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Natural Resources Committee
December 01, 2010

[LR435]

SENATOR LANGEMEIER: The Committee on Natural Resources met at 9:00 a.m. on Wednesday, December 1, 2010, in Room 1525 of the State Capitol, Lincoln, Nebraska, for the purpose of conducting an interim hearing on LR435. Senators present: Chris Langemeier, Chairperson; Annette Dubas, Vice Chairperson; Tom Carlson; Tanya Cook; Deb Fischer; Ken Haar; Beau McCoy; and Ken Schilz. Senators absent: None.

[LR435]

SENATOR LANGEMEIER: Good morning and welcome to the Nebraska Legislature Natural Resources Committee. My name is Chris Langemeier, I'm the Chairman of the committee. I'd like to start off by introducing the committee that is here today, and we are going to be joined by a couple of committee members here shortly. Starting to my far left, or your right, we have Senator Beau McCoy from the Elkhorn-West Omaha area. We have Senator Ken Haar from Malcolm. He has north Lincoln in his district. We have Senator Ken Schilz, which is Ogallala. And then we have Senator Annette Dubas, the Vice Chairman of the committee. And then to my immediate right, or your left, we have Senator Deb Fischer from Valentine. We're going to be joined by Senator Carlson momentarily, and from Holdrege, Nebraska. And we'll also be joined by Senator Cook from Omaha, Nebraska, later. We have one guest to our committee, Senator Kate Sullivan, which we're happy to have her here with us, and we appreciate her work on the pipeline issue as we've all had an opportunity to deal with it over the last few days. And as I said, Senator Cook is with us now. So welcome. We're going to start off today, if you're here to testify, you'll see in the back of the room there are these little green sheets. We ask that you fill these out; that helps us keep an accurate track and an accurate record as to your testimony. So when you come up to testify, we ask that you give it to our committee clerk, Barb Koehlmoos, who sits at the end of the table there. And that will help us keep track of those of you that want to testify. I'd also like to introduce Laurie Lage, who is the legal counsel for the committee. Are you going to send around the other sheet? We also have a sheet that normally is in the corners that

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we ask you sign in as you come in, but we didn't want a lineup, so we're going to pass it around. If you're not going to testify before us today, we ask that you fill that out, your name and whether you're in support or opposition, and you'll be in the record as being here but you haven't testified. So we do appreciate that. At this time we would ask that you turn off your cell phones, not to interrupt our testifiers before us here this morning. We have two pages that will be helping us. If you have anything you would like to hand out to the committee, we ask that you have 12 copies of it. If you know right now you don't have 12 copies, if you'll hold up your hand, our pages, who I'll introduce in a second, will come help you get that up to 12. Also, if you hand anything to us for us to review, we're going to keep it. So if you have something, a photo, or something you want us to see, please just hold it up at the testifiers' stand. We'll do our best to see it from there, and then if a member of the committee wants to see it in more detail afterwards, they can make arrangements to see that. But if you give it to us, it will become part of the official record and we will keep it, so don't hand it in if you don't want us to do that. Our pages today: We have two seniors. We have Ayisha Sydnor, who is still in the room, from Bellevue, Nebraska, and our other page, Jamie Myers, from Stuart, Nebraska, both seniors at UNL, will be assisting us in moving paperwork around this morning. We are going to, the Natural Resources Committee, we always do things a little different. In this interim study we have asked Vice Chairman and Senator Annette Dubas and Senator Kate Sullivan to do some preliminary work on the pipeline issue, and they have spent an enormous amount of time gathering information and preparing to give us a presentation. So we are going to turn this over to them momentarily. They have a number of people to give us some background information on the pipeline issue in Nebraska and some information that we're going to listen to. They are going to conclude...they have to conclude by 10:15 I told them, so they are prepared for that. At 10:15 we're going to conclude their presentation; we are going to take a ten-minute recess; then we will come back for open testimony for all of you that would like to testify. In an interim hearing we don't take opponents and then proponents and then neutral testimony; we just take it as it comes. So then you'll prepare yourself to come up and testify. We're running into another event later today, so we will be concluding this

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hearing at 3:00. So if you know that you have a number of people that want to testify, we ask that you don't repeat your testimony and that you can keep it as concise and maybe work together to get your message across. We do, in the Natural Resources Committee, also use the light system. We give everyone five minutes. You'll see the little green light will come on at the start of your five minutes; the yellow light in the middle will come on saying you have a minute left; and then when the red light comes on we ask that you conclude and then open yourself up for questions from the committee. And we've never had an issue with that. Some committee member, if you're in the middle of a thought, seems to ask a question to help you get your thought out. So you'll be able to conclude with your full message. So with that, I don't think I've missed anything. If not, we'll announce it again as we move forward. I'll turn it over to Senator Kate Sullivan and Vice Chairman Senator Annette Dubas to start their presentation program to start us off. Good morning. [LR435]

SENATOR DUBAS: Good morning, Senator Langemeier and members of the Natural Resources Committee. My name is Senator Annette Dubas, that's D-u-b-a-s, and I represent the 34th Legislative District. I would really like to thank everyone who participated in this study and for everyone who came down today. We had a lot of great participation. Invited a lot of people who are very willing to come forward and share their information with us. So it is my hope that today's hearing will be informative and enlightening for the general public, as well as for the members of the Legislature. Last session Senator Dierks introduced LB755 which was a bill intended to give the state more involvement with the siting, the oversight and taxation of pipelines. The bill did not advance from committee, but the concerns that the bill was trying to address still remained. Senator Sullivan and I have been in constant contact with constituents who raised very valid questions and concerns. We know that public sentiment is strong and we felt that there was limited and, oftentimes, conflicting information that was being disseminated. Our goal for this study is to gather unbiased, factual, and technical information on the state's statutory authority and the potential impacts on our natural resources involving such pipelines. To accomplish this objective we solicited information

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from state agencies, federal authorities, and the University of Nebraska. In early August we met with nine state agencies to determine their involvement with the pipeline within the state. Those agencies included the Department of Environmental Quality; the Department of Natural Resources; Game and Parks; the State Historical Society; the Public Service Commission; Department of Revenue; the State Fire Marshal; the Oil and Gas Conservation Commission; and the Board of Educational Lands and Funds. These state agencies outlined in detail their involvement with the pipeline project and their current statutory authority. Then in mid-September we collaborated with the Nebraska Congressional delegation; the Natural Resources and Conservation Service; and the Pipeline and Hazardous Material Safety Administration which is a federal agency. This meeting defined the federal government's role and responsibilities in siting and permitting process. Our federal delegation also explained their concerns with the project, how they've been involved, and their conversations with the various federal agencies. Finally, through the UNL Water Center, we solicited the help of the university professors who are experts in Nebraska ecology, geology, hydrology, Sandhills revegetation, and hazardous material remediation. An overarching concern about the site for this particular project involves the potential negative impact to the Sandhills region and to our irreplaceable Ogallala aquifer. We felt the expertise of the Water Center needed to be an integral part of this study. A great deal of staff time has been spent on researching all of Nebraska's pipeline laws; a comparison of eminent domain laws around the country; and the environmental impact and response to pipeline spills which have occurred in other states. Their research went on to include a look at federal regulations and laws pertaining to pipeline siting, permitting, construction, safety oversight, and decommissioning. While many of the federal laws preempt states from establishing their own authority, we do, as a state, have the right and responsibility to protect our natural resources. Senator Sullivan will come forward and share some additional information of importance about this study and then we should be ready to have some invited guests come forward and make a presentation and give you an opportunity for some questions. [LR435]

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SENATOR SULLIVAN: (Exhibits 1, 2, and 3) Thank you, Senator Dubas. Chairman Langemeier and members of the Natural Resources Committee, I'm Senator Kate Sullivan representing District 41. Thank you, certainly, for your time and interest today. As Senator Dubas stated in her opening remarks, prior to the beginning of this study we established goals that were going to guide us as we conducted our fact-finding for LR435. Our mission was threefold: one, to gather facts about the state's statutory role with regard to oil and natural gas pipelines; two, to determine where governmental authority for emergency response resides; and three, to provide fact-based technical information concerning pipelines and their effects on Nebraska's natural resources. The books before you contain the information that we have gathered over the last six months. In your books you're going to find our written testimony; scientific responses to technical questions on natural resources and water from the UNL Water Center prepared by academic researchers from several scientific disciplines. You'll find material provided by state agencies in response to our inquiries about the state's role and responsibilities, including useful information about the state's role after an environmental incident occurs. There's also material provided by the U.S. Department of Transportation and PHMSA, or what's called the Pipeline and Hazardous Materials Safety Administration, and other federal agencies in response to our inquiries about the federal government's role and responsibility, including useful information about the federal government's role after an environmental incident occurs. There's also a research report by the Congressional Research Service provided by Congressman Lee Terry. And also copies of letters from U.S. Senator Ben Nelson; U.S. Senator Mike Johanns; and also TransCanada. Ultimately the information in your books will be available to the public in an online report and will include documents and/or links to documents and the committee hearing transcript. The online report should be available by the end of this month. We've invited three state agencies to participate this morning: the Nebraska Department of Environmental Quality; the Nebraska State Fire Marshal; and the Nebraska Department of Revenue. Each of these state agencies has a unique set of duties that come into play with pipelines. Now I should note at this point, I'm going to divert a little from my written testimony that you have in your notebooks.

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Unfortunately, after the committee books were already prepared, we received notification that the representatives from DEQ and Revenue would not be available to appear before this committee today. In lieu of appearing before you in person, DEQ and Revenue have submitted letters which I believe the pages are passing out to you right now. I will say also that State Fire Marshal John Falgione is here and will be testifying this morning. We've also invited academic experts from the University of Nebraska to make a presentation and respond to the committee's specific questions about their research. It was never our intent that LR435 would result in suggestions for legislation. We have gathered the information and today we present it to you. Where we go from here has yet to be determined. I thank you again for your interest and the opportunity to participate in this public hearing. If the committee now has questions about the process thus far, Senator Dubas and I will answer them to the best of our abilities. If there are no questions for us, then we will move directly to the State Fire Marshal. [LR435]

SENATOR LANGEMEIER: Thank you. Are there any questions at this point? Seeing none, we'll move...you're off the hook. [LR435]

SENATOR SULLIVAN: Thank you. [LR435]

SENATOR LANGEMEIER: Mr. Falgione. [LR435]

JOHN FALGIONE: Good morning. [LR435]

SENATOR LANGEMEIER: Good morning. [LR435]

JOHN FALGIONE: Thank you. [LR435]

SENATOR LANGEMEIER: This is a point I didn't announce earlier: Everybody that comes up, I need you to say and spell your name so we can have it on the record and then you can go. Thanks. [LR435]

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JOHN FALGIONE: (Exhibit 4) Okay. As I said, good morning, Chairman Langemeier and Senator Dubas and members of the committee. I am Nebraska State Fire Marshal John Falgione, J-o-h-n F-a-l-g-i-o-n-e. Per Senator Dubas' request, I'm here to speak with you regarding the role the Fire Marshal agency has in regulating pipelines. And, excuse me, but I do have this handout, please. Thank you. The U.S. Department of Transportation Office of Pipeline and Hazardous Material Safety Administration, as you've heard earlier referred to as PHMSA, delegates to each state the opportunity to have an authorized pipeline program. In order for the state to maintain this authorization, it must comply with all the federal regulations adopted in Title 49 of the Code of Federal Regulations Chapters 190-199. In Nebraska the pipeline program is administered by personnel in the pipeline department of the fuels division of the Fire Marshal's agency. Pursuant to the Nebraska Natural Gas Pipeline Safety Act of 1969, the pipeline department has jurisdiction to inspect intrastate natural gas transmission pipelines and distribution systems. The transmission pipelines typically branch off of the interstate lines and lead to the distribution systems which are the systems that bring the natural gas to homes and businesses. These branches are the transmission lines that are intrastate lines, in that they can never cross the border into other states. The pipeline department also has jurisdiction over the state's only liquefied natural gas--that's the LNG--facility owned and operated by the city of Omaha's Metropolitan Utilities District, commonly known as MUD. Something with that, isn't it, Senator Cook? (Laughter) This department is comprised of three field inspectors located throughout the state, a full-time staff assistant, and a chief deputy to supervise these employees and perform other duties. Nebraska has 20,721 miles of distribution pipeline and 1,399 miles of intrastate transmission lines, with only 3.3 miles of transmission line areas designated as "high consequence areas." There are 28 operators in Nebraska, most of which have distribution systems. These systems are subject to complete inspections at least every three years, but undergo continuous compliance inspections on various parts of the systems. The LNG facility is completely inspected at least every two years. In 2009, pipeline department personnel conducted 817 compliance inspections. And with that, I

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thank you for the opportunity to speak with you and I'll try to answer any questions that you have. [LR435]

SENATOR LANGEMEIER: Thank you. Are there any questions? Senator Haar. [LR435]

SENATOR HAAR: Yes. Thanks for being here. [LR435]

JOHN FALGIONE: Um-hum. [LR435]

SENATOR HAAR: What does it mean "high consequence area?" [LR435]

JOHN FALGIONE: Okay. Those are areas that are determined where the pipelines may...and I'll use this as an example. If there is a transmission or a pipeline that runs between, say, two high-occupancy buildings, such as maybe between two apartment houses, why, that area that is in that, that's only between those apartment houses, is considered a high consequence area because of the risk factor that could be...that may be involved. If there develops an incident with it, it could be a high consequence because of the population in those two buildings. So when I say 3.3 miles, it is not a continuous stretch of a pipeline. It is a segment; all these segments put together comprise about 3.3 miles. Now we have one community that I think has almost a mile of what is classified as a high consequence, whether it's...you know, there's various things, elements that could enter into it to give it that classification, but basically it is based upon population factors. [LR435]

SENATOR HAAR: Okay. So the high consequence area then, unlike...sort of what we're talking about with the TransCanada pipeline, where we're talking about the aquifer and so on, this refers mainly to something related to people, such as the apartment buildings or whatever. [LR435]

JOHN FALGIONE: Correct. [LR435]

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SENATOR HAAR: Okay. [LR435]

JOHN FALGIONE: Yes. You're dealing with...that would be considered environmental impact. [LR435]

SENATOR HAAR: And are all the fire departments and so on, volunteer fire groups and so on, aware of where all these pipelines are in their districts? Whose responsibility is that? [LR435]

JOHN FALGIONE: Well, there is a requirement that all the gas companies have continuous training programs and they have their response methodologies in place and programs in place for a response. And I would have to...I can't speak for every one... [LR435]

SENATOR HAAR: Sure. [LR435]

JOHN FALGIONE: ...of our nearly 500 fire departments in the state, but I can't imagine that there are any of them that haven't practiced and aren't aware of the pipelines in their jurisdiction. [LR435]

SENATOR HAAR: Okay. That would be some interesting information just to know how that happens so that...I mean, is it like digging for electrical lines where there's a map of every, you know, "call before you dig" sort of thing, whether that's part of that? [LR435]

JOHN FALGIONE: Well, there are various parts to that, Senator. There are a number of...and I believe it's online, you can get all the pipeline maps of different interstate lines, as well as the intrastate lines that we have jurisdiction over, and I think that information is readily available. [LR435]

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SENATOR HAAR: Okay. Thanks. [LR435]

SENATOR LANGEMEIER: Other questions? Senator Schilz. [LR435]

SENATOR SCHILZ: Thank you, Senator Langemeier. Mr. Falgione, thanks for coming in today. So, basically, what you're saying here is you have control of all the intrastate lines, but if it's coming in interstate then that's a different sort of a responsibility. [LR435]

JOHN FALGIONE: That's under federal jurisdiction and we have no jurisdiction on it. [LR435]

SENATOR SCHILZ: Right. But if there would be a spill, you may...would you be required to do anything? [LR435]

JOHN FALGIONE: No. [LR435]

SENATOR SCHILZ: Okay. Thank you. [LR435]

JOHN FALGIONE: Um-hum. [LR435]

SENATOR LANGEMEIER: Other questions of Mr. Falgione? Seeing none, thank you very much for your testimony. Appreciate it. [LR435]

JOHN FALGIONE: Thank you very much. [LR435]

SENATOR LANGEMEIER: Our next testifier is going to be Mr. Jim Goeke. Good morning. [LR435]

JIM GOEKE: Good morning, Senator Langemeier, Senator Dubas, committee members. My name is Jim Goeke, J-i-m G-o-e-k-e, and I am a professor and research

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hydrogeologist with the University of Nebraska's Conservation and Survey Division. I have worked since 1970 with the Conservation and Survey Division, and as I have told people I'm a glorified well driller. It's been my good...my pleasure to drill a lot of holes around the state. And my purpose this morning is to share with the committee and the audience here the...a background about the aquifer at risk for the resources in question. I think it's imperative that we all play with the same understanding of the systems that we're all concerned about. That isn't necessarily easily available, and so I've put together a series of PowerPoint slides. There's about 20. And I'll try and be relatively quick in working through these. If you can see the screen over here, from the early '70s to the mid-1980s, the United States was divided into about 25 regional aquifer systems. In Nebraska we are part of the High Plains regional aquifer system. The High Plains RASA covers eight states. And many times when we talk about the resources in Nebraska in conversations about the pipeline, we talk about the aquifer. We talk about the Ogallala aquifer. We talk about the High Plains aquifer. We talk about the Sandhills. They're all included in this area. And to make sure we know what we're talking about, this covers 174,000 square miles, and the orange you see here is the Ogallala Formation. And if it weren't for Nebraska, we could call this the Ogallala aquifer simply. But in Nebraska we have older formations that provide water. The Brule that you see down here is in this area, around Sidney. The Brule is an aquifer. Above the Brule we have the Arikaree, up around Mirage Flats and in those areas. It's the principal aquifer. Above that, we have the Ogallala Formation that you see in orange. And then above that we actually have Quaternary, or glacial aquifers, in eastern Nebraska, outside the Ogallala aquifer, but in a hydraulic connection. So actually we're talking about the three of these. And what you're looking at here is about 65 million years' worth of deposition in this...in Nebraska. Part of the problem, when we talk about the Ogallala Formation is, many of us don't have an opportunity to see it. This is what it looks like. It is buried in...from central Nebraska east, but in central and western Nebraska it outcrops as exposures. It was identified in 1898 by N.H. Darton from three miles east of Ogallala, Nebraska, Ogallala siting. And the Ogallala Formation was deposit, and I'll have more detail about this, from about 19 million to about 5 million years ago. It was deposited as

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debris from the Rocky Mountains. The Rocky Mountains were uplifted about 65 million years ago and have been shedding sediments that have built up the state of Nebraska that we live on and the...built the groundwater reservoirs that store and transmit water. The process has been streams that have meandered across a broad alluvial plain that has coalesced over the eight states basically. And the Ogallala, because it's been deposited primarily by streams, can compose and be composed and consist of just about anything. It can have gravels, sandstones, sands, siltstones, clay stones. It's quite variable. This is...at the type locality where we can actually see it, you can see that there's a lot of cementation. There are areas of softer sediment. But that's what it looks like there at the type locality. This is another image from that type locality. Many times it has these cemented ledges. If you look at it closely, you can see these sands and gravels that are part of beds deposited by streams within the formation. As we think about aquifers instead of an underground lake, think of underground sediments that have accumulated for millions of years and the water has to move through these sediments. It's a miracle sometimes that we can even get water out of these things. This is how a sand and gravel looks in an outcrop; this is how it looks when we drill it out of the ground. Many times when we can't see it, we have to drill a hole down to it and circulate these samples up. This is a good Ogallala sand and gravel. And a foot of this kind of sand and gravel will yield about 20 gallons per minute to the yield of a well. We'll talk about that a little bit more. This is what the Ogallala sandstone looks like. Those are brown chunks of sandstone. The white things you see in there are siliceous rootlets. Plant material grew on these surfaces, and for those millions of years that the Ogallala was deposited, there were animals, there was vegetation, and the vegetation has been replaced by silica and we get lots of rootlets. We get seed fragments; we get entire hackberry seeds. When we talk about native trees in Nebraska, you ought to realize the hackberry is probably the native tree in Nebraska. It's been around for millions and millions of years. And we get these replaced seed fragments. We even get up grass fragments. But this is what a good sandstone looks like when you drill it up out of the ground. And these are the kinds of sandstones that actually store and transmit lots of water. Now you might not be able to see this very well, and I apologize, but we can

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come down here to about 65 million years ago when Nebraska was covered by an ocean and the Pierre Shale was the bottom of that ocean. The sea withdrew when the Rocky Mountains were uplifted, and for 65 million years, and even to today, the Rocky Mountains are eroding and those sediments are being carried eastward to build up what we know as Nebraska. At about 32 million years, the Brule Formation, right here, began to be deposited. And I'll mention that in a little bit. The Brule is a siltstone to a claystone. And it underlies the Niobrara River where the pipeline will cross. So it bears into this. Above the Niobrara we have the Arikaree Formation deposited from about 28 million to about 19 million years ago; mostly a silty sandstone, a finer grain formation. And then from about 19 million years to about 5 million years ago, we had the Ogallala Formation deposited mostly by streams meandering across the plain. When we talk about the Ogallala Formation, you have to understand wherever you drill it, it's probably going to be different. It's typified by its variability. If you go out on the Platte and look at the sediments in the Platte Valley as the stream meanders, and on the outside of a bend you can have course gravels; on the inside of a bend, you can have fine grain materials, depending on the velocities of flow. So you have a tremendous variety of sediments. And that's what we get in the Ogallala. The Ogallala is typified by its ability to change its character and composition in very short distances, both horizontally and vertically. So it's tough to predict. At about 5 million years ago, in the Pliocene, the Broadwater Formation there was a reactivation. We had gravels deposited on top of the Ogallala Formation. And then in the last 2 million years we've had the quaternary units with glacial activities in eastern Nebraska and associated sediments deposited on top of the gravels and on top of the Ogallala Formation. This is what it all looks like in the High Plains aquifer when we talk about saturated thickness. When we talk about the Good Life in Nebraska, we're talking about how much water we have. The red, green and blue are at anywhere from 200 to 400 in the red, 400 to over 800 in the green, and over 1,000 here in the blue. Those are saturated thicknesses. We all ought to feel good about that. And if we want to look at where the pipeline goes, you'll see this in more in detail in just a little bit, it comes across right here and down like that. And so you can see the kind of saturated thicknesses. Now don't be deceived when we talk about

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saturated thicknesses. Anytime you hear it, one of the first things you ought to want to know is what kind of materials actually are saturated. The university has the Gudmundsen Ranch in the heart of the Sandhills. We have over...we drilled a 1,639-foot test hole, which really sounds like a whole lot, but we didn't hit any gravel. It was all fine sands. In many cases you would trade 500 feet of sand and silt for 40 foot of gravel just because the gravel will yield more water. So you want to know what kind of materials are actually saturated. If we took a cross section from the South Dakota line down here and then over here, this is the High Plains aquifer. Sands and gravels came up into this area. This is the Pliocene Broadwater system. But if we look at this in cross section, this is the South Dakota line; this is the Platte River system; this is the Kansas line. The reason I show this is it gives the full thickness of what the potential aquifer materials might be. We have the Brule Formation down here. And the Brule Formation might be a misnomer. Around Sidney it serves as an aquifer because it has cracks and a secondary permeability. Most often when we hit the Brule it's a siltstone to a claystone and it doesn't yield much water, and that's many times without a secondary permeability it's not a particularly good aquifer unit. Then we have the Arikaree that you see here, a silty sandstone, and it thickens to the west. Then we have the Ogallala Formation that you see in blue. Above the Ogallala Formation we have...and just so you know, and this is for you, Senator Schilz, because this is home base for you, this is Keith County from right here. This is Arthur County. This is Grant County. And this is Cherry County. So we've got Cherry County, Grant County, Arthur County, Keith County, and then we go south down to the Republican. But we have the Ogallala in blue; and you can see in this area, the Niobrara River has cut down to expose outcrops of the Niobrara, as have areas here in the North Platte Valley. We've got gravels above it, coarse gravels. Then we have stream-deposited sands even above that. And over this whole system we have a veneer of windblown sand dunes. So our potential aquifer system, if all these systems were there, we can have saturated windblown sands; we can have stream-deposited sands below them that are saturated; we can have saturated sands and gravels; we can have the Ogallala Formation with all its variety of sediments wherever you might happen to see it. We can have the Arikaree below that and then even the Brule. And when you

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start looking...this is the vertical component over here, when you look at this, that's over a 1,000 feet of potential saturated thickness. That's what the total is. But in eastern Nebraska things have thinned out and we don't have quite that much thickness. To look at the pipeline, in particular, this is a digital elevation model, and it just shows relative elevations in Nebraska. The darker browns are the higher elevations; these are lower elevations. And where the pipeline...this is the pipeline route. Where the pipeline comes into Nebraska, the elevations gradually decrease and it runs down here. Most of the rest of the slides I'm going to show you have this imposed route of the pipeline so we can actually see. It has been my feeling that as we talk about the pipeline, it is a very emotional, complex issue. And the reason I did this is I...we have...I work for the Conservation and Survey Division. We are the state Geological Survey and it's been our charge to inventory the resources of the state, interpret those resources and share that with people. And I felt it important to superimpose the pipeline on these basic data systems so everybody can understand, as specifically as possible, what we are actually talking about. When we talk about political entities involved, these are the NRDs that are involved: the Lower Niobrara, the Upper Elkhorn; the Lower Loup; the Central Platte; the Upper Big Blue; and the Lower Big Blue are the NRDs that are involved along the pipeline route. When we look at topographic regions, we can think of this in general, but specifically the olive color...sort of olive here that you see, these are plains. The yellow are Sandhills. The sort of pinkish or washed-out, those are dissected plains. Dissected plains down here. The Platte River Valley here. The plains of the Blue River Basin there. That's the kind of land surfaces and land forms that the pipeline will encounter on its route. This is...and some of these have been provided...this was provided to me by TransCanada. This is the pipeline in...the Keystone pipeline that is already functioning. This is the proposed line. You can't see it very well, but these are pumping systems along there to keep that oil moving in the pipeline. And I want to back up just a quick second. This area that we see here, outside, it's to the east of the High Plains aquifer, this is the glaciated region in Nebraska. That glaciated region has loess windblown fine silt over clays with interspersed...poorly connected aquifer systems. It's not nearly as vulnerable or fragile as the Sandhills. And when you look at this area, you

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can see that this pipeline went through an area that wasn't necessarily as water rich or as sandy. When we look at a soils map of Nebraska. And I apologize; this gets very busy and hopefully in your handout you can see that the sand...we need to be concerned about what kind of soils there are along the route. And these yellows and olives and light greens, these are mostly sandy soils that you would expect in the Sandhills. These are more...these are heavier silt loam soils that we see here and, of course, alluvial soils in the Platte Valley. While this is a rather busy slide, I assure you that along the pipeline every county has a county soils map and every section in every county has a detailed soils map. So when we start talking about soils, we can get it down to a gnat's eyelash really across the area. This is one of the maps that I was most interested in when we did this. This is the depth to water map. How far is the water table below the land surface? The lightest blues that you see here are zero to 50 feet. That means the water...the water table, the top of the zone of saturation can actually be at the land surface or within 50 feet. And when you look at the lightest blues, you can see this area across southwestern Holt County has an entire area where the water table is closest to the land's surface. When we talk about the next darkest blue--and it's 50 to 100 in these other blues and the next blue is 100 to 200. The reason to me that's important is at a point where any pipeline might leak, I would be curious to know how far the bottom of that pipe is above the water table. If it leaks, is the water table in close proximity? Is it 50 to 100, or 100 to 200 feet? A pipeline could conceivably leak and be 200 feet...or 100 to 200 feet above the water table and never, ever connect to the water table. The other question here, and it doesn't show in this slide, is what is the nature of the unsaturated zone? We're not just talking about soils all the way down. We're talking about possible geological deposits. So when we talk about soils, you just can't assume that a leaking pipeline is going to move straight to the water table. You need to know specifically what that unsaturated zone is to anticipate what the response of a leaking pipeline might be; if, in fact, it leaks. So this to me is vital information. Also, the configuration of the water table, this is a contour map drawn on the top of the water table. Just like we can contour the land surface, we can contour the top of the water table below the land surface. And just like you ski downhill, water runs downhill; and if

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you want to ski down a fall line when you're skiing in the mountains, you're going to go fastest. If you...water moves at right angles to these contours. If a pipeline leaks and if that leakage, or whatever the product is, gets to the water table, where is it going to go? It will move in regard to the prevailing groundwater flow direction. And if we look at this, you can see that the water table...if a pipeline along here, we can actually...if it connected to the water table, we could tell which way it might go. And leakage can't go upstream. One of the things that I think it's important for everyone to understand is that our groundwater reservoir and our aquifer systems, as extensive as they are, aren't an underground pool. A leaking well in the Gulf might create problems for many hundreds of miles, but a leaking pipeline in a geologic area...first of all, leakage has to move through the unsaturated zone to get to the aquifer itself and then it will move in the prevailing direction. So this seems to imply that any movement would be this way. And all the aquifer in this part of Nebraska, the majority of the aquifer would not be affected. Those people who might think that a leaking pipeline is going to destroy the aquifer in Nebraska need to understand that it would be localized. First of all, it has to connect to the water table. There are other factors involved in how it might leak: the character of the product itself; the viscosity of the problem itself; temperature relationships; those sorts of things that would probably localize leakage to a matter of hundreds of feet around the pipeline. This is just a base of the aquifer map. It really has no bearing. But when we talk about saturated thickness, we have to subtract these elevations of the base of the aquifer from our water table and it provides us a saturated thickness map. How much of a reservoir along that pipeline actually might be threatened? The lightest blue that you see up here is zero to 100 feet of saturated thickness, and it increases to the point where, in this area, in southwestern Holt County, those are saturated thicknesses of 400 to 500 feet. So there is a...and you can see across here that these blues were anywhere from 300 to 400 feet. There are states that would kill for this. I mean we look at this and we are...Nebraska is...we are so fortunate to have the water resources. Everybody is right to be concerned about not messing this up. But this again, this is a saturated thickness. And if we look at transmissivity, a well driller, drilling a well--and I almost choke when I say transmissivity because it's not necessarily a normal

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word that people use--but a well driller drilling a well is aware of particularly sands and gravels. Sands and gravels store and transmit the most water. And as I said before, a foot of good saturated gravel will yield about 20 gallons per minute. So drillers drilling gravels keep a very close track. If you have 50 feet of saturated gravel, you multiply 50 feet times 20 gallons per minute per foot and that well, with 50 foot of gravel, might pump a thousand gallons a minute. That driller has just calculated a transmissivity. Transmissivity is how many gallons per minute per foot of material you have times how many feet of it you have. So we keep track of these things. And these dark grays that you see up here are transmissivities...are areas where you'd be able to get a well of a thousand gallons per minute or more. The blues are areas of 500 to 750 gallons a minute. It is almost an embarrassment of riches. When we look at the geology, the yellow here is the Ogallala Formation, it extends up into northeastern Nebraska and comes down this way. The Blue River Basin is not underlain by the Ogallala Formation. And the pipeline, below the Ogallala Formation, we have the Brule--where is it here? (Inaudible) don't see it. But the Brule is right up here. Excuse me, this is the Pierre; this is the Pierre Shale up here, Pierre or Brule, and the pipeline, when it comes under the Niobrara, will go through that underneath that formation. And when the pipeline comes across the Platte, we're down here into the Niobrara. Both of these are relatively impermeable formations and the pipeline will be 40 to 60 feet into that material below the rivers--that being a concern when the pipeline crosses the river. Those are the areas where I think we ought to be very concerned, because we wouldn't want a pipeline to leak associated with the Platte, and the Platte is taking water over here to the well fields at MUD and Lincoln or into the Niobrara, up in this area. And we didn't just guess at this. These are the test holes. And I say that because the Conservation and Survey Division has been around since 1921. Our origins go back to 1893. We've had a cooperative test drilling program with the United States Geological Survey since 1921. This is your tax dollars at work figuring out just what we have. We don't guess at this stuff. This sort of surprised me. This is the pipeline superimposed on registered irrigation wells. You can see the density of wells here in the Blue River Basin up here in northern Holt County. I was a little bit surprised that in southwestern Holt County there

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aren't more irrigation wells. But these are the wells developing a resource along this area. One might wonder what's been the impact of those wells. This is our most recent predevelopment water level change map, from predevelopment when things were in balance to the spring of 2009. And I didn't get the pipeline superimposed on this, but it comes down through like that. And you can see that there are declines in northern Holt County. But there really aren't declines here. These are rises of 5 to 10 feet declines in the Blue River Basin. So the water...those wells do have an impact along the pipeline route. This is the pipeline route superimposed on a groundwater pollution-potential map. If you have...all the yellow you see here are sandy soils. A sandy soil would have high infiltration rates. The pink are areas where the water table is high, close to the water surface. The blue are areas of intensive irrigation...lots of chemicals. Any one of those colors associated with the pipeline would be an area where you might have the potential for pollution. You combine those colors and you can see that there are areas where we ought to be concerned about water quality potential problems. I don't know that we have the combination of three, but certainly here in Holt County we have got high water tables and sandy soils that you see in the orange. But those are...and keep in mind, the soils are only going to go down 6 to 8 feet. The bottom of the trench for the pipeline, it's a 3-foot pipeline, it's going to be 4 feet deep, so the bottom of the trench is going to be down 8 feet. So we're going to be through the soils, but we need to be concerned about the soils as far as revegetation and those sorts of things. This is just a reiteration to make sure we're all on the same page. The Sandhills is this area in blue. Less, probably, 10,000 years of age and it's superimposed over the Ogallala Formation, which you see in this hachured area. And the Ogallala is part of the High Plains aquifer that you see here in blue. So when we talked about the pipeline related to the Sandhills, we're talking about it in these areas. When we talk about it related to the Ogallala, we expand it. And when we talk about it related to the High Plains aquifer, we expand it even further. This is just a map that I put in. Pipelines in Nebraska: pipelines aren't new in Nebraska. We have lots of pipelines in Nebraska. And just in closing, I've used this slide for years, we have a lot of data in Nebraska. We ought to be aware of that. Because lacking that data...that data becomes information. That information becomes

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knowledge. That knowledge becomes intelligence. That intelligence transitions to wisdom. Without that data, and without sharing it with you, we don't have enough information about knowledgeable, wise decisions about pipelines. That's why I've done all this and I thank you for your time. I'd be glad to answer questions. [LR435]

SENATOR LANGEMEIER: Very good. Are there any questions? Senator Dubas. [LR435]

SENATOR DUBAS: Thank you, Senator Langemeier. Thank you so much. I never get tired of listening to you talk about... [LR435]

JIM GOEKE: I never get tired of talking. (Laughter) [LR435]

SENATOR DUBAS: I wish we could clone you. It is just obvious how much passion you have for what we have in Nebraska, and we need to make sure that the work you've done and the work that people that work with you have done is carried on. And again, I just thank you so much for what you've done. [LR435]

JIM GOEKE: Thank you. [LR435]

SENATOR DUBAS: Are there any other areas in the United States or in the world that are similar to or comparable to the Sandhills? [LR435]

JIM GOEKE: Yes, there are areas in China, particularly. But probably not with the kind of development that we've had here in Nebraska. And I say that because that's more a superficial assessment because while there might be stabilized deserts and extensive deserts, I don't know that those kinds of deserts and dune fields overlie the kind of saturated materials that we have here in the Ogallala Formation. But the geologic process isn't unique where we have mountains being uplifted. You can put those combinations of factors together to create something like that, I'm not aware in any

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specific detail. Maybe Professor Gates might have a better handle on that. He's going to talk after I'm done. [LR435]

SENATOR DUBAS: So in simplified, layman's term, the fact that the Sandhills sits on top of the aquifer makes it that very unique type of ecological system. [LR435]

JIM GOEKE: It works very, very well. Senator Haar made a comment about all the millions of years I was talking about. And I don't do that flippantly, because...I don't know if it was Archimedes or Aristotle said, if he had a lever long enough and a fulcrum he could lift the world. And the lever that we have when we talk about processes like this is immense amounts of time. And we take that for granted. You put a lot of time in and you can do a lot of things. And I say that because currently we have precipitation enough to stabilize the vegetation and keep the dune fields stable. Good grazing. But that's not always the way it is. You change things around and things are going to move. As it is right now, with an average of 20 inches of rain in the Sandhills, we have good recharge, great recharge in these porous sandy soils. So we can generate good recharge to fill that reservoir below the Sandhills. So it's a really optimal situation currently. [LR435]

SENATOR DUBAS: When you, on your map, showed the different levels to reach water and in the particular areas where it's zero to 50 feet, there is a lot more variance in that region than like when you get down to the 50 to 100. So in the zero to 50, you could be talking 1 foot, you know, and then go a little bit farther and then you're talking 50 feet. [LR435]

JIM GOEKE: Yes, yes. And that's...that is an area of concern. We have water tables near the land surface, and southwestern Holt County has that. The pipeline could actually be set into the water table. [LR435]

SENATOR DUBAS: I don't know if you'll be able to answer this question, but on just one

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of the last maps you showed where all the pipelines are in Nebraska, dealing with all kinds of things, and there is an obvious gapping blank spot that covers the Sandhills region. Do you feel because of the ecology in that area that's why there's no pipelines or there's just...it just hasn't worked for pipelines to go through there? [LR435]

JIM GOEKE: I think it...I think it is just because it hasn't worked for pipelines to go through there. I don't think it has been an ecological concern, per se. A lot of the development of the Sandhills is...a lot of the existence of the Sandhills is a function of their immensity. There was a time when the idea was: Let's irrigate the Sandhills; we've got all this water. The logistics beat it up because it just costs too much money to get in and get out. And so the Sandhills sort of protect themselves by their immensity and dimension. [LR435]

SENATOR DUBAS: You briefly mentioned reclamation. Could you speak to the challenges of reclaiming areas in the Sandhills? [LR435]

JIM GOEKE: As you drive around the Sandhills, and I'm sure Senator Schilz done it, there is areas where you see go-back ground where people plowed that ground back in the '20s and '30s and you can actually see it. Because while they've healed over, they have sort of a specific broken area to them, and yet they have healed over. And it's a viable concern to revegetate those areas. We've got Dave Wedin, Jerry Volesky, and others to talk about that. If there's a will, there's a way to do it. But it is a viable concern to make sure that...where you don't have much soil and you do put in a pipeline that you can stabilize things and not leave gapping scars out there. We do have the Barta Brothers Ranch in that area, up there in Brown and Rock County. And we have looked at areas where we've disturbed the vegetation and then looked at what it would take to revegetate those areas where it's been disturbed. So the university has some experience in that. [LR435]

SENATOR DUBAS: Thank you very much. [LR435]

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JIM GOEKE: You're welcome. [LR435]

SENATOR LANGEMEIER: Senator Carlson. [LR435]

SENATOR CARLSON: Thank you, Senator Langemeier. Dr. Goeke, thank you for being here. You talk about millions of years, I can't comprehend that, but you also mentioned that the Rocky Mountains are, and I'll use the term deteriorating, and they're sending material our way, but again, we'd be talking about a long period of time. I have a concern or question about if the pipeline needs to be deep enough that we don't have problems from the surface down to the top of the pipeline as time goes along because that's going to happen before millions of years and we get additional deposits on top, and then, of course, we don't want it to...any deeper than it has to be, in terms of its location to the water level. But do you have any concerns about from surface to the top not being enough distance? [LR435]

JIM GOEKE: Not really, no. And I don't know...the question might relate to, is it just filled? Is it compacted, the nature of the materials? I don't...I couldn't answer that question specifically, but I'm basically not worried about it. I mean, it's not a concern that I have. I might mention that if you don't believe about the mountains being connected, just west of Laramie there is a specific kind of rock called anorthosite. It's a beautiful rock and when you look at it in the sun it gives a blue schiller, it's almost like a jewel. And we find that that's the only place it occurs. And we find it all the way into northeastern Nebraska. And we know when we find it the only way...the only place it came from was over there west of Laramie. And so those are things we know about the connection. [LR435]

SENATOR LANGEMEIER: Very good. [LR435]

JIM GOEKE: Senator Haar. [LR435]

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SENATOR LANGEMEIER: Yes, Senator Haar. [LR435]

SENATOR HAAR: Yes. First of all, I used the word transmissivity (laugh) every day. No. (Laugh) Thanks for coming. I enjoy every time I hear you talk about this. Obviously, you're passionate about it and I learn something every time. And I just got this yesterday afternoon, the paper that you prepared. So I have questions about this. And I think my concern, just to get it out front, I don't like where tar sands oil comes from. I think it is environmentally very bad, but I think what we have to concentrate on is the safety of the pipeline through Nebraska. So you say that many tell you that revegetation in the Sandhills is never complete. And could you...you talked a little bit about that a moment ago. Could you... [LR435]

JIM GOEKE: I say that in the sense that those areas of go-back ground, and I have several that I'm thinking of, those at one point were farms. And in an area that is now grazing, you can see...and what actually has happened is before they were stabilized by vegetation that ground was broken out, and periods of drought, dryness and wind blew those sands around and created an irregular surface. And even though the vegetation has restabilized, I mean you still see this irregular surface that gives away what was an attempted field back in the 1920s. And yet they have, in fact, stabilized. They are grazed. They just have a different appearance to them. [LR435]

SENATOR HAAR: Okay. And then again, this is not in any way to put you on the spot, but just to...because I'm trying to get some information. When you're talking about...do you have any specific concerns regarding oil or natural gas with regard to ground or surface water? And then you said, quote, my concerns are many. Do you feel that all of these concerns have been addressed? [LR435]

JIM GOEKE: Well, there are probably more questions than I've been able to come up with. And I have...first of all, let me back up. Part of the reason a Conservation and

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Survey Division is within the university is so we can be objective. People come to us and we don't have an ax to grind. We're going to provide an objective assessment of what is going on. We work closely with U.S. Ecology in the siting of the low-level radioactive waste disposal site. And I have talked with TransCanada people and I have posed as many questions as I could come up to them in looking for answers. And I have found them to be very forthcoming and very open about responding to the kinds of questions I have had. And I don't know that I've asked all the questions. I just haven't been familiar with different aspects of a leak. What happens when it leaks? What kind of product is it that leaks? What are the temperature contrasts? What are the different solubilities in addition to the geologic factors? So those are the sorts of things that I'm sure I haven't asked enough questions to get all the answers. [LR435]

SENATOR HAAR: Well, frankly, part of my problem too is I've been trying to ask questions and I don't know if all the questions...I don't know what questions to ask very often is my problem. [LR435]

JIM GOEKE: Wouldn't it be bad if we had some really specific question and we didn't ask it and then we get stuck with it later on. That's what sort of bothers me. That's why I keep asking these questions. [LR435]

SENATOR HAAR: That's what concerns me too. You said at one point: The chances of oil reaching groundwater would be high in the event of an oil pipeline release in the Sandhills. [LR435]

JIM GOEKE: That's what I was thinking in terms of those areas. And I come back...and it's not just that area, but southwestern Holt County where you have the water tables very near the land surface. You've got literally wet meadows and the pipeline will...it's not a question if a leak in the pipeline can move through 50 or 100 feet of saturated thickness...I mean, of unsaturated zone. It's where the pipeline is literally in the water table. Those...and I'm not even sure what would happen in a situation like that if it did

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leak. [LR435]

SENATOR HAAR: And then again you said: The time scale of flow from shallow groundwater to surface water can be very short in the Sandhills. And that's again what you're saying with this. [LR435]

JIM GOEKE: Um-hum. [LR435]

SENATOR HAAR: As I've tried to look at information and read and ask questions, I guess my concern is not so much the Ogallala aquifer, but the Sandhills part of it. Does that make sense to you? I mean the fact that, you know, it's going to take a while, at least in most places, for anything to reach the aquifer, but it is more the Sandhills environment. Does that make sense that that's a bigger concern than the aquifer? [LR435]

JIM GOEKE: It does. And I think it's unique that we all treasure the Sandhills. I'm an owner of part of it, so I have a vested interest in it. And yet the scope of things, I think, can get away from us. We all have an affection, I think, for the Sandhills. Indirectly we all have an affection for the Ogallala aquifer. It is a lot of what makes Nebraska what it is. And yet the pipeline right-of-way, I believe, is 50 feet. And I'm concerned in this particular instance about magnitudes of scale. While that area being disturbed might have problems that are going to be relatively localized, it's not as though we're going to flush the whole Sandhills down the drain by cutting an 8-foot trench through it and refilling it afterwards. To me, some way or another, that seems localized and that seems manageable. I may not like it, but I think it is workable. [LR435]

SENATOR HAAR: And then you went on to say: The chemical effects would be localized because plumes are slow-moving but very long-lasting. So again, in the case of a leak or whatever, in close proximity to the pipeline you could have effects there for a very long time. [LR435]

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JIM GOEKE: And when I mentioned that, I wanted to, I think, stress the fact that there...while a leak might impact an area, it's going to be relatively localized. We're not talking miles, we're talking maybe tens or hundreds of feet at a max. [LR435]

SENATOR HAAR: And then...okay, you say...and I think you showed this with your slides, the understanding the geology changes so frequently and so on: This would again include an understanding of the composition of the unsaturated zone at the site. Do we have enough well-drilling experience, do you think, that we know, knowing where that pipeline is going to go, that we have that data for the whole pipeline in great detail? Or is that something that needs to be increased? [LR435]

JIM GOEKE: We don't have it in really specific detail. But in addition to those 5,500 test holes I showed, that's why I put those test holes in on the one...that's what we've drilled. And that's why I put those irrigation wells in, because we have records on those irrigation wells. We are close enough that we can have a pretty good handle on what the unsaturated zone is. Not precise, but we can have a pretty good handle. We know where the top of the Ogallala is, in other words. And we can come up with a pretty good estimate of what the character of the unsaturated zone is. We can identify the soils and we can come pretty close on what the character of what the unsaturated zone is from what subsurface information we have. [LR435]

SENATOR HAAR: But it sort of implies that probably right along that pathway there needs to be more drilling, more testing. [LR435]

JIM GOEKE: I'm for...I told you I'm a glorified well driller. I'm all for drilling as many holes as we can get. And I have...we have talked...we have this...we have another option currently available to us and we've done it in southwestern Keith County and up below Kingsley Dam--heliborne electromagnetics. You can fly these areas, and without necessarily having to drill them you can fly a probe over the ground and it sends out a

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signal and it is the equivalent of--with airborne surveys mapping subsurface--and it is the equivalent of drilling a test hole every nine feet. It would be an expensive proposition, but that's another option that might provide more information, flying heliborne electromagnetics along the right-of-way on a pipeline. [LR435]

SENATOR HAAR: Now you talked about that to me a little bit when we met a couple of months ago, and I asked TransCanada whether they planned to do that and they just said no. [LR435]

JIM GOEKE: Well, it is...it is not a standard technology at this point. We've done some in western Nebraska and we've done some over by Ashland; we've done some down by Firth--we, being the university, working with the USGS. So it's not necessarily an applicable technology, but I have high hopes for its potential. That's as close as I could get you. It's something easier than having to drill laborious test holes in great detail. [LR435]

SENATOR HAAR: And then I'm not sure this is your area of expertise, but a concern you raise and we'll raise it again with TransCanada, but it might be whether there are bonds in place to ensure whether the future of the pipeline might be that 25 to 50 years in the future a leak would still have a guarantee for proper attention. And that's...have you seen that addressed anywhere in your discussions with TransCanada? [LR435]

JIM GOEKE: Um, I think we've probably discussed it, and I...forgive me, but I can't remember specifics about it. [LR435]

SENATOR HAAR: Okay. We'll need to ask... [LR435]

JIM GOEKE: Keep in mind, I'm thinking in terms of 50 or 100 million years. And 10 or 20 years down the line, I'm not even going to be here to worry about it and the people we're talking with...to...with TransCanada probably aren't going to be here. But the

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pipeline will be. And to me, my personal comfort level would be to have some kind of assurance that those provisions we agree to today will be in effect long after I'm gone.

[LR435]

SENATOR HAAR: Yeah. I probably...I'll probably be here in 20 years, but...(laughter)

[LR435]

JIM GOEKE: Well, we should get together. [LR435]

SENATOR HAAR: Well, thank you very much. [LR435]

JIM GOEKE: My pleasure. [LR435]

SENATOR HAAR: And I will have more questions that probably I can talk to you personally about. [LR435]

JIM GOEKE: Any time. [LR435]

SENATOR HAAR: Thanks so much. Appreciate it. [LR435]

SENATOR LANGEMEIER: Very good. Senator Fischer. [LR435]

SENATOR FISCHER: Thank you, Chairman Langemeier. Thank you, Professor, for being here. It's also been my privilege over the years to attend a number of your presentations, and I've learned something every time. So thank you very much. I'm from Cherry County; I represent western Holt County. I also have the Barta Ranch in my district. I have a big district. [LR435]

JIM GOEKE: And Gudmundsen too. [LR435]

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SENATOR FISCHER: No. [LR435]

JIM GOEKE: You don't have Gudmundsen? [LR435]

SENATOR FISCHER: No. That would be Senator Loudon. [LR435]

JIM GOEKE: Okay. Right. [LR435]

SENATOR FISCHER: But you mentioned our subirrigated meadows that we have, which we have in Cherry County. They also have them in western Holt County where the pipeline is going through. And in the report we received from the university and Professor Gates mentioned in it the concern on those subirrigated meadows where you have that shallow groundwater, and we always have questions, is it groundwater or surface water in the spring and fall. But what is your best guess on what would happen if it is in the spring or the fall and there is a leak? We've been assured by TransCanada that the pipeline can be shut down quickly. But what is your best guess on what happens in the spring and fall when we have the water that is groundwater/surface water? And also in other times of the year, which Professor Gates says that groundwater moves slowly, which we all know it moves slowly through the area, what happens? And if you have a cup...if you have a cup of oil drop in, what happens? [LR435]

JIM GOEKE: I think those are good questions? And Professor Gates is here. I think I would let him respond to that. Is that all right? [LR435]

SENATOR FISCHER: That's okay. [LR435]

JIM GOEKE: Okay. [LR435]

SENATOR FISCHER: That's okay. And on the one map you showed, you mentioned

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that the water is going to move east. What is to the east? What's going to happen if there is a leak and you have oil in the water, even though it moves slowly with groundwater, what's to the east of the proposed pipeline? And what could be some effects if there is contamination? [LR435]

JIM GOEKE: Well if you look at the maps, the Ogallala High Plains aquifer is 40, 50 miles east, so it's going to stay in that hydrogeologic system. [LR435]

SENATOR FISCHER: Will it... [LR435]

JIM GOEKE: And when we're talking about movement, we talk often about 300 feet a year. It depends on what kind of materials you're talking about. I've looked at flow rates in the Ogallala, in standard Ogallala, they're less than even that. So when we talk...when you say what's to the east, I would think in terms of a mile or two. It's not going to go further than that. So it's...I mean, and this is an area...a dimension of scale that we're talking about. It's...when we think that the whole aquifer might be at risk, I think that's wrong. And I think when we talk about impacts, it's going to be localized to the point where east...I would say a mile or two max. [LR435]

SENATOR FISCHER: You mentioned that the Sandhills protect themselves because we are so immense out there. Can you address questions dealing with vegetation and soils, and...or would you rather I ask somebody else? [LR435]

JIM GOEKE: I would rather you ask that...I'm not...I derogatorily refer to those soils people as the dirt people. (Laughter) [LR435]

SENATOR FISCHER: I know, we love our dirt. (Laughter) [LR435]

JIM GOEKE: So I don't get that wrapped up in those sorts of things, but...and when I say protect themselves, when we drive... [LR435]

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SENATOR FISCHER: We're fairly resilient. [LR435]

JIM GOEKE: Well, resilient in its elements of scale. In the spring of the year, when it rains, and I...driving through the valleys, you'll see a scar in a sand dune and it leaks sand and you see these white sands that bleed into the valleys. Drive back next year and it will be grassed over with the rain. They have a tendency to heal themselves. And where is it going to go? Those big dunes, the big barchanoid-ridge dunes have a tendency to bleed sand into the valley and they heal back over. If you persisted for 10 or 20 years where you only had 6 inches of rain and it was...you could have bigger problems. But in my lifetime, I've seen these...the Sandhills sort of cure themselves. [LR435]

SENATOR FISCHER: In your business too, haven't you seen with proper grazing management that that helps the Sandhills to heal themselves too. [LR435]

JIM GOEKE: Absolutely. [LR435]

SENATOR FISCHER: So the people in the region also help to protect and heal what happens naturally in many cases, wouldn't you say? [LR435]

JIM GOEKE: Absolutely. I couldn't agree more. [LR435]

SENATOR FISCHER: Okay. Thank you very much. [LR435]

SENATOR LANGEMEIER: Senator Schilz. [LR435]

SENATOR SCHILZ: Thank you, Senator Langemeier. Well, I was...I always hate following Senator Fischer because she always asks the questions that I was thinking of, so I don't have any. Senator Sullivan. [LR435]

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SENATOR LANGEMEIER: Okay. Senator Sullivan. [LR435]

SENATOR SULLIVAN: Thank you, Senator Langemeier. And thank you, Dr. Goeke. This has been very helpful and interesting. Following up a little bit on what Senator Fischer had just said with respect to sort of nature healing itself, I'm not sure if I read in your comments or somewhere else, what happens...is there some sort of bacterial or microbial action when oil gets in water? Does it actually over time disappear or what happens to it? [LR435]

JIM GOEKE: I'm not really prepared to knowledgeably answer that question. [LR435]

SENATOR SULLIVAN: Okay. Okay. All right. Thank you. [LR435]

SENATOR LANGEMEIER: Seeing no other questions, Professor, thank you very much for your testimony. It was very good. And I know I said we were going to stop at 10:15, but we've had some good questions that have prolonged us a little bit here, so I'm going to have Professor Gates come up and still testify as he's patiently waiting. [LR435]

JOHN GATES: (Exhibits 5 and 6) I do have some materials to distribute. [LR435]

SENATOR LANGEMEIER: They've moved the mike back; it's not necessarily a PA system. It's just to record, so if you get too close it screws up our recordings so they pull it back from you. Okay. We're going to need testifying sheets, at some point, from Dr. Goeke and yourself, if you would. Thank you. [LR435]

JOHN GATES: Senator Langemeier and the Natural Resources Committee, thank you for the opportunity to speak with you today. My name is John Gates, J-o-h-n G-a-t-e-s, and I am an assistant professor in the Department of Earth and Atmospheric Sciences at the University of Nebraska-Lincoln. I received my Ph.D. from Oxford University in

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2007 and have been with the University of Nebraska since 2009. My research specialization involves groundwater movement and groundwater quality. And I've been involved in several such studies in the High Plains region. I would like to use this opportunity to describe issues that pertain to water quality as it would relate to a oil pipeline spill in the Sandhills region of Nebraska. These are issues that I have noted in response to questions that I have received about water quality concerns associated with the Keystone XL project. My comments mirror written comments which I have previously supplied via the University's Water Center in November 2010. They are based on my understanding of groundwater in the Sandhills and general concepts of contaminant hydrology. I've also drawn from a detailed study of crude oil contamination of an aquifer...sorry, an aquifer near Bemidji, Minnesota, conducted by the United States Geological Survey. The Bemidji Study offers a wealth of information on how crude oil plumes move and chemically react in a groundwater system. Because the two aquifers are quite different, there are limits to the analogy between the Bemidji Study and the Sandhills. Nonetheless, the Bemidji plume has been documented in great detail over 25 years and so provides useful background. I'd like to begin with a general description of some pertinent features of oil behavior in unconfined aquifers such as in the Nebraska Sandhills. Unconfined aquifers are those which are not sealed off from the ground's surface by solid rock, hard clay, or other impermeable materials. Crude oil spilled from an underground pipeline that is positioned above the level of saturated groundwater would have a tendency to move downward through the porous spaces between sediments towards the water table. This downward flow through unsaturated sediment porous spaces is driven by gravity. The amount of time it would take for oil to reach the water table would depend on two things: the speed of the flow, and the distance between the spill position and the water table. The speed of the flow towards the water table, in turn, would be affected by fluid pressures and sediment types, among other factors. Some oil would remain above the water table in the unsaturated zone clinging to sediment grains because of surface tension. Oil that reaches saturated groundwater, or is spilled directly into groundwater, would tend to accumulate on top of the water table because it has a lower density than water. Over time the oil would tend

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to move in the same direction as local groundwater flows and would be expected to move somewhat slower than the groundwater itself. For example, in the Bemidji Study groundwater flowed at about 70 feet per year. My understanding is that the contaminant plume in that case reached about 500 feet in 13 years, or roughly half the velocity of groundwater flow. Crude oil is also prone to react chemically in the aquifer. Crude oil is a complex mix of hydrocarbons, some of which are more water soluble than others. A percentage of the more soluble hydrocarbons like benzene and toluene become dissolved. The rate at which this occurs is sensitive to many factors and is difficult to predict. This is an example of an oil degradation process, although the end product in this case is an increase of potentially harmful dissolved contaminants. Other processes of oil degradation that would attenuate the plume would include losses to the gaseous phase, a process that is referred to as volatilization, and any number of chemical reactions that produce nonhydrocarbon compounds. All of these reactions can occur at widely differing rates depending on sediment types, water chemistry, percent oil saturation, and microbial processes. In the Bemidji plume, the total rate of mass loss ranged from zero to about 1 percent per year. Accordingly, quote, a considerable volume of oil remains in the subsurface today despite 30 years of natural attenuation and 5 years of pump-and-skim remediation, unquote. This is quoted from a technical publication that I have distributed with these materials. The main mechanism of plume degradation were inferred to be dissolution, volatilization, and reduction of metal oxides that occur naturally in the aquifer sediments. One issue that I would like to raise that is specific to the Sandhills pertains to potential for contaminated groundwater to discharge to surface water. It is known that surface waters in the Sandhills region, including rivers, wetlands, and lakes, are extensively fed by groundwater. According to previous research, the time scale of flow from shallow groundwater to surface water can be very short in the Sandhills. Under these conditions, an oil release to groundwater that is near to a surface water body would be difficult to remediate before it is transmitted to surface water. My understanding is that distances from the proposed pipeline route to water supply wells have been analyzed. I would recommend a similar analysis of distances to lakes and wetlands. This would permit an estimate of how likely the discharge of

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contaminated groundwater would be. A second point is regarding the potential for secondary water quality effects. Organic carbon compounds can play an important chemical role in the way that groundwater weathers the minerals that it comes into contact with and aquifer sediments. Several potentially harmful constituents that naturally occur in Nebraska aquifer sediments, including arsenic, selenium, and others, have the potential to be affected by the presence of hydrocarbons. Based on plume migration rates, this would likely have a fairly localized impact. And the degree to which it might occur is not clear. It is noted here in order to illustrate the assessments of potential water quality impacts cannot be restricted to hydrocarbon compounds only. I will close with one final and more general comment: Beyond generalized patterns and inferences from past studies, such as those that I've described, more specific risk assessment would need to take into account both oil leak volumes that are possible along the Keystone XL pipeline and the specific chemical composition of the oil being transmitted, including any additives. To my knowledge this information is not publicly available at present. Public access to this information would allow for more thorough assessment of risks and may serve to ease public concern about uncertain impacts. Thank you all for your time. [LR435]

SENATOR LANGEMEIER: Very good. Are there any questions for Professor Gates?
Senator Sullivan. [LR435]

SENATOR SULLIVAN: Thank you, Senator Langemeier. To follow up on my question that I posed to Professor Goeke and also listening to you, suffice to say that while there are many variables, it takes a long time for oil to degrade once it gets into the water, is that right? [LR435]

JOHN GATES: That is correct. [LR435]

SENATOR SULLIVAN: So, and you're saying that perhaps there...the TransCanada has not done perhaps as much extensive evaluation of the impact as it could, particularly

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with respect to lakes and wetlands? [LR435]

JOHN GATES: My knowledge of what TransCanada has investigated is not complete by any means. I'm simply advocating that any analyses that have been done for proximity to wells be extended to other discharge zones. Lakes, rivers, wetlands are discharge zones similar to wells. These are places where interaction between groundwater and surface water are most likely and they would be worthwhile taking a good look at. [LR435]

SENATOR SULLIVAN: Okay. Thank you. [LR435]

SENATOR LANGEMEIER: Are there any other questions? Senator Haar. [LR435]

SENATOR HAAR: Yes. Thank you for coming. The picture we're getting, of course, is that the hydrology and all this sort of thing is really complex as it crosses this part of Nebraska. And to follow up on Senator Sullivan's question, could you identify other kinds of research that you think need to be done to answer questions? Or from your last statement, are you simply saying that some of the information needs to be available that we can't get our hands on; that maybe TransCanada has looked at it, but we can't get our hands on it? [LR435]

JOHN GATES: It was my understanding from a discussion with TransCanada representatives, probably a month or two ago, that all of this information had been disclosed to EPA through the environmental impact assessment process. But that some of it had not been publicly disclosed for various reasons, I think, including one of them being possible national security type issues. But from the perspective of a hydrologist or a geoscientist that was interested in trying to, for example, model the way the oil would flow around, deteriorate or not deteriorate, very difficult to even get started without that degree of specificity. [LR435]

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SENATOR HAAR: Do we have that knowledge available, or have you had access to it?
[LR435]

JOHN GATES: No. [LR435]

SENATOR HAAR: Is that something you'd like to see? [LR435]

JOHN GATES: I would be interested to see. [LR435]

SENATOR HAAR: Okay. We'll see if we can arrange that. Thank you. [LR435]

JOHN GATES: Thank you. [LR435]

SENATOR LANGEMEIER: Senator Fischer. [LR435]

SENATOR FISCHER: Thank you, Chairman Langemeier. Thank you again for being here. We saw a map from Dr. Goeke on all the different pipelines that are across the state of Nebraska. In reading your biography, you're doing studies here, but also in China. [LR435]

JOHN GATES: Correct. [LR435]

SENATOR FISCHER: Do the Chinese have a lot of pipelines over the area that you're studying? Because I think we don't have pipelines across the Sandhills because we don't have a lot of people in the Sandhills that the pipelines can service. So we don't have that information available, but are there pipelines across the area in China that you are studying? [LR435]

JOHN GATES: No. I think probably similar reasons for lack of pipelines in the Chinese deserts... [LR435]

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SENATOR FISCHER: Have you looked at any information anywhere on pipelines, whether they're transporting natural gas, or diesel, or whatever, oil, what happens when there is a leak, have you looked at that? [LR435]

JOHN GATES: Most of my information is based on the Bemidji study that I mentioned that was studied for about 30 years by the USGS. This is, far and away, the most detailed study of the way that crude oil interacts with shallow groundwater systems ever. So I find it a particularly useful comparison. [LR435]

SENATOR FISCHER: Okay. I look forward to reading the study. Thank you for providing it to us. [LR435]

JOHN GATES: Thank you. [LR435]

SENATOR LANGEMEIER: Thank you. Are there any other questions? Senator Haar. [LR435]

SENATOR HAAR: Yes. Would people at the federal government level who got the whole study results from TransCanada, would they have expertise in the Sandhills do you suspect? How do they go about gathering the expertise to make decisions? [LR435]

JOHN GATES: I personally haven't had a lot of interactions with EPA staff, so I'm not well posed to answer that question. [LR435]

SENATOR HAAR: Okay. [LR435]

SENATOR LANGEMEIER: Very good. Seeing no other questions...oh, one more, Senator Fischer. [LR435]

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SENATOR FISCHER: One more. Thank you, Chairman Langemeier. I think you have stated, and as Professor Goeke did too, that any problem that happens with the pipeline, any situation that would happen to occur would be localized. There's people in this room that are concerned because it is going to be localized. Can you give an example of a scenario and what would occur if there, say, was an incident in the southwestern part of Holt County, so that maybe some of the people in this room could listen to your expertise on that? [LR435]

JOHN GATES: To answer the question with much precision or specificity, we would really need to take a modelling study. So that's one thing that I personally would think would be worthwhile. In general, I think the types of migration rates and chemical processes that we see in the Bemidji plume would be at least within an order of magnitude of the types of processes and migration rates that we would see in the Sandhills. I mentioned that one...that analogies break down between this very detailed study that we have from the past in the Sandhills. One of them is that this plume was deposited in a glacial till aquifer--extremely different sediment system, okay. So, I think recharge rates are also lower in that circumstance. And so it is the case that probably in some of the faster moving groundwater systems of the Sandhills, you get groundwater flow rates that are faster than what we are seeing in Bemidji, right? So the contaminant plume migration rate is largely a function of the rate at which groundwater flows. So that might be one difference. However, I do agree with Professor Goeke that we really need to be focusing on the scale of tens to hundreds of feet, miles, at a maximum. Nonetheless, you know, some of the chemical impacts of the plume could be quite severe within that area. I noted towards the end of my comments that we need to be thinking about, in my view, not just hydrocarbon compounds, but also secondary impacts stemming from the interaction between hydrocarbon compounds, water, and aquifer sediments. So the leaching ability of groundwater moving through aquifer sediments is enhanced by something like organic carbon. And I think that is certainly a potential issue within those plumes. [LR435]

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SENATOR FISCHER: So in that localized area when you're dealing with these contaminants and the interaction with other compounds, would it be safe to say that the people living in those areas could possibly have contaminants enter into their well systems, private well systems, and also public town, city well systems and that they would be in danger from that? And how long would...if so, how long would that danger last? [LR435]

JOHN GATES: Any wells that we're extracting tainted groundwater from within a contaminant plume would certainly present a risk. Time scales are a product largely of two things, I think: the rate of migration of the plume and those degradation rates. So in the case of the Bemidji plume, for example, they were still not out of the clear after 30 years. [LR435]

SENATOR FISCHER: And you would say that was localized? [LR435]

JOHN GATES: In the case of the Bemidji plume, this was approximately 500 yards or so. [LR435]

SENATOR FISCHER: Okay. Professor Goeke showed us the map on how the water flows and it will flow east at right angles. It will move towards the well fields of Omaha and Lincoln at Ashland and also for Omaha along the Platte. Would you say there's any potential danger for those areas, or will, best guess, it's going to be confined within 500 yards there in southwest Holt County? [LR435]

JOHN GATES: Let me make a couple of slight distinctions with respect to Professor Goeke's comments. The map that Professor Goeke showed is an excellent illustration of the regional flow paths of groundwater in the state, right angles to those contours that you saw. When we're talking about a specific point on the map though, what's really important are the local groundwater gradients which, probably in most cases, are going to overall mirror those regional gradients. But for example, there can be some seasonal

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effects where, you know, there are some changes in groundwater flow direction within a given year. That would affect the directions of plume migration. In terms of regional impacts to a place like Omaha or Lincoln, I think the main way that something like that could possibly occur was the first specific point that I made relative to the Sandhills, which is that interaction between tainted groundwater and surface water would be a risk. So this movement of groundwater is relatively slow compared to rivers that we can, you know, readily observe. But if...you know, we know for a fact that a lot of our streams and rivers in this state are heavily fed by groundwater discharge. And so if any of that contaminated groundwater were to discharge to a river, that would then become a contaminated river. [LR435]

SENATOR FISCHER: Thank you. [LR435]

JOHN GATES: Thank you. [LR435]

SENATOR LANGEMEIER: Very good. Senator Haar. [LR435]

SENATOR HAAR: Another...are we going to hear from Professor Woldt? [LR435]

SENATOR LANGEMEIER: We have two more professors... [LR435]

SENATOR HAAR: Okay, so I'll ask him. [LR435]

SENATOR LANGEMEIER: ...that couldn't join us this morning. They will be here to start us at 1:15, so we will have two more technical people to have discussions with. [LR435]

SENATOR HAAR: And he will be one of those, so I can ask him a question. Okay. [LR435]

SENATOR LANGEMEIER: Yes. Yes, Senator Schilz. [LR435]

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SENATOR SCHILZ: Thank you, Senator Langemeier. Dr. Gates, thank you this morning, and I thank you for this study and everything and as I look at this, and you can tell me if I'm way off base here, but as you look at the contamination as it gets closer to the groundwater, obviously it spreads out. Does it become difficult to mitigate that, to clean that up, because that oil tends to spread over the surface of that groundwater or will it actually push down through groundwater? And so what I'm asking is, as you sit there for 30 years and you have these issues and problems, is that because there is just such a narrow band that you can actually get to, to clean or to pump out, that you would have that problem? Am I thinking in the right area here? [LR435]

JOHN GATES: I think you are and I don't have specific expertise in the engineering methods for mediating these types of spills, but it is my understanding that full remediation, even with relatively expensive processes like dredging of sediments, is still quite difficult. [LR435]

SENATOR SCHILZ: Sure. Thank you. [LR435]

SENATOR LANGEMEIER: Very good. Professor Gates, we appreciate your testimony and with that, we're going to conclude this first part. We're going to take a ten-minute break. We're going to come back at ten till and we'll start with open testimony that you've all come to do, so. [LR435]

BREAK [LR435]

SENATOR LANGEMEIER: (recorder malfunction)...as time as we can so everybody has time to testify before our 3:00 deadline, so we really hope we can get everybody in. Again, we're going to start the open discussion. We appreciate the briefing we've gotten so far. As we start in to the open testimony, I'm going to remind you again. We do need you to fill out the green sheet and turn it in to Barb as you come up. Again, we don't take

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proponents, opponents, neutral. We take you as you want to come up. So come up in an orderly fashion and this is your time, so don't hesitate. Somebody needs to keep coming up as the chair becomes available. And when you come up, please state and spell your name for the record. And again you'll get 5 minutes. You'll get a green light and then the yellow light means you have 1 minute left and then we'll move on to the red light and then open yourself up for questions. And we'll start the hearing portion of the day now, and welcome. Go ahead. [LR435]

ROBERT JONES: (Exhibits 7 and 8) Good morning. My name is Robert Jones, J-o-n-e-s, representing TransCanada Keystone Pipeline, L.P., 717 Texas Street, Houston, Texas. I am vice president with TransCanada Corporation with the overall accountability for the implementation and development of the Keystone Pipeline System, including the Keystone XL project. Ladies and gentlemen, the \$12 billion Keystone Pipeline System plays an important role in linking a secure growing supply of oil from Alberta, Montana, North and South Dakota with the largest refining markets in the United States, thus significantly improving the country's energy security. In addition to contributing to energy security by reducing the dependence on offshore foreign sources, TransCanada will invest \$1.3 billion to construct the Keystone XL project in Nebraska. An independent study by the Perryman Group found that there will be \$20 billion in positive economic impacts to the U.S. economy. In Nebraska, the study found that business activity in the state will grow by an estimated \$468 million. In addition, it will create \$9.5 million in construction taxes, \$1.8 million in local taxes, and an estimated \$150 million in property taxes paid to local governments along the route. The study also found that the project would provide more than 1,200 direct construction-related jobs in Nebraska and more than 7,000 person-years of employment over the long term. Safety of the Ogallala aquifer is a top priority for us. Pipelines are the safest, most reliable, economical, and environmentally friendly way to transport oil, gas, and other fuels. Nearly every gallon of gasoline or diesel fuel used in Nebraska is transported via pipeline. There are almost 21,000 miles of pipelines crossing the state, and almost 3,000 miles of oil and other liquid fuel pipelines. Most of these pipelines

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cross the aquifer. In addition, numerous oil wells are in production within areas overlying the aquifer in Nebraska. Now to ensure pipeline safety, we use modern construction methods and design features, as well as a state of the art integrity management program. Keystone cannot threaten the viability of the Ogallala aquifer for a number of reasons. Historically, leaks from hazardous liquid pipelines are rare and tend to be small. Much of the aquifer is protected by confining soil layers. Spills that do contact groundwater do not migrate great distances. Keystone has a comprehensive leak detection system managed by a state of the art operational control center. We are prepared and required to respond to limit any release from our pipeline and to clean up any leak that might occur. The U.S. Department of Transportation must review and approve Keystone's detailed response plan prior to commencing operation. An existing law requires Keystone to promptly clean up any release from its pipeline system. I understand that there is interest in the project's dealings with landowners and its use of the right of eminent domain. Now TransCanada owns and operates over 37,000 miles of pipelines across North America and has a relationship with over 50,000 landowners. TransCanada is committed to treating all landowners, who may be affected by our project, honestly, fairly, and with mutual respect. It is necessary, however, to obtain easements from landowners along a contiguous route. These pipeline easements provide limited rights to construct and operate an underground pipeline. The landowner retains ownership of the land and the right to continue utilizing the surface for most purposes, including farming and ranching. Landowners receive fair and equitable compensation for the easements, based on the market value of the land, as well as compensation for any damages, including crop loss. We work closely with landowners to identify special circumstances and construction requirements to minimize disturbance to the land, the landowner, and the environment. The eminent domain process established by the Nebraska Legislature provides a procedure in which easement value is determined by Nebraska citizens in the event that parties cannot come to an agreement. Nonetheless, it is our desire to use the right of eminent domain only when absolutely necessary. We recognize that we are entering into a long-term relationship with landowners and it's our belief that obtaining easements voluntarily through

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negotiation is the most preferred way to start that relationship. On the initial Keystone project, easements were acquired from 98 percent of affected landowners through voluntary negotiations. Now Keystone is providing additional written testimony to the committee on several issues. I would be pleased to respond to your questions. Also I would be pleased to provide expert personnel available to respond to questions as well. Thank you. [LR435]

SENATOR LANGEMEIER: Very good, Mr. Jones. Are there any questions? Senator Carlson. [LR435]

SENATOR CARLSON: Thank you, Senator Langemeier. Mr. Jones, on your first page of your testimony here, toward the bottom, an estimated \$150 million in property taxes paid to local governments. Is that annually? [LR435]

ROBERT JONES: No, that's over the length of the project. [LR435]

SENATOR CARLSON: That's over what period of time? [LR435]

ROBERT JONES: The life of the project, sir. [LR435]

SENATOR CARLSON: Okay. And then I want to ask you, I don't know if you have any knowledge about the Bemidji situation, but that apparently was 30 years ago. What kind of technological advances have there been in the past 30 years to be able to detect spills and then deal with spills? [LR435]

ROBERT JONES: I'm glad you brought up the Bemidji research project. What clearly wasn't stated in that...in describing that Bemidji project deal, I'm sure it will be in your packets, is actually the U.S. Geological Survey and the oil pipeline industry have purposely left that plume alone. In other words, we wanted to see what would happen if we did nothing. So there was no effort to actually try and clean up that plume. They

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actually wanted to see what would happen, and it stopped moving. So they then actually had to go back in and get that plume moving again. So it was actually been very, very interesting for all of us. I think what we heard this morning though truly confirms though, this is localized. We're talking about tens, and hundreds of feet. Nothing more than that. That being said, again, that was a spill of oil, it created a plume, and they were just monitoring to see what would happen. Since that time we've improved the strength of the steel, the way we can weld it, how we can test the welds. An extremely big change has been the coating systems, the way we can monitor the pipeline with smart pigs. You know, the interesting thing about NASA and the military is it's actually developed tools that we can use in industry. And these...and computers. We've now got the ability to GPS every joint of pipe. We can identify changes in thickness or movement in the pipe as well. So those are, just quickly, you can tell just a number of examples. I didn't even get into the control center with the leak detection and the computer base models that we've got today that can help us not only detect that there is a leak but to pinpoint where that leak might be. [LR435]

SENATOR CARLSON: Okay, thank you. So you are convinced that advances in technology have made it safer than it was 30 years ago without doubt? [LR435]

ROBERT JONES: In words, a magnitude safer. [LR435]

SENATOR CARLSON: And not that this has anything...well, it maybe does, but generally speaking as these advances are made throughout future years, will those advances be able to be applied to the TransCanada...to any existing pipeline? [LR435]

ROBERT JONES: Certainly. Especially if you look at...like TransCanada doesn't want any of the natural gas or any of oil that we move. We are a service provider. We provide a critical service to the continent. We move, you know, arguably, 20 percent of the energy that we need every single day. So if there's advances in technology, we are extremely motivated to be a part of it. In fact, I would suggest that almost all of the

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advances somehow TransCanada was a part of. [LR435]

SENATOR CARLSON: Okay. Thank you. And I'll ask one more question that came to me as you were responding here. Aside from environmental concerns, what are other reasons that people would be against the pipeline? [LR435]

ROBERT JONES: Typically, it's because, as I would be, for example, it's in there...it's on their land. So the environmental reasons might be, but ultimately it's just the disturbance to their land and the easement encumbrance on their title. So those tend to be the two reasons. [LR435]

SENATOR CARLSON: Okay. Thank you. [LR435]

SENATOR LANGEMEIER: Senator Schilz...or we're going to go over here. Senator Sullivan, first, then we're going around. (Laughter) [LR435]

SENATOR SULLIVAN: Thank you, Senator Langemeier. And thank you, Mr. Jones, for your information. A couple of questions following up on your testimony. You mentioned \$150 million in property taxes over the life of the project. What's the life of the project? [LR435]

ROBERT JONES: Again, not being a tax expert, my recollection when we came up with this was a 40 year, but I'd have to do that subject to check. [LR435]

SENATOR SULLIVAN: I'd like to get a clarification on that, if I could. [LR435]

ROBERT JONES: Certainly. We'll take care of that. [LR435]

SENATOR SULLIVAN: And then when you talk about the, for pipeline safety, modern construction methods and design features being used. What...against what standard are

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those measured? Do you have some regulatory body at the federal level that expects you to meet certain standards? [LR435]

ROBERT JONES: Absolutely. In fact, the Fire Marshal this morning talked about 49 CFR. And those are the federal regulations that we have to follow. I think it was part 99 to 150. Anyway, it doesn't matter. It's a subject that's too technical. There are those federal regulations that we must follow. [LR435]

SENATOR SULLIVAN: What about in the event of a leak? What are we talking about in terms of...first of all, the monitoring that's been done, how soon potentially is it identified, what's the response time? And given the elements here in Nebraska, does that vary depending upon what the season of the year is, like winter and that sort of thing? [LR435]

ROBERT JONES: All great questions. First of all, response time. The maximum time is dictated by federal law. Again, 49 CFR. My belief is, or sorry, it is 6 hours. However, we are trying to...TransCanada, we try to make sure it's 3 to 4 hours. Now I do have an expert here who is based out of Omaha who is in charge of our emergency response that can even do a better job of describing that. So 6 hours is the maximum time for us to respond to an incident. I think your question, though, was how long would it take for us to actually discover one. And, obviously, that's a factor of what type of failure it is. If it is a significant one, such that we probably would see, you know, hundreds and thousands of barrels released immediately, that pressure differential would be detected by the computers virtually immediately, literally within seconds. And then the pipeline is automatically shut down. So I know people say, well, what about human error? There is no human error because that's already monitored and it's immediately...immediately starts to trigger an automatic shutdown. The system is literally shut down in minutes and then we immediately have to (a) notify our regulator. We have to notify the state when this leak would occur and then we dispatch personnel and contractors. So it's literally happening within hours, minutes, and days. And the interesting thing about today's

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discussion about, you know, the impact, is that we were talking about years and hundreds of feet. So I mean, I think it's very important to recognize this is very localized and our response is to do something, not to let it sit there and then for us to study and say, well, what happens if we don't do anything. And I think that's the real paradigm that we need to consider when we look at what we will do as Keystone, but also what we have to do as result of the law. [LR435]

SENATOR SULLIVAN: And lastly with respect to your negotiations and communication with landowners, you know there's a lot of concern in the Sandhills with respect to reclamation. Does your communication and work with landowners account for and pay for reclamation of the Sandhills? And if so, does it monitor then over time knowing that in the Sandhills it takes a long time to reclaim that land? [LR435]

ROBERT JONES: It certainly does. Obviously, reclamation is one of the biggest challenges we're going to have in the Sandhills. I think, though, also we heard this morning as (a) it's going to be very, very small in distance, and (b) unlike what we've seen in the past where potentially people exposed the Sandhills and did nothing about it and waited for it to heal itself, we, obviously, are going to be very, very active in our restoration. You know, again, I did bring an expert on restoration here and can provide you with more information, but there are techniques. The other thing we do, is we talk to the local landowner. He's got local expertise about his land and so we also discuss restoration that he would like us to do as well. [LR435]

SENATOR SULLIVAN: Okay. Thank you. [LR435]

SENATOR LANGEMEIER: Senator Haar. [LR435]

SENATOR HAAR: Well, thank you for being here and you and I have communicated with some questions already, and I want to do some follow-up. One of the...and we're going to hear from Professor Woldt this afternoon, but he makes a statement that's

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brand-new information to me and I want to explore that. He said that "my understanding is a pipeline is a transport service that's rated for hazardous materials and will be required by law to transport any fluid that it's legally able to transport assuming the entity wishing to transport the fluid is willing and able to pay the price for transport." Is that true? [LR435]

ROBERT JONES: I have to think and consume all of that. That's quite technical. I can tell you what...so we're regulated commercially by FERC, the Federal Energy Regulatory Commission. We have to tell FERC what it is our contracts are and we have to get those contracts approved. So what I think I'm hearing is somebody is claiming that they could force us to move something that's not in our contracts, and I believe that's not true. [LR435]

SENATOR HAAR: No, no. No, what I guess really that sentence for me boils down to, it's a transport service, it's rated for hazardous materials. So although you told me in the questions, and by the way I gave a copy to the committee of the questions I've submitted and their answers and then some more questions. But you told me what you would transport in that. But...and we've talked about oil and so on, but is this true, that it's a transport service, it's rated for hazardous materials? So we're not just talking about oil that could be transported in this, but a variety of other sorts of things. [LR435]

ROBERT JONES: I think you're confusing...what we design are...so oil is considered to be a hazardous material. [LR435]

SENATOR HAAR: Right. [LR435]

ROBERT JONES: So we design the pipeline so it can meet those criteria. But somebody can't force us to move anything else but oil. That's all our contracts are for. So if we wanted to move something else we'd actually have to reapply and say, okay, we want to turn this into a water pipeline or we want to turn this into a natural gas

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pipeline. But that requires regulatory process to do that. I'm really restricted to move what's in my contract. [LR435]

SENATOR HAAR: So and that's...a contract is made at the beginning of this so the only thing that will ever move through this pipeline, no matter who owns it, will be oil. [LR435]

ROBERT JONES: No, I didn't say that. I said that if somebody wanted to do something else with this pipeline. And it has happened. In fact, we've converted a gas pipeline into oil service or a lot water pipelines get actually used for fiberoptic cables or something like that. You have to apply to the regulator to get that done. So you can't say...my answer to your question is you can't just arbitrarily change the service of the pipeline. [LR435]

SENATOR HAAR: I understand that but all our discussion so far has really been assuming oil is going to be in that pipeline, but in the future there could be other things in that pipeline. [LR435]

ROBERT JONES: But then they'd have to get permission just like we are right now to build it. [LR435]

SENATOR HAAR: Right. I understand that but the questions we've been asking then really change in quality and quantity, because if you would get permission, if the federal government gives permission, then instead of oil there could be something else, and we haven't talked about anything else besides oil. [LR435]

ROBERT JONES: But it's a hypothetical that (a) when you aggress your questions, the questions are, you...as the proponent, I'm applying to move hydrocarbons, to moving oil. If you want to change the service not only do you have to go through all these processes, but you go through all these questions again as well. So the level of detail doesn't change. So it's virtually...the only difference would be you avoid the construction

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step. You wouldn't ever change the public consultation or the regulatory step. [LR435]

SENATOR HAAR: But our knowledge that we've gained here this morning and the questions asked about oil flowing in the water table and so on, just refer to oil. But in the future some other thing might. [LR435]

ROBERT JONES: And then you'd have to do exactly the same questions and same processes. [LR435]

SENATOR HAAR: I understand. Okay. The reason...well a couple of things. One is, we're all interested in this because we all see water as an enormous resource and I think that's one thing I'm proud about Nebraska. For example, I'm interested in what happens on the Republican River. What happens anywhere in this state is my concern as well. Now Senator Langemeier and I have a unique situation in our district--it's mainly in yours--but we have the Mead ordnance site from the 1940s and then there were Atlas missiles in the '50s or whatever. And that's created a Superfund site where contaminants are traveling through the ground and it's going to take a hundred years to mitigate that situation. And that could affect Lincoln and Omaha. So these questions are really important because we have some...you know, so my question of what else in the future might move through that pipeline is really an important one, because if there are other solvents or whatever moves through that pipeline, then the answers to all these questions we've been asking, change. And we might be able to ask those questions again but we have somebody at the federal government making those decisions. We don't...we can ask the questions but, you know, whether we get an answer or not, we may not. Another question I had, and this aggravates me somewhat. I just got to tell you that this picture that you've published, again and again, to say there are 21,000 miles of pipeline across the Ogallala aquifer delivering fuel and natural gas to Nebraskans and crude oil to U.S. refineries: Is there any other of these 21,000 miles of pipeline that are like the ones you're going to install? I mean, the implication here is, wow, there's all these pipelines; pipelines are safe. [LR435]

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ROBERT JONES: Yes, that's correct. [LR435]

SENATOR HAAR: But many of these pipelines are not oil. [LR435]

ROBERT JONES: Well, they could be fuel or refined products. They'd have... [LR435]

SENATOR HAAR: Natural gas. [LR435]

ROBERT JONES: Yes, and natural gas, yes, which TransCanada owns and operates both. [LR435]

SENATOR HAAR: But again, the PR in the newspapers, wow, we've got 21,000 miles of pipeline--pipelines are safe. And I just don't buy that the safety of this kind of pipeline is equivalent to all those other 21,000 miles. [LR435]

ROBERT JONES: I agree. I think this pipeline is far safer than all those pipelines. [LR435]

SENATOR HAAR: Okay. Another question you had...or another item you said that in the questions I asked was that when it gets to small spills, they're probably going to be detected by visual...in other words, your detection equipment is not going to detect really small spills immediately. They may go on for a while and so on. So does this mean that people from TransCanada are going to walk along the pipeline? Are there going to be roads built along that pipeline for visual inspection? Or how do you propose...and I can see that, you know, you'd have computerized equipment. If the thing busts, you're going to tell it immediately because of pressure readings, but small amounts could go undetected for quite some time. So do you anticipate roads being built along the pipeline or how will that visual inspection occur? [LR435]

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ROBERT JONES: So I'd like to respond to that question. First of all, small is always in the eye of the beholder. [LR435]

SENATOR HAAR: Sure. [LR435]

ROBERT JONES: So, you know, if you're talking a cup a year versus a cup a minute, obviously that's different. I can tell you that we will be able to find small leaks in what we consider to be in that 1 to 2 percent range. That is because there's computerized models. If there's a thousand barrels that doesn't add up every minute, then the computer is going to start trying to figure out where that may be. And it looks at pressures and elevations and such. And, of course, we have all sorts of redundant technologies that allow you to look at transient flows and temperatures and all that sort of good stuff. When you say going for a while, I mean I can you that by law we have to fly the line every two weeks. And the other thing we do is, we do a public awareness program where whether it be anybody out in the right of way if...first of all, you have to mark where the pipeline is and then if you're out there then there's the 1-800 number that they can call immediately. So it's very important that when we look at our public consultation program that people know (a) where the pipeline is, what's in it and who to call. And that's what we try to do. But to answer your question, no, we don't build a road to parallel it. First of all, the environmental impact would be unreasonable and we don't need to do that. We can fly the line. [LR435]

SENATOR HAAR: Okay. Now 1 to 2 percent leak is still a lot of oil. [LR435]

ROBERT JONES: Absolutely and that's why we would be able...first of all, there's no way it would go undetected because somebody would notice it, and if they didn't notice it, we certainly fly the line every two weeks. [LR435]

SENATOR HAAR: But, so you're saying that 1 to 2 percent would be detected by your equipment. [LR435]

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ROBERT JONES: That's correct. [LR435]

SENATOR HAAR: Below that...I mean even 1 percent, let's say .9 percent, is still a lot of oil. [LR435]

ROBERT JONES: I agree, but it would be detected in other ways. So either the local landowner...I can tell you we get phone calls. Somebody says, you know, there's a funny odor--we shut down the pipeline immediately. We send somebody out there and we detect it. And that's because we absolutely err on the side of caution. [LR435]

SENATOR HAAR: And then the oil in this pipeline will be heated, is that correct, to make it flow? [LR435]

ROBERT JONES: No, it's not heated. [LR435]

SENATOR HAAR: Okay. That's...so the only thing that's making it move is mixing it with other kinds of...tell me a little bit about that. You take the TransCanada oil which is apparently very thick and can't move by itself, right? [LR435]

ROBERT JONES: Sir, TransCanada doesn't own any oil, but I think you're trying to refer to the Oil SENSE. [LR435]

SENATOR HAAR: Right, the Oil SENSE. [LR435]

ROBERT JONES: Right. So oil on the Keystone pipeline will meet U.S. refinery standards. So before it even gets in the pipeline, it's the same oil that's moving it 200,000 miles of other pipelines within this country. The...so the oil if it's coming from, for example, the Bakken out of Montana or North Dakota, that's what they call...it's very, very light oil. It's got a very high API. It's not very viscous and it has the need to meet

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refineries in the Cushing/Patoka area. If you look in Canada, we have both conventional and Oil SENSE-based crudes. Those oils have to be, basically, the sand is removed and they can either be upgraded into what they call a synthetic crude oil. Synthetic crude oil is a lot like the Bakken crude oil. Again, it's very light and viscous and the refineries use it the same as they would use a WTI or a Bakken. If it's a bitumen blend, then it's probably going to replace the Venezuelan Orinoco or the Mexican Mayan. It's a heavy oil that needs to use a coker to break it down into various distillates. Again, it's meeting the specifications of the U.S. refineries in the U.S. markets. [LR435]

SENATOR HAAR: And then the only thing, once you get that proper oil in the pipeline is just to pump it, It doesn't have to be heated or anything else like that. [LR435]

ROBERT JONES: That's absolutely correct, yeah. [LR435]

SENATOR HAAR: Okay, well that's a good clarification. Appreciate that. [LR435]

ROBERT JONES: You're welcome. [LR435]

SENATOR HAAR: Okay. Thank you. [LR435]

SENATOR LANGEMEIER: Senator Dubas. [LR435]

SENATOR DUBAS: Thank you, Senator Langemeier. Thank you, Mr. Jones. A few questions going back to the revenues generated. How many local jobs will this particular project generate? [LR435]

ROBERT JONES: From a construction perspective, we're looking directly to TransCanada will hire. [LR435]

SENATOR DUBAS: Yes. [LR435]

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ROBERT JONES: We're estimating 1,200 jobs over a two-year period. We are looking at...because it's, one of our spreads is half in South Dakota and half in Nebraska, but we're looking at about four construction spreads. They hold about 600 people each, but they would be built over two years. What is not included in here is, for example, the pump stations. They tend to have more specialized folks. They can have, I would say, an average of about 75 to 100 people with five stations, so there's another 500 people. They weren't included in these job numbers. And then there's the ongoing operation and maintenance over the years. And that's how you get to the 7,000 person-years of employment over the long term. [LR435]

SENATOR DUBAS: So in regards to the last comment, are those permanent jobs that stay in the state? [LR435]

ROBERT JONES: Yes, those...but they're not directly from TransCanada. [LR435]

SENATOR DUBAS: Okay. [LR435]

ROBERT JONES: Those are whether they're maintenance contractors or they're rinse response contractors or they're...they're also the people that built the pipeline to begin with so that all has to be...and it's all combined into that 7,000. And again, I'd like to give you Dr. Perryman's report. I didn't do the report; it's not my numbers. And all the details behind that 7,000 are in his comprehensive report. I'd be pleased to provide that to the commission. [LR435]

SENATOR DUBAS: I would like to see that because, I mean, I know that a lot of the work that goes on on this pipeline is specialized work, you know, welding and those types of things. And so I guess my question is, I would really like to know how many of those jobs are going to go to people who live here in Nebraska, or are these people that you'll be bringing along with you. You know, do these crews travel with you from state to

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state? My primary concern is, how are we generating jobs for the people of our state? So I would like to see that report and who you hire. [LR435]

ROBERT JONES: Yeah. If I could just add one thing that we found after we built the first one. We can tell you that in South Dakota and Nebraska there wasn't...I would say that the local crafts didn't have a lot of that specialized labor you're talking about. We now know that because of the project that there are actually a couple hundred highly specialized trained individuals that now live in the state and now work in other states. And so it has actually created an opportunity for these high technical jobs for people actually in Nebraska who normally wouldn't have had an opportunity to learn those skills and then be able to go to other places to work. [LR435]

SENATOR DUBAS: Okay. And I know I asked you this and I didn't write it down and that's how short my memory is: How many permanent jobs will remain in the state after the construction is done? [LR435]

ROBERT JONES: Again, from a pure TransCanada perspective, it's not very many because of, you know, it's just mechanics and technicians. Again, I'd have to go to the Perryman report to look at it. It's literally in the couple of dozen range is my recollection of the numbers. [LR435]

SENATOR DUBAS: Okay. All right. Thank you. On the figures that you give us for the estimates in the property taxes paid, did you work with our state Department of Revenue to come up with that figure or where did that figure come from? [LR435]

ROBERT JONES: Yes, it was. Well, it basically took the \$1.3 billion and the current mill rate and then the existing rules with regards to the property taxes. [LR435]

SENATOR DUBAS: Okay. [LR435]

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ROBERT JONES: So yeah, they went to the Nebraska state tax department, got the rules, put it in their model, the \$1.3 billion, the current mill rates, did the flatline depreciations. That's my understanding. Again I'm an engineer and not a tax expert, but I believe that that's where they came up with those numbers. [LR435]

SENATOR DUBAS: All right. [LR435]

ROBERT JONES: And I know (inaudible) I'll find the life of (inaudible.) Absolutely. [LR435]

SENATOR DUBAS: Yeah, I would have that same question that Senator Sullivan has because I believe this would be taxed as personal property, not real estate property. So there would be some kind of depreciation involved with that, so I would definitely be interested in knowing what that life span is of the project. [LR435]

ROBERT JONES: We are so lucky that somebody handed me this before I got up here and said, if you get asked a tax question, here you go. (Laughter) We estimate the initial year of taxation, the property tax expense, will be \$20 million based on the capital estimate of \$1 billion. These estimates are based on 2008 tax rates, holding tax rates constant, and estimating the tax revenue impact of the incremental decrease in taxable assessed valuation based on a 15-year amortization, based on Nebraska law. [LR435]

SENATOR DUBAS: So then it would be 15 years of taxes that we would collect off of that project. [LR435]

ROBERT JONES: That's correct. [LR435]

SENATOR DUBAS: Correct. That's what I was thinking that I had heard previously, so. [LR435]

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ROBERT JONES: Yeah, the depreciation would be my depreciation over the life of the project. [LR435]

SENATOR DUBAS: Okay. So again back to the question of the formula that you used to come up with that \$150 million in property taxes, that was just general information that you gathered from the Department of Revenue and then you just calculated out with your figures? [LR435]

ROBERT JONES: That's my understanding, yes. [LR435]

SENATOR DUBAS: All right. Thank you very much. [LR435]

ROBERT JONES: Thank you. [LR435]

SENATOR LANGEMEIER: Other questions? Senator Fischer. [LR435]

SENATOR FISCHER: Thank you, Chairman Langemeier. Thank you, Mr. Jones for being here. I have kind of some eclectic questions so I don't think you have a sheet for them. We'll see. On your first pipeline that's going through the eastern part of the state that's completed, how many landowners were involved in that project in Nebraska, do you know? [LR435]

ROBERT JONES: Approximately 500 tracts of land. [LR435]

SENATOR FISCHER: Five hundred tracts. [LR435]

ROBERT JONES: We do it by tracts because obviously you need to register the easement on each tract. [LR435]

SENATOR FISCHER: Out of the 500 tracts, what would you say your percentage was

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in people voluntarily signing an easement? [LR435]

ROBERT JONES: It was almost, it was over 98 percent. [LR435]

SENATOR FISCHER: Over 98 percent. And the current pipeline that's proposed, I know you're out there working, trying to get easements, how many tracts of land are involved in the current project? [LR435]

ROBERT JONES: I don't recall. It's going to be (inaudible) a magnitude similar to the first one. It's longer so you think more, but because it's actually in more...because it's farther west in the state, I think the... [LR435]

SENATOR FISCHER: You get bigger tracts, yeah. [LR435]

ROBERT JONES: ...bigger land this way, and less landowners, so I think it's a very similar number to the first one. [LR435]

SENATOR FISCHER: How's that going for you? Are you getting a pretty good percentage there with people signing easements? [LR435]

ROBERT JONES: We're (inaudible) good traction. It's a very communicative process. You know you've got to sit at the kitchen table and, you know, you have to talk to folks and...but yeah, we're making good progress. [LR435]

SENATOR FISCHER: I've had a couple calls from constituents and they've...it's my understanding they received a check from you already for their easements and they have concerns if this pipeline was moved, do they have to repay you? [LR435]

ROBERT JONES: No. [LR435]

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SENATOR FISCHER: So the check is cashed and they don't need to be concerned about that then? [LR435]

ROBERT JONES: No, they don't. [LR435]

SENATOR FISCHER: Okay. On your current pipeline that goes through the state, have you encountered any problems with that? Any leaks, any situations of any kind? [LR435]

ROBERT JONES: Well, during commissioning we had, as you can imagine, this was a nearly \$6 billion...by any stretch of the imagination this is a mega project. So yeah, during commissioning I had a sump pump that had a gasket fail and it spilled and I can't recall but I think around 5 gallons. Now the actual individual who responded to that incident is in the room and he could probably give you more details. But when you actually think about the order of magnitude of the entire project, we had two commissioning or startup incidents, both on our property, 100 percent identified and cleaned up immediately. [LR435]

SENATOR FISCHER: A hundred percent cleaned up? [LR435]

ROBERT JONES: Yep. [LR435]

SENATOR FISCHER: The current pipeline goes under the Niobrara River and also under the Platte River, is that correct? [LR435]

ROBERT JONES: And the Missouri and the Mississippi. [LR435]

SENATOR FISCHER: And the Missouri and the Mississippi. Have there been...I'm just focusing on Nebraska right now. (Laughter) Have there been any problems? [LR435]

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ROBERT JONES: None. [LR435]

SENATOR FISCHER: Okay. Now how about under the Missouri and the Mississippi, any problems there? [LR435]

ROBERT JONES: None. No. Back to Senator Carlson's question about...and really I could go for hours in my passion about pipeline technology. What's different now about what we did 30 years ago was, we used to open and cut. You literally would dam half the river and then bury the pipeline and then dam the other half. We don't do that anymore. Obviously, fish sediment and construction practices, we actually directionally drill underneath these major rivers now. And also the pipe that we use is thicker and the coating we use is thicker and stronger as well. [LR435]

SENATOR FISCHER: I'm interested in roads and bridges too. And in dealing with the EPA, we've seen our costs here in Nebraska and across the country go up in building roads and bridges when you are working with water and working with rivers. For example, by Fremont we have to build a bridge to build a bridge. Do you encounter that and, which I imagine you do, and do you have to meet the EPA standards when you go under these rivers? [LR435]

ROBERT JONES: Absolutely. When you think about the environmental impact statement that is now sitting in front of the state department, they get cooperating agencies from the Corps of Engineers, EPA, Department of Environment, Commerce, all the federal agencies, and state agencies participate in this environmental impact statement. And as a result of that, yes, costs can, depending on what they want us to do, can go up. And so now some of them are just good, best practices that we find, as a critical infrastructure provider, it just makes sense in the long term for us to do. And so, yes, they may cost us more money but I believe that that's an investment that's worthwhile. [LR435]

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SENATOR FISCHER: As you know, Senator Dubas and Senator Sullivan and I, along with Senator Adams, have met with your company and with our constituents a number of times over the last two-plus years. You were also here for a hearing this last legislative session. At that hearing I was one of the few people to bring up any kind of environmental concerns. At the time the interest on that bill was centered more on revenue and tax questions. Are you...let me phrase it this way. You answered a question from Senator Haar when he was questioning you about the miles and miles of pipeline here that we have in the state of Nebraska and brought up about the safety of those pipelines compared to the pipeline that you are proposing. You already have a pipeline going through the state. A two-part question: Have you made changes to this new pipeline that you think makes it safer, and your comment to Senator Haar at that time was, you know, that this pipeline is safer that you're building now than anything that we currently have below the state. Would you like to expand on those comments?
[LR435]

ROBERT JONES: Well, I think what it does, I have the luxury of building the newest, most modern pipeline. So it just by that implication alone I can make the claim, it's the safest pipeline in the state. I also can do that because of our best practices in our being in the business, and this is all we do. So unlike other companies that may...you know, pipelines may be just something they need to do to move the product to their market. This is all we do. So it absolutely has to...we have to be the very best at it and it's a competitive advantage for us. You know, I went on to describe all the different things that we've seen in advancements in technology over the last 30 years. But to say is there anything uniquely different about this one than the first one? No, there isn't.
[LR435]

SENATOR FISCHER: If I remember correctly, at the hearing this last legislative session, you or one of your compatriots were discussing having a thinner pipe. I believe that I've heard or read or had a conversation with a constituent that you are now considering going back to a thicker pipe. You told us... [LR435]

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ROBERT JONES: I've done a bad job of communicating. There is no thicker, thicker pipe. (Laugh) [LR435]

SENATOR FISCHER: No, not...oh, oh, okay. I thought you told us at the last hearing or maybe in one of our meetings or something that this thinner pipe was going to be safer or maybe I've read it in all the publications, all the news stories that have come out since the BP oil spill. That seems to have focused the attention back on this pipeline. But is there a thinner pipe that's safer than the thicker one and are you going back to the safer one, and...? Clear that up. [LR435]

ROBERT JONES: I'll do my very best. Obviously, I have done a very poor job up to this point. What we were applying for was to be able to operate at a different pressure. So the pipe itself isn't changing. The thickness of the pipe isn't changing. What you do when you look at a pipeline design, you need to think about how much do I need to move, where am I moving it, and from that you get the diameter that you want, the pressure that you want to move it at, what spacing do you want the pump stations or the compressor stations. All these factors come into play and that will ultimately drive the diameter and the thickness. So what we applied for was, can we operate this thing at a slightly higher pressure than the existing code says? And the regulator said, sure, if you want to do that you have to do these 51 other things which make it safer. So if...what people did, though, is they said, let's just hold things here. If you want to still operate at that pressure and move that volume, what would happen if you had to go down to .72 instead of .8. This is the design factor. Well, of course, you get a 10 percent change in the wall thickness because you held everything else the same. What we could have said, well, why don't you just reduce the pressure. And then you'd even get...you know, you could turn it on and say, well, I could actually make it thicker or thinner as result of that calculation. So really this is a function of what pressure do you want the pipeline to operate safe or what pressure can it operate safely at. I suggest to you it can absolutely operate safely at that 80 percent design factor. What we've done is we withdrew that

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request so we'll operate at .72 design factor because we want to (a) show folks that we have an operating record. And then if required in the future and it still needs to go through this entire regulatory process, we will apply to see if we can change that. The natural gas pipelines have already done this. The rest of the world actually has changed to this, but that's okay. We will go through these steps here to prove that technology (inaudible). [LR435]

SENATOR FISCHER: I see some representatives of our gas pipelines in the room. Maybe I will talk to them a little later about that. One last question. I've had a constituent also bring up to me, why are you burying this pipeline. You've heard the presentation on our water situation and the problems that could arise there. Albeit small to some people, not to my constituents who live there, why are you burying it? Why don't we have it above ground like the pipeline in Alaska in some places? [LR435]

ROBERT JONES: Well, in fact let me tell you that the only transcontinental pipeline probably in the world that is above ground is the Trans-Alaska pipeline and that was a mistake. They should have buried it and they would bury it today. [LR435]

SENATOR FISCHER: Why? Why do you say it's a mistake? [LR435]

ROBERT JONES: Oh, for a number of reasons. The main one is for, if you... [LR435]

SENATOR FISCHER: Are you speaking as an engineer now? [LR435]

ROBERT JONES: No, as a pipeline expert. [LR435]

SENATOR FISCHER: Okay. [LR435]

ROBERT JONES: So for one thing, for any migratory game it's a real issue. From a cost perspective, the cost, which by the way the consumer ultimately pays, it was way more

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expensive than it needed to be. The exposure to damage, so, the sun. It's been shot at. It's been hit with vehicles, that sort of good stuff. So, no, you're much better off burying it because (a) the ground acts as an insulator and (b) it's the most environmentally...you disturb the land for one construction season and then you're done. Back in Alaska they were worried that they would actually melt the entire permafrost and that's because they just didn't know. And now that we've been up there, we would have built the pipeline under ground. [LR435]

SENATOR FISCHER: Thank you. [LR435]

ROBERT JONES: Thank you. [LR435]

SENATOR LANGEMEIER: Senator Dubas. [LR435]

SENATOR DUBAS: Thank you, Senator Langemeier. One follow-up question. In your opening comments you talk about significantly improving our country's energy security. When this oil gets to its final destination and refining in the condition that we can actually use it, does that stay here in the United States? Are we exporting it somewhere else? Does it go to a variety of places? How is that benefiting our energy security? [LR435]

ROBERT JONES: Yeah, thank you for the question. Absolutely. So what's happening is that Hugo Chavez and the Venezuelan government have basically made a deal with the Chinese and aren't going to...they've actually terminated the contracts they have with the Gulf Coast refiners. And there's about a million barrels of oil that is going to quit coming into the United States from Venezuela and start going into other markets. Also in Mexico, the Mayan fields in the Bay of Campeche are declining rapidly and the Mexicans actually just need to keep their own oil. They can't export it. And they've also terminated the contracts they have with U.S. Gulf refiners. So the U.S. Gulf refiners have a choice. They can either buy more oil from offshore sources--in other words, buy more Middle Eastern oil--or they can buy oil from Canada. And that's really what was

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the impetus and the reason why this is so important to continental energy security. And if you think about the fact that today oil trades for about \$75 or \$80 a barrel, and it is very volatile because, of course, the political climate around the world. You know, do we really want to spend that \$75 or \$80 and send it offshore or do we want to keep it within the continent? So not only is it important from a pure energy security perspective with regards to North America, it's also important from an economic perspective because we can keep that money within the confines of the continent. [LR435]

SENATOR DUBAS: I guess that's where my question probably went to also is if we're able to keep those dollars at home, it's better than... [LR435]

ROBERT JONES: It's incredibly important. You think about even the way we develop things, you know, our environmental legislations, we know what they are here in North America. There is none in Venezuela, there's none in the Middle East. I mean these...there's lots of reasons environmentally why we want to keep it within the continent. But from an energy security perspective, this nation imports about ten million barrels of oil. We're going to continue...the Department of Energy, the EIA, you know they forecast out 30, 35 years, which as you know is only as good as the study--it's probably wrong tomorrow--but it shows that we're going to continue to do that for the foreseeable future. [LR435]

SENATOR DUBAS: Thank you. [LR435]

SENATOR LANGEMEIER: Senator Schilz. [LR435]

SENATOR SCHILZ: Thank you, Senator Langemeier. Thank you for coming in today. I guess just for information: If you have a failure, there's probably areas where that occurs more often than others. Is it on the welds, is it the pipe itself, is it where certain things like a sump pump attach? What's your experience there? [LR435]

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ROBERT JONES: I think over...maybe over time if you bought a certain type of pipe, that that one had what they call long seam failures or you may have found, you know, again over the past 50 years certain pipelines had certain things, you know, we've been able to learn from that and do engineering to change that. I would say that there isn't anything specific that I would say. We do know that most--historically--that most major failures that cause like the most damage are done by third-party damage. In other words, that's when somebody actually struck and hit the pipeline. And that may not happen instantaneously. So in other words, somebody can actually hit the line and then not tell anybody and then 10 years later, guess what, you have an incident. So that's why when you heard the Fire Marshal talk about populated areas, that they're so concerned, because they're the ones that are most exposed to third-party damage. It's also why in our best practice we make sure the depth of covers is 4 feet--48 inches--where the code is only, my understanding is, I think, the code is 30 inches. [LR435]

SENATOR SCHILZ: Okay. Thank you. [LR435]

SENATOR LANGEMEIER: Senator Haar. [LR435]

SENATOR HAAR: Earlier, Professor Gates stated that he'd like to see some of the research that's been done and would like to see more modeling study. Do you believe you're willing to do that? [LR435]

ROBERT JONES: You know, I'm certainly willing to work with Professor Gates. My understanding is, is that the information he was talking about has been provided under our environmental impact statement. You know, the challenge we have is that under the Homeland Security Act, you know, the release of that information is administered (a) by the TSA, and then (inaudible) see that the different agencies have to comply with it. So, you know, we'd have to get over those logistics first. And, you know, the challenge will be ultimately how we get through those logistics in order to work with the professor, but

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there's no lack of us not wanting to work with the professor. It's just our ability to get through some of these obstacles. [LR435]

SENATOR HAAR: I think it's really important to cooperate with our Nebraska experts because this is where, I think, the information we're going to trust the most. And, you know, a philosophical question: Do you understand why after the incident in the Gulf where that had never happened before, you know, certainly to that extent in that deep of water, that we're really concerned that it's not if, it's when. And then what's going to happen? [LR435]

ROBERT JONES: I think the amazing part to me is how we can actually bridge that over to this project. This is a pipeline. It's not exploring for oil in deep water. We have literally hundreds and hundreds of valves. This had one. I'm sorry, sir, but I struggled with the far-reaching concerns that would happen in the Gulf Coast is a reflection on the 200,000 miles of pipelines, that critical infrastructure that we operate every single day. You know, that was an exploratory well in 5,000 feet of water. I mean, that's hardly the same application that we're talking about here. [LR435]

SENATOR HAAR: But basically we're talking about a kind of a new questioning over technology because we were also told that that technology was great and it was safe and so on and so forth. And, you know, we're asking more questions about technology, I think, and that's a good point. [LR435]

ROBERT JONES: I agree it is a good point, but I think it's obviously not new technology. We've been using pipelines for over 100 years. [LR435]

SENATOR HAAR: Well, not necessarily new technology but just technology in general. [LR435]

ROBERT JONES: I agree. [LR435]

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SENATOR HAAR: It's not perfect, it's not...and so I think, you know, all of us in the room would probably agree that it's not if, but when. And then what happens? [LR435]

ROBERT JONES: Well, I think it's up to us to prevent the when--but if there is a when, to be prepared. And I'm absolutely in agreement with you that we need to be prepared, and I also have no problem--as you can tell, we're very transparent. We're very open to accepting any questions. And as you know, you've asked us a tremendous number of questions and we've been very responsive. [LR435]

SENATOR HAAR: Okay. [LR435]

SENATOR LANGEMEIER: Senator Schilz. [LR435]

SENATOR SCHILZ: Thank you, Senator Langemeier. And to piggyback off of what Senator Haar was asking, you know, I have to tend to agree with you, sir. I look at the situation in the Gulf and I look at what you're proposing and what you're working on doing here, and I think, okay, we can do things like this that lessen our reliance on going after things like that. And I'd much rather deal with the spill that's 4 feet down and goes out a 100 yards or a quarter of a mile or whatever with a plume than have to try to figure out how to fix something like that again. So, I guess, I'd just have to say I'd agree with you. And it...I think...would you agree that it's really hard to get...nothing is for free. You don't get something for nothing. And in order to rely upon our lifestyle that we've become accustomed to, we have to find the best way to mitigate those, and I think you would agree that this pipeline is one of those ways. [LR435]

ROBERT JONES: Yeah, I certainly agree and I really struggle with the linkage between what happened in the Gulf Coast and crude oil pipeline technology. I think what we're talking about is, how do we get better, and we should always try and get better. And I totally agree with Senator Haar that we should always get better and we should always

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ask questions. But to compare the two? I mean it just isn't comparable. [LR435]

SENATOR SCHILZ: Thank you. [LR435]

SENATOR LANGEMEIER: Senator Sullivan. [LR435]

SENATOR SULLIVAN: Thank you, Senator. Mr. Jones, one final question from me. Can you shed a little light on how and why the particular route was selected? And in light of the concerns over the aquifer and the Sandhills reclamation, would TransCanada ever consider changing the route? [LR435]

ROBERT JONES: So routing location, of course, is, in a linear structure, is exactly that: it has to be continuous and it has to be linear. We had certain points in this when we were selecting the Keystone XL project that were what were, what they call "fixed points." So the fixed points were the border crossing in Canada, because as you know this is a multinational jurisdiction, and so in Canada we needed to go through the National Energy Board process just as we are going through the FEIS process here in the United States--and that fixed that point at the border. Then we had the point at what they call Steele City, which is where the existing pipeline is. So then if you got to the find the route, most environmentally and economically efficient route from the point in Canada to that point in Steele City, there's no avoiding the Sandhills. And so then can you build the pipeline safe enough to go through the Sandhills? And the answer is absolutely yes. So whether it's building through Central Park in New York or through the Everglades or through the Andes, we can build this pipeline safe, no matter...in all those different sensitive terrains, including going underneath the Mississippi, the Missouri, the Platte and all the other rivers. So, no, there isn't any avoiding that area because...and if you were, for example, to say, well, try and go around the state, well, then you just impact all that many more landowners, all that many more streams, rivers, farms, and other environmentally sensitive areas. And so...so the answer is, is that this is not only the most economically efficient route, it is the most environmentally responsible route as

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well. [LR435]

SENATOR SULLIVAN: And that's the end of the story. [LR435]

ROBERT JONES: Yes. [LR435]

SENATOR SULLIVAN: Okay. [LR435]

SENATOR HAAR: This is the last question I'll ask right now. One of the things I've tried to explore with you with my questions is, in the letter is, remembering Enron, how can...what happens to the pipeline physically if your company goes belly-up, or if it's sold and it's at the end of it's life? I mean, with our wind bill that we just passed, we require some money and I can't remember exactly how that's done, but some bonding or whatever, pretty much up front that will cover the cost of any decommissioning or abandonment later on. How is that covered in this situation? [LR435]

ROBERT JONES: When you look at natural gas interstate pipelines or crude oil interstate pipelines that are regulated by FERC, you know, these are critical infrastructures and, in fact, the case of Enron gives us even historical proof why this works and that insurance and bonds aren't required. So, first of all, if you'll just look at the cash flow of this critical infrastructure, whether you're moving millions of cubic feet of gas or you're moving hundreds of thousands of barrels, there is an economic reason behind that. And so when you look at, first of all, those dollars, the toll needs to be paid by either the producer or the refiner. And as long as we keep needing natural gas to heat our houses, we as consumers will continue to pay that. And as long as we need gasoline to run our trucks and our cars, we'll continue to pay for that as well. So we know fundamentally the industry is viable, just because without that industry the economy doesn't work because you know you have that economic viability that the toll gets paid, and then even under the Enron situation when the creditors came in, the operations can't deteriorate. You still have to meet with the law. You still have to, you

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know, ensure the integrity of the pipeline. You still have to maintain it. So when you consider the fact that it is fundamental to our economy, and you know that the cash is there and these are viable, critical infrastructures, then you know that it'll continue to be maintained and operated safely. [LR435]

SENATOR HAAR: But who is there with the money or whatever, the insurance to cover that if that happens? You said that it will...it's almost like it's automatically going to happen; just trust us that this is the economics of it. And I'm saying, who is responsible? Is it the government then? Is it Nebraska? Is it the landowner? Who is responsible? [LR435]

ROBERT JONES: So there is...so under the Pipeline Act, that responsibility under the Department of Transportation goes to PHMSA and you have to maintain your pipeline. That absolutely is part... [LR435]

SENATOR HAAR: But who is the "you" in this case? I mean, if you go bankrupt. [LR435]

ROBERT JONES: The operator. [LR435]

SENATOR HAAR: There is no you. [LR435]

ROBERT JONES: There is. There's always an operator. So there still is the field employee, there still is the--the staff continues. The shareholder may be out money. As in the Enron case, the shareholders all took the brunt. But when the creditors came in, the bills still needed to be paid. And so the staff continues. That's the "you." It's the operator. [LR435]

SENATOR HAAR: Okay. Well, I think that's something we're going to explore for Nebraska, at least to see if we can put some financial mechanisms in place that will

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guarantee who that "who" is and that it's adequately covered. [LR435]

ROBERT JONES: Senator, I would just suggest if you do that then the people of Nebraska will pay for that because that's just added cost. And again, critical infrastructure has to happen. Whether it's a natural gas pipeline or it's a crude oil pipeline, they have to keep operating, and that is regulated by the federal government that they must be maintained and those bills must continue to be paid. I think that goes the same with power lines as well. [LR435]

SENATOR HAAR: Well, we're going to disagree on that one. [LR435]

SENATOR LANGEMEIER: Are there any other questions? Seeing none, thank you very much, Mr. Jones, for your testimony. [LR435]

ROBERT JONES: Thank you. [LR435]

SENATOR LANGEMEIER: Further testimony? Come on up. We are going to break for lunch, but...good morning. [LR435]

FRANK SHIPLEY: (Exhibits 11 and 12) Good morning, Senator Langemeier, ladies and gentlemen, the congressional committee. My name is Frank Shipley, spelled S-h-i-p-l-e-y, and I'm a resident of Rising City, Nebraska. I'm going to read this statement that I prepared in advance, and the lady there is handing out some information for you folks to look at that I'm going to talk about here. If moving the TransCanada pipeline is not a feasible option, I would like to offer another possible option to explore for the protection of the Ogallala aquifer and our environment. Please understand that I am not an expert on what I am presenting. I have listened to statements about the pipeline, but I haven't heard anything about a backup plan to contain an oil spill. Having lived in Colorado by the gold fields, I am aware of a system they use on leaching pads to keep hazardous chemicals from contaminating the

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groundwater and the environment. They use a heavy plastic liner under the pads and the leach ponds. My recommendation is that a similar liner be placed in the pipeline trench and covered with a layer of sand. The layer of sand would protect the liner during construction and act as an absorbent should there ever be a leak, while the liner would contain the oil and keep it from seeping into the ground and doing other damage. Is this a 100 percent guarantee? No, nothing is. Reference: Deep water drilling in the Gulf where they said that was so safe. But it could help prevent a major disaster occurring here either by human error or natural occurrence such as earthquakes like the one we just had up in the Schuyler area. Make no mistake, a major pipeline rupture is a possibility that we must plan for. Such an occurrence would possibly contaminate one of our largest fresh water supplies and gut our country's agriculture by stopping most irrigation wells. Will this increase up-front construction costs? Yes, but it could save long-term costs by eliminating some of the potential lawsuits and other damages. It would also create goodwill for TransCanada by showing they don't just talk about protecting the environment, but are actually willing to be proactive instead of reactive. Ladies and gentlemen, I have these documents for your review containing information about these liners. If you would like them entered into the record, you may do so. Thank you for the opportunity to present this information. And if you have any questions?
[LR435]

SENATOR LANGEMEIER: Very good. Are there any questions for Mr. Shipley? Seeing none, thank you very much for the testimony. And we will...it will be part of the record.
[LR435]

FRANK SHIPLEY: Thank you. [LR435]

SENATOR LANGEMEIER: Good morning. [LR435]

DOUG COBB: Good morning, Senator Langemeier and Natural Resources Committee. My name is Doug Cobb, C-o-b-b. I'm from Holt County and I just happen to have four

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parcels of that land that's in the wet meadows that they were talking about earlier today. I thank you for the hearing and the interim study to examine the issues relating to oil and natural gas pipelines. There are minimal regulations in the state of Nebraska regarding pipelines. As a landowner in the state where the pipeline passes, I have very little protection. Pipeline companies can pretty much come in and dictate to me what they will do and institute eminent domain proceedings against me if I do not agree with their terms. My family has been good taxpayers to the state of Nebraska for generations and we need some help from the state. I would like you to remember at least one thing from my statements today: What is good for the landowners, farmers, and ranchers of Nebraska is good for Nebraska and is good for America. We and our families have been paying taxes and contributing to our economy for over 100 years. We will still be here paying taxes and providing hundreds of jobs for Nebraskans in 30, 40, 50, 100, 200 years from now. There's a few things that have not been mentioned that I would like to have you consider today because we've been dealing primarily with the environment and what would happen if there's a leak or something like that. There's other things that we need to consider. One, is the abandonment of pipelines. The lack of Nebraska regulations allows pipeline companies to come through our state. And when they are no longer useful or worn out, and that day is inevitable--I don't know when it will be, you don't either but it is inevitable--pipeline companies can abandon the pipeline in place and walk away from it. The landowner in the state of Nebraska is left with an abandoned pipeline on his or on your property. Until recent years, with very small pipelines, this was not a major concern. However, the size of pipelines get larger and larger. We're locking 3 feet now. When these are evidentially abandoned, they will some day, not during my lifetime, no matter how good they are--and I think TransCanada is trying to build the best pipeline they can--but no matter how good they are, somewhere down the road they will collapse, leaving gaping holes in our landscape to be remedied only by the landowner or the state of Nebraska. I ask you to consider a regulation that will require pipelines, upon the abandonment of the pipeline, to remove the pipeline from the lands with full reclamation of the land where the pipeline existed, and surrender to the landowner the right of way or easement that they used over those years for the pipeline.

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This regulation should also require some sort of advanced funding or bonding so that if the company cannot meet the financial obligation to remove the pipeline and reclaim the land, there will be resources set aside in order for this to be accomplished. My understanding is Oklahoma has something in this regard. We need to have the foresight to avoid a major scar on our Nebraska landscape or a tremendous expense for the future generations of Nebraska. Landowners, including the state of Nebraska, the pipelines are crossing acres and acres of Nebraska school and roadways and other Nebraska state property. Another issue that I would like to have you consider is liability. As I understand current Nebraska law, landowners who have pipelines going across their land have no protection from liability regarding the pipeline, its construction, operation, and abandonment. I ask that you consider regulation that requires the pipeline company to indemnify, defend, and hold harmless any landowner from all liability, loss, damage, cost, expense, and claim of any kind incurred by the Nebraska property owner. Please remember that these pipelines are crossing land owned by the state of Nebraska and we should want this protection for our state as well. This indemnification should be true in all instances except if the landowner intentionally or by negligence damages the pipeline or a related facility. The depth of the pipeline is something we got into a little bit earlier today and there's different things to consider on that. TransCanada is going to bury their 36-inch pipeline at a depth of 4 feet in most instances. This is probably reasonable. As I understand, Iowa currently has a law that requires pipelines to be at a depth of 5 feet. I happen to be a landowner who has some very low lying land that we were talking about today in southwest Holt County, and it has very high water tables. They're going to run the pipeline across this land. In my case, I often have to put fence posts at a depth of 4 feet in order to keep them from moving as the cattle lean across them because the water table is so high and the posts just move with that. A 5-foot depth would much more reasonable and practical for the low lying areas. It would also help in the sense that the heat from the pipeline would not interfere as much with natural vegetation or crops if it was another 12 inches lower.

[LR435]

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SENATOR LANGEMEIER: Mr. Cobb, we've hit our time. Are you close to your completion? [LR435]

DOUG COBB: Okay. Well, this part here is the most important. The pipelines that are currently being installed we are told will be some of the best and safest there is. However, as recent history has shown us, any company, be it TransCanada, General Motors, or Chrysler can go bankrupt. Or they can sell their interest in the pipeline to another company that cannot sustain or maintain the cost and operation of that pipeline. This probably will not happen in a few decades, but it could happen 40, 50, 70 years from now and it is possible and may be probable. The state of Nebraska needs regulations and policies in place that will protect our land, our landowners, and our state when these companies no longer have the ability or desire to maintain the pipeline. This is especially true knowing the pipeline is owned and operated by a foreign company. I also wanted the committee to realize I have a livestock well 100-150 feet from the proposed pipeline and my home and domestic water supply is within one-third to one-half mile of the pipeline today. I don't think... [LR435]

SENATOR LANGEMEIER: Go ahead, finish up quick. [LR435]

DOUG COBB: I don't think it is in the best interest of Nebraska or our country for the pipeline to cross two of Nebraska's and our nation's most valuable and unique natural resources: the Sandhills and the Ogallala aquifer. There are other feasible routes but this is the most economical one for the pipeline company. You can do a lot in protecting your state, the state lands, our agricultural heritage and our natural resources. We need to be futuristic in our thinking and in our actions in order to avoid some major issues for our state, our children, grandchildren, and future generations of Nebraskans. It is considerable better to address these issues prior to their happening than to wait until after the fact and only be able to wish that we would have taken the action in 2011 that would have alleviated many of the future problems associated with pipelines. Finally, I just want to pass the word on from my father. My father a long time ago, when I was a

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little kid and we were out on one of those low land meadows, he says, some day you're going to see, you won't see it, but he says your grandchildren might see it, when the water in Nebraska is more valuable than oil. I just...I don't know if that's going to happen but that's something we need to think about. Thank you. [LR435]

SENATOR LANGEMEIER: We're close. Are there any questions for Mr. Cobb? Senator Carlson. [LR435]

SENATOR CARLSON: Thank you, Senator Langemeier. Doug, you own land and you talked about that if it was ever to be abandoned that the company should pay the cost of removing it. Now, let's say I own some land adjacent to yours and I don't see it as that much of a difficulty or a danger, and I don't want that removed because I remember how difficult it was to get the grass and such back over the top when they put it in the first place so I don't want it removed, and you want it removed. Is that a problem? [LR435]

DOUG COBB: That's not a problem for me if there was something that we could agree to with, you know, for those of us that are going to look down the road. No, that would not be a problem. If there's landowners that say, hey, I'd just as soon have it in there and when it collapses, it collapses, and I'll deal with it, you know, or my grandkids or great-grandkids will deal with it. That wouldn't be a problem for me, but I guess, no. [LR435]

SENATOR CARLSON: I don't know, overall, if it's an environmental problem, so thank you. [LR435]

SENATOR LANGEMEIER: Senator Sullivan. [LR435]

SENATOR SULLIVAN: Thank you, Senator Langemeier. Mr. Cobb, a couple of questions following up on your comments. One, when you talk about an abandoned pipeline and you made the comment that it would result in a big gaping hole. I mean, do

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you think that would happen or we would not even know that the pipeline was there?
[LR435]

DOUG COBB: Well, the pipeline eventually, some day, I'm not saying..it may be 100, it may be 150 years from now, that's not going...you know, particularly in those wet lands where water is around it 24/7, that pipeline is eventually going to collapse. I don't know when that will be but it's eventually going to collapse. It won't last forever. When that collapses, the ground above it...and you know, as I said, small pipelines, nobody is going to know the difference. A 3-foot pipeline, I think that will have an impact on the landscape. It will cave in. I'm worried about that with my land. I don't want my great-grandchildren to say, what did my grandpa do, you know. But so, yes, I do believe that it will have an impact and I think, you know, it wouldn't be that hard to pass something to make the pipe...why shouldn't they be responsible for reclaiming that once it's abandoned? [LR435]

SENATOR SULLIVAN: Now I assume since the pipeline is proposed to go through your land, you've already been in conversation regarding a contract and I know that there's not...there's a certain amount you can't talk about. But have you felt comfortable that some of your concerns that you've mentioned today are covered in the contract that you have with TransCanada? [LR435]

DOUG COBB: No. I'm not comfortable. [LR435]

SENATOR LANGEMEIER: Senator Schilz. [LR435]

SENATOR SCHILZ: Thank you, Senator Langemeier. Mr. Cobb, thanks for coming in today. You talked a bit about pipeline abandonment within the state. And you may know this, you may not: Do you have examples of that or do you know how many pipelines or how many miles of pipeline have been abandoned throughout Nebraska? [LR435]

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DOUG COBB: I have no idea. [LR435]

SENATOR SCHILZ: Well, maybe somebody else would have that. Thank you. [LR435]

SENATOR LANGEMEIER: Senator Haar. [LR435]

SENATOR HAAR: Thanks for being here. [LR435]

DOUG COBB: Sure. [LR435]

SENATOR HAAR: The pipeline does not cross my district. Why should I care? [LR435]

DOUG COBB: Well, you probably shouldn't. And as we heard today, you know, it's probably going to be...even if there is a leak and I'm not, you know, I am concerned about a leak since I'm one of the localized people. I'm going to be affected directly if there is a leak, there is no doubt about that, probably because my home, my domestic well and everything is east, and I know which the way the water runs in my country and I know it's going to head right where I live. But, you know, as somebody that maybe is not close to it, maybe you shouldn't be concerned, you know. Would I be here today if the pipeline was running through eastern Nebraska? Probably not because, you know, it doesn't affect me. I'm going to be honest with you, it doesn't affect me directly. And we know in this day and age as people get in with their lives and everything, unless it affects them directly, they don't get as involved as they should. And I think this is one of the reasons why I'm here because this is going to affect the state of Nebraska directly because a lot of this is going across school lands. It's going across highways and stuff like that. So this is your land too. [LR435]

SENATOR HAAR: Thank you. [LR435]

SENATOR LANGEMEIER: Senator Carlson. [LR435]

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SENATOR CARLSON: Thank you again, Senator Langemeier. Doug, as a landowner, I think you have every right and reason to question and be concerned about what's happening. So this is your land we're talking about and if you've got the well and the house east of the pipeline, that's another reason to be concerned about it. Are there other reasons...are you against the pipeline or are you just against where it is, where it's located? [LR435]

DOUG COBB: I agree with the...I think there's a lot better places to locate the pipeline. I'm against the pipeline going across the Sandhills and the Ogallala aquifer. I do...I think there's better ways, better places and better locations. You know, it was pretty much stated here today already that it went where it went because that's the most economical way to go. It's a fairly straight line from the Canadian border to where they need to go in Nebraska to hook on to the other pipelines. But no, I am not against the pipeline. I'm against the pipeline being located where it is, particularly through the Sandhills and the Ogallala aquifer. You know, progress is progress, and I know we're going to have that. But, you know, I don't think we have chosen or they have chosen the best route for it and I think it's going to impact all of us. Eventually somewhere down the road, whether there be a leak, whether there's not...and we know there's going to be a leak. We also know that eventually the pipeline is going to be abandoned. We also know that, you know, somebody is going to get sued over all of this too, and, you know, the landowner is liable. [LR435]

SENATOR CARLSON: Thank you. [LR435]

SENATOR LANGEMEIER: Seeing no other questions, thank you very much for your testimony. [LR435]

DOUG COBB: You're welcome. Thank you. I appreciate the time. [LR435]

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SENATOR LANGEMEIER: And with that, we are going to break for lunch and we will reconvene here at 1:15. Thank you. [LR435]

BREAK

SENATOR LANGEMEIER: Good afternoon. We'll resume taking testimony this afternoon. We do have two professors that Senator Haar alluded to before we went to lunch that could make it after lunch and they're both here, and so we'll start out with Professor...say it again. [LR435]

DAVE WEDIN: Wedin. [LR435]

SENATOR LANGEMEIER: Wedin. [LR435]

DAVE WEDIN: Yeah. [LR435]

SENATOR LANGEMEIER: Okay. Very good. Come on up, Dave Wedin. Come on in. I need you to say and spell your name. [LR435]

DAVE WEDIN: Okay. [LR435]

SENATOR LANGEMEIER: And then we're going to need a green sign-in...oh, there it is. [LR435]

DAVE WEDIN: You got it. [LR435]

SENATOR LANGEMEIER: Welcome. [LR435]

DAVE WEDIN: Good. Thank you. And I have a couple minutes here of information on some of the research we've been doing on grass and erosion up in the Sandhills. Do

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you want me to go ahead with that and then I'll take some questions? [LR435]

SENATOR LANGEMEIER: Exactly. [LR435]

DAVE WEDIN: Okay. Well, thank you for inviting me. Sorry I couldn't join you this morning. I was inspiring 145 sophomores at the university. So thanks for paying the salary for those things because we take it seriously. I've been doing research in the Sandhills since I joined UNL about 12 years ago. In 2004 we started an experiment. Oh, Dave. Dave Wedin. [LR435]

SENATOR LANGEMEIER: Dave Wedin. [LR435]

DAVE WEDIN: W-e-d-i-n. First name, Dave. Sorry about that. And my expertise lies in the area of grasslands and soils. I'm in the School of Natural Resources. In 2004 we started an experiment on the role of grasslands in stabilizing the dunes up in the Sandhills. I wanted to share some results from that today. I'm not really taking a position on the pipeline but showing kind of what we've learned. Our first conclusion was that the dunes are more stable and more resistant to disturbance than we had predicted when we did our study, when they're covered by healthy grassland. And I'll share some results from that. The grasslands leave a legacy that stabilizes the dunes for several years even after they've been killed if the soil is not disturbed. If the soil is disturbed, then it's a different ball game. So in one of our pair of three-acre plots that started in this experiment back in 2004, we killed the vegetation with herbicide, and we kept those plots dead since May of 2004. And if we look at the erosion in that situation, after one year there had been no loss of soil, a maximum loss of about an inch; after two years we had about .3 inches of soil loss. Again, this is plots that were killed but not physically disturbed. A maximum loss after two years was about 2.5 inches. After three years, average soil loss, about .8 inches, with a maximum loss of about 4 inches. So within the first three years what we see is that even if the grasslands are dead, if you start with the healthy grassland, they leave a legacy below ground in the root system and the

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microbes and everything else that surprisingly stabilizes that system for two to three years at least. In year four, things started to fall apart. Our average soil loss was 2 inches; maximum loss of about 20 inches off the surface in these plots. And then in the fifth and sixth years, they just fell apart, started moving. So you can contrast those results with another pair of plots. These are three-acre plots on university land, herbicided but then raked and disked, so they are not a deep disturbance of the soil but, nevertheless, a disruption of the soil--a disk pulled by an ATV. They lost about an inch of soil after the first year, 2 inches average after the second, 4 inches after the third, 7 inches after the fourth. By the fifth year, they were losing about 15 inches of soil. If you look at the maximum, after the first year you lost up to 13 inches of soil. Just that's the amount that was blown away after it was disturbed. The third year it was up to 32 inches. By the fourth year we had some spots where soil loss was up to 60 inches. And by the fifth year we were up to about 90 inches. So that's 7.5 feet. So without protection and with the soil disrupted, that's just showing that, yeah, you can lose significant soil. In our data sets we'll get up to a meter, up to about 3.5 feet of soil lost in a year if you have unprotected sand that no longer has dead roots or anything else in it. So once the belowground integrity of the ecosystem is disrupted, things destabilize relatively quickly. The comments that our staff put together that they gave you, I had shared a few things about an experiment we started this summer where we took two of these plots that had been badly eroded and we started a study revegetating them and restabilizing them. And again, three-acre plots, we started seeding those this spring. They were pretty well mobile, loose sand, and that's the document I shared with you before. The upshot is we pretty well failed in this first year of planting our grasses, except in those locations where we physically stabilized the surface with an erosion-control blanket. March and April are the windiest months of the year. People don't necessarily realize that, but the potential for erosion is three to four times higher in March, April, and early May than it is during the summer. That's just because of the wind speeds in the Sandhills. And although you would normally think planting grass, when you have good rainfall, is a good time to start grass seeds, the wind is just prohibitive unless you have some fairly aggressive mechanism of stabilizing that. And then where we did erosion-control

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blankets, we were successful. And where we planted grass the way I've planted grass hundreds of other places, native grass seeds with a cover crop, it blew away. We lost up to 22 inches in eight weeks of soil and, what did I say here, 25 percent of the locations lost more than 5 inches of sand. Half the locations lost more than 2 inches of sand in that springtime planting window. So the upshot was I'm glad I don't work on commission because our grass seeding this spring wasn't successful. But we'll do it again next year, modify the experiment, and we'll have to do a much more aggressive physical erosion control because grass seed alone can't hack it in loose sand with that kind of wind. So those are my experiences and I guess I'm happy to answer some questions and see how that might be relevant here. [LR435]

SENATOR LANGEMEIER: Sure. Very good. Thank you. Are there any questions? Senator Dubas? [LR435]

SENATOR DUBAS: Thank you, Senator Langemeier. Thank you for coming today. And the fact that you're doing this kind of research, does that mean up until now we really haven't fully understood how you maintain the ecosystem and the vegetation in the Sandhills region? [LR435]

DAVE WEDIN: I wouldn't say that. I'd say that the ranching community has a lot of wisdom and the range managers. I mean there's extension documents from the university that will give you tips, if you've got a blowout on your land, what to do about it. There's better approaches than throwing tires on it, which was the old approach. (Laughter) But this was basic research done and the overall grant was focusing on the stability of the Sandhills over thousands of years and what happens when it goes from a stable state to an unstable state. [LR435]

SENATOR DUBAS: The area that I live in is heavy clay,... [LR435]

DAVE WEDIN: Yeah. [LR435]

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SENATOR DUBAS: ...so when we dig a trench, you know, we can dig straight down. It's just a straight trench. [LR435]

DAVE WEDIN: Yeah. [LR435]

SENATOR DUBAS: I'm going to assume that in the Sandhills, if you're digging any kind of depth, you're going to have to be coming... [LR435]

DAVE WEDIN: Yeah. [LR435]

SENATOR DUBAS: ...that way. Does the depth of any kind of trenching like that and the fact that you have to take in much more area, does that have a more serious effect on the ability to reclaim that land? [LR435]

DAVE WEDIN: Just my impression is that anywhere you physically disturb the soil, with a backhoe, with a big Ditch Witch or something, if I was responsible, I would have every square foot of that, which was physically turned over, with some reasonably aggressive erosion-control mechanism, like these decomposable erosion-control blankets. And the highway people are pretty good. I mean if you go to Highway 2, say between Thedford and Whitman, when they redid that, and they're pretty aggressive about the erosion-control mechanisms they use. That's not saying that the grassland is identical along the roadside to what's in the pastures nearby, but they're able to physically stop the erosion enough to get the grasses established. And once the grasses get going, they do a really good job of holding the soil. [LR435]

SENATOR DUBAS: If you were doing any kind of reclamation work during periods...let's say we go into an extended drought, that would definitely have an impact, too, on your ability to do any reclamation, correct? [LR435]

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DAVE WEDIN: Yeah, but it's...the winds are going to be almost more limiting than the rainfall and the drought. [LR435]

SENATOR DUBAS: Than the rain. Okay. [LR435]

DAVE WEDIN: Because if you're trying to grow plants on bare sand, even if you haven't had a lot of rainfall, if you just dig down 3 or 4 inches, you're going to find some moisture in that sand because there's nothing to use it up. And so then the question...that was our situation this spring, I mean in April and May. If you went down an inch and a half, you would have found adequate moisture. But you've got grass seeds and you've got winds that can remove several inches a day right off the surface. So the wind hit us. I planted with moisture in mind as a limiting factor, but the wind was the factor that really was driving it. [LR435]

SENATOR DUBAS: Do you do any cooperative work with the NRCS? I know with like WRP and the CRP land there's some pretty stringent requirements for the landowners as far as disturbing and reclaiming and things like that. Do you work with NRCS at all? [LR435]

DAVE WEDIN: No, I haven't. I have colleagues in agronomy I think that have more and that have done projects with NRCS and with the highway people. And I could...you know, actually as you drive up...when you're near the National Forest entrance up by Halsey, five miles this side of Halsey on Highway 2 you'll see strips along the side of the road and that is a state Department of Transportation-funded study on different revegetation methods... [LR435]

SENATOR DUBAS: Okay. [LR435]

DAVE WEDIN: ...that colleagues are doing, but I'm not part of that. [LR435]

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SENATOR DUBAS: All right. Thank you. [LR435]

SENATOR LANGEMEIER: Senator Fischer. [LR435]

SENATOR FISCHER: Thank you, Chairman Langemeier. Thank you, Doctor, for being here. Where do you have these three-acre plots? [LR435]

DAVE WEDIN: These are at the university's Barta Brothers Ranch which was donated to the university near Rose, south of Long Pine. [LR435]

SENATOR FISCHER: South of Bassett? [LR435]

DAVE WEDIN: Yeah, south of Bassett, Long Pine. (Laugh) [LR435]

SENATOR FISCHER: And how many plots are there? [LR435]

DAVE WEDIN: We have ten plots that we set up in this study, and six out of those three-acre plots were disturbed in some way and I talk about four out of those. [LR435]

SENATOR FISCHER: How would you or how are the soils characterized in that area? [LR435]

DAVE WEDIN: I think... [LR435]

SENATOR FISCHER: Choppy sands, meadows? I mean where... [LR435]

DAVE WEDIN: They're choppy sands. [LR435]

SENATOR FISCHER: Okay. [LR435]

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DAVE WEDIN: The dunes aren't that big in that area. [LR435]

SENATOR FISCHER: Right. It's pretty...fairly flat for the Sandhills. When you disturb the entire area, do you remove the topsoil and save the topsoil and then put it back, as they would when they put the pipeline in? [LR435]

DAVE WEDIN: No, and I'm... [LR435]

SENATOR FISCHER: You just go in and drag it and till it up? [LR435]

DAVE WEDIN: Well, the two different types of disturbance I talked about, one was just Roundup--glyphosate. [LR435]

SENATOR FISCHER: Right. [LR435]

DAVE WEDIN: Killing it without any kind of disturbance. [LR435]

SENATOR FISCHER: But you still have left the root system there. [LR435]

DAVE WEDIN: And the other, you can imagine, was a light, chain-link harrow pulled behind an ATV to get the litter off and then a disk, which is not a big disk, that's pulled by an ATV. So in that sense...and that's I think one reason it...still, under that condition, the big erosion didn't come along for about a year and a half, two years, because there was still a lot of the old clods of topsoil and dead roots and stuff left. One of the mistakes I made this spring, my dad is an agronomist and we've been growing grass in our family a long time, and one of the things you always hear about planting grass, it's got to have a good seedbed and you're going to drill in these grass seeds. And so we kind of prepped our seedbed of these plots before we planted. Well, that broke up any remaining little clods that might have been there and probably just accelerated, you know...and it looked beautiful the day we planted it and then it was just gone... [LR435]

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SENATOR FISCHER: Right. [LR435]

DAVE WEDIN: ...where we didn't have those erosion-control blankets. [LR435]

SENATOR FISCHER: Right. I'm a rancher in the Sandhills and we say we harvest the sun through our grass... [LR435]

DAVE WEDIN: Yeah. Yeah. [LR435]

SENATOR FISCHER: ...and then we market it through our cattle. [LR435]

DAVE WEDIN: Right. [LR435]

SENATOR FISCHER: So we love our grass in the Sandhills. We were given some information about this whole issue, about the water, about the soils, about crops. Do you have any information on pipelines going through sandy soils in other areas and what the reclamation rate has been, the success or the failure? [LR435]

DAVE WEDIN: No, and maybe it's because I've been busy teaching this fall, but I haven't gone in detail into, you know, done the research on this company and what it's done elsewhere or other companies and comparable projects. So that's why I'm kind of sticking to what I've learned from our studies. [LR435]

SENATOR FISCHER: Do you think...in your opinion, do you think that if you would have removed topsoil...I mean you know in the Sandhills... [LR435]

DAVE WEDIN: Yeah. [LR435]

SENATOR FISCHER: ...we don't...we have topsoil like this if we're lucky, you know,

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and... [LR435]

DAVE WEDIN: Yeah, it's an optimistic statement to call it topsoil. [LR435]

SENATOR FISCHER: There you go. There you go. But do you think that would help if you would remove what we call topsoil and then replace it as...well, as has to be done in many... [LR435]

DAVE WEDIN: Yeah. [LR435]

SENATOR FISCHER: ...instances here in the state with road construction. When you're doing wetlands, they have to scoop out all the bottoms, you know, on the wetlands and put them elsewhere. [LR435]

DAVE WEDIN: That's one of...and I don't have experience with that, but that's one of the treatments that was used in the experiment along the roadside up by Halsey... [LR435]

SENATOR FISCHER: Uh-huh. [LR435]

DAVE WEDIN: ...and so Walter Schacht, the professor working with that,... [LR435]

SENATOR FISCHER: Uh-huh. [LR435]

DAVE WEDIN: ...and has a grad student with that. And they're surprised how well the plots, where there was banked topsoil applied, how much better they're doing. And again, I'm kind of like you, topsoil doesn't mean a lot up there. It's a little darker. [LR435]

SENATOR FISCHER: Oh, we love it. Now come on. [LR435]

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DAVE WEDIN: It's still sand. It has some seeds, has some roots, has a little bit of integrity, but it's nothing like a black loam in the cornbelt. [LR435]

SENATOR FISCHER: Right. [LR435]

DAVE WEDIN: And so the cause of why topsoil helps, is it the physical stability, is it the nutrients, is it the organic matter? I'm not sure, but their conclusion after the last couple years was, yeah, that topsoil made a difference. [LR435]

SENATOR FISCHER: Have you seen those plots along Highway 2? I'm picturing them...is it west of Halsey? [LR435]

DAVE WEDIN: If I remember right, it's a little bit... [LR435]

SENATOR FISCHER: Or east of Halsey. [LR435]

DAVE WEDIN: ...it's towards Dunning. It's a little bit east of Halsey... [LR435]

SENATOR FISCHER: Yes, it's right outside of Dunning,... [LR435]

DAVE WEDIN: ...on the north side of the road. [LR435]

SENATOR FISCHER: ...west of Dunning, and they're on the north side... [LR435]

DAVE WEDIN: Yeah. [LR435]

SENATOR FISCHER: ...and they're on a hillside. [LR435]

DAVE WEDIN: Yeah. [LR435]

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SENATOR FISCHER: Is that correct? [LR435]

DAVE WEDIN: Yeah. [LR435]

SENATOR FISCHER: So even on the hillside, as, you know, as I view those plots, and again it's different when you have, you know, a test plot than... [LR435]

DAVE WEDIN: Yeah. [LR435]

SENATOR FISCHER: ...a natural one. [LR435]

DAVE WEDIN: Yeah. [LR435]

SENATOR FISCHER: But they have done well and they did well even in the drought, which you found out the drought doesn't matter as much as the wind. [LR435]

DAVE WEDIN: Yeah. And then again, so they had a variety of different erosion-control mechanisms they used, and so. I don't know, my conclusion, my opinion, after what I've worked on, and I don't have as much experience as a lot of ranchers up there, is that it is possible to regrow vegetation that will stabilize soil when you have disturbance of that sand. It's a lot harder than you think it's going to be. It's just a different ball game than working on a loamy soil somewhere else outside the Sandhills, and that isn't addressing the question of how similar is the vegetation and how good of quality is that rangeland that you've replanted compared to what was there starting with. I'm just looking from the perspective of, with enough effort can you grow grass that will stop the sand from moving? My conclusion at this point is, yes, but it's a huge caveat. You really have to physically stabilize that sand and you have to know when the winds are coming and know how to plan for that. [LR435]

SENATOR FISCHER: Okay. Thank you very much. [LR435]

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SENATOR LANGEMEIER: Senator Sullivan. [LR435]

SENATOR SULLIVAN: Thank you, Senator Langemeier. And right along in that vein then probably the critical thing, even if there is some topsoil to stabilize and get the seeds going, that area has to be rested and can't be grazed. [LR435]

DAVE WEDIN: Right. Some ranchers will, for a blowout, will advocate...will throw some hay in there and let the cattle trample it in a little bit, but that's a different ball game. [LR435]

SENATOR SULLIVAN: Well, but then they would still have to rest it. [LR435]

DAVE WEDIN: They still have to rest it because those new shoots, especially if you have some sort of a cool season grass in the mix, those are like candy for the cattle. You know, they're just going to crop. That's what happened where we tried the cover crop. [LR435]

SENATOR SULLIVAN: Okay. [LR435]

DAVE WEDIN: There's enough deer up there that the deer ate the oats (laugh) and left, you know, the little prairie grasses struggling in the wind. And another point that hadn't come up and I didn't see this addressed anywhere in this whole issue of is the right of way fenced or not fenced and for how long. I don't know what the plan is. But I think the comments regarding the impact of warming from the pipe coming up through the sand were like, well, maybe a little bit, I don't know, not much. You know, I mean that was the tone of the comments, was like, well, that isn't going to be huge. And most of the ranchers up there aren't winter grazing but some people do. Especially if they're supplementing with distillers grains or something like that, they could be winter grazing some of these pastures. But, you know, you see that on campus. If you have a

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pipeline--a heat duct--and you've got greener...it will stay greener above the pipe. That in itself isn't necessarily bad. But if you have livestock on that, they're going to go for that grass. I think they're going to hammer...and I can't imagine having livestock in a winter on a site where you've got any sort of subterranean heating because that's going to really skew where the grass is and where their impacts are going to be. And I don't know if that...I didn't see that issue raised anywhere. [LR435]

SENATOR SULLIVAN: Thank you. [LR435]

SENATOR LANGEMEIER: Other questions? Seeing none, thank you very much, Professor, for your testimony. [LR435]

DAVE WEDIN: Good. Thanks for the chance to share some stuff. [LR435]

SENATOR LANGEMEIER: You bet. Thank you. Have our second professor. Professor Woldt, welcome. [LR435]

WAYNE WOLDT: Wayne Woldt. [LR435]

SENATOR LANGEMEIER: Good afternoon. [LR435]

WAYNE WOLDT: (Exhibit 13) Well, good afternoon. My name is Wayne Woldt, W-a-y-n-e W-o-l-d-t, and I'm with the Department of Biological Systems Engineering at the university, and I work mainly in the area of groundwater, groundwater engineering, and I've prepared some comments here today to follow up and emphasize a few points on the materials that I had provided in written form. As one considers the proposed pipeline project, it becomes apparent that the nature of the project is highly complex with many layers of consideration that span multiple spatial, temporal, and conceptual scales, oftentimes boiling down to considerations of economic development, environmental and ecosystem sustainability, and sociopolitical deliberations. It is with

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this background that I would like to contribute my somewhat focused perspectives on the proposed project. As such, I would like to summarize a few of my written comments pertaining to groundwater and aquifers and risk associated with possible contamination from fluids transported by the pipeline. Regarding the question of impact to the aquifer, at this time my sense of what I'll call our collective understanding of the impact that a leak might have on an aquifer such as the Ogallala aquifer is rather limited. There are many reasons for this, most of which revolve around the highly complex processes that would take place in the event of a leak or similar event. Some of the complexities include: 1) the nature of the pollutant, which is not well described in the risk assessment and is presented as a proprietary mix, however, it is generally recognized as a light nonaqueous phase liquid, or LNAPL, which can be very complex in terms of understanding what's commonly called the fate and transport within the subsurface environment; 2) the nature of the leak, including factors such as a large and fast leak versus a small and slow leak; the proximity to groundwater; the proximity to wells, both laterally and depthwise, along with many other factors; 3) the nature of the aquifer, including factors such as hydraulic conductivity, organic matter content or organic fraction, unsaturated zone thickness, interaction with surface water, again, along with many other considerations. There's a lot of dimensions here in this question. In general, an approach to gain greater understanding of the risk to an aquifer is to complete scenario modeling in order to predict the fate and transport of a given type of threat. The information then provides insight into the associated risk and yields data for what's called an exposure assessment, leading to a more complete picture of the risk. My review of the risk assessment in Appendix P leads me to conclude that additional effort could be expended to complete a more quantitative risk assessment for the subsurface. For example, estimates of the volume of aquifer contaminated at various contamination levels, under different leak scenarios and different aquifer characteristics, would lead to a better characterization of the leak impacts and, therefore, the risk. Regarding the question of immediate versus long-term impacts, based upon my review of the risk assessment I am not sure that this has been considered to the extent that it should be. The report discusses the concept of natural attenuation as a remediation method. My

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experience is that this approach can take many, and I put in here many years, double the "many," and in fact can be more expensive than a focused remediation approach due to the long-term monitoring and documentation of progress that is necessary under a natural attenuation method of aquifer cleanup. Again, this is a topic that I think needs further evaluation and consideration. In summary, my sense is that we are not well prepared to deal with a leak or spill should one occur along the pipeline. Perhaps a small spill would be tractable, but then again we would need to define small, medium, and large in terms of volume, areal extent, area impacted, resources damaged, etcetera. Given the significance of the northern High Plains aquifer, a lot of times called the Ogallala aquifer, combined with the realization that economic development is both desirable and inevitable, one idea might be to develop a research center or a research initiative that has a focus on what I'm calling "risk reduction through a better understanding of environmental fate and transport, and remediation of subsurface contamination from pipeline sources." For example, such a initiative could be a public/private partnership with the University of Nebraska, state of Nebraska, our federal partner, and private partner such as TransCanada. Such a center could be geared toward a greater understanding of the various risks and methods to clean up any leaks or spills and may be able to operate from a position of what I call negotiated confidentiality. This type of approach has the potential to look toward the long-term view with the idea that should a large leak occur and a portion of the Ogallala aquifer be adversely impacted, there is sufficient knowledge and expertise to address the question of what to do next. I don't see such an endeavor as reinventing the wheel. Rather, I expect such an endeavor will seek to partner with other experts at the national level in order to continue to evolve our understanding of the complexities, challenges, and opportunities in dealing with subsurface impacts stemming from a pipeline leak. I believe that this idea should be given further consideration and remain interested in exploring possible concepts. [LR435]

SENATOR LANGEMEIER: Very good. Are there any questions? Senator Dubas.
[LR435]

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SENATOR DUBAS: Thank you, Senator Langemeier. Thank you, Professor Woldt, for being here. If a leak would occur in an area where some irrigation is going on, pivot irrigation...we heard this morning about if there is a leak it's going to be fairly localized and the movement is pretty slow. If a leak happens in an area that's being irrigated, would that cause that leak to move faster or spread farther as we're drawing down that groundwater? [LR435]

WAYNE WOLDT: It's a good question. Generally, you know, water will move toward an irrigation well. It moves by gradients, pressure gradients or gravity gradients, and a well that turns on, it encourages gradients, introduces gradients and flow. To answer that question, though, is very tough because the type of fluid that I think we're talking about here is very complex. It's a multiphase. It would probably break into different phases, there's different compounds present. Some may move faster than others. The transport processes are generally advection in which a contaminant or a pollutant moves with the velocity of the groundwater, and then there's another process called dispersion in which contaminants can actually move and arrive faster at a location than the velocity of the groundwater. And so some of the components of the fluid may, as they break out of their phases and go into different phases, disperse faster. There's also density-driven considerations here where fluids, some of them may be lighter or probably are lighter than water, so we have density-driven gradients, and also thermal considerations, because my understanding is that the fluid would be piped at a higher temperature or moved at a higher temperature to help facilitate the movement through the pipeline. And then you have potentially a hot or a warm fluid that is going to be moving and cooling down as it enters the environment and so there's a thermal process taking place here also, all of which combine together to be really challenging to what we can do in terms of predicting questions like that. There's a site, a Bemidji site that may have been mentioned earlier, and the USGS has been studying that for many years and trying to understand more about the fate and transport of, in that case, crude oil in the subsurface environment. [LR435]

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SENATOR DUBAS: Just based on what you've said, though, it would be a safe assumption that any kind of irrigation that would be going on would have to be taken into consideration when trying to determine how to handle a leak or, you know, how and where it's going to go. [LR435]

WAYNE WOLDT: Yeah. Irrigation wells can have a fairly large impact on the aquifer in terms of introducing gradients that cause the groundwater to move. I didn't mention it here but I believe also that other wells that should be under consideration are private drinking water wells because they, as I mention in my written comments, are not subject to regulation by EPA or MCL requirements--maximum contamination level requirements. And a lot of times individuals that are on private drinking water wells are kind of on their own. So, yeah, wells are an issue and irrigation wells, high-capacity irrigation wells really can change the dynamics of a flow system. [LR435]

SENATOR DUBAS: Thank you. [LR435]

SENATOR LANGEMEIER: Senator Haar. [LR435]

SENATOR HAAR: Yes, thanks for being here. You mentioned the idea of a research center, which I find interesting because I think we need to get as much data as we can about how all this reacts. Just in your opinion, wouldn't it make more sense to do the research before than after? [LR435]

WAYNE WOLDT: Well, I think in, yeah, in an ideal world, that would be great. You know, I think that as we look to...and I assume that part of what's happening here is a result of the Gulf incident, and as we look to that I watched some of the dialogue and discussions on that on C-SPAN, for example, and my general feeling, although I wasn't there to observe it, was that a number of the institutions in the Gulf area were in a very much of a responsive mode to trying to answer questions about what was happening

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and where the oil was going. And I think that one thing that maybe they're contemplating there is to try to get a little ahead of the curve. Unfortunately, such an endeavor takes a while to ramp up and I'm not sure of the time line on this kind of a project here but, you know, you'd like to be able to get a handle on that before things actually occur. The nature of risk is such that, you know, there may be some initial kinds of spills, problems because of construction-related issues. Then I suspect there would be a diminishing effect. And this is all just speculation here, because there's methods of fault tree analysis, for example, that you look at all the different fault modes and tie them together and probabilities of occurrence to arrive at some sort of event that would actually cause a failure. And then perhaps that risk may go up over time because of aging and such. So with a research endeavor, we might be able to get a little ahead of the potential longer term kinds of events that might occur. [LR435]

SENATOR HAAR: Okay. So like if I knew a little bit more about getting older sooner. (Laugh) [LR435]

WAYNE WOLDT: Yeah. (Laugh) [LR435]

SENATOR HAAR: Well, I think that's something we need to ask to be developed if the pipeline is approved, to have a research like this, because although we've pretty much gotten testimony saying this will be localized, at least it's not going to spread through the whole aquifer, there seem to be a lot of questions yet about everything from revegetation to how a spill would work and so on. [LR435]

WAYNE WOLDT: Yeah. [LR435]

SENATOR HAAR: Now one thing I asked about this morning, because you made this state...when I read the paper, your writing, it was the first time I had thought about this one or heard about it. You said, "In addition, my understanding is the pipeline is a transport service that is rated for hazardous materials and will be required by law to

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transport any fluid that it is legally able to transport, assuming the entity is willing to pay the price for the transport." Now the person from TransCanada this morning said that's not true; that if anything else was used in this pipeline then they'd have to go through the whole process again. And I'd like to know, because I'm going to check this out further, but where you're coming from on this. [LR435]

WAYNE WOLDT: And that was based on my conversations with a representative from TransCanada, and I may have...you know, the technicalities of how that would occur, that may well be correct. But what I took from that was that it's essentially a conveyance mechanism that would be subject to use based on what the demands are. [LR435]

SENATOR HAAR: Uh-huh. [LR435]

WAYNE WOLDT: And along that same line, even with the...let's say the tar sands crude oil, my understanding is that there can be different mixtures and additives that are added to that base material in order to allow it to be transported through the pipeline and that the mixtures themselves may change. And so the question that comes in my mind is if something were to happen, how do you know just exactly what you're dealing with at the point of the event, at that point in time? And that's the reason I...one of the reasons I mention that. [LR435]

SENATOR HAAR: And even if we had this figured out for oil, the kind that's going to be shipped through initially, if that mixture changes as to what's transported, then we have potentially different problems, different issues. [LR435]

WAYNE WOLDT: Yeah. The fate and transport, what occurs may well be a different dynamic because of the nature of the materials that are used in the...making the fluid up and making the consistency of it, yeah. [LR435]

SENATOR HAAR: Okay. We'll try and get a specific answer to that one. That's it for

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now. Thanks so much. [LR435]

SENATOR LANGEMEIER: Senator Fischer. [LR435]

SENATOR FISCHER: Thank you, Chairman Langemeier. Thank you, Professor, for being here. You mentioned that you had some conversations with the people from TransCanada. In your presentation, you brought up the idea of a research center. I think research is always important, and the more facts you have, the better off you're going to be. I'm curious, in your conversations with TransCanada or with any other pipeline companies, if you've gained access to any of their research that they have over....I don't know how many years they've been in business--I assume it's 20, 30, 40 years or more--if you have access to any of their research? [LR435]

WAYNE WOLDT: I had one conversation with TransCanada. I was trying to learn more about the proposed project and I'm going to have to answer it kind of like my colleague Dave here. The time crunch was pretty tight and I have not really had a good chance to extend out, expand out and kind of enhance my understanding of that, of what you're asking about here. I assume, you know, pipelines are a big industry, it's a big method of conveyance. I'm sure there's a lot of information out there. Unfortunately, what I found is, in terms of the tar sand oil concept, I was having a little bit of a tougher time really finding information about that and what that means and what it might be like in terms of its consistency, its makeup. And that was confirmed, essentially, and the report mentions that it's a proprietary mixture. So it's hard to tell what might happen, and some of that research and their development I'm sure is held pretty tight also for competitive reasons. But I think that some sort of a public/private venture that allows for some transparency in negotiated confidentiality where there are trade secrets that are important to commerce and to their viability but yet provide a degree of confidence that, you know, what's happening, there's some ability to respond to it and we know what's happening would be a real plus under these kinds of conditions. [LR435]

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SENATOR FISCHER: Do you think...well, perhaps I need to visit with someone from TransCanada about that to see if we can get maybe some of their research that they've had on it. I do want to thank you and all the faculty members who have come before us and presented us with information. I think this is very valuable. Do you know if anybody from the College of Engineering was contacted with regards to the construction of the pipeline itself within the university system? [LR435]

WAYNE WOLDT: I am not sure... [LR435]

SENATOR FISCHER: Okay. [LR435]

WAYNE WOLDT: ...of the whole list of contacts that were made. [LR435]

SENATOR FISCHER: Okay. So a lot of our questions seem to focus on that, so maybe we need to expand our search a little bit. But I do appreciate you, you and your fellow faculty members, for coming in today. Thank you. [LR435]

WAYNE WOLDT: Thank you. [LR435]

SENATOR LANGEMEIER: Senator Carlson. [LR435]

SENATOR CARLSON: Thank you, Senator Langemeier. Dr. Woldt, I'm going to ask you a question and I don't mean it to be embarrassing but I think it's maybe worth asking here because I'm certainly not against research and I know it is important. So you can answer this for yourself, not for the university. But if TransCanada...you approach them with the idea of the importance of a research center and finding out more about what some of these effects are and how to handle problems that might come along, if they said, we'll give you \$500,000 a year for ten years to study this, would you say, thank you very much and we'll get to work on it? Or would you say, thank you very much but you've got to put off building it for ten years till we really study this through? (Laughter)

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[LR435]

WAYNE WOLDT: How do I have to answer this? (Laugh) From my perspective?

[LR435]

SENATOR CARLSON: I guess I'm kind of getting at... [LR435]

WAYNE WOLDT: Yeah. [LR435]

SENATOR CARLSON: ...your personal idea of either being opposed to this pipeline or not opposed to it. But I know that were they to offer some dollars for research, you'd be very tempted to take that and we all would be. And then there would also be a...not a responsibility, but they would certainly hope the results of that research would favor what they're doing. That's a challenge in research, isn't it? [LR435]

WAYNE WOLDT: Yes. And any time you have a public/private kind of venture, that becomes a challenge and that's where it's important to define the extent to which information can be brought forth and published, which is what we're in the business of, and made available to the public as opposed to that, that needs to remain confidential. I guess my thought is that I'm, in terms of a decision on this, whether it's going to go forward or not or what the time line is on it, I'm just completely out of that realm. If there was an interest in research and defining the science and improving our science of understanding, then, yeah, I would be all for that. There's so much that we don't know and we're...well, maybe we know it but our ability to express it and understand it in a computational world, for example, is quite limited and I think we can really advance that. So, yeah, you know, moving forward, progression through research, I would say yes. Time line, whether now or ten years, I guess I would have to leave that to others to decide through the deliberations that are taking place. [LR435]

SENATOR CARLSON: Okay. Thank you. [LR435]

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SENATOR LANGEMEIER: Very good. Seeing no other questions, thank you very much. And I, too, on behalf of the committee, would like to thank all the professors for what they did and taking the time to come in and the water research center for putting them all together to get them all here today. So again, thank you very much. [LR435]

WAYNE WOLDT: Thank you. [LR435]

SENATOR LANGEMEIER: Now seeing time is going to be a factor, just kind of a show of hands, how many people are yet to want to testify? Okay. We're going to have to keep rolling. Okay, come on up. Good afternoon. [LR435]

FRANCES MENDENHALL: Good afternoon, Senator Langemeier, members of the committee. Thank you for listening to various members of the public, including me. [LR435]

SENATOR LANGEMEIER: I need you to... [LR435]

FRANCES MENDENHALL: My name is Frances... [LR435]

SENATOR LANGEMEIER: There you go. [LR435]

FRANCES MENDENHALL: ...Frances, F-r-a-n-c-e-s, last name Mendenhall, M-e-n-d-e-n-h-a-l-l. Do you want my address? [LR435]

SENATOR LANGEMEIER: No, that's all I need. Go ahead. [LR435]

FRANCES MENDENHALL: Okay. I'd like to use my time to talk about a couple concepts that I think need to be talked about a little more. The first is progress, as if no one questions whether the very idea of bringing tar sand oil to the rest of the world is

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progress and whether Nebraska should indeed be not just a minor but a key stakeholder in that, because it sure doesn't sound like progress to me. The second concept is a word that I haven't heard at all today and that is peak oil. I am the daughter of a geophysicist and a great admirer of the geophysicist named M. King Hubbert. You may have heard of him. In the '50s, Dr. Hubbert predicted that oil, that the world sources of oil would peak, that the U.S. sources of oil would peak in the seventies, and his colleagues didn't believe him and humiliated him. And what do you know? In the '70s the U.S. production of oil peaked, as he predicted. We are about at the point of his predicted world peak oil. I don't think any sane person would imagine that the world oil resources will go on forever and that there will not be peak oil. There will be. I also believe, and I hope you do, too, that all decisions relating to our energy policy must take peak oil into account. The day may be coming, and sooner than we expect, when oil becomes so expensive that alternative energy sources must be used, despite Mr. Jones's confidence that their operation will go on for the foreseeable future. When peak oil happens, TransCanada and other infrastructure for oil will not have the cash flow needed to do the needed cleanup. I want to say that again because I want it to sink in. When peak oil happens, TransCanada and other infrastructures for oil delivery will not have the cash flow needed to do the needed cleanup because other alternative energy sources will price them out of the market. Well, I'm most concerned about...I'm concerned about what happens to Nebraska all the way along this pipeline, but I'm most concerned about what happens to our rivers. We're all here because...at least partly, because of a concern about our water quality. Now I don't think it's possible for TransCanada to drill under rock for all of the arteries in eastern Nebraska that they're going to--I'm not sure if this is the right word--traverse. They're going under them. But think about it. It's not just the Niobrara. It's Lewis and Clark Creek, it's the Elkhorn River, it's the Shell Creek, it's the Beaver Creek, it's Platte Creek. We mentioned that. It's the various tributaries of the Big Blue, the North Fork of the Big Nemaha, and maybe parts of the Republican, and all of their tributaries. How are they going to do that and what's going to happen when the inevitable happens and their project is over and things start collapsing under those rivers? I think that's serious. I appreciate Senator Haar's

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questions about decommissioning and I'd like to hear some more of them, but I still have not heard any plan for financing the cleanup of this project after it is abandoned, and not to mention any projection of when this might happen. Thanks for your attention and if you have questions and I know the answers, I'll try. [LR435]

SENATOR LANGEMEIER: Very good. Are there any questions for Ms. Mendenhall? Seeing none, thank you very much for your testimony. Good job. [LR435]

TERI TAYLOR: Isn't there an order about women first here? [LR435]

SENATOR LANGEMEIER: Either way. Either way. You guys work it out. I've got these lights. I've never had a stoplight to control traffic. (Laughter) It might be Chuck's next creation. Welcome. [LR435]

TERI TAYLOR: (Exhibit 14) Thank you, Senator Langemeier, and thank you, committee members, for hearing us today. My name is Teri Taylor, T-e-r-i T-a-y-l-o-r. My husband Denny and I, along with our son Tim, are ranchers in the north-central part of the state in the counties of Rock, Keya Paha, and Holt. We consider ourselves extremely fortunate because we have the fifth generation of Taylors living on our ranch, and unfortunately, we are in the path of the Keystone XL pipeline, the proposed pipeline, and it covers our property in all three counties. Like many ranches in our area of the Sandhills, we have a diverse topography. We have the rolling hills, typical to the Sandhills. We have the subirrigated hay meadows. It is the rolling hills of the Sandhills that we are most concerned about when it comes in terms of reclamation. We as landowners have had to remain ever diligent in our stewardship in order to keep this land in a productive state. We have to be conscious of our management practices, our grazing practices, and we deal with the searing heat and the droughts of the summers and along with the unrelenting winds of the winter. And in our country, in Nebraska, we have the prevailing northwest winds which can wreak havoc overnight to this fragile ground. The very thought of this type of soil being laid open to accompany a 36-inch

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pipeline, 4 feet deep, is of great concern to us as landowners. Other areas of our ranch where the pipeline will be crossing are the fertile subirrigated hay meadows, and, of course...I mean they produce an abundance of feed for our cattle operation. They're what we survive on. And the reclamation of this type of ground will be much easier to accomplish, but under this ground there is also an underlying problem and that problem, indeed, is an underlying problem across the entire state of Nebraska where this pipeline will be laying--of course, the Ogallala aquifer. I would never presume to be an authority of this subject because I think I can say that we've had two authorities here today with Professor Goeke and Professor Woldt, who have answered a lot of questions for me and have enlightened me a great deal. But I can only tell you my knowledge of the aquifer on my property and that is that at the present time and every spring and every fall our hay meadows lie within the aquifer. There is anywhere from one to two inches to three inches of water above the hay ground. In fact, this summer the water never went away. We were unable to harvest the crops because of the water level on our hay meadows. So therefore, when we've heard that this pipeline is going to be laid on top of the aquifer and all that, that's not altogether true because we have several miles in which the pipeline will be laying within the aquifer. And so when there is a breach in that system, that water will spew into our water source immediately. And whether it is a cup, which they're not going to stop it at a cup because, if I remember right, my figure is right, the pressure in this pipeline is enormous and it's pumping up to 960,000 gallons of oil a day, so a pinhole and there would be a massive amount of oil spilled into my localized area. We have...and I quote a United States Department of Justice report that was issued on August 10 of this year: "In the last year alone, transportation pipelines have released more than 2 million gallons of oil into the environment, posing serious threat to human health and natural habitats." The Ogallala aquifer is what transformed our part of the country from the Dust Bowl that my parents told of in the '30s and '40s to what is now known as the breadbasket of today, and it's our responsibility to respect it and to protect it. We have been assured by TransCanada that our property will be returned to its preconstruction phase, and I know they're telling me that because they're being very conciliatory. And I'm not a doubting Thomas, but I've lived there my whole life, my

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parents, my grandparents; I know what it takes to restructure that ground after it has been disturbed. And I'm not talking about a plot of ground. I'm talking about acres and acres in which we will be forced to completely change our grazing practices. I heard fences mentioned today. We directly asked a representative of TransCanada if they would provide fences for our property so that we could utilize our pastures, and they said no. I would like to believe that they care enough to restructure my ground, but I have seen the pictures of the tar sands mining in Canada and I remember when one of our senators came back from up there and referred to it as a scene from Avatar. And I read the testimony of the First Nation leaders when they went to the White House to complain of the toxic tailing ponds that were spewing toxins into the rivers and streams and causing a great deal of irreparable damage to the environment and to the ecological balance. So I find it so hard to believe that these people, who are apparently Canadians, and who care nothing about their own homeland, that would let this happen in their homeland, are going to care about my tiny little piece of the earth that I treasure so much. I guess I'm a doubting Thomas because I have great fear for that knowledge. Over the past...and I know I'm running over and if you'd like me to stop I can. [LR435]

SENATOR LANGEMEIER: Just now go, wrap up. [LR435]

TERI TAYLOR: Over the last couple of years, we've had an extreme gamut of emotions. We went from anger from just the idea that a corporation from a foreign country could come in here and take our land, threaten us with eminent domain if we didn't freely give it to them, and also because we were forced to defend our property rights. We had, you know, we had people who weren't familiar with, you know, what's the big deal, you're going to get paid for it. We shouldn't have had to do that. We have also...it also angers me that a nation so hungry for oil would be willing to sacrifice two of the greatest treasures that we have, if not only here in the state of Nebraska but in the United States. There's also been fear because I have mentally pictured what that construction ditch is going to look like as it traverses my property and what we're going to have to deal with during the construction process itself. And then there's the great sense of

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sadness when I think about those gentle, rolling Sandhills that are going to have a scar across them, quite possibly a scar for eternity. And then, of course, there's the aquifer that has laid home to millions of people and wildlife and all, and now it's going to be a home to a 36-inch crude oil pipeline. I find that very sad. At a World Water Forum in 1999, the then-foreign minister of Canada was quoted as saying, "Water has become a highly precious resource. There are many places where a barrel of water costs more than a barrel of oil." And perhaps Benjamin Franklin said it best when he said, "When the well is dry, we know the worth of water." Thank you very much. [LR435]

SENATOR LANGEMEIER: Very good. Are there any questions for Ms. Taylor? Senator Dubas. [LR435]

SENATOR DUBAS: Thank you, Senator Langemeier. Thank you very much for coming and sharing your personal experience and understanding of the region that you live in. [LR435]

TERI TAYLOR: Thank you. [LR435]

SENATOR DUBAS: I certainly do understand that and appreciate your sharing. I'm going to assume that you've had extensive conversations with TransCanada, since it's impacting your land. [LR435]

TERI TAYLOR: Yes, we have. [LR435]

SENATOR DUBAS: Did you feel like you had any other place to go to, to maybe ask questions or get some unbiased or objective information or answers to questions you may have had? [LR435]

TERI TAYLOR: No, I don't think we did. We visited with other landowners. We did...we visited a lot with our local resource district, the Lower Niobrara Resources District.

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There aren't a lot of people you can talk to about what this is going to encompass and what it's going to affect, and it's going to affect each person differently. [LR435]

SENATOR DUBAS: Uh-huh. [LR435]

TERI TAYLOR: So to make a long answer short, no. [LR435]

SENATOR DUBAS: Did you feel the NRD was able to help you maybe get... [LR435]

TERI TAYLOR: The NRD has been very supportive. The NRD has been very supportive to all landowners up there through any crisis like that, and our local Niobrara Natural Resources District actually, in September of this year, passed a unanimous resolution stating that they were opposed to the construction of the pipeline through our area because of the rivers, streams, and vulnerable ground. [LR435]

SENATOR DUBAS: I think one of the reasons that we introduced this resolution was we were recognizing the fact that it was...there was no place to go to get those unbiased answers... [LR435]

TERI TAYLOR: Right. [LR435]

SENATOR DUBAS: ...and, you know, needing to look at what's in place as far as statutes for Nebraska and how do those interact with federal laws, because, I mean, at the end of the day this is a federal project and they have a great deal of...they have a lot more involvement in it than maybe we at the state level would like them to have. But ultimately, that was the purpose of this study, was how can we get accurate information not only to the landowners but to the people of the state,... [LR435]

TERI TAYLOR: Right. [LR435]

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SENATOR DUBAS: ...and I'm hearing you saying that outside of the NRDs there probably wasn't a lot of other places for you to go to help you navigate through this process. [LR435]

TERI TAYLOR: No. No. No. [LR435]

SENATOR DUBAS: All right. Thank you. [LR435]

TERI TAYLOR: Yes. [LR435]

SENATOR LANGEMEIER: Senator Fischer. [LR435]

SENATOR FISCHER: Thank you, Chairman Langemeier. Well said. [LR435]

TERI TAYLOR: Thank you. [LR435]

SENATOR FISCHER: Thank you, Teri. Thank you for coming. I appreciate that you have put a face on this project and you've put a face on how this is localized and how it truly affects the people in the area where it's going through. So thank you very much for... [LR435]

TERI TAYLOR: Thank you. [LR435]

SENATOR FISCHER: ...taking the time to be here today. [LR435]

TERI TAYLOR: Certainly. Thank you. [LR435]

SENATOR LANGEMEIER: Senator Haar. [LR435]

SENATOR HAAR: Yes, thanks for being here. [LR435]

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TERI TAYLOR: Thank you. [LR435]

SENATOR HAAR: And will you be paid for...I mean when this pipeline, if it goes through, your land where you grow hay and so on, will you be paid for the years it will take you to recover to your original use of that land? [LR435]

TERI TAYLOR: I under...can I answer that, Stan? Is that in my nondisclosure agreement? [LR435]

STAN DOBROVOLNY: You do whatever you need to do, Teri. [LR435]

TERI TAYLOR: I understand that we will be, yes. [LR435]

SENATOR HAAR: Okay. [LR435]

TERI TAYLOR: I hesitate to say too much because of an organization that my husband and I thought was going to be of help to us. We were forced to sign a nondisclosure agreement before we could receive a settlement or an easement, proposed easement, from TransCanada. So therefore, to actually disclose what is in that... [LR435]

SENATOR HAAR: Gotcha. [LR435]

TERI TAYLOR: ...and I perhaps would be infringing on that. [LR435]

SENATOR HAAR: Yeah, the nondisclosure is with this other organization or with... [LR435]

TERI TAYLOR: The nondisclosure was with TransCanada. TransCanada would not even discuss their proposed settlement until landowners signed a nondisclosure

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agreement stating they would not speak to anyone else about what was in those easements. [LR435]

SENATOR HAAR: So we can't find out what those agreements are. [LR435]

TERI TAYLOR: No. [LR435]

SENATOR HAAR: Interesting. Thank you very much. [LR435]

TERI TAYLOR: You're welcome. [LR435]

SENATOR LANGEMEIER: Start over here. Senator Sullivan. [LR435]

SENATOR SULLIVAN: Thank you, Senator. Thank you, Teri. Can you tell us anything about what their plans are to reclaim the land and the process they're going to use? [LR435]

TERI TAYLOR: No, I can't, simply because we have...the people we have visited with, and I've been to numerous meetings and I have visited with land agents, and the stories aren't always exactly the same. Just for instance, the fencing story. The first meeting we went to they were going to fence whatever property needed fences. One rancher had a problem with water, the access of water for his livestock being separated where this proposed pipeline was to go, and that was no problem. They were going to, you know, if you need a well over here, we'll get you...then the next meeting I went to, those had been rescinded. So, no, I can't tell you because we have never really gotten a straight answer as far as those questions go, and we have addressed them many times and we still don't really have a clear-cut answer. And that's why we're fearful because, you know, you're fearful of the unknown, and that's pretty much what we're dealing with. [LR435]

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SENATOR SULLIVAN: Uh-huh. Sure. Okay. Thank you. [LR435]

TERI TAYLOR: Uh-huh. [LR435]

SENATOR LANGEMEIER: Senator Carlson. [LR435]

SENATOR CARLSON: Thank you, Senator Langemeier. And again, thank you for being here. As a landowner, I understand your concerns and I would be as concerned as you are. But from what you just responded to Senator Sullivan, it seems like some of the frustration is you were told one thing and then told another. And so in this format that we have here, it would be nice to be able to call somebody back up to the front and ask them, but I don't understand how you would get a response...well, I think it's a reasonable request. You've got livestock. That's what you use your land for. [LR435]

TERI TAYLOR: That's right. [LR435]

SENATOR CARLSON: And from what we've been told earlier, when this attempt is made to reclaim, that there's going to be...there's just time necessary and that shouldn't be disturbed, so fencing seems to be realistic and the right kind of request. And I'm restating this because I hope that TransCanada would give us some information on why the answer would be yes and then the answer would be no. And if there's any kind of a pattern with this, understandably people are going to be upset. And you have talked to your neighbors. [LR435]

TERI TAYLOR: Yes. [LR435]

SENATOR CARLSON: Do your neighbors...do you feel like your neighbors feel like you do or are you one of a few that has a bigger concern than others? [LR435]

TERI TAYLOR: There's kind of a mixed emotion. And I also...I mean we have neighbors

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who it crosses an irrigated field who are really not that concerned because they feel after that crosses that irrigated field, the first time they disk it, you know, it's not...our issues, and like I said, each landowner's issues are different. In our issue or, you know, on our property, we have the low hay meadows, which as far as reclamation we're not that concerned about; the rolling hills are. We have other landowners of the same mind-set. The other landowners have the water issue where the water is at ground level so, therefore, they're very concerned about the leakage of the pipe. And I'm sure there's landowners who are, you know, I'm glad it's going on me because, you know, I get the revenue for it. So it's like with any other issue--there's a mixed bag, yes. I can't speak for any other landowners but I know, just from visiting with some, there are some of the same concerns and some different concerns, concerns we hadn't thought of. [LR435]

SENATOR CARLSON: And you're really speaking for yourself today. Yeah. [LR435]

TERI TAYLOR: I definitely am speaking for myself, yes. [LR435]

SENATOR CARLSON: Okay. Thank you. [LR435]

TERI TAYLOR: Yes. [LR435]

SENATOR LANGEMEIER: Senator Haar. [LR435]

SENATOR HAAR: Well, we were told earlier by TransCanada, they wanted to treat people with respect and transparency in the process. This doesn't sound like transparency if you have to... [LR435]

TERI TAYLOR: Correct, yes, because there's just too many different stories, too many, and I have attended meetings where different officials from TransCanada, you know, have been present. And depending on who the official was, there has always been a little bit of discrepancy. And the last was the issue on the fencing, when the gentleman

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just absolutely...and he was kind of the person that we thought maybe had the last word, that said no. You know, the first one said, yes, if that's what it takes. That's a word that TransCanada uses a lot--whatever it takes. You know, we'll do this; you know, we'll fence, if that's what it takes; we'll put a well over here, if that's what it takes, you know, and... [LR435]

SENATOR HAAR: It's kind of like the word "fair" and things like that. [LR435]

TERI TAYLOR: Yes. Yeah. [LR435]

SENATOR HAAR: Okay. [LR435]

TERI TAYLOR: Okay. [LR435]

SENATOR HAAR: Thank you so much. [LR435]

TERI TAYLOR: You're welcome. Thank you very much. [LR435]

SENATOR LANGEMEIER: Seeing no other questions, very good. You did a good job. Next testifier. Good afternoon. [LR435]

STAN DOBROVOLNY: (Exhibit 15) Good afternoon. My name is Stan Dobrovlny, S-t-a-n D-o-b-r-o-v-o-l-n-y. I thank you, Senator Langemeier and all senators present today. I am president of Landowners for Fairness, which is an organization Teri alluded to. However, I'm here today and my remarks today is mine and mine alone. I'm not here representing anybody. I guess what I'd like to start with is it's kind of like Senator Haar mentioned awhile ago. The fact that if you're going to have a 2,000-mile pipeline and the idea that it's not going to leak at some point is somewhat ludicrous. If you're going to have it across there, it's not a matter of if it's going to leak, it's when it's going to leak, where and how much and how it's responded to. I think that's probably pretty much the

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way it's going to be. I'm not an antipipeline person. I live in southwest Holt County and the pipeline goes through me for three miles in some of this same type of property that you were talking about. Some of it is subirrigated, some of it is very sandy, and that's just the situation. A lot of the things that I was going to talk about has already been talked about here today, so to reiterate that is useless. What I would hope would come from this hearing today or a series of hearings like this is some language that could help us as landowners in the future. I think the TransCanada pipeline is pretty much a done deal. That's just my personal opinion. I think it's going to happen. I think anything done at this point is going to be too late to deal with that. But I also believe that we're in a corridor that's going to have many pipelines to come, and I think Nebraska needs to deal with it, and we have not done it in the past simply because we haven't been in an area where they have. So I would hope that we could come up with some eminent domain language. And I understand the need for eminent domain. You know, eminent domain has been around for...since, what, roughly 900 years B.C. And there is a need for it, I understand that, but there also needs to be some eminent domain language to give the...so the landowner isn't tied to the...chained to the table, if you will, so he has some maneuverability when negotiating with putting in these pipelines. That's my belief. And I also own some land in Oklahoma and I also believe that another thing that I hope would come out of these hearings is a similar situation to what is in Oklahoma, which is I was running across a pasture one day and I ran across a patch of crude oil on top the ground about the size of this room. It was a ruptured pipeline. There's an 800-number down there you call that all pipelines and all oil companies, gas companies pay into on a regular basis, so there is a pool of money there. So in an instance like that, all we had to do is call that number and within a week they had come out, cleaned it up I think at a sufficient depth, done a very good job and cleaned the mess up and it was done and at no cost to the landowner. And I think that's something that needs to be looked into in the state of Nebraska because I don't believe that there's any time in the future that you're going to be able to deal with abandonment at the time the easement is signed. It's just illogical. It doesn't work. Fifty years from now, who knows who's going to own it, whether they're going to have money enough, what's the case. I think all oil companies and

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pipeline companies need to pay into a fund so that that money is available on a federal...or on a state level rather than try and rely on an easement-type situation. Having said all that, I guess the thing that bothers me a little bit...a lot of it bothers me. I'm somewhat hypocritical in the fact that I wish the pipeline was going somewhere else, but I also think we need it. I've come almost full circle in that regard. And what I'm afraid of more than anything else, I think, in the state of Nebraska is 25, 50, 75 years from now, when you drive across the state of Nebraska and when you see vacant farms, ranches, deteriorating fences, brush, stuff taking over the land because the land itself was abandoned, it's not going to be as a result of an oil leak in a pipeline. It's going to be the result of the \$5-, \$10-, \$15-a-gallon gasoline or fuel it takes to operate that land. And in today's precarious world situation, where we are, and if we get shut down in the Gulf, we need energy, and we're 50 years off in alternative sources. We have ample energy for a number of years in this country. And so I have mixed feelings about a lot of these things. I just hope what comes out of this group is some language that helps us in the future, helps the property owner to deal with these companies in a good manner. I do believe one thing. I've done a lot of research over the last two years and worked almost exclusively on this pipeline over the last two years, and in my research I'll have to put one little kick in for TransCanada. If we have to have a pipeline across us, they're probably the company we need to have across us because I think they have as good a record as there is in the nation, if not in the world, on a safety situation. That's been what I've been able to find out in comparison to the others. That's just my belief anyway. [LR435]

SENATOR LANGEMEIER: Very good. Are there any questions? Senator Haar. [LR435]

SENATOR HAAR: Yes, thanks for being here. In terms of Landowners for Fairness, when you worked with other people, we just heard earlier, a minute earlier here that people were required to sign a nondisclosure form. Was this a way of playing people off against each other or what do you see as the need for nondisclosure in this case? [LR435]

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STAN DOBROVOLNY: On nondisclosure, that's not new. When we formed our group, Landowners for Fairness--and we merged with Montana and South Dakota, as a matter of fact, so we're three statewide--when we did that we were aware at that time, because of the people we had dealt with on other pipelines, that if we were to achieve anything, that we would probably be required to...in group negotiations, we would probably be required to sign a nondisclosure agreement. That's very commonly done and on every situation that I'm aware of. On the natural gas line across southern Nebraska, I've talked to landowners that did that. On the Seward line, the East River, what we call the East River, I've talked to landowners that did that. The landowners in Britton, South Dakota, and across North Dakota was also required to sign that. That wasn't...in our negotiating committee, before we could even begin negotiations, we were required to do that and we knew that going in, quite honestly. And it's not new. It's something that's done. Whether it's right or wrong is neither here nor there, but that's what we were required to do. That wasn't Landowners for Fairness. That was a stipulation that TransCanada applied to us and we knew it was coming. [LR435]

SENATOR HAAR: Okay. [LR435]

SENATOR LANGEMEIER: Very good. Senator Fischer. [LR435]

SENATOR FISCHER: Thank you, Chairman Langemeier. Thank you, Stan, for being here. I know you've worked on this for the last couple years. Do you feel you've been treated fairly? Do you feel comfortable with the process as it's unfolded over the last couple years that we've gone through this? [LR435]

STAN DOBROVOLNY: We were in a little more of a unique situation than some because we had roughly 300 members and that many miles, if you will. We had some pretty contentious arguments, if you will, in our meetings. We... [LR435]

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SENATOR FISCHER: Hey, it's the 43rd District. (Laugh) [LR435]

STAN DOBROVOLNY: Well, I mean I'm talking about between TransCanada and ourselves. And I don't think that...I think the people we've dealt with was...yeah, I think we were. They're a very, very tough company. I think they're a very good company but they're tough and that's where it comes from. However, I do believe that if they fell down in a particular area it's in land agents that have actually...if there's untruthfulness and that type of thing that's been out there, it more or less comes through the land agents rather than... [LR435]

SENATOR FISCHER: But that was addressed early on. Didn't we see a change in that about a year ago with the firm they had hired? [LR435]

STAN DOBROVOLNY: I personally didn't have any trouble. I told our land agent, I said we're going to get along great till I catch you lying to me and then all hell is going to break loose. (Laugh) So she's been very good with me. I don't know if she has with everybody else but I've never caught her in a lie in the situations I...but I know a lot of people who have been told things that were not true and I know they're not true and I know they have been told that. So I blame it more on that than the people, the higher echelons of TransCanada, quite honestly. Those people I found who have actually worked with this, not to where we like to...not to the point we would have liked to have reached, but at least we've reached, you know...it's been cordial. [LR435]

SENATOR FISCHER: And if I understood you correctly, what you would like to see happen is a discussion and possible changes with eminent domain laws here in Nebraska in order to, I guess, offer more protection for private property owners. Is that what you're looking at? [LR435]

STAN DOBROVOLNY: Yes, in future use. I would like to see that. I think we need desperately some eminent domain language, not to shut down eminent domain

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because I think that would be a mistake, but to...and there is one state that does not allow eminent condemnation. It's in the New England states. I'm not sure which one it is right now. But I think we need something there that allows the landowners to sit down, either individually or as a group, and say, well, you know, we don't have to sit here and talk to you; you can't condemn us until at least you reach a certain level of agreement, if you will. I'll give you one example in Canada. I have very good friends in Canada who actually work on some of these same issues, and in Canada there is a law that they cannot condemn landowners in Canada or at least in the western part of British Columbia. They can't condemn there until they have first sat down in good faith negotiations with the landowner. That gives the landowner a huge advantage because if they can say, okay, until you agree to this and this and this, we're not going to talk to you. And so many times that's...some of the main issues have been solved before they even sat down to negotiate, because they won't sit down with them until they do. So I may be paraphrasing the exact way that works, but that's how it works in Canada and I think that would be beneficial. But at least...and I'd like to work with some people on wording of eminent domain, but we need something, we definitely do. [LR435]

SENATOR FISCHER: Okay. Thank you very much. [LR435]

SENATOR LANGEMEIER: Senator Sullivan. [LR435]

SENATOR SULLIVAN: Thank you, Senator. One quick question, Stan. With respect to what's going on in Oklahoma, that toll-free number that is essentially...is that what the assessment for the oil and gas companies is used to pay for that? [LR435]

STAN DOBROVOLNY: My understanding is, correct, it's the Oil and Gas Division of the Oklahoma Corporation Commission that actually deals with that. And I was unaware it was there. When I found this oil, I was in somewhat of a dilemma and I just called a friend of mine and he said, oh, just call this number. He gave me the number. He happened to be a Realtor; he gave me the number. And they dealt with it very well. But

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there is, like I said, but Oklahoma has many pipelines and a lot of oil and gas that's been dealt with for many, many years, so they're way, way ahead of us here. And they've been...and they're pretty landowner friendly. So that's the situation and it's just...it's a pool of money that's paid into over time. It does not...you know, and so what? If the price of natural gas goes up a few cents a cubic foot or a barrel of oil goes up a buck, and it fluctuates up and down more than that in a given day. So if it goes up a buck to put in a pool of money to create a safety net, if you will, for any catastrophic events, it's probably worth it. At least it isn't the landowner specifically that has to deal with that spill. It's leveled out over the whole state. [LR435]

SENATOR SULLIVAN: Thank you. [LR435]

SENATOR LANGEMEIER: Very good. Seeing no other questions, thank you very much. [LR435]

STAN DOBROVOLNY: Thank you. [LR435]

SENATOR LANGEMEIER: Very good testimony. Good afternoon. [LR435]

MARTY COBENAIS: (Exhibit 16) Afternoon, Senator Langemeier, Senators. Thank you for allowing me to come here. My name is Marty Cobenais, C-o-b-e-n-a-i-s. I work for a group called the Indigenous Environmental Network. I am located out of the much mentioned Bemidji, Minnesota, is where my office is from. But today I come to you on a lot of different issues, too, but I will address that, the oil spill up there, too, later on. Since 1990, the EPA actually has stated in several different documents that one pint of oil affects one acre of water. That's how much it affects. And with that then you also have...you have to worry about the diluents that everyone else has talked about. You know, in the tar sands oil right now the mixture is actually 60 percent bitumen, 40 percent diluents, and that 40 percent is to make it flow through the lines. Our organization has several...we work with indigenous people in North America through

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Canada, U.S., so we have several constituents that live and are directly impacted by the tar sands themselves. We also work with people along the pipeline. We also work with people along the heavy haul route that is going to be supplying more equipment so they can expand the tar sands so they can even try to fill this pipeline, because right now they don't have the capacity to fill this pipeline. They built another pipeline called the Alberta Clipper that goes through northern Minnesota that they still cannot even fill. That's the Enbridge pipeline. Some of our questions that we've questioned, as Vice President Jones talked about, was the pipe thickness. During the hearings, though, they kind of did a little magic act on us. They brought in two pieces of pipe and said, this is the thick pipe, this is the thin pipe, and we're asking for a waiver to use this thin pipe. It wasn't until afterwards that we started questioning them and saying, isn't the pipe already ordered? To then they said, well, yes, we're actually asking for the lower percentage. The lower percentage is actually going to be putting the oil through at about 1,600 PSIs, pounds per square inch. Most firehoses are about 1,200, to give you an idea of how much pressure is going through these pipelines. If they get 80 percent, it will go over 1,700 pounds per square inch. Some of the questions have been asked by the senators already today, but I want to kind of go over them. How long will the pipeline be used? Right now, in northern Minnesota, we have pipelines that are in the ground since 1949. They're still being used and there is no plan to ever decommission them, to which then, when you sit and talk about pipeline abandonment, under PHMSA, which everyone has been talking about so far today, when you look at the glossaries, they are going to purge the lines of oil, put water, nitrogen or some other nonchemical sludge in them and leave them in the ground. There is no talk about ever removing them. And during the public hearings, I attended four of them. At one of the public hearing the PHMSA officer that was at the public hearings had to stand up and say, yes, what he is saying is correct. What we talked about already a little bit, too, is the state of the art warning system and the 1 percent that it's near perfect and there's no human error or anything else like that. But there are still errors. We've talked about how pressure loss, there is a plus or minus 1 percentage point in their pressure gauges to saying that they couldn't...they may not even notice that. A prime example is in Salt Lake City earlier this

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spring when it leaked into a city park and people noticed it in the city park. They wouldn't even notice it. Smart pigging. This isn't Wilbur from Charlotte's Web. This is where they put it through the pipe and they discover where there's problems in the pipe. That's wonderful and they have to do it once every two years. If anyone knows anything about metals a lot can happen in two years but that is what the PHMSA guidelines are. They only have to do it once every two years. With that then I have not been able to find out how fast they have to respond to those problems that they find. The spring in Deer River, Minnesota, there is a leak that was discovered by firefighters because of a forest fire. And when PHMSA...or when the oil company went to the local tribe up there they admitted that they knew that there was a deficiency in that pipe since last summer. So nine months later they had still not fixed that pipe or even gone to look at it. So they didn't know how long that pipe had been leaking. I know I see the red light. I did talk...I do know about the Pinewood spill. I was 12 years old at the time and I grew up two and a half miles away from the site where the spill was. They spilled 10,000 barrels of oil. They cleaned up 7,500 barrels and left 2,500 barrels in the ground. That's something that was kind of not said correctly earlier. But the reason that they did it was because it was over 30 feet deep, this pool of oil, and that they didn't want to dig down and take it out. So that is how they determined...and they were going to do research on it and see where it moves. The difference between that then, between that oil spill and any oil spill here is obviously, one, the soil and the depth of the aquifer. There the depth of the aquifer is 25 feet to 30 feet deep. So there is a big difference between...I have a video from some...a friend of mine in Atkinson and the Stuart area that shows the aquifer being 3 feet deep and being able to dig down to it with posthole diggers. You know, those things are...there's a huge difference there. The other big difference is that...and I know you're going to cut me off. (Laugh) [LR435]

SENATOR LANGEMEIER: Yeah, I have more that want to testify, so I hate to do it but... [LR435]

MARTY COBENAIS: Right. The biggest difference then also between the oils is that the

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oil that was spilled in Pinewood was light hydrocarbon oils--conventional crude oil, light crude oil. This oil that's going through here is a heavy hydrocarbon. It's a much thicker, a much more chemically enriched oil. So it's going to have different effects that what the Pinewood results are going to be saying so. What I'd really love to see is for this committee to stand up and put a moratorium on any new pipelines until PHMSA comes out with their new guidelines. PHMSA is currently taking public hearing comments until the end of January. And they have to try and rework the PHMSA outcome. PHMSA is also very dangerous because, like NMS, the offshore drilling, offshore well drilling, that is also...PHMSA is also industry-led. So it's basically industry people saying what PHMSA wants to do, including the director of PHMSA is a former Enbridge pipeline attorney, Cynthia Quarterman. With that, questions? [LR435]

SENATOR LANGEMEIER: We'll see if you have questions. Are there any questions for Marty? Seeing none, thank you very much. You did a good job. [LR435]

MARTY COBENAIS: Thanks. [LR435]

SENATOR LANGEMEIER: Further testimony? Don't be shy. Good afternoon. [LR435]

KEN WINSTON: (Exhibit 17) Good afternoon, Senator Langemeier, members of the Natural Resources Committee. And thanks for this hearing today and for all of the research that's gone into it. I found this morning's presentation and the other presentation by the various people from the Water Center very interesting and learned a lot. And actually it enhanced my testimony as a matter of fact. We have a number of concerns about the... [LR435]

SENATOR LANGEMEIER: Ken, say and spell. Yeah. [LR435]

KEN WINSTON: Oh, Ken, K-e-n, Ken Winston, last name W-i-n-s-t-o-n. We have a number of concerns about the proposed Keystone XL pipeline. First of all, we're very

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concerned about potential impact on the Ogallala aquifer, primarily because of the fact that it would transport a hazardous material which is capable of destroying living things through the heart of the Ogallala aquifer in an area where it's deepest and most vulnerable. And then as I note, we don't think that this is a partisan issue and we definitely don't think it should be a political issue. I note that Governor Heineman has indicated the importance of the Ogallala aquifer to agriculture, Nebraska's number one industry. It's also the source of 80 percent of the drinking water in the region. Senator Mike Johanns, we particularly want to take note of the things that Senator Johanns has been asking for. He's asked for the pipeline to be moved away from the most vulnerable part of the aquifer, away from the Sandhills. He's also requested a supplemental environmental impact statement. We think that Senator Johanns' leadership should be recognized and we'd ask that other leaders follow his lead on this issue. Also would note that Senator Ben Nelson has asked for protection for the Ogallala aquifer and requested a thorough environmental review as well as comments by relevant state agencies. We have several areas of concern, and as other people have said they could talk for an hour or hours about this, but I know I only have 5 minutes. So the first is the tar sands process itself. In order to extract the oil from the earth, the process requires clear-cutting the forests, which are verdant at the time of their clear-cut. And then they strip mine the soil, and this process destroys every living thing in its path. This is in contrast to the people whose land it will cross--the farmers and ranchers along the pipeline route, who make their living by nurturing living things. Second, we are very concerned about the safety of the proposed pipeline. Just last week, Plains Justice issued a report detailing deficiencies in the proposed emergency response plan. This morning's testimony provided additional support for our concerns. Professor Gates' testimony that the aquifer discharges to the surface in many places means that pollutants could be transferred far from the site of the leak. We are also greatly concerned about the difficulty of cleaning up an aquifer, including the fact that 30 years later the Bemidji oil pipeline plume has still not been cleaned up. And as Senator Haar pointed out, the plume near Mead more than 50 years later has still not been cleaned up. Mr. Jones' testimony that leaks between one and two percent of the flow of the

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pipeline would be detected electronically gives us no comfort. This pipeline has the capability of transmitting 900,000 barrels of oil a day under high pressure. One percent of that would be 9,000 barrels a day. So less than that, 9,000 barrels a day is a lot of oil. A leak of this magnitude would be devastating to an individual landowner and the damage to the aquifer could be extensive. We are also concerned that the experts that were assembled today have many questions that have not yet been answered. Third, as several people have mentioned, we have a great deal of concern about the process of eminent domain and the way that landowners have been treated in this process. We believe and I have reviewed some legal authority, haven't researched it in great detail, but we believe that TransCanada's threats of eminent domain are premature and are therefore not authorized under Nebraska law. The eminent domain statute which has been cited must be read in conjunction with other eminent domain statutes which grant this authority to the state and its political subdivisions. These statutes require all permits to be in place prior to an entity exercising eminent domain authority. They also require that before anyone use eminent domain they have to be able to prove that all good faith efforts of negotiations have failed. I also want to...we also think that the requirement of confidentiality, as raised by a number of landowners, raises other public policy concerns. So therefore we are asking the Nebraska Legislature to do the following:...And if I could just do my last paragraph here, Senator? [LR435]

SENATOR LANGEMEIER: Yes. [LR435]

KEN WINSTON: Support for the supplemental environmental impact statement as requested by Senator Mike Johanns; support for an alternative route as requested by Senator Johanns; support for a thorough environmental review and comments by appropriate state agencies as requested by Senator Ben Nelson; a requirement establishing a fund to protect Nebraska landowners and taxpayers from the financial impacts of an oil spill; a requirement that state and local officials be involved in emergency response planning and establishing standards for such planning; and reform of eminent domain laws to make it clear that the rights of landowners are protected in

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this process. Thank you. [LR435]

SENATOR LANGEMEIER: Very good. Are there any questions for Mr. Winston?
Senator Carlson. [LR435]

SENATOR CARLSON: Thank you, Senator Langemeier. Ken, on your back page on the
paragraph about eminent domain,... [LR435]

KEN WINSTON: Yes. [LR435]

SENATOR CARLSON: ...about the third sentence up from the bottom. "Those statutes
require all permits to be in place prior to an entity exercising eminent domain authority."
What does that really mean, "require all permits to be in place"? [LR435]

KEN WINSTON: Okay, let me read from Nebraska Revised Statute 76-704.01. "A
petition filed pursuant to Section 76-704 shall include," and then "(7) If approval of any
other agency is required, the condemner should set forth the approval in writing of such
agency." We believe that that means that before they can say we're going to use
eminent domain, they have to be able to come in and say, we have approval to do this
pipeline, and, therefore, we have those approvals and we can do...therefore, we can
proceed with eminent domain. The pipeline has not yet been approved by the State
Department and, to our knowledge, it's going to be several months before the approval
is going to be granted or not granted. And so we believe that it's premature for that to
take place. Did I answer your question? [LR435]

SENATOR CARLSON: Um-hum. Thank you. [LR435]

SENATOR LANGEMEIER: Other questions? Seeing none, thank you very much for
your testimony. [LR435]

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KEN WINSTON: Thank you. [LR435]

JANE KLEEB: Hi, everyone. [LR435]

SENATOR LANGEMEIER: Did you have testimony attached to that green sheet that needs to be handed out? [LR435]

JANE KLEEB: Yes. There is my testimony as well as... [LR435]

SENATOR LANGEMEIER: Okay. [LR435]

JANE KLEEB: ...individual landowners that couldn't be here. [LR435]

SENATOR LANGEMEIER: That's fine. [LR435]

JANE KLEEB: I won't be reading their full statement but I'll read their name because I promised I would and kind of a sentence from their statement. [LR435]

SENATOR LANGEMEIER: I need you to start with your name. [LR435]

JANE KLEEB: My name is Jane Kleeb and I'm representing a group called Bold Nebraska. We're an advocacy nonprofit group here in Nebraska. [LR435]

SENATOR LANGEMEIER: And spell it. [LR435]

JANE KLEEB: Sure. It's J-a-n-e and Kleeb is K-l-e-e-b. [LR435]

SENATOR LANGEMEIER: Thank you. [LR435]

JANE KLEEB: (Exhibits 18-22) Looks like Kleeb but it's Klehb (phonetic). So I first want

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to just state, thanking Senator Dubas and Senator Sullivan not only for the hearing but for attending all of the State Department meetings, the NPPD meetings, the Power Review Board meetings. Everywhere we go to kind of advocate on this issue their faces are in the audience, and so I wanted to thank you and acknowledge that, as well as Senator Fulton and Senator Haar who have been individually asking lots of questions about this issue, and of course our two U.S. senators, Senator Johanns and Senator Nelson, who have really been leading the charge with a lot of the other senators that states will be affected and asking the serious questions that should be asked. I will quickly go through a couple of the landowners that couldn't be here today. Their full statements are in the record. The first one is from Benjamin Gotschall. He is a landowner up in Atkinson. And he has a two-page document but the paragraph that I'll read is: "To me, the most important reason to stop the Keystone XL pipeline is the simple and absolute fact that oil and water do not mix. A pipeline 48 inches underground in much of the Sandhills will be inside or physically encompassed by the Ogallala aquifer. In many areas of the Sandhills, my family's ranch included, there's no separation between surface water and groundwater. This is one of the characteristics that makes the Sandhills a unique ecosystem worthy of protection." The next one is from Graham Christensen. He works with the Nebraska Farmers Union, although this is his individual statement and not from the Farmers Union. The part that I will read from his statement is: "First, the importation of foreign tar sands oil does not fit in with Nebraska goals in regards to promotion of farmer-produced biofuels. Tar sands oil is a direct competitor with our state's ethanol industry which, according to the Nebraska Ethanol Board, has directly and indirectly created 7,000 jobs and helped rejuvenate our struggling commodity markets for Nebraska's number one industry, agriculture. Expansion of the tar sand oil industry is a direct threat to Nebraska's ethanol industry." The next one is from Matthew Cronin. He's an advocate in Omaha. "In a post-9/11 America, we are faced with the reality that there are threats to the quality of life we cherish, and yet the potential for terrorist attacks have continually been ignored in the Keystone XL pipeline debate." And the last one is from Jim Knopik, a landowner in Belgrade: "Citizens and property owners of our state need to be protected from the

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corporations of this size,"--meaning TransCanada. "We all know that if a problem arises, and they will, a citizen of our land will not have the leverage to take on a corporation of the magnitude. The cheap oil promise is nearly over. Please don't sell your people out because of it." And he goes on to describe some regulations that he hopes you guys put into place. And so I have a list of recommendations that I would like to discuss with you guys, but before I do that I think it's important to remember there is currently a Keystone pipeline in operation in our state. So we're not only talking about the proposed pipeline, which could pump almost a million gallons of oil through our state every day, we're talking about the current one that is essentially almost pumping half a million gallons of oil in our state. And when an oil spill happens, because it will happen, it's not only an oil spill, it's a chemical spill. And our state is simply not prepared for this. We are not an oil state. We're not Oklahoma. We're not Texas. We're an ag state. And it's the responsibility of our state and our Governor and everyone in this room to make sure that we have the proper regulations in place. So, first, they would actually be having a state agency that governs oil pipelines. We don't have that. There's no state agency right now that governs oil pipelines. One of the other things should be that TransCanada should pay for all infrastructure upgrades. Right now, the transmission lines would be paid by taxpayers with the promise from TransCanada that we would be repaid. That does not happen in other states. Nebraska should require TransCanada to set aside a trust for any and all oil and chemical spills so our state, and landowners in small towns the pipeline goes through, are not at any financial risk. Nebraska should have some minimum liability standards for oil pipeline on private and public land so individual landowners are not left to hire lawyers to do this on their own. As in other states, Nebraska should require TransCanada to have a bond in place for any road construction and road damages. The heavy equipment can and will cause damages to our local roads. And right now, they could be left holding the bag for those expenses. And lastly, the emergency response plan, which we now know is inadequate for the current pipeline, should be open to public comment not only for landowners but for concerned citizens like myself and elected officials in the counties that are affected. And I realize that we are up against a well-funded corporation that has ties to elected

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officials and individuals in our state with deep pockets, but I also know that we're Nebraskans, we're citizens, and we have a lot of power as well. And I also know that you don't mess with Mama, (laugh) Mama being Mother Nature. And our Sandhills and our Ogallala aquifer are a too important part of our nature and ecosystem to mess with. And so I just ask that you put the proper safety protections in place and pass some regulations so our land, water, and economic activity is protected. Thank you. [LR435]

SENATOR LANGEMEIER: Very good. Are there any questions? Senator Sullivan. [LR435]

SENATOR SULLIVAN: Thank you, Senator. Jane, did I understand you correctly to say that there are some states that require bonding for oil companies or pipeline companies? [LR435]

JANE KLEEB: Yup. Kansas is one of them. [LR435]

SENATOR SULLIVAN: I see. Okay. [LR435]

JANE KLEEB: Um-hum. [LR435]

SENATOR SULLIVAN: Thank you. [LR435]

JANE KLEEB: And I'll say that, you know, right now, our counties are actually--York being an example--are trying to figure out what, you know, laws they're going to put into place to protect their county from the pipeline. So they're particularly concerned about the seed and how the heat of the pipeline is going to affect the growth of, you know, corn in their area. [LR435]

SENATOR SULLIVAN: Um-hum. Um-hum. [LR435]

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JANE KLEEB: So that's the last thing we want as a state is counties creating all this patchwork, you know, quilt of laws. So that's why I think it's also important that you guys act in this, you know, year so we have some good laws on the books to deal with oil pipelines. [LR435]

SENATOR SULLIVAN: Okay. Thank you. [LR435]

SENATOR LANGEMEIER: Senator Haar. [LR435]

SENATOR HAAR: Yes. Can we get a list of those things? [LR435]

JANE KLEEB: Yes. [LR435]

SENATOR HAAR: Okay. [LR435]

JANE KLEEB: And we can...I can even pass on some examples of some other state laws that we've looked at. [LR435]

SENATOR HAAR: Yeah, I'd be... [LR435]

JANE KLEEB: Montana has some, South Dakota has some. [LR435]

SENATOR HAAR: That would be really helpful. Thank you. [LR435]

JANE KLEEB: Yup. [LR435]

SENATOR LANGEMEIER: Are there any other questions? Oh. [LR435]

SENATOR HAAR: Yeah. Do you know of any that deal with this whole thing of abandonment that's come up? And we really haven't gotten an answer other than these

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pipelines are going to go on forever. But do any other states deal with abandonment that you know of? [LR435]

JANE KLEEB: In all of the states that we've talked with, with advocates and experts, that is one of the big issues that everybody faces, not only with oil pipelines but gas pipelines, you know, that are no longer used. So it's a huge issue that I don't think anybody has a proper answer for. [LR435]

SENATOR HAAR: Thank you. [LR435]

SENATOR LANGEMEIER: Seeing no other questions, thank you very much. [LR435]

JANE KLEEB: Thank you. [LR435]

SENATOR LANGEMEIER: And I said we were going to quit at 3:00 but we'll keep this going until 3:30, then I've got to go, but. Good afternoon. [LR435]

RON KAMINSKI: Thank you, Chairman Langemeier. My name is Ron Kaminski, last name is K-a-m-i-n-s-k-i. I would like to start by thanking you and the rest of this committee for tackling some of these issues that this state is facing. I am here with approximately 25, 30 members of the Laborers' Union in the operator's union here in the state of Nebraska and western Iowa. Due to the fact that we wanted to try to save you guys some time so we didn't have 30 other people testifying, but I am here to lay out some of the things that I see are transpiring here. First of all, our union, Local 1140, has trained over 400 residents of Nebraska for pipeline work in the state in the last five years. We constructed the Rockies Express pipeline. We constructed the Keystone pipeline. We have worked with TransCanada in the past, and that relationship was a good relationship, a relationship that they've invested in our people in Nebraska. With that relationship and with that work, we've been able to open up a new training center that we just moved into this week off of 56th and Sorenson Parkway where we plan to

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expand to do pipeline training for residents not only from the state of Nebraska but also South Dakota and western Iowa. The whole process of the Keystone line was pretty cut and dried. We all understood what we needed to do going into that project. We all took care of our responsibilities. The communication line was open all the time and we accomplished construction of that pipeline without any major problems. We got that project done on time with skilled residents of the state of Nebraska. Now there was some numbers being thrown around by some other groups, because the original Keystone line came from South Dakota down into Nebraska, that there weren't South Dakota residents working on that project, this project wouldn't create any jobs here in Nebraska, and that is far from the truth. The fact is, is South Dakota doesn't have a lot of pipeline workers. We took it upon ourselves here and made the investment in the state of Nebraska as a union to train people from South Dakota, from Nebraska, and from western Iowa to do that work here in the Midwest. So we have Nebraska residents at this point working in states all over the country that reside here in Nebraska, but they work on other pipelines all across the country because of the training we were able to provide them here in Nebraska. All those people are taxpayers of Nebraska and will continue to be. But some of the stuff that I've been hearing...and I understand people's concerns about their land. I care deeply about the environment. That's why not only do those members build pipelines but they also build biodiesel plants here in the state, coal power plants in the state, and we've also constructed many wind turbines in western Iowa. I'm grateful that Nebraska has taken some steps in the last session to put some more incentives forward for construction of wind turbines, but the reality is, is we're not going to be energy independent in the next 25 years. And to kind of push TransCanada up against a wall like they're a bad guy is pretty sad with the relationship that we've built with them and the investment that they're willing to make for the state of Nebraska. And with that, that's all I have at this point. [LR435]

SENATOR LANGEMEIER: That's very good. Are there any questions? Senator Fischer.
[LR435]

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SENATOR FISCHER: Thank you, Chairman Langemeier. Thank you, Ron, for being here. [LR435]

RON KAMINSKI: Uh-huh. [LR435]

SENATOR FISCHER: When you say that training was provided for Nebraskans here with your union, did your union provide it? Did Metro Community College, did you access them? [LR435]

RON KAMINSKI: No. Our union, we do all the training on site. We've got the equipment. We've got all that stuff from jeeping, from pipe locating to coding, all that stuff we did here in the state of Nebraska. [LR435]

SENATOR FISCHER: And for pipelines and also for turbines you were saying too? [LR435]

RON KAMINSKI: Yeah, we do...we have constructed...I don't know if you've been up around kind of the Lake Okoboji area, up 29 throughout there, all the way over like to Adair County on I-80, we constructed most of those wind turbines. [LR435]

SENATOR FISCHER: Did you come out to Ainsworth? (Laughter) [LR435]

RON KAMINSKI: Ainsworth? We could if you...yeah, I would like to. [LR435]

SENATOR FISCHER: There's one out there. But we're going get a wind farm out by Broken Bow, too, so maybe we'll get you guys out there. [LR435]

RON KAMINSKI: Yeah, I see...yeah, I've been tracking a lot of those jobs and that's great. I wish we had more and more of that. [LR435]

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SENATOR FISCHER: Good. [LR435]

RON KAMINSKI: Like I said, I'm kind of one of those guys that would love to be energy independent. It's just a matter of getting to that point, so. [LR435]

SENATOR FISCHER: Right. And these are, I would assume, you said there were like 4,000-some workers that are qualified to work on the pipeline? What... [LR435]

RON KAMINSKI: Well, within...what we've done is in the last five years, we've trained about 400. [LR435]

SENATOR FISCHER: Oh, I'm sorry. Okay. [LR435]

RON KAMINSKI: Yeah. And those guys, like I said, they go all over the state. One of the things, the problems that I've seen in some of the misinformation that was put out there is that up in South Dakota there weren't a lot of local people working on those jobs. A little bit of that is due to the fact that we had Nebraska residents going up to South Dakota. [LR435]

SENATOR FISCHER: Always a good thing. (Laugh) [LR435]

RON KAMINSKI: No offense to South Dakota, but to go up to South Dakota because they didn't have enough trained individuals in their state, but we're continuing to build on that now. [LR435]

SENATOR FISCHER: Okay. I would assume these are good-paying jobs. [LR435]

RON KAMINSKI: Very good paying jobs, and there are people that go out and work for the year and come back with a nice bank account, that's for sure. [LR435]

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SENATOR FISCHER: Okay. Thank you for bringing that perspective. I appreciate it. Thank you. [LR435]

RON KAMINSKI: Not a problem. Thank you, Senator. [LR435]

SENATOR LANGEMEIER: Senator Cook. [LR435]

SENATOR COOK: Hi, Ron. [LR435]

RON KAMINSKI: Hi. [LR435]

SENATOR COOK: Did you say the training center was at 56th and Sorenson? [LR435]

RON KAMINSKI: That's correct. [LR435]

SENATOR COOK: Is it in the Omaha World-Herald building? [LR435]

RON KAMINSKI: Yeah. [LR435]

SENATOR COOK: Okay. [LR435]

RON KAMINSKI: We just actually closed the deal last week and started moving in this week, and we're looking at doing pipeline training to the west of the facility. [LR435]

SENATOR COOK: Okay. All right. Thank you. [LR435]

RON KAMINSKI: Yup. [LR435]

SENATOR COOK: It's in Legislative District 13 in case you were wondering. (Laughter) [LR435]

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SENATOR FISCHER: There we go. [LR435]

SENATOR LANGEMEIER: I wondered if you were going to point that out. [LR435]

SENATOR COOK: I was. [LR435]

SENATOR LANGEMEIER: Senator Carlson. [LR435]

SENATOR CARLSON: Thank you, Senator Langemeier. Ron, how long has this training been available? [LR435]

RON KAMINSKI: We've been doing it at our facility since I've been around, for at least five years. [LR435]

SENATOR CARLSON: How long does training take? [LR435]

RON KAMINSKI: The training takes, depending on what aspect of jobs you want to get into, the minimum is approximately 80 hours, at a minimum. [LR435]

SENATOR CARLSON: Okay. And then you're union provides the training, but the people pay for it that take it? [LR435]

RON KAMINSKI: How our system works is everybody who works for any one of our contractors, they pay a percentage...not a percentage but like a contribution to each hour, say it's a quarter an hour that goes into our training fund to provide all different types of training for contractors like Kiewit, White's, pipeline companies, construction pipeline, all different aspects of training. [LR435]

SENATOR CARLSON: Okay. So it's different kinds of training depending on what's

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needed. [LR435]

RON KAMINSKI: That's correct. [LR435]

SENATOR CARLSON: It isn't just pipeline. You've trained 400 people and you've been able to keep them busy. [LR435]

RON KAMINSKI: Yeah, that's true. I'm just talking about 400 people in the pipeline field. [LR435]

SENATOR CARLSON: Okay. And you've been able to keep them year-round employed. [LR435]

RON KAMINSKI: Yeah, yeah, not necessarily on pipelines every job but we've been keeping a majority of them employed. The problem as you see now, Senator, is although the state has a smaller unemployment number as compared to other states, the biggest sector of unemployment is in construction. [LR435]

SENATOR CARLSON: Okay. [LR435]

RON KAMINSKI: So we need to do everything we can or I hope we can do everything we can to provide more construction jobs. [LR435]

SENATOR CARLSON: Okay. Thank you. [LR435]

RON KAMINSKI: Um-hum. [LR435]

SENATOR LANGEMEIER: Seeing no other questions, very good. Thank you, Ron. [LR435]

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RON KAMINSKI: Thank you. [LR435]

SENATOR LANGEMEIER: Further testimony. [LR435]

MARK WELSCH: (Exhibit 23) Thank you. Good morning. My name is Mark Welsch, M-a-r-k W-e-l-s-c-h, and I'm representing Nebraskans for Peace here today. Good afternoon, Chairman Langemeier and committee members. Nebraskans for Peace is very supportive of the Legislature creating a good law to regulate pipelines in Nebraska, but we think a larger pipeline is needed in Nebraska. But instead of the 36-inch pipeline in the ground, we suggest instead of transporting the dirtiest, most polluting energy on the planet, that these pipes be much larger and straight up in the air with a wind tower on top. That's the kind of pipeline we need in Nebraska. Or you could possibly use smaller pipes and put electric generation from the solar power up there. The first speaker from TransCanada said there's no chance of human error in detecting a leak, that a computer will detect a large leak almost immediately. And as you heard earlier, 9,000 gallons could leak undetected by that computer. I used to design, write, test, and install computer software. Humans make mistakes when they do that work. Of course, I never did but people around me did. (Laughter) Have any of you had a computer stop doing what you wanted it to do? Of course. It happens. You have important decisions to make. Should our Legislature create a law to regulate pipelines and protect our water, land, landowners, and taxpayers? Or do you want to trust our federal government to protect us in Nebraska? Do you think that federal regulations and laws did a good job of controlling the Gulf pipeline or the pipe in the Gulf of Mexico and all that oil that spilled out of there? That was a federal project controlled by the federal government. How about building levees around New Orleans? Did our federal government do a good job there? I don't think so. What about the military contamination causing more than one Superfund site in Nebraska, which is continuing to expand and pollute more water and land near where I get my drinking water from Omaha? I've provided you a list...or, I'm sorry, not a list, a copy of Kentucky's law that is called "unsuitable for mining." I think there are parts in there that you could use to create a law that creates a designation

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unsuitable for pipelines. I think that our Ogallala aquifer, as has been mentioned many times, is an area that is unsuitable for a crude oil pipeline. Natural gas pipeline through the Ogallala aquifer is probably not a problem because that will just evaporate into the water and go through the water up into the air, but a crude oil pipeline full of toxic chemicals is not appropriate. And another thing that you could do as individuals or as a body, as legislators, is to help OPPD and NPPD and our other public power districts build more renewable energy generating plants. You could do this by asking our congressman in Congress to change the federal law they passed just a few years ago that gives tax rebates to companies for building renewable power plants so our nontaxpaying public power districts would get the same kind of financial incentive that for-profit companies get in every other state of our nation. For some reason, our federal representatives didn't think that we wanted wind power, solar power to be subsidized by our federal government like every other power company in this country can do. Every neighboring state to Nebraska generates more wind power than Nebraska. The one that generates--and I'm sorry I didn't bring my list, I'll e-mail you the list of the other states and how much they're generating--the one that generates the least around us generates twice as much as we do; the one that generates the most is something like 20 times as much wind generating power as we do. At the last OPPD board meeting, they discussed OPPD getting into a contract with NPPD to buy power from the Broken Bow soon-to-be-built wind generation site. They said at that meeting, we cannot tell you the price we're going to pay for that wind energy from NPPD, because it is so cheap. They could not tell us what that price was. So I hope you will contact our federal representatives to cause us to be able to get the same kind of financial incentives from the federal government that every other state is able to get. Thank you. [LR435]

SENATOR LANGEMEIER: Very good. Are there are any questions for Mr. Welsch? Seeing none, thank you very much for your testimony. [LR435]

MARK WELSCH: Thank you very much. [LR435]

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SENATOR LANGEMEIER: Further testimony. Good afternoon. [LR435]

WAYNE FROST: Good afternoon. My name is Wayne Frost, W-a-y-n-e F-r-o-s-t. Most of you know me, I think. (Laugh) But, however, on this I'm going to be short because most everybody has covered most of the items. I might want to reinforce some. One of them is, Senator Dubas mentioned about pumping water for irrigation wells and how much faster that makes water flow. We had a...out there at the ranch, we had three wells around one site. The center well usually is the one that started first, and it would pump a thousand gallon a minute whenever we started it up. We had two others, one a half-mile and one a quarter-mile away from that well. When they started theirs up, it pumped 500 gallons a minute. That's how much water was pulling from them other areas. That's about a mile and a half across that area. So we were draining water off of a lot of other area when we first started the well. Just thought I'd put that in to take and help rectify what she was doing. I think that we got to risk reward situation in putting this pipeline in. I'm against doing it across the Ogallala aquifer. There's no reason that they can't move that pipeline over to where the one...the first one that went across on the eastern part of the state. It won't change the amount of tax we get out of it for the state; it won't change...only the counties that it goes through gets a little different tax. But the fact is it will get it off of this Ogallala aquifer, and there's no question that there will eventually be a leak. And abandonment is a major issue about that pipeline. And you folks have got some authority to do some of that. You've done it through the DEQ in regard to lagoons for hogs, that they got to clean the dang things up if they abandon them. Well, if they're going to abandon a pipeline, this ain't any different than those lagoons. The easement situation I think is a very important issue that has been mentioned before. But the easements put an encumbrance on that land from now until ever. The way the easements are written, it goes on forever. Now if you go to sell that land...I just sold my ranch out there at Grand Island, Nebraska, and--or north of Grand Island--and I had no encumbrances on it, even though my dad's side signed mineral and oil leases for that land. But they had all ran out because they were 20-year leases. And I don't think that we should have these real long-term leases that run forever

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because your grandkids are going to be the ones that if eventually that land is going sell and you got to have an encumbrance. And I think it'll make a difference in the price of the land to have that pipeline across there and have an easement on it. I think that will make a difference when the sale comes up. And so that will affect the future value of that land. And what is the liability for that farmer? I don't think he should have a liability for the farmer that does the leasing to that company should be liable for the crazy things that might happen. Why should he be liable? I think that there should be a fund so that it takes care of that liability whenever something happens out there on that farm. And they can pay into it. There's no reason why when they are getting paid for doing this job and want to make their millions or whatever it might be (laugh), they should have to pay something so that the poor farmer out here leasing that land. And the environmental impact on this is going to be pretty great, particularly in them Sandhills. I got a friend that when I first talked to him about this pipeline, he says, well, we better do it. He's a commissioner out in Greeley County. He says, we better do it. They're going to come with eminent domain and take it away from us anyway so we just as well do it. I says, well, you ain't got eminent domain staring you in the face yet. But he says to the TransCanada person that came to their commissioner meeting, that she's talking about how great it was for everybody and so on, and he says, well, I'll tell you what. If we take the amount of time you and I both live until we die, we'll never be there to see that land all up in that Sandhills repaired. It'll take that long to repair it. And as far as these fences that I heard about, if you put a fence around one of them, you Sandhills people know that them cattle will follow that dumb fence and you'll have more blowouts out there. Whenever they have to go out around, they'll walk around there and make a path and they'll just blowout the dumb sand. That's the way it works. I've leased land up in the Sandhills. I know how them blowouts work. You don't, the bull can make a hole out there pretty easy fighting for the bull across the fence. So that's all I had. I wanted to reinforce some of the things other people said, but I'm not in favor of it. And to look at it as a risk reward, I know the state is going to get some money, I know the counties will get some money, but they'll get it if you move the sticking pipeline over there next to the other one where it needs to be. And you've got a lot more authority than you think you

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do. I know that this Legislature has got a lot of authority. Just use it. That's what I say. Thank you. [LR435]

SENATOR LANGEMEIER: Very good. Are there any questions for Mr. Frost? Seeing none, they're going to let you off the hook. Thanks for coming down. Further testimony? We just have two more? [LR435]

ALAN VOVOLKA: Hi. My name is Alan, A-l-a-n, Vovolka, V-o-v-o-l-k-a, and I'm not representing an organization. I wanted to talk about abandoning the pipeline and the phases that that would involve. But as a systems analyst in the computer field for the last 30 years, I just couldn't let that remark, about how there isn't a possibility of human error because we've got computers monitoring this, go by without a comment. Unlike a previous testifier, I have made mistakes in computer software. And the human error that happens in the software is far more powerful than some operator falling asleep at the switch and not noticing what's going on for a few minutes. And there...I was also disappointed in that part of the testimony by Mr. Jones that there wasn't much discussion about cleanup. I heard him say there was something that was completely cleaned up. I'd like to know what the definition of that is and I hope that there are people here who understand what that means. I got the impression that when he said it was 100 percent cleaned up, they got to the point where they were entirely done cleaning it up. Don't know that that means that it was really clean. Abandoning the pipeline. I think we've been a little bit light so far on what happens when the pipeline is abandoned. There was a reference to the fact that it would collapse and that would cause surface disturbance. I'm concerned about before it entirely collapses it will become perforated and water will get into the pipeline to mix with whatever chemical residue is left inside there, and it sounds, from the testimony, like there will be certainly some and possibly a significant amount. One of the characteristics we've heard about groundwater is that it moves slowly and that it moves downhill. Through an empty pipe it will move faster and it will move whatever direction the pipe runs down the hill, not the direction that the groundwater moves downhill. That will cause changes in where the water ends up and

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what's in the water. And I haven't seen any...I've talked to one hydrologist who spoke with TransCanada and said that there was no discussion about what happens when they abandon the pipeline. I think it's really in the state of Nebraska's best interest to make sure that money for that cleanup at the end is obtained in advance, perhaps during the few decades that this actually runs, so that when it is no longer used for anything, the money is available to do the remediation. Even if it isn't dug up and hauled off, it could be plugged, especially in those areas where it's actually inside the aquifer. It could be pumped full of cement. That technology exists. It costs something and I'm sure that the people who are getting the money from this don't want to incur that expense, but it's one thing that could be done to seal those areas off so that water...after the analysis is done, to see which direction the water will flow and what areas are in danger from contaminated water running through a pipe and coming out somewhere else, that those sections could be isolated if not entirely filled. Thank you. [LR435]

SENATOR LANGEMEIER: Very good. Are there any questions for Alan? Seeing none, thank you very much for your testimony. [LR435]

ALAN VOVOLKA: Thank you. [LR435]

SENATOR LANGEMEIER: You did a good job. [LR435]

MARIAN LANGAN: (Exhibit 24) Good afternoon, Senator Langemeier and members of the committee. We very much appreciate the time that you've spent putting in on this very difficult issue. We appreciate it a lot. My name is Marian Langan, M-a-r-i-a-n L-a-n-g-a-n, and I represent Audubon Nebraska. While I'm here speaking alone, we did not fill the hearing room just to respect people's times but there are thousands and thousands of members across Nebraska that care very deeply about the landscapes, wildlife, and water of our state. Much of the things that I would have addressed have been covered so I won't reiterate any of that. I'll make one quick statement though. In my view, this comes down to making a decision regarding the relative amount of risk.

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We make evaluations on risk every single day when we decide whether to take on debt, whether we decide to talk on the cell phone when we're driving. This is something we do all the time. But I'm going to make an analogy. There are times when the relative risk is so high that we just simply don't do it, and a good example of that I would put forth is when we decide to put seat belts on our children and grandchildren when we're driving a vehicle. Now you could make a case that people drive tens of thousands of miles, don't have accidents, so we don't need to worry about it and we don't need to put seat belts on those kids because it's really probably not going to happen. But we don't do it that way because the risk is too high. What we're talking about is too precious, and I'm talking specifically about the location of that pipeline going through that aquifer. I grew up in northeast Nebraska in a farming family. Water drove my family's whole life, the people that rely on it, on our agriculture. It drives the economy of this state. And I got caught kind of slow on this issue because I honestly thought the location of it was so bad that it would instantly be rerouted. And I'm shocked that we're even still having to talk about that. I ask you to please take the leadership role that you're in right now and help unite this state to block this. One thing I learned growing up here was to not lay down when forces are trying to do something that's not right. The location of that pipeline is not right. And the future generations are going to have to pay for it. And I just please ask you to do what you can to protect the landowners wherever it ends up, if it ends up here, but to please make sure it gets put into a different spot. Thank you very much. [LR435]

SENATOR LANGEMEIER: Very good. Are there any questions for Ms. Langan? Seeing none, thank you very much. [LR435]

MARIAN LANGAN: Thank you. [LR435]

SENATOR LANGEMEIER: Senator Fulton. Welcome to the Natural Resources Committee. (Laughter) [LR435]

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SENATOR FULTON: Thank you, Mr. Chairman. So thank you to Senators Sullivan and Dubas for putting... [LR435]

SENATOR LANGEMEIER: Oh, you still got to spell your name. [LR435]

SENATOR FULTON: This is Tony Fulton. I represent District 29 in the Legislature. T-o-n-y F-u-l-t-o-n. Thank you, Mr. Chairman and members of the committee. Thank you to Senator Sullivan and Dubas for bringing this resolution forward. You were well ahead of me on this and I did not actually take any interest in this until I started to hear about increased pressure operations and decreased wall thickness in the pipes. My background, where I actually worked when I practiced engineering was in the energy sector, and specifically with oil and gas companies. And so I had some familiarity with TransCanada, some familiarity with what they did, and certainly some familiarity with pipe design, as that is one of the things that mechanical engineers do. So that prompted me to fire off a letter, which I did copy to the distinguished Chairman as well as to Senators Dubas and Sullivan--and if we need to get that in the record later we can. Directed it toward the State Department and also TransCanada. And the reason I wanted to testify is to make it known publicly that TransCanada did actually respond and I was able to have a conversation with their engineers, and the questions that were brought forward in that letter were addressed and addressed well. And for what it's worth, I did have some experience with TransCanada when I was still practicing engineering, and they have a good reputation in the industry so I'm not surprised that they responded. That being true, I still have some concerns and that's why I've continued to advocate on this particular issue. The pipeline that exists right now, I'll ask this question and it's somewhat rhetorical but it should elicit some thought within each of us. Why could we not utilize the existing pipeline and simply move more product through it, thus not having any necessity for a second pipeline? A pipeline is, after all, similar to a road; we could just increase traffic through that road, couldn't we? I did not get a chance to ask that question but I suspect that the response would be, it was not designed to accommodate any more oil flow. I'm certain that's going to be the response.

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And so we've been down this road before, and I ask you to contemplate that for a second because I'm certain we will be down this road again, perhaps not you and me but senators who will be sitting in those chairs some years when we're not here, some years in the future. And so I propose this to you to compel all of us, particularly this committee, that we need to act because at one time it was not envisioned in the design of the first pipeline that a second could be needed. So we should act with regard, at least, to what's going to happen in the future, perhaps not specifically to this pipeline. Second, a question that I've asked that I've not seen a response to which, again, should elicit some thought within each of us: So what happened in Michigan? As an engineer...I'm not practicing anymore so I want to be clear about that, but when engineers sit down to design things, they design with safety factors. That is, there is a certain overdesign to a pipeline or to what have you because there is the expectation that there could be problems down the road. And it is theoretically envisioned that a safety factor, the more robust a safety factor is, the more likely it is to take into account any provisions that have not been foreseen. So what exactly happened in Michigan and what can be said about this pipeline that will ensure that that which happened in Michigan won't happen in Nebraska? I've not heard a response to that question. What's more, I don't know that a response can be forthcoming in any short time because we don't actually know what happened in Michigan. What particular...a pipeline is not a rocket, and so when they say it's not rocket science, I don't mean that in a pejorative sense. But there are certain...there are only very certain physical characteristics to a pipeline, and we've been doing this, as the gentleman from TransCanada said, for decades, if over a century. So that being the case, just recently there was a pipeline that had a leak here in these United States. Whatever happened there we want to make sure does not happen here. And until we have some assurance that that which happened in Michigan can't happen here, we should ask questions. Thirdly, when I sent this letter--as I said, I fired the letter off--perhaps it was done after a deadline that was put forward by the State Department; regardless, I have not received a response. Now I have the same...I recognize my own stature; it's small. I don't mean that really...I do mean that physically, (laughter) but as I'm a state senator, okay? The Department of

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State has much bigger worries than a lowly state senator in Lincoln, Nebraska. But I would expect at least the courtesy of a response acknowledging the letter, and it's not as if the questions that were put forward in this letter are not with merit. So there has been no response from the Department of State, yet this is the department who's going to make an ultimate decision regarding the future of our state? And so I submit to you, and this should be no surprise, that this is not just an issue of the pipeline, but it's also an issue of states' rights. The federal government exists because we, the states, allow it to exist. We constituted the federal government; they did not constitute us. So you know that I brought forward a resolution on this and that I have some passion for this issue. The fact that the Department of State does not even dignify the acknowledgement of my letter causes me to remind the committee and my colleagues that we do have some authority here as a sovereign state. And if there are ways that we can exercise that, I'll be glad to put forward my own efforts to help this committee. And with that, I think I will stop. Thank you for indulging this time for me today. [LR435]

SENATOR LANGEMEIER: Did great. Any other questions for Senator Fulton? Senator Haar. [LR435]

SENATOR HAAR: Yeah. So you don't buy the argument that, gee, it's the federal government, there's nothing we can do; thank you very much, close the door? (Laughter) [LR435]

SENATOR FULTON: No, Senator. And I typically don't (laughter). We do have some...that's not to say that we should lay waste to whatever the federal government is going to say. We can't do that. There was in the design of our country, through the states, a balanced federalism, and that was the term that I utilized on the floor in last session. And so there's going to be the exercising of particular volitions under the federal guise as well as that of the states. But that does not, therefore, mean the states have nothing to say. It means we do have something to say and ought to be heard. So that's why...I don't mean to react poorly to not being acknowledged as if I'm, you know,

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whining like a brat that I've not been...you know, you haven't given me any attention. But I would think that at least an acknowledgment of a letter could be forthcoming. That it was not does not give me confidence that the detail that is being encompassed in Nebraska is being contemplated at federal levels. In fact, I think this thing has been decided at the federal levels. I've seen media reports that seem to indicate that this thing has been long decided and that we're not even a thought. So we can make it such that we are a thought. [LR435]

SENATOR LANGEMEIER: Seeing not other questions, thank you very much. [LR435]

SENATOR FULTON: Thank you. [LR435]

SENATOR LANGEMEIER: (Exhibits 25-30) I have a number of letters that I'm going to read into the record here. One from Peter Lidiak with API energy; Robert Hinson from Bertrand, Nebraska; Chuck Hassebrook from Center for Rural Affairs; and Brian Dunnigan from the Department of Natural Resources have submitted letters for the record. And with that...oh, did you want to close? [LR435]

SENATOR DUBAS: Can I do just a real quick... [LR435]

SENATOR LANGEMEIER: Briefly. [LR435]

SENATOR DUBAS: I will. I will, I promise. I just want to take the opportunity to thank everybody. I think what we had hoped from this study to happen, happened today. We were able to bring forth factual information. We were able to take public testimony, especially from the landowners who are directly impacted. I think that's very, very important. And I'd also like to take the opportunity to publicly acknowledge Senator Sullivan's staff, my staff, and Senator Langemeier's staff. They've just done a great deal of work. Their work is still not finished. We'll have a report ready to bring forth by the end of the month, and I think...my hope is that report will serve a great purpose to the

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entire legislative body as far as questions and anything that might possibly come out of this study in the future. So, again, I just want to thank everybody for their time and attention. This is an important matter and I think we gave it its due diligence, so thank you. [LR435]

SENATOR LANGEMEIER: Did a very good job. And with that, that concludes the hearing on LR435. And I want to thank everybody for their participation, and I think the day went very well. Thank you and drive home safely. [LR435]