has actually moved beyond the requirement of an engineering degree to lead a project. I have a board member that I know Senator Louden knows very well by the name of Dave Kadlecek that was in charge of the construction and maintenance of Oahe dam for a number of years that has an agribusiness degree from LSU. Just wanted you guys to think about that. [LR377]

SENATOR LOUDEN: You got to finish that, Lyndon. He was running that dam up there, but when the dam broke in Rapid City, he was the one that they called on to go up there and put that together and rebuild that thing, and here he didn't even have a engineering degree. You... [LR377]

LYNDON VOGT: Thank you for finishing that for me, Mr. Louden (laughter). That is my point. The corps of engineers is actually moved to be on the engineer requirement to manage their projects, a construction and maintenance. And if you guys would like...Mr. Kadlecek actually testified yesterday morning in Chadron concerning some forestry issues when you were up there, and if you would like to visit with him more, I know he would be happy to come to Lincoln and visit with you, and he's also a member of the Natural Resources Commission to represent the Niobrara Basin. So unless there's any questions, that's... [LR377]

SENATOR LOUDEN: Yeah. I know Dave quite well and I visited with him long and hard on that Rapid City deal when we were working on this deal in Omaha. But at that time, for the record as you say he wasn't a engineer, he was sent to Rapid City to repair the dam after that flood and the whole bit. And I think he said he awarded between $30 and $40 million worth of contract in like three weeks time up there is what he himself done. So I mean, yes, it just...whether or not you have a pedigree doesn't mean you're the

smartest person around, so. [LR377]

LYNDON VOGT: That's exactly right. And again, I don't want to reiterate what Dean said. He told you exactly what our stance is, but I think that's just one very good example of the federal government actually realizing that in a situation like that, you have to have the best person available. And I think they did when they had Dave doing that for them. [LR377]

SENATOR LOUDEN: (Exhibits 19-21) Well, thank you, Lyndon. And I guess that will end our summation of Dave Kadlecek tonight. (Laugh) any other questions for Lyndon? Thank you. Any other testifiers for LR377? If not, then we will close the hearing on LR...oh, we got to read some of these into the record. Yes. There's one from Kevin Adams in favor of a professional engineer. And is that the only one. Well, okay. Thank you. Read that into the record as LR377. With that, I will close that and I thank you very much for you attention and staying here until this time. So if you hurry, you can get out there before the bars close. (Laughter) [LR377]