

STATE OF NORTH DAKOTA  
PUBLIC SERVICE COMMISSION

TransCanada Keystone Pipeline, : Case No.  
LP, 30-Inch Oil Pipeline/ : PU-06-421  
Cavalier to Sargent Counties :  
Siting Application :

TRANSCRIPT OF  
CONTINUED HEARING  
(VOLUME III)

Taken At  
State Capitol  
Bismarck, North Dakota  
November 27 & 28, 2007

BEFORE THE HON. AL WAHL  
-- ADMINISTRATIVE LAW JUDGE --

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COMMISSIONER SUSAN E. WEFALD, President  
COMMISSIONER TONY CLARK  
COMMISSIONER KEVIN CRAMER

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FOR THE INTERVENOR,  
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A P P E A R A N C E S (Continued)

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COMMISSION.

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**EXHIBITS:**

No.	Description	Off'd	Rec'd
Fargo 1	City of Fargo Water Permits	606	606
Fargo 2	Red River at Fargo Annual 7 Day Duration Low Flow	613	614
Fargo 3	Photograph of Fargo Water Treatment Plant	609	610
Fargo 4	Red River Valley Water Supply Project SDEIS Chapter Two Alternatives	677	677
Fargo 8	CV of Mark R. Deutschman	801	801
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Fargo 12-1 12-9	Charts and graphs re Keystone Pipeline project	822	823
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C O N T E N T S (Continued)

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No.	Description	Off'd	Rec'd
T39	Keystone Pipeline Project- Analysis of Risk to Fargo Water Supply	946	946
T40	Code of Federal Regulations, 195.450	779	789
T41	Code of Federal Regulations, 195.6	797	797
T42	Risk Analysis for Lake Ashtabula	934	935
T43	Risk Analysis for Sheyenne River	940	942
T44	Map of Other Pipelines	945	945
T45	Rebuttal of Mr. Deutschman's calculations	957	957

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1           (The proceedings continued, commencing at  
2 8:15 a.m., Tuesday, November 27, 2007, as follows:)

3           JUDGE WAHL: And we are on the record.

4 Good morning. I'm Al Wahl, the administrative law  
5 judge designated by the Office of Administrative  
6 Hearings pursuant to the request of the Public  
7 Service Commission to act as a hearing officer for  
8 the hearing of an application for a waiver of  
9 procedures and time schedules and consolidated  
10 applications for a certificate of corridor  
11 compatibility and a route permit authorizing  
12 construction of approximately 218 miles of 30-inch  
13 crude oil pipeline and associated facilities in  
14 Cavalier, Pembina, Walsh, Steele, Barnes, Ransom  
15 and Sargent Counties, North Dakota. This is Public  
16 Service Commission Case No. PU-06-421.

17           This is a further hearing and in addition  
18 to hearings had for this case July 23, 2007, in  
19 Valley City, North Dakota, and on July 24, 2007, in  
20 Park River, North Dakota, which was continued to  
21 September 5, 2007, in Bismarck, North Dakota. The  
22 hearing for this matter was closed following the  
23 completion of the continued hearing on September 6,  
24 2007, but upon motions to intervene and reopen by  
25 the City of Fargo, North Dakota, the hearing was

1 reopened pursuant to the Commission's order entered  
2 November 7, 2007.

3 This further hearing is being held  
4 pursuant to the Commission's order for hearing on  
5 expedited notice and notice of further hearing on  
6 expedited time frame, each issued November 8, 2007.  
7 The order and notice provides that this further  
8 hearing is to allow the City of Fargo to provide  
9 evidence to the Commission regarding safety and  
10 public health issues relating to the water supply  
11 from Lake Ashtabula and the Sheyenne River.  
12 TransCanada Keystone, several intervenors and  
13 members of the public may respond to the evidence  
14 offered by the City of Fargo in accordance with the  
15 Commission's order, but no other evidence will be  
16 received.

17 For the record and for public information,  
18 I will conduct this further hearing as if Fargo  
19 were participating in any of the previous hearings  
20 which were held for this matter; that is, if Fargo  
21 had participated in any of the previous hearings,  
22 TransCanada would open and go forward with its  
23 evidence and then the intervenors would go forward  
24 with their evidence to respond. TransCanada and  
25 the intervenors have done that in these previous

1       hearings, so now at least, in my view of these  
2       proceedings, for this further hearing Fargo will go  
3       forward with an opening statement, if it wishes,  
4       and offer its evidence in response to the evidence  
5       which has previously been offered by TransCanada  
6       Keystone as it would have done if it had  
7       participated in any of the previous hearings.  
8       TransCanada and intervenors by their counsel may  
9       cross-examine Fargo's witnesses in turn followed by  
10      questions from the Commissioners, just as we did in  
11      the previous hearings.

12                Upon the completion of Fargo's offer of  
13      evidence, the intervenors may proceed with their  
14      response, and upon completion of the intervenors'  
15      response, TransCanada may proceed with its rebuttal  
16      evidence and close just as if it had been done in a  
17      previous hearing.

18                I plan to work as long as necessary today  
19      to complete Fargo's offer of evidence and the  
20      intervenors' response, as well as any testimony by  
21      any member of the public who would testify for this  
22      further hearing and would not be able to return  
23      tomorrow to do so. Having said that, I may  
24      continue the hearing rather longer than usual today  
25      depending upon TransCanada Keystone's advice for

1 what evidence it expects to offer tomorrow.

2 Before proceeding with the hearing today,  
3 I will ask the Commissioners for their comments and  
4 for any directions for this further hearing.  
5 Commission President Susan Wefald.

6 COMMISSIONER WEFALD: Good morning. I  
7 think it's time we get to work and so I'm going to  
8 limit my comments to that. I'm looking forward to  
9 a good hearing.

10 JUDGE WAHL: Commissioner Clark.

11 COMMISSIONER CLARK: I would just welcome  
12 everyone here this morning, as well. I do thank  
13 you for being here. I'm mindful of the fact as we  
14 start that there's been some disagreement both  
15 amongst the parties and even amongst the Commission  
16 about whether we should in fact be here today for  
17 hearing. I've been one of those who believe, that  
18 given the issues that have been raised, this is the  
19 best forum for vetting them out. It gives all the  
20 parties an opportunity to question witnesses and  
21 gives the Commission that opportunity, as well, and  
22 so I know I and fellow commissioners look forward  
23 to that opportunity to do that today.

24 I would also just like to give a special  
25 thanks to both TransCanada and the City of Fargo,

1 who raise these particular concerns, in expediting  
2 the schedule for this particular hearing and for  
3 making your witnesses available on a very short  
4 time frame. I wasn't sure that we would be able to  
5 pull it together quite this quick yet this month,  
6 but am very pleased that we have been able to do  
7 that. So I thank you both for making that extra  
8 effort to find the time that accommodates all  
9 sides. Thank you.

10 JUDGE WAHL: Commissioner Kevin Cramer.

11 COMMISSIONER CRAMER: Just good morning,  
12 welcome to everybody. We do have a lot of work to  
13 do, so let's get at it.

14 JUDGE WAHL: Thank you, Commissioners.  
15 The record will show that it is approximately 8:20  
16 a.m., November 27, 2007, the time and date noticed  
17 for a further hearing in Case No. PU-06-421, an  
18 application by TransCanada Keystone for a waiver of  
19 procedures and time schedules and consolidated  
20 applications for a certificate of corridor  
21 compatibility and a route permit authorizing  
22 construction of approximately 218 miles of 30-inch  
23 crude oil pipeline and associated facilities  
24 referred to as the Keystone Pipeline in Cavalier,  
25 Pembina, Walsh, Nelson, Steele, Barnes, Ransom and

1 Sargent Counties, North Dakota, regarding safety  
2 and public health issues relating to the water  
3 supply of the City of Fargo from Lake Ashtabula and  
4 the Sheyenne River.

5 We have been two preliminary matters which  
6 I need to take up at this time. First, we have  
7 Matthew Shimanek's appearance as associate counsel  
8 for Ms. Linderman, who appears pro hac vice for  
9 this further hearing. Mr. Shimanek has asked to  
10 make his appearance by telephone and I will do that  
11 now. Well, I may need some help actually.

12 Good morning, Mr. Shimanek. This is Al  
13 Wahl calling from the Public Service Commission  
14 hearing.

15 MR. SHIMANEK: Hello, Judge.

16 JUDGE WAHL: You are connected with the  
17 hearing room and with the streaming broadcast on  
18 the Internet. Mr. Shimanek, I have agreed to your  
19 request to appear initially as associate counsel  
20 for Ms. Linderman. Would you take a moment,  
21 please, to introduce Ms. Linderman to the  
22 Commissioners.

23 MR. SHIMANEK: Commissioners, my name is  
24 Matt Shimanek. I'm an attorney in Grand Forks,  
25 North Dakota. I'd like to introduce Jana Linderman

1 as a pro hac vice counsel for Dakota Resource  
2 Council. Ms. Linderman is an attorney that's  
3 licensed in the State of Iowa and she works  
4 currently for Plains Justice, a nonprofit  
5 organization there in Iowa, and she has agreed to  
6 assist the Dakota Resource Council's pro hac vice  
7 counsel in this matter and I would ask that the  
8 Commission allow her to represent Dakota Resource  
9 Council on its behalf for this hearing.

10 COMMISSIONER WEFALD: Could Ms. Linderman  
11 identify herself in the audience?

12 JUDGE WAHL: Ms. Linderman, would you  
13 stand up, please?

14 COMMISSIONER WEFALD: Thank you.

15 JUDGE WAHL: All right. Mr. Shimanek, you  
16 also have a request.

17 MR. SHIMANEK: I do have a request at this  
18 time, Judge Wahl. I would be requesting for leave  
19 to allow Ms. Linderman to appear without any  
20 assistance from me at this time as I've got other  
21 court matters that are pending currently, and I  
22 would just ask for leave to now be excused from  
23 these proceedings further.

24 JUDGE WAHL: Leave is granted.

25 MR. SHIMANEK: Thank you, Judge Wahl.

1           JUDGE WAHL: Anything further, Mr.  
2 Shimanek?

3           MR. SHIMANEK: No.

4           JUDGE WAHL: Thank you very much.

5           MR. SHIMANEK: Thank you.

6           JUDGE WAHL: Good-bye. We have also one  
7 other further matter. I have the motion and  
8 application for the pro hac vice admission of  
9 Patricia Madsen for this hearing for the  
10 representation of the City of Fargo. I have  
11 reviewed the motion and the application. The  
12 motion is granted. Ms. Madsen is admitted to  
13 practice pro hac vice for this hearing on -- for  
14 the representation of the City of Fargo for all  
15 further proceedings for this hearing. Ms. Madsen  
16 has designated Mr. Dingess as associate counsel.  
17 If you would introduce, please, briefly, Ms. Madsen  
18 to the Commission.

19           MR. DINGESS: Good morning, Your Honor. A  
20 point of protocol. Do you prefer that counsel rise  
21 to address the Commission?

22           COMMISSIONER WEFALD: No.

23           MR. DINGESS: Thank you. Since I'm  
24 standing, I will remain, though. I am John Dingess  
25 of the firm Duncan, Ostrander & Dingess, P.C. My

1 North Dakota bar license number is 06123. I'm  
2 pleased to appear before the Commission today and  
3 would like to introduce co-counsel, who holds the  
4 position of special counsel with my firm, Patricia  
5 A. Madsen.

6 JUDGE WAHL: All right. Proceeding then,  
7 counsel, please state your appearance for the  
8 record and identify for the record co-counsel. Mr.  
9 Kelsch.

10 MR. KELSCH: Thank you, Your Honor.  
11 Thomas D. Kelsch and Todd Kranda of Kelsch Kelsch  
12 Ruff & Kranda law firm. Also with us is Jim White.

13 JUDGE WAHL: Mr. Johnson.

14 MR. JOHNSON: Good morning. Erik Johnson,  
15 city attorney for Fargo, and with me is John  
16 Dingess, who you just heard from, and Pat Madsen,  
17 as well.

18 JUDGE WAHL: Ms. Linderman.

19 MS. LINDERMAN: Jana M. Linderman of  
20 Plains Justice, Cedar Rapids, Iowa.

21 JUDGE WAHL: And, Mr. Binek, and will you  
22 also identify staff of the Commission who is  
23 assisting you for this hearing?

24 MR. BINEK: My name is William Binek. I'm  
25 chief counsel for the Public Service Commission.

1 Seated to my right is Patrick Fahn, a public  
2 utility analyst with the Commission.

3 JUDGE WAHL: Is there anyone present other  
4 than those who will testify on behalf of the City  
5 of Fargo as intervenors by counsel or as witnesses  
6 for TransCanada Keystone -- any members of the  
7 public who are present who expect or who may offer  
8 any testimony for the -- for or against the  
9 application which is before the Commission today?  
10 Anybody other than Mr. Starke? I see Mr. Starke is  
11 here. Anybody else? Well, if there's anybody who  
12 isn't too sure and if, well, maybe they would offer  
13 testimony in the hearing, I would like to meet with  
14 you over the noon hour, please. When we recess for  
15 lunch, please stay so that I can talk to you about  
16 how you can present your testimony, when we would  
17 be able to do that and how that will be done.

18 Do -- counsel, is there any other  
19 preliminary matters before proceeding with the  
20 hearing? Anything else preliminarily, counsel?  
21 Mr. Kelsch?

22 MR. KELSCH: No, Your Honor.

23 JUDGE WAHL: Mr. Johnson?

24 MR. JOHNSON: Nothing further, no.

25 JUDGE WAHL: Ms. Linderman?

1 MS. LINDERMAN: No, Your Honor.

2 JUDGE WAHL: Mr. Binek?

3 MR. BINEK: No.

4 JUDGE WAHL: All right. Mr. Johnson, when  
5 you're ready.

6 MR. JOHNSON: Well, in terms of an opening  
7 statement, Your Honor, and Commissioners, I just  
8 have a brief statement. You've heard testimony  
9 principally from Keystone witnesses. We appreciate  
10 this opportunity to present the concerns that the  
11 City of Fargo has. We've had engineers working in  
12 the short time we've had to put together some  
13 analysis of how this pipeline might impact the City  
14 of Fargo and its water supply, and we just ask you  
15 keep an open mind and intend to present that  
16 information and appreciate that chance.

17 JUDGE WAHL: All right. Let's proceed  
18 with Fargo's evidence. Other counsel who would  
19 make an opening statement, let's do that at the  
20 beginning of your presentation.

21 MR. JOHNSON: City of Fargo would call  
22 Bruce Grubb to the stand.

23 JUDGE WAHL: If you would just have a seat  
24 at the witness stand there, please. Mr. Grubb,  
25 your testimony is required to be under oath and I'm

1 required by law to advise you regarding perjury  
2 before administering the oath. Perjury is a false  
3 statement of material fact which you do not believe  
4 to be true; in other words, generally speaking, a  
5 lie. In North Dakota perjury is a Class C felony  
6 punishable by a fine up to \$5,000, imprisonment for  
7 a period of up to five years, or both. Will you  
8 raise your right hand, please?

9 (Witness sworn.)

10 JUDGE WAHL: Mr. Johnson.

11 **BRUCE P. GRUBB,**

12 being first duly sworn, was examined and testified  
13 as follows:

14 **DIRECT EXAMINATION**

15 **BY MR. JOHNSON:**

16 Q. Your name is Bruce Grubb?

17 A. My name is Bruce Grubb.

18 Q. And what is your position with the City of  
19 Fargo?

20 A. My position is enterprise director for the  
21 City of Fargo.

22 Q. And would you just describe in general  
23 what that means?

24 A. The enterprise director has supervisory  
25 responsibility over the water utility, wastewater

1 utility and solid waste utility.

2 Q. And in terms of -- so you said solid  
3 waste. That would include what?

4 A. The solid waste utility would include  
5 garbage collection, solid waste disposal, city  
6 landfill, those types of sanitation services.

7 Q. And the other two are what?

8 A. Wastewater utility, which includes  
9 wastewater collection system and treatment. And  
10 then the water utility would include water supply,  
11 water treatment and water distribution.

12 Q. And the latter, that's what we're talking  
13 about today, water supply, water distribution --

14 A. That's correct.

15 Q. -- and treatment; is that right?

16 A. That is correct.

17 Q. How long have you been employed with the  
18 City of Fargo?

19 A. I've been employed with the City of Fargo  
20 since September of 1989.

21 Q. And how long have you been the enterprise  
22 director?

23 A. I started out as a civil engineer in the  
24 engineering office in 1989, worked in that capacity  
25 until 1996, then served as the city solid waste

1 utility manager from 1996 to 2000, and have served  
2 as enterprise director from 2000 to present.

3 Q. What's your educational background?

4 A. I've got a bachelor of science degree in  
5 civil engineering from North Dakota State  
6 University in 1985.

7 Q. Are you a professional engineer?

8 A. I am a licensed professional engineer in  
9 North Dakota.

10 Q. In terms of the water supply, could you  
11 just identify what you view as your supervisory  
12 roles in the water supply, distribution and  
13 treatment?

14 A. Well, as I mentioned, water supply is one  
15 of the water utility responsibilities, so ensuring  
16 that we've got an adequate, sustainable, reliable  
17 water supply so that we can produce water and serve  
18 our customers is one of the essential duties.

19 Q. And treatment, what does Fargo have by way  
20 of treatment facilities?

21 A. We've got a water treatment plant that is  
22 about 10 years old now, actually came on line back  
23 in May of 1997.

24 Q. We'll come back to that a little bit  
25 later. Now, in terms of the water sources for

1 water supply, what are -- what does the City of  
2 Fargo use as a water source for its needs?

3 A. We have three water supply sources  
4 currently, the Red River, Lake Ashtabula and the  
5 Sheyenne River.

6 Q. And does the city have permits for use of  
7 those three sources of water?

8 A. We do have permits for all three sources.

9 Q. Hand you what's been marked as Fargo  
10 Exhibit 1. Can you tell us what that is?

11 A. The top sheet or cover sheet is a summary  
12 of all of the water permits that the City of Fargo  
13 currently holds. Attached to this cover/summary  
14 sheet are actual copies of our water permits.

15 MR. JOHNSON: And so -- offer Exhibit 1.

16 JUDGE WAHL: Mr. Kelsch?

17 MR. KELSCH: No objection.

18 JUDGE WAHL: Ms. Linderman?

19 MS. LINDERMAN: No objection.

20 JUDGE WAHL: Mr. Binek?

21 MR. BINEK: I haven't seen it, but I don't  
22 believe I have any objection.

23 MR. JOHNSON: Oh, I'm sorry.

24 MR. BINEK: I have no objection.

25 JUDGE WAHL: Exhibit 1 is received.

1           MR. JOHNSON: And, Your Honor, I tried to  
2 bring copies. I'm not sure how many I'll need if  
3 I'm going to publish these documents, but I tried  
4 to bring a number of copies, anyway, for counsel  
5 and the Commissioners.

6           Q. (MR. JOHNSON CONTINUING) Mr. Grubb, I see  
7 from the first item here the priority date for the  
8 Red River is 1957; is that right?

9           A. That is correct.

10          Q. I assume the City of Fargo was using water  
11 from the Red River prior to that date, but that's  
12 the date of the permit?

13          A. Before my birth, but I assume that we  
14 were. That is the date of issuance of the permit.

15          Q. And the next item in terms of priority is  
16 a 1963 issue date for storage in Lake Ashtabula; is  
17 that right?

18          A. That's correct.

19          Q. Let's talk about Ashtabula. You mentioned  
20 the three sources are Red River, Ashtabula and the  
21 Sheyenne. We all kind of know that Ashtabula and  
22 the Sheyenne are linked together, Ashtabula is a  
23 lake formed by a dam in the Sheyenne River. What's  
24 the difference between our permit for Ashtabula and  
25 the permit for Sheyenne?

1           A.     The permit for the Sheyenne River is for  
2 normal or ordinary flows in the Sheyenne River.  
3 The Lake Ashtabula permit is for stored water held  
4 behind Baldhill Dam.

5           Q.     All right. Now, there are double  
6 asterisks on the right next to that and it refers  
7 down to the bottom chart. It says Ashtabula  
8 Thompson/Acker plan. What was the Thompson/Acker  
9 plan and what does that mean?

10          A.     Well, back in the late '50, early '60s  
11 when Baldhill Dam was constructed, there was a  
12 local cost share involved with the construction of  
13 that dam. On this table you can see the entities  
14 that participated in funding that local cost share.  
15 The City of Fargo at that time funded 56.1 percent  
16 of the local cost share for construction of the  
17 dam, and as a result, Fargo acquired the rights to  
18 56.1 percent of the stored water in Lake Ashtabula.

19          Q.     And you mentioned that the Sheyenne River  
20 permit is for the ordinary flows. If the city  
21 needed to access water behind Baldhill Dam, the  
22 stored water, how would it go about obtaining that?

23          A.     In that situation, we would make a formal  
24 request to the State Engineer, because the State  
25 Engineer's Office does permit, allocate that water

1 stored in Lake Ashtabula. The State Engineer then  
2 would make a request to the United States Army  
3 Corps of Engineers to release that water because  
4 the Corps of Engineers operates Baldhill Dam.

5 Q. Then just for purpose of explanation, the  
6 final item is the industrial water permit, Red  
7 River surface water and Fargo wastewater treatment  
8 plant. That's a recent date here in 2007. What  
9 was the reason for that permit?

10 A. That's an industrial water permit that we  
11 acquired earlier this year to take treated  
12 wastewater -- reclaimed wastewater and provide that  
13 to an ethanol plant as a water supply.

14 Q. Do all of the sources of water for Fargo,  
15 namely, the Sheyenne, Red River and, of course,  
16 then Ashtabula, do they all get treated at the same  
17 water treatment plant?

18 A. Yes, they do.

19 Q. Show you what's been marked as Fargo  
20 Exhibit 3. Tell us what that is.

21 A. That's an aerial photograph of our present  
22 water treatment facility.

23 MR. JOHNSON: Offer Exhibit 3.

24 MR. KELSCH: No objection.

25 JUDGE WAHL: Ms. Linderman?

1 MS. LINDERMAN: No objection.

2 JUDGE WAHL: Mr. Binek?

3 MR. BINEK: No objection.

4 JUDGE WAHL: Exhibit 3 is received.

5 Q. (MR. JOHNSON CONTINUING) Where in -- is  
6 that located in the City of Fargo?

7 A. That is located in the City of Fargo on  
8 13th Avenue South -- between 13th and 14th Avenue  
9 South at the Red River.

10 Q. I think you indicated that was constructed  
11 in the early 1990s, going into service in 1997; is  
12 that right?

13 A. That is correct.

14 Q. And it was constructed next-door to the  
15 old water treatment plant, the previous one; is  
16 that right?

17 A. That's correct.

18 Q. Now, I think you can even see in the  
19 photograph that just to -- on the east side, to the  
20 right side of the photograph, is a -- it looks like  
21 a body of water. That's the Red River; is that  
22 right?

23 A. That is correct.

24 Q. A stone's throw away, so to speak?

25 A. Correct.

1 Q. And so it's close to the Red River and  
2 draws -- you draw some water from the Red River; is  
3 that right?

4 A. That is correct.

5 Q. The Sheyenne River is how far away,  
6 approximately?

7 A. Approximately seven miles.

8 Q. And how -- how do you get water from the  
9 Sheyenne, if you're going to use that, to this  
10 water treatment plant?

11 A. We do have a pipeline extended directly  
12 from the water treatment plant out to the Sheyenne  
13 River.

14 Q. And the inlet for that is located where?

15 A. On the south side of what we call 52nd  
16 Avenue South in Fargo, right at the Sheyenne River.

17 Q. Now, as part of your job, do you -- your  
18 responsibilities include making plans for future  
19 water needs of the City of Fargo?

20 A. Yes, they do.

21 Q. And do you do that in conjunction with  
22 other staff members at the city?

23 A. Yes.

24 Q. What is the City of Fargo doing relative  
25 to its needs for future water supply?

1           A.     With respect to water supply, as I  
2 mentioned earlier, it dates back to the late '50s,  
3 early '60s with the construction of Baldhill Dam,  
4 and through our cost participation in that project,  
5 we acquired rights to stored water behind Baldhill  
6 Dam. In addition to that, in the early '90s we  
7 acquired a permit for the -- I guess it's closer to  
8 the mid '90s, acquired a permit on the Sheyenne  
9 River as an alternative to the Red River, and, of  
10 course, we've done these things to try and ensure  
11 that we have a reliable, sustainable water supply  
12 not just today, but into the future, as well.

13           Q.     Have you determined as a result of  
14 whatever studies you've taken to what extent the  
15 Red River, the Sheyenne, or both, will adequately  
16 provide for future water needs for Fargo?

17           A.     Well, we have. We've utilized some  
18 consultants to do that type of research work for  
19 us, and based on historic flows in the Red and  
20 Sheyenne Rivers, we've convinced ourselves that  
21 certainly under drought conditions that the -- if  
22 history repeats itself, that both the Sheyenne and  
23 Red Rivers may be lacking an adequate water supply  
24 to meet not only today's needs, but future needs of  
25 our community, as well.

1 Q. Hand you what's been marked as Fargo  
2 Exhibit 2, Mr. Grubb. Can you tell us what that  
3 is, please?

4 A. Yes. This is a chart that was prepared by  
5 one of our consulting engineers, and what this  
6 chart shows are seven-day duration low flows on the  
7 Red River on an annual basis. In other words, this  
8 chart represents in any one-year period the  
9 seven-day extent of lowest recorded flows on the  
10 Red River.

11 Q. And have you used this diagram, chart as a  
12 planning tool for the future?

13 A. Well, we do use this as a planning tool.

14 COMMISSIONER WEFALD: May we see a copy of  
15 the exhibit?

16 MR. JOHNSON: I'll offer it for admission  
17 in a moment here.

18 COMMISSIONER WEFALD: All right.

19 THE WITNESS: This chart identifies  
20 roughly a hundred years of record, and we've been  
21 advised that the likelihood of Red River  
22 performance repeating this in the future is quite  
23 high, so we utilize this as a planning tool.

24 MR. JOHNSON: Offer Exhibit 2.

25 JUDGE WAHL: Mr. Kelsch?

1 MR. KELSCH: No objection, Your Honor.

2 JUDGE WAHL: Ms. Linderman?

3 MS. LINDERMAN: No objection.

4 JUDGE WAHL: Mr. Binek?

5 MR. BINEK: No objection.

6 JUDGE WAHL: Exhibit 2 is received.

7 Q. (MR. JOHNSON CONTINUING) Mr. Grubb, I  
8 brought with me a larger formatted version of the  
9 same thing. I might have to ask you a few more  
10 detailed questions about this, and it might be  
11 easier if you stand over on this side.

12 COMMISSIONER WEFALD: But he won't have  
13 the mike.

14 MR. JOHNSON: Sit to the side. There you  
15 go.

16 Q. (MR. JOHNSON CONTINUING) All right.  
17 Referring to Fargo Exhibit 2, Mr. Grubb, what is  
18 the jagged lines that go up and down?

19 A. Well, the irregular, solid black line  
20 represents flow on the Red River based on a  
21 seven-day average annual low flow -- recorded low  
22 flow.

23 Q. And I see on the lower right-hand corner  
24 it says 2000, and does that go up to about 2006; is  
25 that right?

1           A.     That goes up to 2003 on this chart.

2           Q.     All right.  And then going back in time,  
3 it goes back to something like 1902; is that right?

4           A.     It looks like 1902.

5           Q.     So those are the recorded low flows as you  
6 suggest of the past hundred or so years?

7           A.     Correct.

8           Q.     And then there's a green line that runs  
9 horizontally close to the bottom of the chart.  
10 What does that green line represent?

11          A.     Well, to utilize this as a planning tool,  
12 what we've -- what's been done is the horizontal  
13 green line has been overlaid on the Red River flow  
14 data.  That horizontal green line represents the  
15 average daily water use in Fargo today of 12  
16 million gallons per day.  And so we utilized that  
17 to look at historically have there been periods  
18 where the Red River has not had an adequate supply  
19 of water to meet our needs.

20          Q.     All right.  So let's talk about the  
21 average.  You're saying the City of Fargo under its  
22 current situation average for the year is 12  
23 million gallons use per day?

24          A.     Based on a 365-day year, the average daily  
25 use is 12 million gallons per day, correct.

1 Q. And do you have a sense as to the range of  
2 daily usage of water that Fargo experiences in the  
3 course of a year?

4 A. Since our new water plant has gone on  
5 line, the peak day that we've experienced is 23  
6 million gallons per day. The minimum that we  
7 generally see in the winter months, February, has  
8 ranged between 8 and 9.

9 Q. Okay. So looking at the green line --  
10 again, the green line represents the City of  
11 Fargo's current average use of water and the jagged  
12 line shows the low flows in the river for the past  
13 hundred or so years; is that right?

14 A. Correct.

15 Q. And what does that chart reveal then --  
16 using this as a planning tool, what does that chart  
17 reveal to us relative to our current average usage?

18 A. Well, as you look at this chart, you can  
19 see where the irregular, solid black line drops  
20 below the green line, that's an indication that if  
21 history repeats itself, at some point in the future  
22 the Red River would lack an adequate amount of  
23 water to meet Fargo's current average daily needs.

24 Q. As an example, we look at the drought of  
25 the 1930s. Has that experience been used as sort

1 of an example of a past drought condition that  
2 might occur in the future?

3 A. Well, we certainly understand that the  
4 likelihood of a 1930s type of drought occurring  
5 again is extremely likely, so that's kind of what  
6 we use as the basis for planning.

7 Q. And so looking at this chart, as I see it  
8 starting in actually about 1929, the low flow dips  
9 at or below the current 12 million gallon water  
10 flow; is that right?

11 A. That's correct.

12 Q. And that continued until just after 1941,  
13 it looks like; is that right?

14 A. That's correct.

15 Q. Similarly, more recently there appears to  
16 be a dip in about 1976, 1977; is that right?

17 A. That's correct.

18 Q. And another one in the late '80s where the  
19 flows of the Red River went down as low as 12  
20 million gallons per day; is that right?

21 A. Correct.

22 Q. Now, that's our current flows. What is  
23 the black line, the next line up from the green  
24 line?

25 A. The black horizontal line above the

1 horizontal green line represents our water  
2 treatment plant's peak production capacity of 30  
3 million gallons per day. So at some point in the  
4 future we assume that water use in Fargo, based on  
5 population growth, will continue to increase where  
6 we'll get to a peak daily use of 30 million gallons  
7 per day, so we use that as a future water demand  
8 planning tool.

9 Q. Now, let's talk about the growth of Fargo.  
10 Have you and other representatives of Fargo looked  
11 at expected growth pattern for the City of Fargo?

12 A. We have. And what we've used is the  
13 historic growth trends in Fargo. Over the past 20  
14 to 25 years Fargo's population has grown at a  
15 relatively consistent rate of 2 percent per year,  
16 so we've used that and projected that forward. In  
17 doing that, we've estimated a potential population  
18 in Fargo of better than 240,000 by the year 2050.

19 Q. Less than 50 years from now?

20 A. Less than 50 years from now.

21 Q. And in terms of the current capacity of  
22 the water plant, I think you said current average  
23 is 12 million, peak has been in the 24-million-  
24 gallon-per-day range, the current maximum capacity  
25 of the plant is 30 million gallons per day?

1           A.     The peak production capacity of the plant  
2 today is 30 million gallons per day.

3           Q.     I assume this is true, but as population  
4 goes up, it's a logical conclusion that the demand  
5 for water would go up; is that right?

6           A.     That is correct.

7           Q.     And are there projections as to when the  
8 Fargo water treatment plant will have to be sort of  
9 amended to increase its capacity?

10          A.     When the plant was built, it was built to  
11 be expandable to 45 million gallons per day. There  
12 was sufficient space and some infrastructure  
13 installed at the time of original construction of  
14 the plant, so it is expandable to 45 million  
15 gallons per day. We, based on future population  
16 projections, think that could occur as early as  
17 about the year 2013.

18          Q.     Now, back to Exhibit 2, again, we were  
19 talking about the black line. That's the line  
20 representing the current maximum capacity of the  
21 plant at 30 million gallons per day. So what does  
22 that show relative to the flows -- the possible low  
23 flows of the Red River?

24          A.     Well, once again, if history on the Red  
25 River repeats itself, if our demands are greater

1 than they are today in the future, it just makes  
2 the frequency and duration of inadequate flows in  
3 the Red River that much more likely.

4 Q. And if flows in the Red River are  
5 inadequate, what does the City of Fargo do to  
6 obtain its needed water supply?

7 A. Generally what we do then is look to our  
8 Sheyenne River permit, which we acquired as an  
9 alternative to the Red River for just those type of  
10 cases related to water quantity or water quality.

11 Q. And the blue line at the top represents --  
12 the horizontal blue line at the top above the black  
13 line represents the 45-million-gallon capacity.  
14 That's the possible future capacity of the water  
15 plant if it's added to?

16 A. That's the future expanded peak capacity  
17 of the water treatment plant.

18 Q. Now, Mr. Grubb, are you familiar with  
19 something called the Red River Valley Water Supply  
20 Project?

21 A. Yes, I am.

22 Q. What is that project?

23 A. The Red River Valley Water Supply Project  
24 is a project to bring Missouri River water to  
25 eastern North Dakota.

1 Q. And just generally, how would water be  
2 brought from the Missouri?

3 A. Well, at this point the state's preferred  
4 alternative to accomplish that is utilizing the  
5 McClusky Canal -- a pipeline connection between the  
6 McClusky Canal and Lake Ashtabula and then a  
7 release from Lake Ashtabula into the Sheyenne  
8 River.

9 Q. So the pipeline dumps into the northern  
10 part of Lake Ashtabula?

11 A. That's correct.

12 Q. And is the City of Fargo a participant in  
13 that project?

14 A. Yes, we are. Because we are one of the  
15 water systems in eastern North Dakota that would  
16 utilize project water as a water supply, we are  
17 participating in that as a member -- actually a  
18 voting member of the Lake Agassiz Water Authority.  
19 The Lake Agassiz Water Authority is a legislatively  
20 established group representing the potential water  
21 users in eastern North Dakota.

22 Q. And so the City of Fargo has had input  
23 through Lake Agassiz Water Authority, and we  
24 commonly call it LAWA -- through LAWA to  
25 participate in this possible project?

1           A.     That's correct.

2           Q.     And does the City of Fargo -- have they  
3 invested financially into this project, into LAWA?

4           A.     Through LAWA the City of Fargo and the  
5 Garrison Diversion Conservancy District have agreed  
6 to a 50-50 cost share for expenses related to  
7 preliminary engineering, research, investigative  
8 efforts related to this project. So to date  
9 through that 50-50 cost share agreement, the City  
10 of Fargo has spent about \$300,000.

11          Q.     And based on the current model that's  
12 being projected for this project, do you have a  
13 sense as to the estimated cost the City of Fargo,  
14 itself, will invest into this project?

15          A.     We do. Based on the latest preliminary  
16 construction cost estimates and Fargo's likely  
17 nomination from water from that project, the  
18 financial model shows our contribution to be in the  
19 neighborhood of a hundred million dollars.

20          Q.     Now, we're going to hear a little bit more  
21 about this project from Dave Koland from Garrison  
22 Conservancy District, but we've talked about the  
23 sources of water for Fargo currently being Red  
24 River, Sheyenne and Ashtabula. Is there a concern  
25 that those won't meet future needs?

1           A.     There is.  As part of the Red River Valley  
2 Water Supply Project, drought scenario and surface  
3 water modeling work that Dave Koland can probably  
4 speak to a little more eloquently, it's indicated  
5 that the Red River Valley -- both the Red River and  
6 Sheyenne River in a 1930s-type drought would lack  
7 adequate water to meet the needs of the valley, and  
8 thus the project to try and utilize Missouri River  
9 water in that situation.

10          Q.     Now, you've talked a little bit about the  
11 plant.  By the way, do you know what the  
12 construction cost of the plant was -- or Fargo  
13 water treatment plant?

14          A.     Yes.  The water treatment plant and the  
15 related ancillary facilities, right in the  
16 neighborhood of \$66 million.

17          Q.     And to your knowledge, is that a  
18 state-of-the-art water treatment facility?

19          A.     Yes, it is.

20          Q.     Now, this case is about the concerns Fargo  
21 has expressed for impact on the City of Fargo's  
22 drinking water in the event of a crude oil spill.  
23 Do you know how Fargo's water treatment plant would  
24 be impacted by a crude oil spill if it got into the  
25 City of Fargo?

1           A.     Well, I'm not an expert in that area.  
2     Since our current water treatment plant has begun  
3     operation, we've not had a situation where we've  
4     gotten crude oil or petroleum products into the  
5     treatment plant, itself.  It's my understanding  
6     that that's something that we don't want for  
7     probably obvious reasons, but it's my understanding  
8     that part of the problem is that --

9           MR. KELSCH:  Your Honor, I'm going to  
10    object.  He's just testified he's not an expert in  
11    how this would affect it, so I don't believe he's  
12    qualified to testify.

13           JUDGE WAHL:  Mr. Johnson.

14           MR. JOHNSON:  I can -- I'll just ask him  
15    to explain his background a little bit in this  
16    regard.

17           JUDGE WAHL:  The objection is sustained.

18           Q.     (MR. JOHNSON CONTINUING)  Mr. Grubb,  
19    you've just indicated you're not an expert in how  
20    crude oil affects the water treatment process; is  
21    that right?

22           A.     That's correct.

23           Q.     You do have sort of supervisory authority  
24    over the water plant; is that right?

25           A.     That's correct.

1 Q. Do you have general knowledge as to, you  
2 know, do's and don'ts relative to water treatment  
3 in some respects?

4 A. That's correct.

5 Q. Is that what your answer was intended to  
6 direct itself toward, general concepts of how the  
7 water treatment plant --

8 A. I was going to speak on an extremely  
9 general basis and not get into the effect on  
10 specific plant processes.

11 Q. Are you aware of the -- you know, sort of  
12 what the protocol might be in the event of an oil  
13 spill based on what somebody -- other experts have  
14 told you; in other words, what you would do if  
15 there were an oil spill?

16 A. Yes.

17 Q. And what would you do if there were an oil  
18 spill?

19 MR. KELSCH: Your Honor, again, I'm going  
20 to object to what other experts have told him. I  
21 think that that's -- we're getting into hearsay.

22 JUDGE WAHL: Overruled. I think the -- I  
23 think the witness can testify as to his supervisory  
24 operation of the facility.

25 Q. (MR. JOHNSON CONTINUING) Do you remember

1 the question?

2 A. Well, it's my understanding that the  
3 effect of petroleum products would be to -- the  
4 biggest problem it would present to us is it would  
5 coat the various pieces of process equipment  
6 throughout our treatment train, which would require  
7 that we take the plant off line to clean that  
8 before we can start producing water again.

9 Q. And if you knew the oil spill were coming,  
10 would you have a protocol for handling that?

11 A. Well, generally in that case, we would.  
12 The first thing that we would try to do is look to  
13 our alternate water supply source. Secondly, with  
14 sufficient advance notice, we'd try to take  
15 whatever steps we could to try and keep the  
16 unwanted product out and allow water to continue to  
17 come into the plant.

18 Q. In other words, if you knew oil was coming  
19 down the Sheyenne River, you'd do something to  
20 prevent that Sheyenne River water containing the  
21 bad stuff from getting into the plant; is that  
22 right?

23 A. That's correct.

24 Q. If the Red River were flowing, you'd go to  
25 the Red River and use water for Fargo's water

1 needs?

2 A. That's correct.

3 Q. And if the Red River were not flowing  
4 because of a drought condition, what would the City  
5 of Fargo do then?

6 A. Well, if the Red River weren't available  
7 to us, we'd have to take whatever measures we could  
8 to try and keep the unwanted product out of the  
9 plant and still be able to allow water in. If that  
10 wasn't possible, we would have to shut the plant  
11 down.

12 Q. All right. And so if you're shutting the  
13 plant down, there's no way of treated water getting  
14 into the distribution system other than what you  
15 have stored; is that right?

16 A. Other than what we have stored.

17 Q. What is the amount of storage that the  
18 City of Fargo has?

19 A. We have a 6-and-a-quarter-million-gallon  
20 finished water storage reservoir immediately  
21 adjacent to the north of the water treatment plant.

22 Q. Hold on just a second, Mr. Grubb. As long  
23 as we have this picture, referring to Fargo Exhibit  
24 3, the photograph of the water treatment plant,  
25 there's an elevated area there that's just to the

1 north of the plant and then the topside of the  
2 picture. Is that the 6-and-a-quarter-million-  
3 gallon storage plant --

4 A. Yes, it is.

5 Q. -- or storage facility? And what other  
6 storage does the City of Fargo have?

7 A. We also have elevated water storage tanks,  
8 water towers, out in the distribution system.  
9 We've got a total of nine of those towers with a  
10 storage capacity -- combined storage capacity of 5  
11 and a half million gallons.

12 Q. So that math adds up to -- if all of those  
13 are filled with water, what's the total storage  
14 capacity in the city?

15 A. 11 and three-quarter million gallons.

16 Q. And the current -- and I think we've  
17 already said the current average needs are 12  
18 million gallons per day; correct?

19 A. That is correct.

20 Q. And so if you were using average water  
21 supply, the city's daily average consumption would  
22 consume the total storage of the City of Fargo --

23 A. That's correct.

24 Q. -- in one day?

25 A. That's correct.

1 Q. Now, does the city have in place  
2 procedures in the event of a drought or other thing  
3 that would require restrictions on water supply?

4 A. Well, certainly in that type of situation,  
5 we would issue emergency water use restrictions.  
6 In our drought management plan we've quantified or  
7 estimated that we could reduce water use by 35 to  
8 40 percent in an emergency water restriction use  
9 scenario. So if we were able to achieve that, that  
10 would provide -- our storage capacity would provide  
11 us with one to two days of water supply.

12 MR. JOHNSON: No further questions.

13 JUDGE WAHL: Mr. Kelsch.

14 MR. KELSCH: Thank you, Your Honor.

15 **CROSS-EXAMINATION**

16 **BY MR. KELSCH:**

17 Q. Mr. Grubb, Fargo's primary water intake  
18 currently is the Red River --

19 A. That's correct.

20 Q. -- intake? The intake from the -- this  
21 intake is -- on the Red River is, as you call it,  
22 upriver from where the Sheyenne comes into the Red  
23 River; is that correct?

24 A. That's correct.

25 Q. When is the last time that Fargo actually

1 took water from the Sheyenne River, if you know?

2 A. That would have been earlier this spring,  
3 I believe.

4 Q. Now, you mentioned that Fargo has a permit  
5 for stored water behind Baldhill Dam, Lake  
6 Ashtabula I guess we've been calling it in this  
7 proceeding. In order for that water -- for Fargo  
8 to use that water -- I guess maybe back up. To  
9 date has Fargo applied to the State Engineer and  
10 the U.S. Corps of Engineers requesting the use of  
11 any of that stored water?

12 A. That has happened historically.

13 Q. And when did that happen?

14 A. I am not sure what the date was -- what  
15 the specific date was.

16 Q. And in order to get that water from Lake  
17 Ashtabula to Fargo's intake, it would go through  
18 the Sheyenne River; is that right?

19 A. It would go through the Sheyenne River and  
20 be picked up at our Sheyenne River intake.

21 Q. Now, the distance from the Baldhill Dam or  
22 the base of the Baldhill Dam to the -- Fargo's  
23 intake on the Sheyenne River river miles is  
24 approximately 236 miles?

25 A. I'm not sure about that, what the river

1 miles are.

2 Q. Do you know how long it takes the water to  
3 get from there to --

4 A. In a general sense, it takes about 14  
5 days.

6 Q. So from the base of the dam, if you were  
7 taking some out of the -- out of the -- I guess if  
8 you were using your Lake Ashtabula permit and the  
9 Corps started to release -- the State Engineer and  
10 the Corps started to release water, it would be  
11 about 14 days before you would get the water?

12 A. Yeah. It's a direct function of velocity,  
13 of course, but during normal average flows we  
14 figure about 14 days, correct.

15 Q. Now, you said you thought you used the  
16 Sheyenne River intake this spring. Do you recall  
17 the reason for that?

18 A. Yes, I do. It was not a water quantity  
19 issue. It was a water quality issue. When the  
20 Corps of Engineers routinely in the spring  
21 discharges water from Lake Traverse on the Red  
22 River, we deal with taste and odor issues, so the  
23 Sheyenne River water is preferable water for us to  
24 treat.

25 Q. Now, on those taste and odor issues, does

1 the plant have carbon filters, those type of  
2 things, that help take that out?

3 A. Yes, we do.

4 Q. Now, do those -- and just in your general  
5 knowledge or perhaps what these other experts have  
6 told you about petroleum getting into the system or  
7 petroleum by-products getting into the system,  
8 would that carbon-based, I guess, material impact  
9 or take out some of the BTEX compounds, for  
10 example?

11 MR. JOHNSON: Objection, lack of  
12 foundation. If he knows, I guess.

13 JUDGE WAHL: You may answer the question.

14 THE WITNESS: I'm not quite certain on  
15 that.

16 Q. (MR. KELSCH CONTINUING) Now, when you  
17 were talking about, again, in this general -- I  
18 don't mean to go any farther than what you  
19 testified on cross, but in the general nature of  
20 petroleum getting into the system, were you talking  
21 about the actual petroleum product getting into the  
22 system, the crude oil, or were you talking about  
23 the BTEX compounds getting into the system?

24 A. I was talking about petroleum products in  
25 its broadest sense.

1 Q. Okay. And that's what would coat your  
2 system that you might have to clean off?

3 A. That's my understanding, yes.

4 Q. Now, can -- because the water is coming  
5 from a pipe from the Sheyenne River, I'm guessing  
6 the -- not guess -- but can Fargo change sources  
7 basically almost instantaneously, we're going to  
8 take it from the Red River, now we're going to take  
9 it from the Sheyenne River?

10 A. Not instantaneously. If we're drawing  
11 water from the Red River, to switch over to the  
12 Sheyenne River takes us about four hours because  
13 the Sheyenne intake obviously is further away from  
14 the plant. To switch from the Sheyenne River over  
15 to the Red is less time than that because the  
16 intake is located right at the plant.

17 Q. So the difference is you have to pump it  
18 that -- those whatever, seven miles?

19 A. Yeah, we need to -- generally we like to  
20 purge the stagnant water out of the line and then  
21 fully charge it to the plant.

22 Q. But if there was some contaminant coming  
23 down the Sheyenne River, you pretty much could  
24 instantaneously shut that off and go to the Red  
25 River system?

1           A.     We could.

2           Q.     Mr. Grubb, are you aware that there is  
3 currently a petroleum pipeline, I believe it may be  
4 Cenex, that is going underneath the Lake Ashtabula  
5 right now?

6           A.     I have a general knowledge of that, yes.

7           Q.     Has the -- I guess I'm talking about the  
8 City of Fargo -- the water treatment part of the  
9 City of Fargo taken any precautions or adopted any  
10 procedures because that pipe -- petroleum pipeline  
11 is below a potential water source for the city?

12          A.     No specific procedures related  
13 specifically to that pipeline.

14          Q.     Are you aware, are there any other  
15 petroleum pipelines located, I guess it would be,  
16 upstream, crossing the Red River?

17          A.     Not aware.

18          Q.     Now, you have -- has Fargo -- I can't  
19 recall exactly. You said you've been in charge of  
20 the water treatment plant for how long now?

21          A.     I've been the enterprise director since  
22 2000.

23          Q.     Has Fargo had any -- adopted any water  
24 restrictions during that time?

25          A.     We have. We adopted a drought -- a

1 drought management plan, yes, and we have utilized  
2 that to go to a stage 2 drought restriction  
3 previously on one occasion.

4 Q. And what was the cause of that?

5 A. The cause of that was low flow in both the  
6 Red and Sheyenne Rivers and indications from the  
7 Corps of Engineers that they may be further  
8 restricting outlets to the Red River.

9 Q. Now, of course, one of the things you  
10 talked about is the -- I guess, the '30s flow, your  
11 Exhibit No. 2 that showed, I guess, about a hundred  
12 years of flow on the Red River. Do you have that  
13 same type of estimate or flow on the Sheyenne  
14 River?

15 A. We do not have that available.

16 Q. In a general drought condition, I'm  
17 guessing the Sheyenne River is also going to have  
18 some problems with flow, as well?

19 A. We would expect that, yes.

20 Q. And the one permit that you do have for  
21 the Sheyenne River, not talking about the stored  
22 water, that has limits for what the City of Fargo  
23 can take depending upon the flow; is that right?

24 A. That's correct.

25 Q. I believe with the conditional water -- or

1 the amendment to it, there has to be at least 25  
2 cfs -- it's in Fargo Exhibit 1, if you have it in  
3 front of you -- 25 cfs, then Fargo can't take  
4 anything; is that correct?

5 A. That's correct.

6 Q. Now, I guess, looking at, if you have it  
7 in front of you, that Exhibit 2, the annual  
8 duration seven-day low flow, now, this -- as I  
9 understand your definition or your explanation of  
10 this exhibit, this is just -- where these peaks go  
11 down, that's just showing that at least once in  
12 that year there was a seven-day duration where  
13 there was a low flow; is that correct?

14 A. That's correct.

15 Q. So it's not saying for a whole year, for  
16 example, or even in the '30s for maybe eight years  
17 that there wasn't any flow in the Red River?

18 A. No. It's the lowest recorded flow over a  
19 seven-day period in that year.

20 Q. So there could be -- where there is a peak  
21 down there, there could be one seven-day period  
22 that --

23 A. Correct.

24 Q. How many times since, I guess, you have  
25 been involved in the water treatment plant has the

1 City of Fargo used the Sheyenne River intake?

2 A. Since I've been involved, I'm not familiar  
3 with the precise number of times. I would guess a  
4 dozen in my 10-year period. However, we recently  
5 started using it on a more routine basis to blend  
6 with Red River water also as a planning tool to  
7 prepare ourselves for future needs.

8 Q. Now, you talked about the storage  
9 capacity. Is Fargo currently constructing or in  
10 the process of constructing any additional  
11 reservoir?

12 A. Yes, we are. We do have one additional  
13 elevated water tower, just started construction on  
14 this fall.

15 Q. And when is that expected to be completed?

16 A. That's expected to be complete in February  
17 of 2009.

18 Q. And how much additional capacity will that  
19 hold?

20 A. One million gallons.

21 Q. There was some talk about new water -- I  
22 guess, on Exhibit 2 there was talk about new water  
23 plant capacity. Is there a new water plant  
24 proposed to be or is it in the works to be  
25 constructed?

1           A.     At this point in time, as I mentioned  
2           earlier, we've got a peak production capacity at  
3           our plant of 30 million gallons per day. Our peak  
4           demand hasn't reached that yet. Once we think that  
5           it will, we will expand the current plant to add a  
6           third again additional capacity; in other words, to  
7           expand the peak capacity from 30 to 45 million  
8           gallons per day. Based on our projections at this  
9           point in time, we think that that could occur  
10          around the year 2013.

11          Q.     Now, what -- I know there are some  
12          standards for -- or I would assume there are some  
13          standards for water treatment plants and storage  
14          capacity. What's the recommended standard for  
15          storage capacity for a city as compared to the  
16          daily usage?

17          A.     Well, we have as part of an infrastructure  
18          master plan plans to add additional storage  
19          capacity. What the -- specifically the state  
20          standards or ISO recommended storage capacity is, I  
21          don't have that available to give you right now,  
22          but we do have plans over the next 25 years to add  
23          four one-million-gallon water towers, primarily to  
24          serve the growing southern portion of the city.

25          Q.     So you're not familiar, they don't

1 recommend having more than one-day storage, or is  
2 that normal?

3 A. I'm not familiar with that.

4 Q. Now, looking at, again, Exhibit 2, you  
5 said that, you know, another drought similar to the  
6 '30s is likely. Is this a -- how often is that  
7 likely? A hundred-year event; is that a fair  
8 statement?

9 A. Through our participation in the Red River  
10 Valley Water Supply Project, from Fargo's  
11 perspective, they've indicated that it's likely,  
12 could be as early as next year or as late as a  
13 hundred years. But from a planning perspective,  
14 we're trying to prepare ourselves for that as  
15 quickly as we can.

16 Q. If this Red River water system -- Red  
17 River Valley Water Supply Project goes -- well,  
18 what's the status of it? At this point you're just  
19 in -- I guess looking at engineering on it; is that  
20 right?

21 A. Well, the status of the Red River Valley  
22 Water Supply Project at this point is the  
23 environmental impact statement. They're waiting  
24 for the record of decision, I believe. I would  
25 defer that comment to Dave Koland with Garrison

1 Diversion Conservancy District, but I believe  
2 they're just waiting for the record of decision on  
3 the EIS.

4 Q. Now, did you have any personal involvement  
5 in that EIS?

6 A. We had the opportunity to review that,  
7 yes.

8 Q. Who prepared that? The Conservancy  
9 District would have prepared that for the city?

10 A. The Bureau of Reclamation as part of the  
11 federal project.

12 Q. Do you know whether the City of Fargo  
13 indicated that Keystone -- the Keystone Pipeline or  
14 the proposed Keystone Pipeline or the other  
15 pipeline that's under Lake Ashtabula was listed as  
16 a risk to the Red River?

17 A. Not to my knowledge, we did not.

18 Q. Do you know why not?

19 A. Because we were unaware of the Keystone  
20 project at the comment deadline for the EIS.

21 Q. Were you aware of the other pipeline that  
22 goes under Lake Ashtabula?

23 A. I, personally, was not aware of that, no.

24 Q. Do you -- do you or is it -- do you feel  
25 that the EIS is inadequate because that wasn't

1 provided?

2 MR. JOHNSON: I'm going to object, Your  
3 Honor. His opinion as to the adequacy or not I  
4 don't think is relevant. I'm not sure if there has  
5 been a foundation laid for him to ask that  
6 question.

7 JUDGE WAHL: Overruled.

8 THE WITNESS: It's difficult to speak from  
9 the City of Fargo's perspective for myself only. I  
10 don't know if the EIS was inadequate or not, but,  
11 to my knowledge, it didn't address the current or  
12 proposed pipelines at or near Lake Ashtabula.

13 Q. (MR. KELSCH CONTINUING) Now, you said you  
14 weren't aware of that. When did you become aware  
15 of the Keystone Pipeline project or the other  
16 pipeline that was -- that is under Lake Ashtabula?

17 A. I became aware of the Keystone Pipeline  
18 project originally through communications with my  
19 supervisor, the city administrator.

20 Q. And when was that?

21 A. That was approximately 60 days ago.

22 Q. And since that time, as far as you know,  
23 the City of Fargo hasn't filed any supplemental  
24 information with the -- with the EIS?

25 A. No, we have not.

1 Q. Does the City of -- do you know whether  
2 the City of Fargo plans to file anything?

3 A. I have no knowledge of whether we do or  
4 not.

5 Q. From the City of Fargo, who is in charge  
6 or has the primary responsibility with the EIS  
7 program concerning the Red River Valley Water  
8 System Project?

9 A. The City of Fargo is represented by Pat  
10 Zavoral, the city administrator, myself as the  
11 enterprise director, and former mayor, Bruce  
12 Furness.

13 Q. Now, if -- if you were notified that there  
14 was a spill that was coming down the Sheyenne  
15 River, have you looked at -- I guess you've  
16 testified you would be able to shut off the intakes  
17 as long as you were getting water from the -- from  
18 the Red River. Do you have any knowledge of how  
19 long it would take for those -- the contaminants to  
20 get by your intake system?

21 A. On the river --

22 Q. Yes.

23 A. -- are you talking about? I don't. I  
24 imagine it would depend on the size of spill, the  
25 duration that it would -- the duration of time that

1 it would take to pass the intake.

2 Q. Once that passed, then you would be able  
3 to safely start taking water from the river?

4 A. Once that danger has passed, we would  
5 start taking water again, provided our  
6 infrastructure hadn't been contaminated, correct,  
7 yeah.

8 Q. I think you testified, though, as long as  
9 you were notified, you would be able to stop the  
10 intake?

11 A. Correct, with the exception of potentially  
12 having to clean the screens that are there in the  
13 river, but it would be a minimal amount of cleaning  
14 required to go back and utilize that source.

15 Q. And with the distance, even though you  
16 don't know the exact miles from Lake Ashtabula to  
17 the Fargo intake, there should be some notice that  
18 could be given to the city that there had been a --  
19 if there was any --

20 A. Yeah, if there was some sort of advanced  
21 early warning notification type of thing, that  
22 would be extremely helpful to us.

23 MR. KELSCH: I have no further questions.

24 JUDGE WAHL: Ms. Linderman.

25 MS. LINDERMAN: Thank you. I just have a

1 couple of questions.

2

**CROSS-EXAMINATION**

3

**BY MS. LINDERMAN:**

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Q. Regarding your previous testimony and the circumstances under which the City of Fargo relies on the Sheyenne River and water from Lake Ashtabula, is it correct for the purpose of my questioning that those two water sources are alternatives for the city and that the Red River is the primary water source?

11

A. That is correct.

12

13

14

15

16

Q. So would it be reasonable if you were -- if the City of Fargo were using the Sheyenne River and Lake Ashtabula to assume that the Red River for some reason was not available, whether because of drought or contamination levels?

17

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21

A. Generally it would be related to a water quantity, lack of water quantity issue or a water quality-type issue where the Sheyenne River source was easier for us to treat than the Red River source.

22

23

24

25

Q. What is the most typical set of circumstances, in your experience, on the job where you've had to rely on the Sheyenne River or water from Lake Ashtabula?

1           A.     Generally as a matter of practice in the  
2     spring, as I mentioned earlier, when water is being  
3     released from Lake Traverse, there are taste and  
4     odor issues with the Red River supply. In that  
5     type of case, we would utilize the Sheyenne River.  
6     In cases where the Red River is lacking quantity to  
7     the point where we get concerned, and indications  
8     from the Corps of Engineers are that they're going  
9     to either further restrict flows or not release  
10    more water into the Red River, that would be a  
11    quantity issue that would trigger us looking to the  
12    Sheyenne. If there were low flow conditions in the  
13    Sheyenne, that would trigger us contacting the  
14    State Engineer for a release from Baldhill Dam.

15           Q.     When you're talking about water quality  
16    issues, is that typically simply a matter of taste  
17    and odor, or are you talking about complying with  
18    state and federal regulations for water quality?

19           A.     No. That basically is a treatability  
20    issue. It's not related to our ability to meet the  
21    Safe Drinking Water Act.

22           Q.     Okay. And then you had given some  
23    testimony about what you think the possible  
24    protocols might be if there were some kind of  
25    contamination or oil spill either in Lake Ashtabula

1 or the Sheyenne River watershed, and you mentioned  
2 that one alternative would be to segregate that  
3 water supply and the intake from the Sheyenne. If  
4 that happened, do you think you would be able to --  
5 I mean, based on your previous experience and when  
6 you intend to use that water source, would you be  
7 able to rely on the Red River as an alternative if  
8 you were required to segregate water from the  
9 Sheyenne?

10 A. By "segregate," do you mean --

11 Q. Or shut off that intake and keep that away  
12 from your treatment facility.

13 A. The first thing that we would do is look  
14 to the Red River. And if there were an adequate  
15 supply of water there, that's where we would go.

16 Q. And I guess what I was trying to get at  
17 is, given the typical set of circumstances where  
18 you're using water from the Sheyenne, do you think  
19 it's a likely scenario that you would be able to  
20 rely safely on water from the Red River, either  
21 because of its quantity or quality of the flow?

22 A. Under normal conditions aside from drought  
23 conditions, yes.

24 MS. LINDERMAN: Okay. Those are all the  
25 questions I had. Thank you.

1 JUDGE WAHL: Mr. Binek.

2 MR. BINEK: I have just a couple.

3 CROSS-EXAMINATION

4 BY MR. BINEK:

5 Q. First of all, where is Lake Traverse?

6 A. Lake Traverse is on the Minnesota-South  
7 Dakota border right on the Red River.

8 Q. Do you have any concerns about receiving  
9 adequate or sufficient advance notice of an oil  
10 spill from this Keystone Pipeline into either Lake  
11 Ashtabula or the Sheyenne River?

12 A. Well, we do, certainly. What we as a  
13 water supplier would like to see is a method of  
14 early advanced warning or notice so that we have  
15 adequate time to react to that.

16 Q. And I believe you testified you don't know  
17 how long it would take for oil from the spill to  
18 reach the intake -- Fargo's intake to the Sheyenne  
19 River, but I think you said normally water flow  
20 from Lake Ashtabula to that point takes about 14  
21 days?

22 A. Yeah, 14 days is the rule of thumb that we  
23 use for travel time from Lake Ashtabula to Fargo's  
24 intake.

25 Q. And an oil spill wouldn't travel any

1 faster than that, most likely slower?

2 A. Well, under -- under normal conditions,  
3 I'm not sure if the product were floating, if it  
4 wasn't floating. I just have no expertise in that  
5 area.

6 MR. BINEK: I have no further questions.

7 JUDGE WAHL: Questions from the  
8 Commission? Commissioner Clark.

9

**EXAMINATION**

10 **BY COMMISSIONER CLARK:**

11 Q. Just a quick followup because I wanted to  
12 clarify. Mr. Kelsch had asked about your knowledge  
13 of the existence of the Keystone Pipeline and when  
14 you found out about that. The existing pipeline,  
15 at what point were you made aware of that?

16 A. It was -- it was after I was made aware of  
17 the Keystone Pipeline. One of the questions that  
18 was raised at a staff meeting was the existence of  
19 other pipelines, at which point somebody researched  
20 that and brought that to our attention.

21 Q. Have you and that core group of  
22 individuals that you talked about who represent  
23 Fargo's interests before the -- with the Red River  
24 Valley Water Supply Project, have you had  
25 discussions about that existing pipeline and what

1 course of action you might take in regard to the  
2 EIS that's before the Bureau of Reclamation?

3 A. We have not had those discussions, no,  
4 sir.

5 Q. Do you have any intention of?

6 A. We will certainly after these proceedings  
7 have to discuss that issue.

8 COMMISSIONER CLARK: Okay. Thanks.  
9 That's all I have.

10 JUDGE WAHL: Commissioner Wefald.

11 **EXAMINATION**

12 **BY COMMISSIONER WEFALD:**

13 Q. We've mentioned that there's a Cenex  
14 pipeline under Lake Ashtabula at the present time.  
15 Can you tell me what size pipeline that is?

16 A. I am not aware of what size that is.

17 Q. Do you know what flow it has?

18 A. I'm not aware of that.

19 COMMISSIONER WEFALD: Thank you.

20 JUDGE WAHL: Commissioner Cramer.

21 **EXAMINATION**

22 **BY COMMISSIONER CRAMER:**

23 Q. I have a few. First of all, with other  
24 pipelines other than the ones that have been  
25 talked -- and maybe this was asked of you while I

1 was looking at the maps, but do you know where the  
2 Magellan Pipeline crosses the Red River? Do you  
3 know if it's upstream from your intake?

4 A. I believe that it is upstream of the  
5 intake. I'm not specifically certain of that.

6 Q. And has -- have you or City of Fargo  
7 officials expressed any concern about that or  
8 talked to the folks at Magellan about what kind of  
9 pipe is under there, what safety --

10 A. To my knowledge, formally we have not.

11 Q. Okay. Are you -- and this just occurred  
12 to me, but are you -- has the City of Fargo looked  
13 at any other potential vulnerabilities to the  
14 Keystone Pipeline -- or to the Red River from the  
15 Keystone Pipeline as this pipeline goes south into,  
16 you know, other waterways that might lead from the  
17 pipeline to the Red River or there might be --  
18 there may be none, but there may be an array of  
19 them. I don't know.

20 MR. DINGESS: Excuse me. If I could raise  
21 an objection, we were --

22 JUDGE WAHL: Counsel, you should confine  
23 your conduct to one lawyer per one witness, please.

24 MR. JOHNSON: Your Honor, the city does  
25 object to the line of questioning relative to the

1 other pipelines. The focus of the hearing is on  
2 Keystone Pipeline relative to Fargo's safety. And  
3 we question the relevancy of the other pipelines in  
4 conjunction with that question of Keystone Pipeline  
5 causing additional safety concerns for Fargo.

6 JUDGE WAHL: I think in the overall  
7 picture it's relevant. You may proceed,  
8 Commissioner Cramer.

9 Q. (COMMISSIONER CRAMER CONTINUING) Again,  
10 just to repeat my question, has the City of Fargo  
11 looked at other vulnerabilities to the Red River  
12 from the Keystone Pipeline project? And maybe  
13 there are none, but have you explored the  
14 possibility, you know, further south as the  
15 Keystone Pipeline continues to go further south?

16 A. At this point in time we've not looked  
17 outside the Sheyenne River drainage basin.

18 Q. Are you familiar -- and if you are not,  
19 it's okay, and maybe there's another witness that  
20 will be, but are you familiar with the risk  
21 assessment analysis that the TransCanada witnesses  
22 presented as it relates to the likelihood of a leak  
23 anywhere in the system?

24 A. I am aware of it. I'm not familiar with  
25 it. I've not read the entire risk assessment.

1 Q. Then I suspect there may be somebody later  
2 that will be able to.

3 A. Yes.

4 COMMISSIONER CRAMER: I have nothing  
5 further.

6 JUDGE WAHL: Any further questions from  
7 any Commissioner? If not, Mr. Johnson, followup.

8 **REDIRECT EXAMINATION**

9 **BY MR. JOHNSON:**

10 Q. Mr. Grubb, let's talk a little bit about  
11 this travel time from the Baldhill Dam to the City  
12 of Fargo. You testified that under ordinary flows  
13 the rough idea is 14 days to get a release from  
14 Baldhill Dam to the Fargo intake; correct?

15 A. That's correct.

16 Q. Now, if it were low flows, does that time  
17 get longer or shorter usually?

18 A. If the velocity decreases, the time would  
19 be extended, yes.

20 Q. If the water is down, does that slow down  
21 the velocity?

22 A. Yes.

23 Q. And if it's -- if the volume of water is  
24 up, if the river is full, do full rivers typically  
25 travel faster?

1 A. Yes, they do.

2 Q. So if it's full, the -- if the Sheyenne  
3 River is full and there's a release from Baldhill,  
4 it might be faster than 14 days; is that right?

5 A. That's correct.

6 Q. Now, do you have an understanding as to  
7 the proposed routing of the Keystone Pipeline?

8 A. Yes, I do.

9 Q. And is there -- do you know approximately  
10 the most -- the nearest point where the pipeline  
11 would cross the Sheyenne relative to Fargo?

12 A. Do you have a sketch available?

13 Q. Well, if I can -- if I may have some  
14 latitude to just tie this up later with an exhibit.  
15 And has that been premarked?

16 I can mark that as Exhibit 13. I'll show  
17 you what's been marked as Exhibit 13. Tell us what  
18 that is, Mr. Grubb.

19 A. That is a drawing of the Keystone Pipeline  
20 route through North Dakota.

21 Q. And it also depicts the -- generally the  
22 Lake Ashtabula and the Sheyenne River?

23 A. And the Sheyenne River drainage basin.

24 MR. JOHNSON: Offer Exhibit 13. And if I  
25 may, I'll offer an 8-and-a-half-by-11 as an

1 exhibit, but I'll need to obtain that in due  
2 course, Your Honor.

3 MR. KELSCH: No objection.

4 JUDGE WAHL: Ms. Linderman?

5 MS. LINDERMAN: No objection.

6 JUDGE WAHL: Mr. Binek?

7 MR. BINEK: No objection.

8 JUDGE WAHL: Exhibit 13 is received  
9 subject to filing the exhibit for the record.

10 Q. (MR. JOHNSON CONTINUING) Mr. Grubb,  
11 looking at the proposed pipeline, is there a  
12 location near Fort Ransom where the proposed  
13 pipeline would cross the Sheyenne?

14 A. Appears at that location.

15 Q. And do you know how much farther south  
16 Fort Ransom is from Valley City?

17 A. A number of miles. I'm not familiar.

18 Q. But in any event, where the pipeline  
19 crosses the Sheyenne is nearer than the Baldhill  
20 Dam to Fargo; correct?

21 A. That is correct.

22 Q. So if there is a pipeline leak at the  
23 crossing near Fort Ransom, the travel time relative  
24 to your 14-day number would be presumably less; is  
25 that right?

1           A.     It would be presumably less than 14 days.

2           Q.     Now, there was a question about Lake  
3 Traverse. That also has a dam associated with it;  
4 is that right?

5           A.     That's correct.

6           Q.     And Lake Traverse again feeds the Red  
7 River, so to speak; correct?

8           A.     Correct.

9           Q.     And who is -- is there an entity or  
10 organization in charge of the releases of the flows  
11 from Lake Traverse?

12          A.     The Corps of Engineers.

13          Q.     And is it a matter of the City of Fargo  
14 needs more water, they call the Corps and the Corps  
15 opens the gate and lets you have it?

16          A.     Generally we can make a request to the  
17 Corps of Engineers for the reservoirs that feed the  
18 Red to release more water.

19          Q.     Have there been situations where the Corps  
20 has limited flows into the Red River for various  
21 reasons?

22          A.     Yes.

23          Q.     And does the City of Fargo control the  
24 Corps of Engineers' decisions in those regards?

25          A.     We do not.

1           Q.     There was a question about this idea of  
2     the City of Fargo getting notice of an oil spill to  
3     allow it to shut down the intake from the Sheyenne.  
4     If at the time there is no water from the Red River  
5     and there's an oil spill so you have notice of it  
6     and you have to shut down the intake from the  
7     Sheyenne and no water from the Red River, what does  
8     the City of Fargo do for water supply?

9           A.     Well, we basically would have to rely on  
10    the -- whatever water that we have in the pipeline  
11    to treat and then our reserve storage capacity.

12          Q.     And there was some questions about the  
13    amount of storage capacity. Are there any  
14    disadvantages to the City of Fargo or to any city,  
15    for that matter, to having huge volumes of stored  
16    water?

17          A.     Well, obviously -- well, it's not  
18    obviously, but we utilize a hydraulic computer  
19    model to model demands and projections, and that  
20    identifies, based on flow and pressure needs, where  
21    we locate our -- our water towers and indicates the  
22    size that's recommended, so we as a routine matter  
23    of practice don't invest in infrastructure that  
24    isn't identified as a need.

25          Q.     If water is stored, is there a time period

1 that it stays drinkable?

2 A. Well, as a matter of practice, we try to  
3 move the water in each water tower through its  
4 normal operating range to avoid that water getting  
5 stagnant. In other words, it's got a high water  
6 level, a low water level, and on a 24-hour basis we  
7 like to move the water through that range in order  
8 to keep the water fresh.

9 Q. If water were to stay in a tower for 14  
10 days' storage, for example, would it still meet  
11 water quality standards?

12 A. I'm not sure.

13 Q. Now, regarding this idea of risks of other  
14 contaminations -- sources of contamination, have  
15 you given any thought to the Keystone Pipeline  
16 adding some risk, but there are other risks that  
17 the city bears of problems with its water supply,  
18 what are your thoughts about that?

19 A. Well, certainly from Fargo's perspective,  
20 from a water utility perspective our preference  
21 would be to not increase the level of risk any more  
22 than we have today. What we have before us in the  
23 future, we think is controllable. What's been done  
24 in the past, we don't have that opportunity today.

25 MR. JOHNSON: No further questions.

1 JUDGE WAHL: Followup, Mr. Kelsch.

2 MR. KELSCH: Thank you, Your Honor.

3 **RECROSS-EXAMINATION**

4 **BY MR. KELSCH:**

5 Q. Does -- do you have the availability or  
6 any type of agreement with the City of Moorhead to  
7 share water in the case of any problem with your  
8 plant?

9 A. We do not.

10 Q. If this Red River Valley water system  
11 would come into place, would your intakes be at the  
12 same place or a different place, or do you have any  
13 plans?

14 A. Well, at this point in time we would need  
15 to acquire additional land, but we do think that we  
16 can accommodate an upgraded intake at its present  
17 location.

18 Q. And that's south of I-94 currently, is it?

19 A. Yes, it is. It's immediately south of  
20 52nd Avenue South in Fargo, right at the Sheyenne  
21 River.

22 Q. Now, has Fargo looked into what products  
23 some of these other pipelines have been carrying,  
24 the Magellan Pipeline that was mentioned, the Cenex  
25 Pipeline under Lake Ashtabula?

1           A.     We have not.

2           Q.     Are you aware of any petroleum-based  
3 pipelines that would be, I guess, on the Missouri  
4 River system north of the Garrison Dam that would  
5 have some impact should this Red River water supply  
6 system --

7           A.     I'm not specifically aware of those, no.

8           Q.     Has there been a time when there's been  
9 actually no water in the Red River that you're  
10 aware of?

11          A.     Not since my involvement as enterprise  
12 director, but I have heard that there have been  
13 times historically when the Red River has ceased  
14 flowing.

15          Q.     Now, you mentioned the Traverse -- was it  
16 Traverse Dam?

17          A.     Lake Traverse.

18          Q.     Lake Traverse. Now, that would have been  
19 constructed, I assume, after the '30s; is that --

20          A.     I presume so. I'm not aware of a  
21 construction date.

22          Q.     So that gives the City of Fargo and I  
23 guess any other cities along the Red River -- it  
24 helps with the water availability in the event of a  
25 drought?

1           A.    Yeah.  I believe the intent of that was  
2   for flood control purposes and water supply  
3   purposes, yes.

4           Q.    So controls the floods in the springs --  
5   or helps control them and then has more water  
6   available in the case of a drought situation?

7           A.    Right.

8           Q.    And if you -- now, you mentioned that the  
9   crossing of the Sheyenne River is closer to Fargo  
10  than the Baldhill Dam.  Do you know how fast it  
11  would take the water to get from there to the Fargo  
12  intake system?

13          A.    I'm not aware.

14          Q.    Now, when you used the 14-day period, are  
15  you figuring a certain per-mile or average per-mile  
16  flow, or how did you come up with that?

17          A.    Well, it's just a rule of thumb that we've  
18  used at the water plant under normal flow  
19  conditions on the Sheyenne River that it generally  
20  takes about 14 days to get from Baldhill Dam to our  
21  water intake.

22          Q.    Now, you testified if the water is -- the  
23  river is fuller, it would be going faster, it could  
24  get there faster than that.  Do you have any  
25  knowledge of what the fastest that it could get

1       there?

2           A.     I don't.  I'm sorry.

3           Q.     Do you know about the constituents in the  
4 pipeline that's going under Lake Ashtabula or have  
5 you checked into what's in that oil?

6           A.     We have not at this point.

7           Q.     Why haven't you?

8           A.     Don't have a good answer for that at this  
9 point.  We've kind of recognized that what exists  
10 today is something that we may not have an  
11 opportunity to deal with.  The Keystone project we  
12 have the opportunity to deal with that from a  
13 planning perspective before it's built, so that's  
14 my answer.

15          Q.     Are you aware, has Fargo gotten involved  
16 in any of the other permitting processes for these  
17 other pipelines?

18          A.     I have no knowledge of that.

19          Q.     And I'm guessing that none of these  
20 pipelines that you're aware of have had leaks that  
21 have caused any problems for the City of Fargo.

22          A.     Not that I'm aware of.

23          Q.     Do you know why the City of Fargo wouldn't  
24 have gotten involved in any of these other  
25 permitting processes for these other pipelines?

1 A. I'm not aware of that.

2 MR. KELSCH: No further questions.

3 JUDGE WAHL: Ms. Linderman, anything  
4 further?

5 MS. LINDERMAN: Yes, I just have a couple  
6 of questions.

7 **RE-CROSS-EXAMINATION**

8 **BY MS. LINDERMAN:**

9 Q. Have any representatives of TransCanada  
10 had any formal consultations with the City of Fargo  
11 to discuss possible protocols in the event of an  
12 oil spill, that you're aware of?

13 A. Not that I'm aware of. I would have to  
14 refer to legal counsel on those contacts.

15 Q. Okay. And this is a slightly unrelated  
16 question and may be outside your area of expertise  
17 and you can let me know, but when there is low flow  
18 in the Red River, something between your desired  
19 level of flow to meet your daily water needs and  
20 zero, are there ever any issues with water quality  
21 because of a low flow and increased just general  
22 contaminants that are in the river concentration  
23 levels?

24 A. Under low flow conditions, there are  
25 various water quality issues that I rely on our

1 water treatment plant superintendent for, but  
2 generally with low flow conditions, there are  
3 poorer water quality, the condition of the water  
4 quality is poorer than under normal flow  
5 conditions.

6 MS. LINDERMAN: Thank you. Those are all  
7 the questions I have.

8 JUDGE WAHL: Mr. Binek?

9 MR. BINEK: I have no further questions.

10 JUDGE WAHL: Any further questions from  
11 the Commission? Commissioner Clark.

12 **FURTHER EXAMINATION**

13 **BY COMMISSIONER CLARK:**

14 Q. Just one very quickly. As you probably  
15 know, the Commission has already determined that  
16 the pipeline as an entity, itself, is in the public  
17 interest, but we haven't made any determination on  
18 the route. One of the -- I won't say parties,  
19 because they're not a party to the case, but the  
20 Commission received some correspondence I think  
21 from the North Dakota Water Users Association, who  
22 had -- they had made a recommendation, sort of a  
23 concrete recommendation, that they thought if the  
24 pipeline was moved three to five miles to the east  
25 up on a ridge, it would give them a level of

1 comfort that they currently didn't have. Has Fargo  
2 done that sort of analysis where you'd say, okay,  
3 we're not comfortable with where it is now, but if  
4 you moved it here, we'd feel like it was -- do you  
5 have a recommendation to the Commission?

6 A. Fargo has done that. I have not done  
7 that. We are going to have experts testify to that  
8 later today.

9 COMMISSIONER CLARK: Okay. Thank you.

10 JUDGE WAHL: Commissioner Cramer.

11 **FURTHER EXAMINATION**

12 **BY COMMISSIONER CRAMER:**

13 Q. Is it safe to say -- and this question may  
14 have been asked in a little different form earlier,  
15 but getting to this issue of the flow and the  
16 speed -- the time it would take an oil spill, if  
17 there was one, to get to Fargo -- is it fairly safe  
18 to say that low flow in the Red River would equal  
19 low flow in the Sheyenne just given the proximity  
20 and the climate in the same area that they both are  
21 in?

22 A. Generally I think under drought conditions  
23 we can assume that low flow on the Red River and  
24 Sheyenne River would be similar, but I don't think  
25 I can make that blanket statement.

1           Q.     Then along the lines of Commissioner  
2 Clark's question, and I won't get into suggestions  
3 on where the route should go, but other than an  
4 early warning system, has the City of Fargo  
5 contemplated or do you have some specific  
6 recommendations on other things that could be  
7 applied to the pipeline, itself, or the pipe,  
8 itself, the infrastructure, itself?

9           A.     Similar to Commissioner Clark's question,  
10 we have had experts look at that and will be  
11 testifying to that.

12                   COMMISSIONER CRAMER:   Okay.  I'll await  
13 that.  Thank you very much.  Thanks for your  
14 testimony today.  I have nothing further.

15                   JUDGE WAHL:   Anything further, Mr.  
16 Johnson?

17                   MR. JOHNSON:   Nothing further.

18                   JUDGE WAHL:   Mr. Kelsch?

19                   MR. KELSCH:   No, Your Honor.

20                   JUDGE WAHL:   Ms. Linderman?

21                   MS. LINDERMAN:   No, Your Honor.

22                   JUDGE WAHL:   Mr. Binek?

23                   MR. BINEK:   No.

24                   JUDGE WAHL:   Thank you very much, Mr.  
25 Grubb.

1 THE WITNESS: Thank you.

2 JUDGE WAHL: Let's be in recess for  
3 approximately 10 minutes, until ten o'clock.

4 (Recess taken at 9:50 a.m. to 10:03 a.m.)

5 JUDGE WAHL: Mr. Johnson, when you're  
6 ready.

7 MR. JOHNSON: Call Dave Koland to the  
8 stand, please.

9 JUDGE WAHL: Mr. Koland, your testimony is  
10 required to be under oath and I'm required by law  
11 to advise you regarding perjury before  
12 administering the oath. Perjury is a false  
13 statement of material fact, which you do not  
14 believe to be true; in other words, generally  
15 speaking, a lie. In North Dakota perjury is a  
16 Class C felony, punishable by a fine up to \$5,000,  
17 imprisonment for a period of up to five years, or  
18 both. Will you raise your right hand, please?

19 (Witness sworn.)

20 JUDGE WAHL: Mr. Johnson.

21 **DAVID KOLAND,**

22 being first duly sworn, was examined and testified  
23 as follows:

24 **DIRECT EXAMINATION**

25 **BY MR. JOHNSON:**

1 Q. Please state your full name, Dave.

2 A. My name is David Koland.

3 Q. Spell your last name for the court  
4 reporter.

5 A. K-o-l-a-n-d.

6 Q. And what is your occupation, Mr. Koland?

7 A. I'm the general manager of Garrison  
8 Diversion Conservancy District.

9 Q. How long have you held that position?

10 A. For the last five years.

11 Q. And could you just give a brief summary of  
12 your education and employment background?

13 A. I have a bachelor of science in business  
14 administration from the University of North Dakota.  
15 I spent 17 years in Minot, North Dakota, as a  
16 general contractor. I spent six years in the North  
17 Dakota State Legislature, House of Representatives,  
18 ten years as executive director of North Dakota  
19 Rural Water Systems Association, and the last five  
20 years I've been with Garrison Diversion.

21 Q. Let's talk about Garrison. So you work  
22 for the -- is it called the Garrison Conservancy  
23 District?

24 A. Garrison Diversion Conservancy District.

25 Q. And what is Garrison Diversion Conservancy

1 District?

2 JUDGE WAHL: Excuse me, Mr. Koland. Is  
3 your microphone on, Mr. Johnson? Now it is. All  
4 right. Now you may answer, Mr. Koland.

5 THE WITNESS: Garrison Diversion was  
6 created by the North Dakota Legislature to  
7 construct the Garrison Diversion Unit, which is a  
8 portion of the Missouri basin plan that was created  
9 by Congress in 1944 to put the waters behind  
10 Garrison Dam to beneficial use for the people of  
11 North Dakota.

12 Q. (MR. JOHNSON CONTINUING) Is there an  
13 entity that owns Garrison Diversion?

14 A. Garrison Diversion is composed of 28  
15 counties in North Dakota. Each county at the  
16 general election elects one director to the board  
17 of directors for Garrison.

18 Q. As an example, does Cass County have an  
19 elected member on the board?

20 A. Cass County has one elected member on the  
21 board of directors.

22 Q. Burleigh County?

23 A. Burleigh County.

24 Q. How many counties are there in North  
25 Dakota?

1           A.     There are 52 counties in North Dakota.

2           Q.     Just over half of the counties comprise  
3 Garrison?

4           A.     That is correct.

5           Q.     And what are your responsibilities as  
6 general manager of the district?

7           A.     I'm responsible for the overall operations  
8 of the district and work at the direction of the  
9 board of directors.

10          Q.     And are you familiar with what's called  
11 the Red River Valley Water Supply Project?

12          A.     Yes, I am.

13          Q.     What is that?

14          A.     The Red River Valley Water Supply Project  
15 is designed to meet the comprehensive water needs  
16 of the people in eastern North Dakota, commonly  
17 called the Red River Valley, and three communities  
18 in Minnesota, Breckenridge, Moorhead and East Grand  
19 Forks.

20          Q.     And how does the water supply -- the Red  
21 River Valley Water Supply Project come into being?

22          A.     When Garrison Dam was constructed, North  
23 Dakota suffered a flood of some 500,000 acres, and  
24 in compensation for that Congress said that North  
25 Dakota would be able to use the Missouri River

1 water for irrigation. Through a number of changes  
2 in the legislation, that changed from being an  
3 irrigation project to being a municipal water  
4 supply project. An important part of that was to  
5 meet the comprehensive water needs of eastern North  
6 Dakota and the communities in the Red River Valley.

7 Q. Okay. And, you know, this project,  
8 itself, how long has that been in existence?

9 A. The project has been underway for quite  
10 some time as a result of a number of studies that  
11 have been done by the federal government led by the  
12 Bureau of Reclamation. The most recent study was a  
13 needs and options report that was prepared by the  
14 Bureau of Reclamation that looked at the  
15 comprehensive water needs in the Red River Valley  
16 including the three communities in Minnesota. At  
17 the conclusion of that study, the needs and options  
18 study, the Bureau of Reclamation and the State of  
19 North Dakota are preparing an environmental impact  
20 statement that looked at the seven different  
21 alternatives in the needs and options study for  
22 meeting the water needs in the valley, and  
23 specifically looked at the preferred alternative  
24 that North Dakota chose and the Bureau of  
25 Reclamation chose to deliver water from Lake

1 Sakakawea to Lake Ashtabula and then into the  
2 Sheyenne River and into the Red River.

3 Q. So sort of in recent times there have been  
4 two studies that have occurred, one being the needs  
5 and options study and the other one being the  
6 environmental impact statement study process?

7 A. That's correct.

8 Q. Just in terms of a general time frame,  
9 when was the needs and options study performed?

10 A. The needs and options study began in 2002.

11 Q. And do you know when it was completed?

12 A. It was completed in 2005, I believe, is  
13 the date.

14 Q. And then the environmental impact  
15 statement, when did that begin? Does that begin at  
16 the close of the needs and options?

17 A. Both studies ran concurrently at the  
18 beginning. The environmental impact statement  
19 is -- technically through the process they've  
20 issued a draft supplemental EIS. The final EIS is  
21 ready to go to the printer and be printed.

22 Q. And what is sort of the culmination of the  
23 EIS? What -- is there some action needed to be  
24 taken by some body?

25 A. Congress will -- the Secretary of Interior

1 will make a decision based on the information  
2 that's in the environmental impact statement. The  
3 legislation passed by Congress commonly called the  
4 Dakota Water Resources Act of 2000 directed that  
5 the alternative would be selected by the Secretary  
6 of the Interior in consultation with the State of  
7 North Dakota in cooperation with the affected  
8 communities.

9 Q. Okay. But in terms of the status of the  
10 EIS, where is that?

11 A. The EIS is awaiting clearance from  
12 Washington to be printed.

13 Q. Okay. And is that the last act, if it's  
14 printed?

15 A. That would be the last act of the -- the  
16 environmental impact statement process will  
17 conclude with the record of decision, which we  
18 expect about 90 days after the publication of the  
19 EIS.

20 Q. So in terms of beginning to end, where in  
21 that spectrum of the process?

22 A. It is practically at the end.

23 Q. If the EIS -- at the end of the EIS is  
24 there a decision then to move forward with the  
25 project?

1           A.     At the conclusion of the EIS, the record  
2 of decision will be the secretary's decision on the  
3 preferred alternative to move forward with the  
4 project.

5           Q.     And if -- and upon that time, it's just a  
6 matter of funding and then starting construction?

7           A.     That is correct.

8           Q.     And the funding issues are still to be  
9 fully determined and laid out; is that right?

10          A.     That is correct.

11          Q.     And we'll talk about that in a little bit.  
12 By the way, is Garrison -- you know, we think of  
13 government as having three branches. Is Garrison  
14 District part of the executive branch, legislative  
15 branch? Are you overseen by any branch?

16          A.     Garrison Diversion is a special district  
17 created by the legislature. Overview is conducted  
18 by the legislature. It's a political subdivision  
19 of the state.

20          Q.     Now, you mentioned that part of the  
21 congressional -- the federal congressional  
22 enablement -- enactment provided some input from  
23 the local concerns; is that right, and how does --  
24 is that correct?

25          A.     That is correct.

1           Q.     And then in the case of this Garrison  
2 Conservancy District, what is that local -- how is  
3 that local input implemented?

4           A.     The legislature created the Lake Agassiz  
5 Water Authority to represent the local users in  
6 this process. Lake Agassiz Water Authority is  
7 comprised of five cities and -- well, it's  
8 comprised of all the water systems in the Red River  
9 Valley, but they're represented on the board of  
10 directors by five cities and five water districts.  
11 The five cities include one city from Minnesota,  
12 namely, Moorhead.

13          Q.     And is Fargo one of those cities, as well?

14          A.     Fargo is one of those cities, Grand Forks  
15 is the other city and Moorhead. All three by law  
16 have a seat on the board.

17          Q.     And then is there some geographic  
18 territory that LAWA sort of represents?

19          A.     Lake Agassiz consists of the 13 eastern-  
20 most counties in North Dakota.

21          Q.     And is it fair to say that the project  
22 that you're working on with the needs and options  
23 study and the EIS is to provide water supply for  
24 the future to those 13 counties?

25          A.     That is correct.

1           Q.     Now, coming back to the -- you said there  
2 was a needs and options report. In the course of  
3 that, you know, just in a general sense, what was  
4 studied for purposes of needs and options?

5           A.     The needs and options report looked at  
6 what the comprehensive water needs were in the Red  
7 River Valley and every possible way that -- that we  
8 could meet those water needs. It -- for more  
9 detailed study, it selected seven different  
10 alternatives, plus it also looked at a no action  
11 alternative.

12          Q.     No action meaning you did nothing?

13          A.     No action meaning if we took no action  
14 whatsoever, what would happen.

15          Q.     And then the EIS, I think you said, looked  
16 more closely at the seven different alternatives?

17          A.     The environmental impact statement looks  
18 at what is the environmental impact of those  
19 federal actions, so it looked at what would be the  
20 environmental impact if those alternatives were put  
21 into being.

22          Q.     And as a result of these two studies --  
23 first of all, let me ask, has Lake Agassiz Water  
24 Authority, LAWA, been involved providing input  
25 throughout all of this process?

1           A.     Throughout the process, in this process,  
2     the environmental impact statement is a joint  
3     effort between the Bureau and the State of North  
4     Dakota, the State of North Dakota in this case  
5     being represented by Garrison Diversion. Lake  
6     Agassiz Water Authority was charged with  
7     representing the local users in this process, and  
8     so they have been an active participant since the  
9     beginning of the studies.

10          Q.     And at this point in time has there been  
11     identified a preferred alternative?

12          A.     Yes. Both North Dakota and the Bureau  
13     selected a preferred alternative that would be  
14     taking water from Lake Sakakawea at the Snake Creek  
15     Pumping Plant, putting it into the McClusky Canal,  
16     treating the water when we take it out of the  
17     McClusky Canal and put it in a buried pipeline and  
18     delivering that pipeline to just north of Lake  
19     Ashtabula.

20          Q.     I hand you what's been marked as Fargo  
21     Exhibit 4. Can you tell us what that is, please?

22          A.     This is a diagram of the preferred  
23     alternative that shows the Snake Creek Pumping  
24     Plant, the McClusky Canal, the pipeline route, Lake  
25     Ashtabula, the Sheyenne River and the Red River.

1           Q.     So this is the preferred alternative you  
2 were just referring to in your testimony?

3           A.     That is correct. In the environmental  
4 impact statement, it's called the GDU import to the  
5 Sheyenne River alternative.

6           MR. JOHNSON: Offer Exhibit 4, Your Honor.

7           JUDGE WAHL: Mr. Kelsch?

8           MR. KELSCH: No objection, Your Honor.

9           JUDGE WAHL: Ms. Linderman?

10          MS. LINDERMAN: No objection.

11          JUDGE WAHL: Mr. Binek?

12          MR. BINEK: No objection.

13          JUDGE WAHL: Exhibit 4 is received.

14          Q.     (MR. JOHNSON CONTINUING) Mr. Koland,  
15 maybe we can just take a minute or two just to take  
16 a look at this exhibit. At the far left side, is  
17 that sort of a reach or an arm of Lake Sakakawea,  
18 the Missouri River?

19          A.     This is the Missouri River and Lake  
20 Sakakawea.

21          Q.     All right. And then the McClusky Canal,  
22 that's already been constructed sometime ago; is  
23 that right?

24          A.     The Snake Creek Pumping Plant and the  
25 McClusky Canal have been constructed prior to this.

1           Q.     And there is a B with a circle around it  
2     located sort of on the eastern edge of the McClusky  
3     Canal.   What does the B stand for?

4           A.     The B is a biota treatment plant that will  
5     treat the water to meet the Boundary Waters Treaty  
6     before we take it across the divide between the  
7     Missouri River basin and the Hudson Bay drainage  
8     area.

9           Q.     That's to take care of objections to  
10    interbasin transfers of life, biota; is that right?

11          A.     That is correct.

12          Q.     The dotted line, is that the pipeline that  
13    would carry this water to the north end of Lake  
14    Ashtabula?

15          A.     That is a buried pipeline.

16          Q.     And then the water would be released into  
17    Lake Ashtabula; correct?

18          A.     That is correct.   Actually, just at this  
19    point just a little bit north of Lake Ashtabula,  
20    but into the Sheyenne River channel.

21          Q.     And from there the water would be  
22    transported via Lake Ashtabula and then the  
23    Sheyenne; correct?

24          A.     That is correct.   The concept, this is a  
25    supplemental water supply that would keep Lake

1 Ashtabula at a constant level and water would be  
2 released as it's needed, and only as it's needed,  
3 into the Sheyenne and Red Rivers.

4 Q. Just to explain what this shows, there are  
5 a couple of dotted lines leading down to Wahpeton-  
6 Breckenridge and going away from Grand Forks-East  
7 Grand Forks. What do those depict?

8 A. This project looked to meet the water  
9 needs of all the water systems in the valley and is  
10 designed to be constructed in two phases. The  
11 first phase is the main water supply pipeline, and  
12 phase two of the project is to deliver water in the  
13 future to other areas in need. For instance,  
14 there's a pipeline from the Fargo area down to the  
15 Wahpeton area to meet those needs, and there's a  
16 pipeline from Grand Forks into rural Grand Forks  
17 County, and there would also be supplemental  
18 pipelines to bring water to the various rural water  
19 systems in the Red River Valley.

20 Q. Talking about the needs for water supply,  
21 did part of the research that Garrison performed  
22 look into low flows in the Red River, the same Red  
23 River that supplies water to Fargo and other  
24 cities?

25 A. Yes. Part of our studies looked at what's

1 the probability of future droughts in the Red River  
2 Valley and what would the flows be in the Red River  
3 and the Sheyenne River. In our modeling we used  
4 the 1930s period, those ten years, as being  
5 representative of a future drought that's likely to  
6 occur before the year 2050.

7 Q. And for purposes of your analysis, how  
8 would you -- how did you describe the 1930s drought  
9 experience?

10 A. The 1930s was a severe drought that  
11 resulted in several periods of no flow in the Red  
12 River. I believe the -- probably the longest  
13 period was five continuous months with no flow in  
14 the Red River.

15 Q. Do you have a -- do you recall other  
16 periods of no flow during that 1930s drought?

17 A. There were several other periods with  
18 similar conditions. The 1930s were sort of a  
19 composite of a dry year, dry year, wet year, dry  
20 year, dry year, dry year, wet year interspersed  
21 within them, but the entire ten years was very  
22 representative of a drought that we could expect to  
23 occur in the future.

24 Q. And you said that the likelihood is  
25 between now and 2050?

1           A.     That is correct.  When the climate people  
2 looked at it and did the study for us, the study  
3 said that it is -- with every day that goes by now,  
4 it is more likely to occur.  No one can predict  
5 when the next drought will occur.  They can only  
6 tell us that it will occur.

7           Q.     And the 1930s drought for your purposes  
8 was a span of how many years?

9           A.     Ten years.

10          Q.     If the Red River Valley Water Supply  
11 Project gets the authority needed, have you worked  
12 on the estimated cost of the project?

13          A.     Yes, we have.  The total project, both  
14 phase 1 and phase 2, that we're looking at would be  
15 approximately 750 million.

16          Q.     And can you break that down into  
17 components?

18          A.     Phase 1 of the project is about \$400  
19 million for the pipeline, the biota treatment is  
20 roughly 150 million.

21          Q.     The remaining would be phase 2?

22          A.     The remaining would be phase 2.

23          Q.     And phase 2 would be the dotted lines, the  
24 pipelines out of Grand Forks and Wahpeton?

25          A.     Plus getting water to the rural water

1 systems.

2 Q. And so you said -- I'm sorry, was it 750?

3 A. 750 million is the total amount.

4 Q. And of that, is there an estimate as to  
5 how much of that is likely to be borne by federal  
6 government, state government and locals?

7 A. Yes. The formula we're currently working  
8 with is one-third, one-third, one-third.

9 Q. The local share would be one-third?

10 A. The local share would be 250 million.

11 Q. And of that share is there -- in the sort  
12 of estimates what share of that would be borne by  
13 the City of Fargo?

14 A. Roughly 50 percent of the share, somewhere  
15 in the neighborhood of 100 or 125 million.

16 Q. Now, as part of the needs and options  
17 study, did you look at the economic impact of this  
18 possible project on the State of North Dakota  
19 and/or the Red River Valley?

20 MR. KELSCH: Your Honor, I'm going to  
21 object to the economic impact. I think we're  
22 talking about water. I don't know what the  
23 economic impact really has to do with this case.

24 JUDGE WAHL: Mr. Johnson.

25 MR. JOHNSON: Well, Your Honor, the

1        comments have been made by Keystone throughout that  
2        they have this large project, it's valuable to the  
3        state. The purpose in introducing some of this  
4        information is to show how valuable the water  
5        supply is to the City of Fargo currently and then  
6        also the amount of investment we're putting into  
7        this future water needs to satisfy Fargo's future  
8        supply and also what happens if there's no water to  
9        Fargo, how much does it cost. Keystone has been  
10       talking about the cost of delay of the pipeline.  
11       We would like to identify the cost of not having a  
12       supply of water.

13                JUDGE WAHL: I'll allow it, but, counsel,  
14       let's be careful. I really don't intend to broaden  
15       the scope of the hearing. You may proceed.

16                Q.        (MR. JOHNSON CONTINUING) Do you remember  
17       the question, Mr. Koland?

18                A.        When we looked at the economic impact of  
19       the project, we evaluated what would be the impact  
20       of avoiding a 1930s-type drought, so a value was  
21       placed on the water. We know from our data how  
22       much water we would be short in 2050 if we were to  
23       suffer a 1930s drought. The total 10-year period  
24       it was -- it averaged \$2.2 billion a year.

25                Q.        And divided by 365 days in a year, how

1 much is that?

2 A. That's roughly \$6 million a day.

3 Q. Now, is there a comment period for -- was  
4 there a comment period for the environmental impact  
5 statement process for this project?

6 A. Yes.

7 Q. Did the Keystone -- TransCanada Keystone  
8 Pipeline, to your knowledge, offer any comments?

9 A. Not that I'm aware of.

10 MR. JOHNSON: No further questions.

11 JUDGE WAHL: Mr. Kelsch.

12 MR. KELSCH: Thank you, Your Honor.

13 **CROSS-EXAMINATION**

14 **BY MR. KELSCH:**

15 Q. Mr. Koland, you talked about \$750 million  
16 for this project, 100 to 125 million for Fargo, I  
17 guess about 250 million for the state, 250 million  
18 for federal government. None of those amounts have  
19 been approved to be spent by any of those entities,  
20 have they?

21 A. The State of North Dakota, the legislature  
22 has laid out a plan for a state share of financing  
23 the project, of which they laid it out over the  
24 next three bienniums. They were working at that  
25 time with a total amount of \$200 million. The

1 Dakota Water Resources Act provided an  
2 authorization for \$200 million at the federal level  
3 which was indexed, so that amount is today roughly  
4 \$260 million.

5 Q. Is that money available? It hasn't been  
6 appropriated?

7 A. It has not been appropriated.

8 Q. The same with the state money, it hasn't  
9 been appropriated, it's just sort of maybe out  
10 there?

11 A. \$12 million of the state money has been  
12 set aside in the current biennium for the project.

13 Q. Now, as I heard your testimony, Garrison  
14 Diversion -- Garrison Conservancy Diversion  
15 District partnered with the state in preparing the  
16 joint EIS; is that correct?

17 A. Partnered with the federal government.

18 Q. The federal government. Excuse me. And  
19 in the EIS the Red River Valley Water Supply  
20 Project is required to consider every known  
21 environmental risk that might be caused in the  
22 routing construction and operation; is that  
23 correct?

24 A. That's correct.

25 Q. I've looked through it just briefly, had

1 other people look through it. There's some 350  
2 pages, I think, in the original draft EIS and  
3 almost 600 in the supplemental EIS, and there isn't  
4 a mention of a crude oil pipeline or petroleum  
5 pipeline or anything in the whole document, is  
6 there?

7 A. The purpose of the EIS is to look at the  
8 environmental impact of the proposed federal  
9 action, and in this case the proposed federal  
10 action is the construction of the Red River Valley  
11 Water Supply Project.

12 Q. But one of the -- one of the things that  
13 the EIS also looks at is what are the risks to the  
14 water quality for the project; isn't that correct?  
15 If -- maybe I'll simplify the question. If these  
16 number of pipelines, including the Keystone  
17 Pipeline, create this risk to the water supply,  
18 isn't that something that the EIS should be looking  
19 at?

20 A. I would have to say that looking at the  
21 Keystone Pipeline would be outside the scope of  
22 this EIS, but would certainly be within the scope  
23 of the EIS for the Keystone Pipeline.

24 Q. So looking at potential risks -- exposures  
25 to water quality risks is not a factor at all to be

1 considered in whether to build this \$750 million  
2 project?

3 A. Well, we have a difficulty in that both of  
4 these projects are in the consideration stage, and  
5 when we were going through the comment period for  
6 this environmental impact statement, we were not  
7 aware of the routing for the Keystone Pipeline.

8 Q. Now, the Keystone Pipeline project has  
9 been kind of ongoing since about 2005. The draft  
10 EIS that was filed was filed in January of 2007;  
11 isn't that right?

12 A. That is correct.

13 Q. So clearly there was notice that a  
14 pipeline was coming through North Dakota in the  
15 eastern part of the state in January -- as of  
16 January of 2007?

17 MR. JOHNSON: Objection. I think --  
18 there's no foundation for it. We don't know when  
19 this witness knew about the beginning of the  
20 Keystone Pipeline project.

21 JUDGE WAHL: Well, there is an assumption  
22 there, Mr. Kelsch, of the publication of the  
23 notice, and so on. You're a little shy of  
24 foundation.

25 MR. KELSCH: He can -- it's not an expert

1 question. He can answer it. If he doesn't know  
2 the answer, he can say he doesn't.

3 JUDGE WAHL: Well, there isn't any  
4 evidence of the notice. The objection is  
5 sustained.

6 Q. (MR. KELSCH CONTINUING) The draft EIS was  
7 done in January of 2007; isn't that right?

8 A. That's correct.

9 Q. And when did Garrison Diversion  
10 Conservancy District become aware of the Keystone  
11 Pipeline project?

12 A. Became aware of the routing probably 60  
13 days ago, 75 days ago.

14 Q. Okay. What about the pipeline that was  
15 under Lake Ashtabula, which apparently is a key  
16 portion of this \$750 million project, isn't that  
17 something that the Garrison Conservancy District  
18 should have been aware of, or were you aware of?

19 A. Not to my knowledge.

20 Q. So you weren't concerned about the  
21 existence of petroleum pipelines when this whole  
22 project was even being considered and the risk that  
23 they may cause to this water project?

24 A. I don't know the answer to that.

25 Q. You don't -- you either weren't concerned

1 or you were concerned.

2 A. Well, certainly we would be concerned if  
3 we had knowledge of it, but I can't speak to  
4 whether or not, when they looked at the risk on  
5 Lake Ashtabula, it was looked at or not looked at.

6 Q. Well, did you look at where the existence  
7 of pipelines -- crude oil pipelines, petroleum  
8 pipelines of any type are in North Dakota prior to  
9 -- at any time during this years of process for  
10 this EIS or for the Red River Valley?

11 A. I would have to say, yes, it was looked  
12 at, but I cannot speak to what the conclusions were  
13 when they looked at them.

14 Q. So you would have -- the district would  
15 have looked at the existence of these pipelines,  
16 found out where they were, and then apparently made  
17 some determination that they weren't necessary to  
18 put in the report or that they weren't a risk to  
19 the water pipeline project -- or the water project?

20 A. If I understand your question, that is  
21 correct.

22 Q. And in fact, the Red River Valley water  
23 service project draft EIS has a statement in there  
24 that says, "The risks associated with buried  
25 pipelines are relatively well-characterized and

1 risk management practices are well-developed." Do  
2 you agree with that statement?

3 A. Yes, I do.

4 Q. Mr. Koland, now that you are aware of the  
5 Keystone Pipeline project and where its proposed  
6 route is going in relation to the Sheyenne River  
7 and Lake Ashtabula, are you -- does the Garrison  
8 Conservancy District have any plans to request a  
9 reopening of the EIS to address that concern or  
10 address the location of the pipeline?

11 A. No.

12 Q. Why not?

13 A. Well, I think the process for addressing  
14 the concerns on the pipeline revolve around the EIS  
15 for the Keystone Pipeline and the process that  
16 we're currently in right here.

17 Q. You don't feel that it's a risk to the  
18 water project?

19 A. The EIS for the water project is tasked  
20 with looking at what the impacts are of the federal  
21 action involved in the water project. The risks  
22 associated with the location of the Keystone  
23 Pipeline need to be addressed by this authority and  
24 by the EIS involving the Keystone Pipeline.

25 Q. Mr. Koland, I guess I have a question. If

1 you have a known petroleum pipeline that's located  
2 underneath the reservoir -- the Lake Ashtabula  
3 reservoir, which is a key component to this -- to  
4 your -- the Red River Valley water system, how can  
5 a pipeline that's located anywhere from 1.6 miles  
6 to more away from that -- does that create any  
7 different risk?

8 A. Well, I think the responsible thing to do  
9 is look at what the possible impacts of that new  
10 pipeline are and what we can do to reduce the risk  
11 as much as possible from that new pipeline.  
12 There's nothing we can do about the existing  
13 pipeline.

14 Q. As I believe it shows on Exhibit -- I  
15 think it's 4 -- F4, this is one of the preferred  
16 alternatives. There were other alternatives for  
17 bringing water from Garrison over to the eastern  
18 part of the state; isn't that right?

19 A. Yes, there were.

20 Q. And a number of those other alternatives  
21 didn't involve going into Lake Ashtabula and the  
22 Sheyenne River; is that right?

23 A. That is correct.

24 Q. And so wouldn't -- if the fact of a  
25 petroleum pipeline being, I guess, in the proximity

1 of Lake Ashtabula has some type of an effect on  
2 this project, isn't that something that should have  
3 been discussed in the EIS, isn't that pertinent to  
4 where -- which alternative should be picked?

5 A. I don't know that it would be the deciding  
6 factor in whether an alternative would be picked or  
7 not. There are a number of factors on the  
8 alternatives that were selected, some of them that  
9 were looked at in more depth. Some did not meet  
10 the comprehensive water needs for the valley. A  
11 number of them were extremely more expensive than  
12 the alternative that was chosen as the preferred  
13 alternative, so --

14 Q. Now, are you aware of the pipeline that  
15 also crosses Lake -- or not the pipeline, but the  
16 railroad that crosses Lake Ashtabula?

17 A. Yes.

18 Q. And I assume you're aware that sometimes  
19 railroads carry dangerous -- certainly dangerous  
20 products, probably more dangerous or with more  
21 contaminants than crude oil would have; is that  
22 correct?

23 A. That is correct.

24 Q. And was that factor considered in -- that  
25 risk factor considered in the EIS or mentioned in

1 the EIS?

2 A. I don't believe it was mentioned in the  
3 EIS. It was certainly considered, if for no other  
4 reason because a car blew off the trestle while the  
5 study was underway, so I know we were aware of the  
6 railroad.

7 Q. Now, as I -- and I don't understand this  
8 process certainly as well as you do, Mr. Koland,  
9 but the Department of Interior has to make a  
10 decision based on information that's provided by --  
11 certainly by Garrison Conservancy District to look  
12 at what the risks are for this project -- not just  
13 the risk caused by this project, but risks to the  
14 project in making the determination of which option  
15 that they should pick; isn't that right?

16 A. Could you restate your question a little  
17 bit?

18 Q. I'm sorry. I apologize. The question is,  
19 the Department of State has to make -- I think you  
20 said -- excuse me -- Department of Interior has to  
21 make the determination -- letter of determination,  
22 I believe was your terminology, and if they don't  
23 have all the facts concerning risks to the project,  
24 it's pretty tough for them to make a knowing  
25 decision, isn't it?

1           A.     I believe the environmental impact  
2 statement has talked about all the risks that we  
3 could reasonably foresee when we were preparing the  
4 document.

5           Q.     So the fact that you did not include  
6 existing crude oil pipelines or petroleum pipelines  
7 in that risk analysis would seem to me that at  
8 least the Garrison Conservancy District and the  
9 State of North Dakota didn't believe that those  
10 were risks to the project.

11           MR. JOHNSON:  Objection.  I think it's  
12 been asked and answered a number of times.  He said  
13 that the EIS purpose is to determine the impact of  
14 the water pipeline on the environment.

15           JUDGE WAHL:  Mr. Kelsch.

16           MR. KELSCH:  I don't --

17           JUDGE WAHL:  That has been the witness's  
18 statement, and your further question is just a  
19 little expansion of where you've been before.  Am I  
20 missing something here?

21           MR. KELSCH:  It may be a little expansion.  
22 I guess I would say it's clarification of where I  
23 was before.

24           JUDGE WAHL:  Proceed, Mr. Kelsch.  The  
25 objection is overruled, but let's -- we should be

1 able to wrap up this line of questioning.

2 THE WITNESS: I cannot honestly tell you  
3 whether or not -- I can't recall whether or not we  
4 acknowledged in the EIS that there is a pipeline  
5 under Lake Ashtabula. I strongly suspect that it's  
6 acknowledged in the document, but I cannot say that  
7 with certainty.

8 Q. (MR. KELSCH CONTINUING) And if it is not  
9 acknowledged in the document, then it was not  
10 considered to be a risk to the project?

11 A. That would be correct. That's why I'm 98  
12 percent certain that there's a line in there  
13 someplace in one of those two studies acknowledging  
14 that there's a pipeline underneath Lake Ashtabula.

15 Q. And, again, if there isn't, and my  
16 understanding is that there isn't, that would mean  
17 that you did not feel it was a risk -- or whoever  
18 created that document on behalf of Garrison  
19 Conservancy District did not feel it was a risk to  
20 the water project?

21 A. That's correct.

22 Q. And then I guess the last followup, you  
23 don't feel that Keystone is enough of a risk in  
24 this case to reopen the Red River Valley water  
25 supply EIS?

1 MR. JOHNSON: Asked and answered.

2 JUDGE WAHL: It has. I really think it  
3 has, Mr. Kelsch. Sustained.

4 MR. KELSCH: No further questions.

5 JUDGE WAHL: You've made your point. You  
6 really have.

7 JUDGE WAHL: Ms. Linderman.

8 MS. LINDERMAN: Thank you.

9

**CROSS-EXAMINATION**

10 **BY MS. LINDERMAN:**

11 Q. Mr. Koland, in your opinion dealing with  
12 the Red River Valley Water Supply Project, would a  
13 petroleum pipeline like the Keystone project pose a  
14 risk to this water pipeline?

15 A. Of course, it would pose a risk, and  
16 that's why it's important to consider the routing  
17 of the pipeline and the control measures that are  
18 in place to deal with a spill -- accidental spill  
19 or any spill that might occur.

20 Q. During his questioning Mr. Kelsch read you  
21 a statement, I believe, from the EIS, and I don't  
22 have it written down directly here, but regarding  
23 generally the risk from buried or underground  
24 pipelines. Was this EIS -- was this document  
25 tasked with looking at petroleum pipelines, all

1 pipelines generally, or water pipelines in  
2 particular?

3 A. The EIS -- the Red River Valley is the  
4 water delivery -- bulk water delivery system, so it  
5 was looking at water supply only.

6 Q. So that would have been the scope of any  
7 risk assessment of pipelines that was discussed in  
8 the document?

9 A. That is correct.

10 Q. Over what period of years has this project  
11 been planned from the very beginning stages?

12 A. Well, our records indicate that they first  
13 talked about a project like this prior to 1900, so  
14 you can take it from there.

15 Q. A long time?

16 A. Yes.

17 Q. When was the Lake Ashtabula route  
18 identified as a preferred route for the project?

19 A. The State of North Dakota was the first to  
20 identify that route, and it would probably have  
21 been in 2005.

22 Q. Okay. Has -- have you or anyone from  
23 Garrison Diversion Conservancy District, to your  
24 knowledge, had any discussions with TransCanada or  
25 any communications from them regarding the siting

1 of the Keystone Pipeline?

2 A. No.

3 Q. They haven't approached you to consult  
4 about possibly moving the pipeline one way or the  
5 other to coordinate your two projects together?

6 A. No, they have not.

7 MS. LINDERMAN: I have no further  
8 questions.

9 JUDGE WAHL: Mr. Binek.

10 **CROSS-EXAMINATION**

11 **BY MR. BINEK:**

12 Q. Do you have any recommendation as to what  
13 should be done with regard to the routing of the  
14 Keystone Pipeline?

15 A. Well, I think you need to consider  
16 carefully what measures are being taken to control  
17 a spill and what the impacts of a spill with its  
18 current routing are. If there are measures that  
19 can control that, then that's certainly a  
20 consideration. Moving it outside the drainage area  
21 of Lake Ashtabula is certainly something that  
22 should be considered. I think the technology for  
23 making a river crossing -- any time you're going  
24 under a river crossing, it's much more advanced and  
25 more care is taken when you know you're crossing a

1 river and you're exposing that risk and that risk  
2 is handled, I think much better in the measures  
3 that are usually taken when you're crossing a  
4 river. In this situation what was of concern was  
5 paralleling Lake Ashtabula for pretty much the  
6 distance of Lake Ashtabula, it just increases the  
7 exposure to some type of accidental spill.

8 Q. Referring to Exhibit 4, I notice on the  
9 left-hand side there's the statement,  
10 "Rehabilitation of Snake Creek Pumping Plant and  
11 McClusky Canal." What does that mean?

12 A. The Snake -- as part of the project, there  
13 is some minor work to be done at the Snake Creek  
14 Pumping Plant. The Snake Creek Pumping Plant now  
15 operates -- is fully operational, as is the  
16 McClusky Canal, up to the point before it crosses  
17 into the Hudson Bay drainage area, but there is  
18 continual maintenance that's done on both of those  
19 facilities.

20 Q. And this biota treatment plant that's  
21 shown on the map as circled with a B in it, where  
22 is that -- the proposed location of that plant  
23 relative to some community up in that area?

24 A. It's approximately a mile or two north of  
25 McClusky.

1 MR. BINEK: Okay. I have no further  
2 questions.

3 JUDGE WAHL: Questions from the  
4 Commission. Commissioner Clark.

5 COMMISSIONER CLARK: Just a couple. Thank  
6 you.

7 **EXAMINATION**

8 **BY COMMISSIONER CLARK:**

9 Q. Just for the record so that we've got it  
10 here today, has Garrison Diversion Conservancy  
11 District taken a position on the pipeline, itself,  
12 formally?

13 A. On the Keystone Pipeline?

14 Q. Yes.

15 A. No, they have not.

16 Q. Okay. I'm going to ask this because I  
17 think the -- I'm going to give you a chance to  
18 respond because I think the allegations have been  
19 raised, but has kind of been tiptoed around a  
20 little bit. It seems pretty clear that TransCanada  
21 has made a case that there's some hypocrisy maybe  
22 on the side of North Dakota political subdivisions  
23 in being in favor of bringing drinking water over  
24 existing threats, perhaps threats that are greater  
25 than the Keystone Pipeline, whether they be

1     railroads or existing pipelines, while opposing a  
2     project that at least on the face seems further  
3     away and potentially less threat, and I want to  
4     give you the opportunity -- having teed it up as  
5     that particular question, give you an opportunity  
6     to respond.

7           A.     I don't -- I don't think -- Fargo will  
8     speak for itself, but I don't think the water  
9     systems in North Dakota are opposing the project at  
10    all. All they are trying to do is make sure that  
11    when the pipeline location is determined, that it's  
12    in the safest possible way to protect our water  
13    resources. We acknowledge that it may appear that  
14    way, but trying to find the best location -- and  
15    apparently we've had two EISs going on here, one on  
16    the Keystone Pipeline, one on the Red River Valley,  
17    and no -- zero communication between the two  
18    processes on what would be better for your process  
19    and what would be better for our process. And I  
20    think that's all we're trying to point out, is that  
21    we can't do much about the existing pipelines and  
22    we certainly in the future need to be aware that if  
23    we build the Red River Valley Water Supply Project,  
24    that is our only backup water supply for these  
25    communities. We've looked in both Minnesota and

1 North Dakota. There is no other water supply  
2 besides the Missouri River for North Dakota, and so  
3 that's -- I think that's our objective in this, is  
4 to try to find something that will be ultimately  
5 good for North Dakota.

6 Q. Thanks. And then one -- this may be just  
7 sort of a curiosity comment more than direct  
8 relevance, but the -- why was the route chosen with  
9 the pipeline project, itself, to have a biota  
10 transfer facility built in the McClusky Canal and  
11 then piped across as opposed to using the rest of  
12 the existing diversion, including the New Rockford  
13 Canal?

14 A. Throughout North Dakota's history in water  
15 projects, Canada has objected mightily to most  
16 everything that we have attempted to do with water  
17 in North Dakota. This plan meets the goals that  
18 Canada finally set out, would agree that if this  
19 project would meet these goals, which the biota  
20 treatment plant is a water treatment plant that  
21 treats it a couple levels higher than any existing  
22 water treatment now existing in North Dakota, it  
23 was decided that it was better to do that than  
24 continue to fight and lose on the fronts with  
25 Canada, itself.

1           Q.     Right.  I may need to be a little more  
2           specific in my question.  Could the biota treatment  
3           plant be built in that location, but then utilize  
4           the existing Sheyenne River after the biota  
5           treatment plant and the New Rockford Canal as  
6           opposed to directly building the pipeline at that  
7           spot in the McClusky Canal?  You would save  
8           pipeline construction costs by utilizing existing  
9           infrastructure.

10          A.     One of the problems that we have is that  
11          if we were to put water into the Sheyenne River in  
12          what's called the Upper Sheyenne River, the  
13          pipeline is 120-cfs pipeline, that's about 80  
14          million gallons a day.  That's beyond the capacity  
15          of the Upper Sheyenne River, so we would --

16          Q.     Okay.

17          A.     Because of the water losses, we'd need to  
18          put between 350 cfs in the Upper Sheyenne, and that  
19          would create environmental impacts that would raise  
20          more objections to the project.  So the end result  
21          is that we ended up with a project here that is an  
22          environmental benefit to the Sheyenne River rather  
23          than a detriment to the Sheyenne River.

24                    COMMISSIONER CLARK:  Thank you.

25                    JUDGE WAHL:  Further questions?

1 Commissioner Cramer.

2 COMMISSIONER CRAMER: All I would say --  
3 and Tony asked a couple questions I was going to  
4 ask, but I wish you all the luck in the world  
5 because I feel your pain in getting this project  
6 done, and I hope that there are regulators as  
7 reasonable as the three of us on the other end of  
8 your project. Good luck. Thanks.

9 COMMISSIONER WEFALD: I have a question.

10 JUDGE WAHL: Commissioner Wefald.

11 **EXAMINATION**

12 **BY COMMISSIONER WEFALD:**

13 Q. On the federal EIS with this water  
14 pipeline, is the -- I'm trying to get a concept of  
15 what the EIS covers. It covers the environmental  
16 disturbance that will be caused by putting a water  
17 pipeline in, itself? Is that one part of it?

18 A. That's one part of it, yes.

19 Q. And then the other part of the EIS is when  
20 the water reaches Lake Ashtabula, how it will  
21 travel through the Sheyenne River to the City of  
22 Fargo and to Grand Forks?

23 A. Yes.

24 Q. Is that another part? So there's really  
25 two distinct, because when you have water inside a

1 water pipeline, that's different concerns, and then  
2 you have water traveling through open river bodies,  
3 that's another concern?

4 A. Yes.

5 Q. So the EIS was supposed to cover -- is  
6 covering both?

7 A. That is correct.

8 Q. Then I just want to clarify again one more  
9 time then for myself. In the EIS that was filed in  
10 January of 2007, you said you looked at the  
11 pipelines' locations -- the oil pipelines in North  
12 Dakota. At first you said they were not mentioned  
13 in the EIS, but then did you agree with the  
14 sentence or two that mentioned the pipelines in the  
15 statement that Mr. Kelsch read to you?

16 A. Yes, I did.

17 Q. You did. Okay.

18 A. And that's why I said I cannot  
19 specifically tell you where in the EIS it was  
20 acknowledged that there was a pipeline under Lake  
21 Ashtabula.

22 Q. Okay.

23 A. I'd have to go back and refresh my memory  
24 and look at the document.

25 COMMISSIONER WEFALD: All right. Thank

1       you.

2                   JUDGE WAHL:  Any further questions from  
3 any of the Commissioners?  Followup, Mr. Johnson?

4                   MR. JOHNSON:  No questions.

5                   JUDGE WAHL:  Mr. Kelsch?

6                   MR. KELSCH:  Your Honor, since there is a  
7 little question on this issue of whether the other  
8 pipeline was mentioned in the EIS, rather than  
9 filing 600 -- 900-some pages, I guess I would  
10 request that, if this witness is able to do it, to  
11 pull out that reference and submit it as a  
12 late-filed exhibit to the PSC.

13                   JUDGE WAHL:  It strikes me a little  
14 unusual for a party to request a late-filed  
15 exhibit.  I'm not -- I'm not sure that I see the  
16 basis for that, Mr. Kelsch.

17                   MR. KELSCH:  The basis --

18                   JUDGE WAHL:  I mean, that comes from  
19 the -- that request ordinarily comes from the  
20 Commission or Commission's counsel.

21                   MR. KELSCH:  I guess my -- and I  
22 understand that, Your Honor.  I'm certainly willing  
23 to submit the two -- the draft EIS and the draft  
24 supplemental EIS.  I'm guessing that the Commission  
25 and the Commission's counsel would not like to read

1 through some 900-some pages and Mr. Koland, since  
2 he said he thought it was in there, it may be  
3 easier for him to attempt to locate it.

4 JUDGE WAHL: Of course, the question is  
5 whether 600 or 900 pages is relevant. It sounds to  
6 me like this is your problem, Mr. Kelsch.

7 MR. KELSCH: Okay.

8 JUDGE WAHL: All right. Anything further?

9 MR. KELSCH: Yes.

10 **RE-CROSS-EXAMINATION**

11 **BY MR. KELSCH:**

12 Q. Mr. Koland, of course, you weren't here at  
13 the previous hearing, but Ms. Heidi Tillquist  
14 testified, and it's on Exhibit T24, that one of  
15 your concerns you mentioned is because this  
16 pipeline goes all along the whole length of Lake  
17 Ashtabula, that that had more of a concern than  
18 maybe just a single river crossing; is that  
19 correct? Ms. Tillquist, who is an expert in spill  
20 analysis, has testified that there are -- because  
21 that land is so flat where the pipeline is going,  
22 that there's only about a 2.8 miles of pipeline  
23 segment that if there was even a large leak, that  
24 the oil could actually get to Lake Ashtabula. Does  
25 that narrowing -- assuming that that's true, does

1 that narrowing of that risk impact your concern or  
2 help alleviate some of your concern of the  
3 impact -- potential impact to Lake Ashtabula?

4 A. My understanding is that the pipeline is  
5 in the drainage area of Lake Ashtabula for a much  
6 longer distance than two and a half miles.

7 Q. I agree it's in there. The testimony was  
8 basically that the only way for the oil to --  
9 because of the flat terrain to get to the lake, it  
10 would have to be carried there by a flowing stream  
11 and that the oil will not transfer -- travel more  
12 than maybe a half a mile to get to a flowing stream  
13 given the terrain and so that limits the ability of  
14 the oil to actually get there to being close to  
15 existing streams that would feed into the Lake  
16 Ashtabula, which limits the area of pipeline  
17 segments where a leak could happen to about 2.8  
18 miles rather than the 90-some miles or so on the  
19 river system.

20 MR. JOHNSON: Sorry. I have to object.  
21 If I understand that question, it's very  
22 argumentative and beyond the witness's scope of  
23 knowledge.

24 JUDGE WAHL: Well, the witness can answer  
25 the question. I'm not sure it's argumentative.

1 It's cross-examination. You may answer the  
2 question.

3 THE WITNESS: I don't know how I can judge  
4 that without having a more detailed look at the  
5 terrain. Our concern is that as long as it's  
6 within the identified watershed, what is the  
7 potential.

8 Q. (MR. KELSCH CONTINUING) Have you done  
9 any -- you have not done any studies --

10 A. No, I have not. No.

11 Q. -- that would see whether a leak within  
12 that watershed could actually get there?

13 A. No, I have not.

14 Q. Now, you mentioned about moving --  
15 potentially moving the pipeline out of the  
16 watershed area to the east. Have you done any  
17 studies on or looked into the potential impacts to  
18 the other drainage areas of the pipeline being  
19 moved over or other environmental concerns?

20 A. No.

21 MR. KELSCH: No further questions.

22 JUDGE WAHL: Ms. Linderman?

23 MS. LINDERMAN: Nothing further. Thank  
24 you.

25 JUDGE WAHL: Mr. Binek?

1 MR. BINEK: Nothing further.

2 JUDGE WAHL: Any further questions from  
3 the Commission?

4 COMMISSIONER CRAMER: No.

5 COMMISSIONER WEFALD: No.

6 JUDGE WAHL: Followup, Mr. Johnson?

7 MR. JOHNSON: No. Thank you.

8 JUDGE WAHL: Thank you very much, Mr.  
9 Koland. Next, Mr. Johnson.

10 MR. JOHNSON: Call Bruce Long, Your Honor.

11 JUDGE WAHL: Mr. Long, as you have heard  
12 me inform other witnesses, your testimony is  
13 required to be under oath and I'm required by law  
14 to advise you regarding perjury before  
15 administering the oath. Perjury is a false  
16 statement of material fact which you do not believe  
17 to be true; in other words, generally speaking, a  
18 lie. In North Dakota perjury is a Class C felony,  
19 punishable by a fine up to \$5,000, imprisonment for  
20 a period of up to five years, or both. Will you  
21 raise your right hand, please?

22 (Witness sworn.)

23 JUDGE WAHL: Mr. Johnson.

24 **BRUCE W. LONG,**

25 being first duly sworn, was examined and testified

1 as follows:

2

**DIRECT EXAMINATION**

3

**BY MR. JOHNSON:**

4

Q. State your full name, please.

5

A. My name is Bruce Long.

6

Q. And that's L-o-n-g?

7

A. L-o-n-g, mm-hmm.

8

Q. And are you -- what's your current

9

occupation, Mr. Long?

10

A. My title is vice president and global

11

water -- potable water practice and technology

12

leader for Black & Veatch.

13

Q. Did you say global potable water --

14

A. Yes.

15

Q. -- of Black & Veatch? And Black & Veatch

16

is what kind of company?

17

A. It's an engineering and construction

18

company.

19

Q. And where do you reside?

20

A. I reside in Kansas City, Missouri.

21

Q. And Black & Veatch -- you've just

22

described the scope of that company's endeavors

23

generally?

24

A. Basically Black & Veatch is engaged in the

25

design, sometimes the construction, of power

1 stations and potable water and wastewater treatment  
2 facilities, also does work for the federal  
3 government for various projects.

4 Q. And could you give us a sense of your  
5 educational background?

6 A. I have a B.S. in chemical engineering from  
7 Lehigh University, I have an M.S. in environmental  
8 science from Rutgers University, and I'm a Ph.D.  
9 all but dissertation in environmental health  
10 engineering from Kansas University.

11 Q. And generally speaking, on a day-to-day  
12 level what are your activities in your position  
13 with Black & Veatch?

14 A. My responsibilities are the assessment and  
15 prescription of the processes to be engaged in in a  
16 water treatment plant for projects worldwide.

17 Q. So it's fair to say you design water  
18 treatment plants?

19 A. I don't do the brick and mortar, but the  
20 chemical and reaction considerations as far as the  
21 unit processes that are integrated into a water  
22 treatment plant, that is what I do.

23 Q. And I don't know much about this, but is  
24 that where the chemical engineering background you  
25 have comes into play?

1           A.    It helps a lot.  Yes, it does.

2           Q.    I hand you what's been marked as Fargo  
3 Exhibit 11.  Tell us what that is, please.

4           A.    That is my resume from Black & Veatch.

5           MR. JOHNSON:  Offer Exhibit 11.

6           JUDGE WAHL:  Mr. Kelsch?

7           MR. KELSCH:  No objection, Your Honor.

8           JUDGE WAHL:  Ms. Linderman?

9           MS. LINDERMAN:  No objection.

10          JUDGE WAHL:  Mr. Binek?

11          MR. BINEK:  No objection.

12          JUDGE WAHL:  Exhibit 11 is received.

13          Q.    (MR. JOHNSON CONTINUING)  How long have  
14 you been designing these systems?

15          A.    Been with Black & Veatch for 28 years, and  
16 it's been for about a 25-year period.

17          Q.    Are you familiar with Fargo, North  
18 Dakota's water treatment plant?

19          A.    I'm very familiar with Fargo's water  
20 treatment plant.

21          Q.    How is it that you're familiar with it?

22          A.    I was -- I was assigned the position of  
23 senior process engineer for the design of the  
24 processes that are included in the Fargo water  
25 treatment plant.

1 Q. And we've had testimony already it was  
2 built in the early '90s, came on board in 1997, I  
3 believe.

4 A. That is correct.

5 Q. Were you involved in that period of time  
6 with --

7 A. I was involved in the early stages. What  
8 I primarily do is, I do raw water quality  
9 assessment, I look at finished water quality  
10 parameters and then prescribe the unit processes or  
11 the treatment processes that are entailed to take a  
12 raw water from a certain quality to provide a  
13 potable water quality that meets not only the  
14 current, but foreseeable, future regulations.

15 Q. And is it fair to say that different  
16 cities have different needs for how their water is  
17 treated?

18 A. Absolutely, and that is very much a  
19 function of what the raw water quality is. Also,  
20 has a lot to do with what the community preferences  
21 might be, but, also, they always have to comply  
22 with federal and/or state regulations.

23 Q. Did Fargo, for example, have any unique  
24 aspects to its water treatment requirements?

25 A. Yes, it did. Prior to the new water

1 treatment plant, one of the problems that was  
2 recurrent with the old treatment plant was that  
3 there was a lot of taste and odor issues so that  
4 the city would receive a number of complaints per  
5 year for malodorous water at customers' taps. One  
6 of the prescriptive measures given as direction for  
7 the new water plant was that there were to be no  
8 taste and odor issues.

9 Q. And did your design of the process, if I'm  
10 using that term correctly -- design of the process,  
11 was that developed to take care of that problem?

12 A. Yes, it was. And we actually engaged some  
13 of the public to be involved in assessing the  
14 satisfactory nature of the water. We did a pilot  
15 study which mimicked what the full-scale plant  
16 would be.

17 Q. Is it fair to say that Fargo's water  
18 treatment plant is state-of-the-art technology?

19 A. It is state-of-the-art technology, yes, it  
20 is.

21 Q. And in terms of water plants being  
22 designed and built over the past 10 years, how does  
23 Fargo's treatment plant rank in that regard?

24 A. Fargo has a unique situation among many  
25 midwestern water supplies in that they have a hard

1 water. That means there's a lot of calcium and  
2 magnesium in the water. Consequently, one of the  
3 key components of the treatment process for Fargo  
4 is a softening process. Softening again reduces  
5 calcium and magnesium, but does not really address  
6 taste and Odor issues. Consequently, the treatment  
7 process for Fargo includes an ozone treatment  
8 process, and that is state-of-the-art disinfection  
9 technology. It also happens to be effective for  
10 taste and odor control. One other thing, though,  
11 that the plant has that a lot of other softening  
12 plants do not have is it does have a pretreatment  
13 facility where solids are removed prior to the  
14 water entering the actual treatment plant, itself.

15 Q. Now, it's now 10 years old, put into  
16 service in 1997. Is it still state of the art even  
17 though it's 10 years old?

18 A. For a precipitative softening process such  
19 as Fargo has, it is still state-of-the-art  
20 technology. I like to think that that has to do  
21 with the visionary nature that we were charged with  
22 by the City of Fargo when we were tasked with  
23 designing the plant.

24 Q. Of course, the purpose of the discussion  
25 and the hearing today is to deal with the

1 possibility of crude oil from the Keystone Pipeline  
2 getting into the Sheyenne River, and we've already  
3 heard that there is intake from the Sheyenne River  
4 into Fargo's water treatment plant. Are you  
5 familiar with the intake?

6 A. I'm aware of the intake, yes.

7 Q. If there were a spill of crude oil  
8 upstream of that intake and the product of that  
9 spill was brought into the plant, would this plant  
10 be capable of treating that water?

11 A. The plant would not be capable of treating  
12 this water. It would be -- not only would it  
13 damage some of the processes, the equipment, but it  
14 would also be incapable of producing water that  
15 would even approximate finished water standards for  
16 entering a distribution system.

17 Q. What is it that would happen to the  
18 plant -- the water treatment plant?

19 A. The nature of crude oil, and I don't  
20 profess to be a crude oil expert, but there's a lot  
21 of heavy hydrocarbons in a heavy crude oil such as,  
22 I believe, is what's being planned for transport in  
23 this pipeline. These are hydrophobic materials.  
24 As a result of being hydrophobic, they tend to want  
25 to get away from water and, consequently, they will

1 coat surfaces. So that for an intake, the bar  
2 screens, the pipeline conveyance to the treatment  
3 plant would become coated with this product, the  
4 hydrocarbons from the crude oil. If staff was not  
5 able to intercept that --

6 MR. KELSCH: Your Honor, I'm going to  
7 object to this line of questioning. I don't think  
8 there's been any foundation established that crude  
9 oil could get from either Lake Ashtabula or the  
10 Sheyenne River all the way to Fargo -- the actual  
11 crude oil. So I don't believe any foundation has  
12 been laid for this testimony concerning actual  
13 crude oil getting into the intake system or the  
14 water treatment plant.

15 JUDGE WAHL: Mr. Johnson.

16 MR. JOHNSON: Well, we will be introducing  
17 evidence regarding risk analysis of crude oil  
18 getting to the City of Fargo, so we'll tie it up  
19 later. And certainly this witness's scope is not  
20 to talk about that transportation of the crude oil,  
21 but what happens if it got into the intake.

22 JUDGE WAHL: Technically I think your  
23 objection is well-founded, Mr. Kelsch, but the  
24 problem is, I expect that this will come together  
25 later, which is what Mr. Johnson has said. There

1 may be a failure of proof here, but I think the  
2 witness should be allowed to testify. The  
3 objection is overruled.

4 Q. (MR. JOHNSON CONTINUING) You know, and I  
5 might just ask, just assume for purposes of your  
6 testimony that some crude oil were to get into the  
7 intake for purposes of your answer, so you can use  
8 that as an assumption in making your -- giving your  
9 testimony and your opinion.

10 A. If crude oil was to get into the intake  
11 and it was actually conveyed into the water  
12 treatment plant, the water treatment plant would  
13 have to be shut down. Hopefully, proactive  
14 measures would minimize the amount of equipment  
15 that was exposed to the crude oil before any  
16 additional waters were brought into the system. If  
17 there was advance notice that a plume was coming  
18 down the Sheyenne, basically if -- with forewarned  
19 notice of when that was coming, they could shut  
20 down their intake, hopefully then be able to not  
21 have any crude oil products brought into the  
22 treatment plant, itself.

23 Q. Let's talk for just a moment, though,  
24 about this problem of the hydrocarbons coating  
25 surfaces.

1           A.     Mm-hmm.

2           Q.     The surfaces you're talking about include  
3 the intake pipeline, itself, and what other parts  
4 of the plant would get coated?

5           A.     Now, again, it's a matter of where do we  
6 stop the process.  If we assume -- if I assume that  
7 they would have stopped it prior to it entering the  
8 treatment plant, we then have the pipelines and the  
9 intake that would have become coated with these  
10 compounds.  What would be required would be to  
11 remove these adsorbed organic compounds from the  
12 pipeline and intake before that water could again  
13 be reintroduced into the water treatment plant.

14          Q.     Let's just assume for this part of your  
15 testimony that oil got into the plant, itself, it's  
16 beyond the intake seven miles and somewhere into  
17 the plant the crude oil gets.  What would happen to  
18 the plant and its treatment of water?

19          A.     It would be totally handicapped.  There  
20 are no unit processes in the treatment plant that  
21 are designed for the removal of or the  
22 accommodation of hydrophobic compounds, so,  
23 consequently, it would coat surfaces and the plant  
24 would have to be taken down and a very lengthy  
25 procedure of cleaning that plant would have to be

1       undertaken, so it would take a long time.

2           Q.     What kind of a time frame are you talking  
3       about?

4           A.     I've got to believe that it would take  
5       weeks.   Weeks.   And I would think the Public Health  
6       Department would be very much a player in that and  
7       be very prescriptive as to what they would require  
8       before they would allow the plant to begin  
9       producing water again.

10          Q.     And during the period of time you said it  
11       would take to clean the plant, would the plant be  
12       out of operation?

13          A.     The plant would be out of operation.

14          Q.     Now, you had said previously, you know, it  
15       might be different if you were able to stop the  
16       influx of crude oil prior to getting into the  
17       plant, itself.

18          A.     Mm-hmm.

19          Q.     And by that do you mean if it just stayed  
20       in the intake -- this six- or seven-mile intake  
21       tube?

22          A.     Yes.

23          Q.     But if even it stopped it there, what  
24       would happen to the operations of the plant?

25          A.     These materials would have to be desorbed,

1 removed from the surfaces, disposed of in some  
2 manner, and the pipeline would have to be declared  
3 clean before they could begin using Sheyenne River  
4 water again. A question was raised earlier about  
5 carbon. They do have powdered activated carbon  
6 feed capabilities for this water treatment plant,  
7 and prudent practice would be to add powdered  
8 activated carbon for some period of time until such  
9 time as we were sure there were no regulated or  
10 potential health-threatening compounds being  
11 brought into the water treatment plant through,  
12 say, desorption in the pipeline.

13 Q. Let's talk about the cleaning process. I  
14 mean, is it a situation where a human being takes a  
15 bucket and a scrub brush and cleans the surfaces,  
16 or how exactly is it you clean?

17 A. I have a feeling that that is very much  
18 what would be entailed, that would be one of the  
19 steps. In candor, I have not personally  
20 experienced a pipeline that has been contaminated  
21 in this manner other than spills that -- as an  
22 example, on the Ohio River where there's a lot of  
23 barge traffic, there's a lot of petrochemical  
24 facilities in West Virginia, there have been spills  
25 on the Ohio River. The City of Cincinnati in

1 particular has been influenced by these, and what  
2 they will do is, they will shut down their intake.  
3 They have the luxury of having a very substantial  
4 quantity of raw water storage before their water  
5 plant, so they can kind of close down their intake,  
6 use the raw water that is stored off line while  
7 they're cleaning their intake before they put the  
8 water back on line.

9 Q. The process of just cleaning the intake  
10 pipe, without having to go into the plant, itself,  
11 how long of a cleaning process does that take?

12 A. I have to believe that would be a matter  
13 of several days to a week. And then, again, it  
14 would be a matter of what would be to the  
15 satisfaction of the State Health Department.

16 Q. Now, then you mentioned having some kind  
17 of warning system.

18 A. Yes.

19 Q. What are you referring to there?

20 A. A warning system would be some kind of  
21 on-line, continuous monitoring equipment. What  
22 typically is done, and some of the big river  
23 systems have this -- two examples would be the Ohio  
24 River through the Ohio River Sanitation Commission,  
25 and the second would be the Central Arizona project

1 that takes Colorado River water from Lake Havasu on  
2 down to Mexico. That's monitored by the U.S.  
3 Bureau of Reclamation. But what they have is, they  
4 have stations along the river that take continuous  
5 measurements of certain water quality parameters,  
6 and those are on line and available to water  
7 utilities that are using that water. In the case  
8 of the Ohio River Sanitation Commission, they use  
9 organic carbon monitors in addition to pH  
10 temperature and, also, they have a level gauge that  
11 tells them the flow in the river at any point in  
12 time.

13 Q. And exactly how -- without getting into  
14 the chemistry exactly, how do these warning systems  
15 sense an oil spill?

16 A. They would sense an oil spill through the  
17 change in the regular database of the parameters  
18 being measured. I don't -- I'm not aware of  
19 equipment that will specifically tell you that a  
20 petrochemical spill has occurred, but what they  
21 will tell you is there either is a difference in  
22 the amount of volatile compounds in the water or  
23 there's a difference in the level of organic carbon  
24 in the water. But what happens there is the way  
25 these systems can tell a change has taken place is

1 if as more of the database gets built up so you can  
2 tell what is an anomaly so you don't have false  
3 positives as opposed to a real event.

4 Q. So you said it senses both the volatile  
5 compounds. Are those the compounds in oil, for  
6 example, that evaporate?

7 A. That is correct.

8 Q. So in effect these sensors would smell --

9 A. They would smell them.

10 Q. -- smell the stuff?

11 A. Yes.

12 Q. And then the other thing was -- you said  
13 volatile compounds and then something else.

14 A. Total organic carbon.

15 Q. Total organic carbon. So that is a --  
16 organic carbon is a feature of oil?

17 A. Yes. Yes.

18 Q. How does it sense that?

19 A. Basically it does a measurement of a  
20 spectro -- it does a spectrophotographic detection  
21 at a certain wavelength of compounds, may not be  
22 effective for crude oil. I have not researched  
23 that. I don't know. But I do know as a  
24 conventional prewarning system on big rivers, that  
25 organic carbon monitors are used.

1           Q.     Now -- and typically where are these  
2 warning systems installed?

3           A.     They are installed at points along a  
4 river, number one, where they can get access.  
5 Number two, and a very important point here, is  
6 that for a monitoring system, it is only as good as  
7 it is maintained. So that the systems don't  
8 continue to read reliably, they have to be  
9 calibrated periodically. Like having your engine  
10 checked out, they have to be periodically  
11 maintained.

12          Q.     And so in this case the proposed Keystone  
13 Pipeline, for example, crosses the Sheyenne River  
14 somewhere at a place -- I don't know if you know  
15 where Fort Ransom is, but some distance away from  
16 Fargo, some distance upstream.

17          A.     Mm-hmm.

18          Q.     Would there be some kind of an instrument  
19 put into place near there downstream of the  
20 crossing point?

21          A.     I would certainly suspect that would be  
22 one key point, but another issue would be that if a  
23 spill was to occur and on day one over a period of  
24 four hours oil was released to the water, by the  
25 time it traverses the number of miles to your

1 intake, that will disperse, and so instead of  
2 occurring over a four-hour period, that may  
3 actually tail out to be two days, may end up being  
4 16 hours. I don't know the dispersion, and water  
5 models for the Sheyenne River could help delineate  
6 that under certain flow conditions. But the point  
7 being is, you get what's called a chromatographic  
8 effect, where basically the compounds will -- some  
9 will move faster and some will move slower, and as  
10 a result, what may be a four-hour spill may be an  
11 occurrence of more than -- certainly more than four  
12 hours, perhaps 24 hours or more at the actual  
13 intake long distance down from where the spill  
14 occurred.

15 Q. So the warnings -- you're saying that the  
16 warning instruments have to be in one place, but  
17 they might need to be at other places along the way  
18 so you can see how long this plume, I guess they  
19 call it, may have extended?

20 A. That's good practice, yes.

21 Q. And then the idea is if you have warning,  
22 what would you doing if you learned of an oil spill  
23 occurring -- what would the Fargo treatment plant  
24 do?

25 A. Well, as I know the staff at the Fargo

1 water treatment plant, what they would do is, if  
2 they heard a spill had occurred, they would begin  
3 to, first of all, prepare based upon their estimate  
4 of when it would occur to have their storage tanks  
5 as full as possible before that contaminant event  
6 got to the -- in proximity of their intakes, then  
7 they would shut down their intakes, I would imagine  
8 some kind of a public notification would take place  
9 to absolutely curtail water consumption to the  
10 minimum possible, and then they would have to just  
11 work with the water they've got until they can put  
12 the system back on line.

13 Q. Now, you mentioned an example of  
14 Cincinnati and the Ohio River. There they have an  
15 early warning system?

16 A. Yeah, they do, and it's --

17 Q. And if there have been oil spills from  
18 tankers or whatever, they've been able to sort of  
19 shut down the intake from the Ohio River?

20 A. That's been their practice.

21 Q. But you mentioned they still have some  
22 cleaning to do?

23 A. They still have to remove residual  
24 contaminants off of their intake. If a surface is  
25 exposed, there is a likelihood of being --

1 especially with crude oil-type compounds, which are  
2 very hydrophobic, they will coat surfaces, and so  
3 even though maybe you haven't drawn water into the  
4 intake, if they come in contact, they will coat  
5 that surface. If you have been in water where  
6 there has been oil, it will coat your skin even  
7 though you may not have purposely brought it to  
8 your skin. So it's the same type of thing, and  
9 then you just have to remove it.

10 Q. And is that -- how much time would it take  
11 to perform that type of cleaning?

12 A. If it's just the intake, itself, again,  
13 that is a couple days, and what may extend that  
14 process is what kind of approval mechanism the  
15 Department of Health would require.

16 Q. Do you have a sense as to the cost of  
17 these warning systems?

18 A. It would really be conjecture. I'm sure  
19 it's several hundreds of thousands of dollars, but  
20 I think the bigger issue with these monitoring  
21 systems is you would have to have staff to maintain  
22 them, and I would imagine staff with the size of --  
23 if they were just dedicated to providing on-line  
24 monitoring data and maintaining the system and  
25 satisfying the needs of water utilities, there

1 would probably be a staff of two to three people.

2 Q. Do you have an understanding as to sort of  
3 the range of costs that a warning system might be?

4 A. I would think the equipment, itself, would  
5 be something under a million dollars, but it would  
6 depend upon, also, the number of locations at which  
7 this monitoring equipment was located.

8 Q. Now, you were here -- you have been here  
9 all morning, have you not?

10 A. I have been, yes.

11 Q. You heard the testimony of Bruce Grubb  
12 talking about water storage for Fargo?

13 A. Yes.

14 Q. And he testified that Fargo's water  
15 storage was sort of close to their average daily  
16 consumption rate, about 12 million gallons; is that  
17 right?

18 A. Yes.

19 Q. Are you familiar in your 20-some years of  
20 work in designing water processes and helping in  
21 the construction of them, familiar with other  
22 examples throughout the nation, if not world, of  
23 other cities' water storage capacities?

24 A. Having an average day storage in a  
25 distribution system is on the upper end of what I'm

1 familiar with. I'm more familiar with systems that  
2 may have a half day at average day to maybe three-  
3 quarters of a day, something on that order. And  
4 one of the reasons that's important -- there are a  
5 couple issues here. One is that you have to have  
6 enough water to satisfy fire demands, so that that  
7 is a component of how much storage is in a  
8 distribution system. Secondly, it has a lot to do  
9 with how much ramp up and ramp down, this  
10 production raising and lowering capabilities the  
11 water plant has. But basically another thing is we  
12 try to keep the water age -- from the time water  
13 leaves a water treatment plant till it reaches the  
14 customers' taps, we try to keep that to something  
15 on the order of seven days or less because with  
16 time water quality will degrade.

17 Q. So if Fargo has water reserves of one  
18 day's typical supply, is that more favorable or  
19 less favorable than the typical U.S. city?

20 A. Under the scenario that we're here today,  
21 that is more advantageous.

22 Q. And you mentioned that Cincinnati, if they  
23 had an oil spill, they shut off their intake. They  
24 have some raw water storage?

25 A. That is correct.

1 Q. Are there any limitations you're aware of  
2 Fargo has to raw water storage?

3 A. Just available space. And if I recall the  
4 picture that was shown as to the siting of the  
5 plant, that was a pretty cramped location, so you  
6 do not have a lot of space available for storage  
7 reservoirs.

8 Q. Does topography come into play, as well,  
9 in terms of raw water storage?

10 A. It sure does. Yeah, they're usually up  
11 high.

12 Q. If you're in Denver, you can store some  
13 water up in the hills somewhere?

14 A. Absolutely. And I said you want to keep  
15 the water -- the storage out of the floodplain.

16 Q. Fargo would have to construct some kind of  
17 water storage. They don't have natural topography  
18 to hold it?

19 A. No, they do not.

20 MR. JOHNSON: No further questions.

21 JUDGE WAHL: Mr. Kelsch.

22 MR. KELSCH: Thank you, Your Honor.

23 **CROSS-EXAMINATION**

24 **BY MR. KELSCH:**

25 Q. Mr. Long, you testified that you were part

1 of, I think you called it, the visionary design of  
2 the Fargo water treatment plant. Did you in that  
3 design consider any procedure to deal with a  
4 potential oil -- crude oil spill or petroleum oil  
5 spill?

6 A. We did not.

7 Q. Now, were you aware that there are and  
8 were at that time in 1997 crude oil pipelines and  
9 petroleum pipelines that cross the Red River and  
10 the Sheyenne River and Lake Ashtabula upstream of  
11 the Fargo intake systems?

12 A. That was not a factor that we were aware  
13 of that we considered in the design of the plant.

14 Q. So that would not be a risk that you  
15 would -- would concern the construction of the  
16 plant or the treatment of water?

17 A. If we were -- that is correct. And one of  
18 the reasons for that is simply the cost entailed.  
19 If we were to put in prophylactic measures in the  
20 event of something like that, it would be very,  
21 very expensive and would probably not be used very  
22 often.

23 Q. And in fact there's hundreds of thousands  
24 of pipe -- crude oil and petroleum pipelines across  
25 the country; is that right? Have --

1 JUDGE WAHL: Your answer is yes?

2 THE WITNESS: I'm sorry. The answer is  
3 yes. I'm assuming there are. I don't know how  
4 many there are.

5 Q. (MR. KELSCH CONTINUING) There are a lot  
6 of them, though?

7 A. Okay.

8 Q. Have you -- have you in your treatment --  
9 in 25 years have you run -- either worked on a  
10 public water system that actually got crude oil  
11 into it from a pipeline leak?

12 A. I have not.

13 Q. Have you heard of any?

14 A. I -- I have none that come to mind at this  
15 moment.

16 Q. So for all those miles of pipeline and a  
17 lot of water treatment plants on rivers, the risk  
18 must not be very great; fair statement?

19 A. I'm not sure how to quantify "great," but  
20 it's not something that is sufficient that we  
21 design specifically to address if the problem were  
22 to occur.

23 Q. Do you know what type of concentration of  
24 petroleum hydrocarbons would affect a water  
25 treatment system?

1           A.    I don't know the absolute number, but I  
2 would suggest a couple ways to determine that.  
3 Number one is, there are maximum contaminant levels  
4 allowed for certain specific compounds in finished  
5 waters, benzene, toluene and xylene being some  
6 examples of ones that are specifically regulated.  
7 What you would have with a spill type of problem in  
8 addition to handicapping the treatment plant is you  
9 get into aesthetic considerations, and it's a  
10 matter in addition to the health compounds at what  
11 level is a slight sheen on water acceptable to your  
12 consumers and when have you lost their confidence.

13           Q.    Do you know what -- do you know the  
14 amount -- or the actual concentration amounts, or  
15 you don't know that exactly; is that --

16           A.    I do not know that concentration.

17           Q.    Do you have any expertise in -- the  
18 testimony was that it's about 236 miles or so from  
19 Baldhill Dam to the -- to Fargo's water intake  
20 system, of course, less from Fort Ransom up there,  
21 but still quite a considerable number of miles.

22           A.    Mm-hmm.

23           Q.    Do you have any expertise in what happens  
24 to hydrocarbons as they go along the river or how  
25 much they would have to spill to actually get to

1 Fargo?

2 A. I can't say that I -- I wouldn't say I  
3 have the expertise to give you a predictive, you  
4 know, at what level would we not detect something  
5 at the intake. However, there are people that  
6 model contaminant events. It's a lot like outfalls  
7 for a wastewater plant. You have to model the zone  
8 of influence of that outfall. The same type of  
9 thing could be done. I don't know.

10 Q. You don't know. Okay. You were talking  
11 about these monitoring systems for petroleum  
12 products and you mentioned two. Again, going back  
13 to that there are a lot of petroleum pipelines in  
14 the country, and even ones that were in existence  
15 when Fargo's plant was built upstream of Fargo --

16 A. Mm-hmm.

17 Q. -- at that time you didn't recommend for  
18 Fargo to put in some type of a monitoring system to  
19 protect its water source; is that right?

20 A. In candor, with water systems that I'm  
21 aware of, there has never been a single utility  
22 that has put in a monitoring system. It has been a  
23 collection of utilities that share a body of water  
24 for their supply. So if you look at where those  
25 systems have been put in, those typically have been

1 basinwide monitoring systems.

2 Q. And more for ships or, I guess, maybe not  
3 a single point source of a leak, was that a fair  
4 statement?

5 A. What they are looking for is any  
6 abnormality out of the normal bounds of what a  
7 water quality would be that would suggest that a  
8 problem is coming down the river.

9 Q. Now, the pipeline, I guess I'd call it a  
10 single-source leak if it did happen to have a leak,  
11 do you agree with that?

12 A. I believe so, yes.

13 Q. So if there's a leak, whether it's 230-  
14 some miles away or whatever, hundred-and-some miles  
15 from the Sheyenne River crossing, there would be  
16 sufficient time for the company in part of their  
17 emergency response plan to notify anybody along the  
18 system who may get their water from that without  
19 having to have some sort of continuous monitoring  
20 system; wouldn't that be right?

21 A. That would be correct.

22 MR. JOHNSON: Objection. That's  
23 speculative. If there's somebody that knows about  
24 it, then they would warn.

25 JUDGE WAHL: The question has been

1 answered, Mr. Johnson.

2 THE WITNESS: If it's okay, I would like  
3 to caveat the answer when I said yes, and that is  
4 the difficulty comes in is how long does the  
5 contaminant plume continue. So even though a  
6 utility would know that a plume is coming and have  
7 an idea of when it will arrive, what the difficulty  
8 becomes is how long does it persist.

9 Q. (MR. KELSCH CONTINUING) And so going to  
10 that, as part of an emergency response plan, a  
11 utility should -- whether it be Cenex or Keystone  
12 that had a leak in their pipeline, would be able to  
13 put people in place to test the water at the intake  
14 to find out when the contaminants were no longer  
15 there; isn't that right?

16 A. That's correct. The difficulty is it's  
17 not an instantaneous analysis to verify  
18 quantifiably when it's passed. It's a matter of  
19 there's time to get the sample to where the  
20 analysis is done and there's time to do the  
21 analysis.

22 Q. So it would be sort of an ongoing process,  
23 that they'd have to be taking samples, testing the  
24 samples until either, I suppose, the Department of  
25 Health in that situation would have said, okay, the

1 samples are okay, Fargo, you can open your intakes?

2 A. That is correct. I would assume that's  
3 true, mm-hmm.

4 Q. Did -- have you -- and I guess I quoted  
5 the 236 miles from Baldhill Dam to the intake. Do  
6 you know what the distance is from the crossing of  
7 the Sheyenne River from Keystone Pipeline to the  
8 intake?

9 A. I, personally, do not know that.

10 Q. Now, you were here when Mr. Grubb  
11 testified that basically from the -- switching over  
12 from the Sheyenne River over to the Red River, the  
13 water treatment plant can do it almost  
14 instantaneously?

15 A. Mm-hmm.

16 Q. So once they had the notice, they would be  
17 able to stop the water -- any potential  
18 contaminated water from getting into the system?

19 A. Mm-hmm.

20 JUDGE WAHL: The answer is yes?

21 THE WITNESS: I'm sorry. Yes. I'm sorry.

22 Q. (MR. KELSCH CONTINUING) Now, are you  
23 familiar with the intake system -- there are pumps  
24 at the intake system; is that right?

25 A. I don't believe that's a gravity system.

1 I think that's a pumped system, yes.

2 Q. So as far as -- if you're concerned about  
3 contaminants, as long as the pumps are shut off  
4 before the plume would get there, there would be no  
5 contaminants actually getting into the pipe?

6 A. That is correct.

7 Q. Or -- and then, of course, they wouldn't  
8 even get near the plant?

9 A. That is correct.

10 Q. So the only -- if there was some cleaning,  
11 it would basically be, I suppose, the screens on  
12 the pump intakes; is that --

13 A. I believe it would be anything that has to  
14 do with whatever the water level was in the river,  
15 and whatever that corresponding level is between  
16 the intake and where the pumps are, it could even  
17 be the pump and propellers. I don't know.

18 Q. Now, do you know where the pump intakes  
19 are located on the Sheyenne River? Are they on the  
20 surface? Are they so many feet below the surface?  
21 Are they on the bottom of the river?

22 A. And I'm sorry, I don't know that. Mr.  
23 Grubb would.

24 Q. Now, that would have an impact, of course.  
25 The crude oil is normally lighter than water, so it

1 would be floating on top of the surface; is that  
2 correct?

3 A. That's correct.

4 Q. So if there was particularly all of this  
5 distance, I'm guessing whatever crude oil  
6 contaminants would be spread out mostly on top of  
7 the surface?

8 A. They would be. My understanding, though,  
9 is there is some diffusion that would take place,  
10 so we would see some evidence of them at lower  
11 levels.

12 Q. Now, we talked about the detection  
13 mechanisms that you mentioned that happened, I  
14 think, in the Ohio River and one on -- was it the  
15 Colorado River?

16 A. Yeah, Central Arizona project.

17 Q. Now, you said those were done by groups of  
18 municipal water supplies or water treatment --

19 A. That's my understanding. Basically in the  
20 case of the Central Arizona project, the U.S.  
21 Bureau of Reclamation is responsible for the supply  
22 of water. They had no idea as the water traversed  
23 from Lake Havasu to points downstream what  
24 contaminants could come from overpasses and those  
25 type of things, so as a result of that, they put in

1 a monitoring system so that they could alert their  
2 users if a contamination event occurred. In the  
3 case of the Ohio River, that became something where  
4 the recurrence of spills, unfortunately, over long  
5 periods of time took place, that the Ohio River  
6 Sanitation Commission was formed and serves quite a  
7 number of water utilities, provides the water  
8 quality data for them.

9 Q. And, again, neither of those -- the spills  
10 that they were looking at in either of those two  
11 instances were dealing with pipelines; they were  
12 dealing with overpasses, small spills from perhaps  
13 tankers or barges or boats, multiple-source  
14 contaminations?

15 A. I know in the case of the Ohio River  
16 Sanitation Commission, the primary problem has been  
17 barge traffic. Whether or not part of their  
18 considerations were pipelines, I don't know. I  
19 can't speak to that.

20 Q. Are you aware of any -- any, I guess,  
21 federal government regulatory or state government  
22 regulatory agency that's required a utility to put  
23 in these type of monitoring systems for a  
24 pipeline -- crude oil pipeline?

25 A. No, I'm not aware of any.

1           Q.     And it would seem -- just given the cost  
2     and the manpower of having to man it continuously,  
3     it would seem to me that given the distance from  
4     this, the better result would be to -- for the  
5     emergency response plan to notify Fargo and then do  
6     whatever testing needs to be done to make sure that  
7     the plume gets by before they turn the system on?

8           A.     And, again, the caveat there is there is a  
9     lot of monitoring that has to be done with a lot of  
10    analyses before you can give the green light that  
11    it's okay.

12          Q.     Do you have any experience in modeling  
13    hydrocarbons in water systems, including the  
14    modeling of the pulse of contamination?

15          A.     I do not.

16          Q.     And, of course, you're aware that Fargo's  
17    primary source of water is the Red River, so as  
18    long as there's water in the Red River, they could  
19    shut down this system and take the water from --  
20    shut down the pumps on the Sheyenne River and take  
21    water from the Red River?

22          A.     That's my understanding.

23                 MR. KELSCH:   No further questions.

24                 JUDGE WAHL:   Ms. Linderman.

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**CROSS-EXAMINATION**

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**BY MS. LINDERMAN:**

Q. I want to clarify your discussion of the maximum concentration levels of some of these chemicals that exist in crude oil. Are maximum concentration levels -- do those have anything to do with the physical impact that this is going to have on the plant? Because I'm trying to draw a difference between public health concerns and what would actually happen to the physical mechanics of the plant if there's a spill.

A. The regulations do not apply to the adverse impacts -- the physical impacts, if you will, of adsorption on surfaces, and so forth. The regulations for the compounds are strictly health-based standards.

Q. So is there a potential for a spill that doesn't necessarily bump these compounds up to their maximum concentration levels, but it would still have an adverse impact on the water treatment facility if it reached it?

A. You know, I think what that's going to be a matter of -- I don't know of, if I had a -- let's say I had a kilogram of this compound. Of that kilogram, I don't know how much is comprised of

1 benzene and toluene and xylene and any other  
2 regulated compound. So as a result of that, I'm  
3 handicapped to give you that answer.

4 Q. Your analysis of what might happen to the  
5 treatment facility if some portion of an oil spill  
6 were to reach it, how is that impacted by  
7 concentration, if it were a slow leak versus a  
8 heavy, sudden rupture on the pipeline?

9 A. If we had a slow leak, basically we would  
10 just have a continuous -- a continuing  
11 concentration of something coming in until such  
12 time as we shut down that intake. If it was lower  
13 concentration, we would have less material  
14 adsorbed, but we would still have material adsorbed  
15 that would have to be removed.

16 MS. LINDERMAN: Okay. No further  
17 questions. Thank you.

18 JUDGE WAHL: Mr. Binek.

19 **CROSS-EXAMINATION**

20 **BY MR. BINEK:**

21 Q. Do you recommend or have any  
22 recommendation on whether there should be a  
23 monitoring system required?

24 A. Personal recommendation would be to have a  
25 monitoring system. I would add that for the

1 majority of surface water plants, we are  
2 encouraging more and more that they have some kind  
3 of monitoring systems to help them know of changes  
4 in raw water quality. When we talk contaminant  
5 spills, definitely we would recommend that.

6 Q. Okay. Who should be responsible for  
7 putting in monitoring systems?

8 A. Basically the simplistic view that I  
9 personally ascribe to -- I don't want to say my  
10 company does, my personal ascription is I look at  
11 things that would change over background levels,  
12 and if something is going to put at risk  
13 contaminants above background levels, then it seems  
14 to me that whoever was the principal cause of that  
15 potential problem should look at that -- at how  
16 that would be funded.

17 Q. You talked about monitoring systems where  
18 water utilities got together to have systems put  
19 in. These monitoring systems don't just monitor  
20 crude oil, I'm assuming?

21 A. That's correct.

22 Q. Do you believe that this type of  
23 monitoring should be done for all municipal water  
24 supply systems?

25 A. There are a number of river supplies that

1 when one looks at what is either contiguous to that  
2 water supply or in that watershed, if some of those  
3 are chemical -- potential chemical release-type  
4 compounds, then would recommend that they would  
5 have some kind of monitoring system.

6 Q. Do you think that the City of Fargo should  
7 have a monitoring system?

8 A. I think people along the Sheyenne -- that  
9 use the Sheyenne River should have some kind of  
10 monitoring system if -- if there's the potential  
11 for crude oil to get into that river.

12 Q. Well, do you think there's a potential  
13 right now for crude oil to get into the river?

14 A. I apologize, I don't feel I can answer  
15 that question.

16 Q. What about other contaminants besides  
17 crude oil?

18 A. Again, if I was to go up and I would find  
19 a heavy petrochemical base, and this might be  
20 refining facilities, chemical synthesis facilities,  
21 or whatever, those -- if those were in the  
22 watershed, that may be and would be a prudent  
23 practice to be able to tell in advance that a  
24 release has occurred or when that release has  
25 influenced the intake.



1 where the contamination would most likely enter the  
2 river. That would be one monitoring point. But  
3 there are other people that use -- if there were  
4 other utilities that use the Sheyenne River, I  
5 would want to have something to give them advance  
6 notice, as well. If Fargo is the only one that  
7 uses the Sheyenne River as a potable water supply,  
8 I would probably want something about halfway  
9 between where the spill might have -- most likely  
10 have been introduced and their intake so that I had  
11 some idea of the time of travel and get a better  
12 prediction as to when it would arrive at my system.  
13 Then I would definitely have a third that would be  
14 a mile or two or three upstream of my intake. So  
15 something on the order of less than five.

16 Q. Okay. And then my other question relates  
17 to, you said -- when we were asking about cost, you  
18 said, well, under a million dollars for cost. Is  
19 that per station?

20 A. I would think a system that had three  
21 monitoring stations could be put in for a million  
22 dollars.

23 Q. Okay. So it could be what you're talking  
24 about is under a million for three monitoring  
25 stations?

1           A.    I would think so.  My apologies.  I'm not  
2 very good at knowing how much it costs to run  
3 wires.

4           Q.    Okay.  And then in addition to the cost  
5 for putting those in, you said there's a cost for  
6 calibrating them regularly.

7           A.    Maintaining them, yes.

8           Q.    And then monitoring them.

9           A.    Well, actually --

10          Q.    Does the monitoring come in through the  
11 computer?

12          A.    The monitoring comes from the system,  
13 itself.  Somebody would probably be looking at this  
14 data, perhaps just the water utility, itself.  But  
15 in the case of some of the more bigger agencies,  
16 they have people that actually monitor this to give  
17 alerts if something has happened.  But the  
18 principal manpower requirement would just be the  
19 maintenance of the system so that the data that  
20 comes in from them is good data and you're not  
21 getting a negative positive -- you're not getting a  
22 positive indication when something really has not  
23 occurred.

24          Q.    And do you have any idea of the -- for the  
25 calibration of this equipment, does that mean it

1 has to be done every six months, once a year?

2 A. I would think this is something you would  
3 want to have maintained at least quarterly.

4 Q. Quarterly. Okay. And so does that take a  
5 full-time person to go out quarterly to three  
6 stations to calibrate them?

7 A. I would imagine you would have somewhere  
8 between one and three people involved. And, again,  
9 I don't know because sometimes --

10 Q. Just in the calibration.

11 A. Just in the calibration, one person could  
12 do that.

13 Q. One person could do that?

14 A. Mm-hmm. Yes.

15 Q. Even though -- I'm just trying to figure  
16 out what the person would do the rest of the year.  
17 If they went out four times a year to three  
18 stations, so that's 12 visits. Will that take  
19 their whole year of employment, one full-time  
20 person?

21 A. I would not think so. I don't know what  
22 they would do with the rest of their year, but  
23 hopefully when they're doing the monitoring, they  
24 would do it well -- the calibration. I really  
25 don't know, but you have to have -- someone has to

1 take responsibility for it and it has to be done,  
2 and how that gets done --

3 Q. Okay. All right. And then have you ever  
4 heard of a system where the costs are shared? You  
5 said that in -- like for the Cincinnati River, they  
6 were shared between a whole group of water users  
7 for these station -- monitoring stations, and  
8 that's water users?

9 A. Mm-hmm. Yes.

10 Q. Have you ever heard of a concept where  
11 it's shared between, like you say, the party that's  
12 sullied the virgin water system and the parties who  
13 are using that water?

14 A. I would imagine such an arrangement is in  
15 place. I don't know where it is, but that possibly  
16 could make sense. If that was a way to get a  
17 system in that could help forewarn of a  
18 contamination event, that seems to be a win  
19 situation.

20 MR. KELSCH: Your Honor, I would object to  
21 the answer as speculative. What he imagines is  
22 really not evidence. I would ask it be stricken.

23 JUDGE WAHL: Well, of course, but  
24 Commissioner Wefald is looking for some parameters  
25 here. I think that's what the purposes of this

1 testimony is serving and I'll allow it. Its  
2 weakness is obvious.

3 COMMISSIONER WEFALD: I'm finished with my  
4 questions. Thank you.

5 JUDGE WAHL: Commissioner Cramer.

6 **EXAMINATION**

7 **BY COMMISSIONER CRAMER:**

8 Q. I want to get back to the line of  
9 questioning that Mr. Binek was on, and that is --  
10 you have been here all morning, you stated earlier;  
11 is that correct?

12 A. Yes.

13 Q. You've heard all the testimony?

14 A. Correct.

15 Q. If we were to for a moment say that the  
16 Keystone Pipeline project has been moved out of  
17 North Dakota and it no longer poses any threat to  
18 the Sheyenne River, Lake Ashtabula. You have heard  
19 that there is a Cenex pipeline that runs underneath  
20 Lake Ashtabula. You've heard that there is a  
21 Magellan refined product pipeline that runs  
22 underneath the Red River upstream from Fargo's  
23 intake. You've also heard about the Red River  
24 Valley Water Supply Project and the fact that there  
25 are -- I don't know if it's a fact -- that there

1 are many petroleum pipelines in North Dakota, some  
2 of which run underneath Lake Sakakawea, as a matter  
3 of fact. Knowing all of that and being a  
4 consultant for the City of Fargo, do you think it  
5 would be a good idea for the City of Fargo to have  
6 some sort of a water monitoring system even if  
7 Keystone was never built?

8 A. Given what I've been -- I've come to  
9 understand, it would be prudent to consider putting  
10 in some kind of a monitoring system. In some cases  
11 -- the answer is yes.

12 COMMISSIONER CRAMER: I have nothing  
13 further.

14 JUDGE WAHL: Commissioner Clark.

15 **EXAMINATION**

16 **BY COMMISSIONER CLARK:**

17 Q. First of all, just as a former resident of  
18 the City of Fargo who had some eye-opening early  
19 morning showers growing up, I want to thank you for  
20 your work in 1997 in fixing that problem.

21 Let me just -- I think I'm trying to  
22 define, similar to Commissioner Wefald, how the  
23 Commission would go about attempting some sort of  
24 cost/benefit analysis because obviously any  
25 impact -- any project that's built has potentially

1 some risk to it to a city water supply. Are you  
2 aware of any sort of cost/benefit studies that have  
3 been done within your industry to help guide either  
4 cities or regulatory commissions and states that  
5 oversee water systems in deciding how great the  
6 level of protection is versus the cost? Is there  
7 anything that can give us that type of guidance?

8 A. I'm not specifically aware of any. There  
9 is an organization called the American Water Works  
10 Association. It's an association that represents  
11 water utilities in North America. A substantial  
12 amount of AW -- the American Water Works  
13 Association, they have a research foundation, and a  
14 lot of the funded research that is done has to do  
15 with water utility management issues. I don't  
16 know, but I would suspect that that may have been  
17 an issue that they may have addressed, might be a  
18 place to start.

19 Q. Are you aware of any cities that -- or is  
20 there even a capability to design hydrophobic  
21 treatment facilities within the water treatment  
22 facility, or is that -- is that ever done? Can you  
23 treat the water after that's -- the petroleum  
24 product is in there, or is it just a matter of you  
25 have to get it out of the system and then go to the

1 treatment?

2 A. I am sure that there are systems that if  
3 they have known that they're choosing as their  
4 source water a highly contaminated source water, we  
5 would put in substantial -- a process,  
6 pretreatment, before the water would enter the  
7 treatment plant. An example is that we put in a  
8 pretreatment system in Fargo before the treatment  
9 plant just to remove some of the turbidity --  
10 suspended solids excursions that happen in the  
11 river. As far as if we knew we had petrochemicals  
12 in the water, in the United States I would be a  
13 little bit surprised if we would have that knowing  
14 what kind of discharge standards there are now, but  
15 as we look internationally, there are some where we  
16 do that, and oftentimes we will try to find ways to  
17 remove these contaminants before treatment.

18 Q. Obviously this Commission only has  
19 jurisdiction over the pipeline company and not the  
20 City of Fargo, but if the Commission were to  
21 require as a condition of this permit some sort of  
22 early detection monitoring system, would Fargo's  
23 secondary water supply be safer than its primary  
24 water supply, and would that be an odd result?

25 A. I would envision that as being an odd

1 result. And the only reason I say that is just  
2 that I know there's a reason why you use the Red  
3 River as opposed to the Sheyenne River.

4 Q. And the reason would be?

5 A. It's primarily because the Red River is a  
6 superior water quality.

7 Q. On what basis when you say superior water  
8 quality?

9 A. Organic carbon -- naturally occurring  
10 organic material. As an example, taste and odor  
11 episodes other than when there are the releases  
12 that Bruce Grubb talked about before.

13 COMMISSIONER CLARK: Thanks. That's all I  
14 have.

15 JUDGE WAHL: Any further questions?

16 COMMISSIONER WEFALD: I have one.

17 JUDGE WAHL: Commissioner Wefald.

18 **FURTHER EXAMINATION**

19 **BY COMMISSIONER WEFALD:**

20 Q. You've talked about these stations that  
21 could be put in -- monitoring stations, but you  
22 just mentioned something else. You said if you  
23 knew already that the water supply was contaminated  
24 with oil products and you were asked to design a  
25 system to take care of that --

1           A.    Mm-hmm.  Yes.

2           Q.    -- you would be able to do that?

3           A.    We could do that.  I could tell you that  
4 it would be a very expensive proposition and if --

5           Q.    What does "very expensive" mean?

6           A.    Well, that would be a function of several  
7 things, the level of contaminant, what the  
8 contaminants are, and how much -- what the flow is.  
9 But certainly we would be talking systems on the  
10 order of 2 to \$3 per gallon.

11          Q.    Oh, that's a lot of money.

12          A.    A lot of money.  And with that would be  
13 very extensive monitoring capabilities so that we  
14 can verify at low practical quantization levels  
15 that we've actually removed these compounds.

16          Q.    The reason I was wondering was, I wondered  
17 if it would be -- whether you would have a  
18 recommendation of whether you do the monitoring  
19 stations upfront, what the cost/benefit ratio would  
20 be -- the cost would be compared to that to versus,  
21 let's say, if the Commission said something like,  
22 well, if you didn't have the monitoring stations,  
23 that the company would have to help the city pay  
24 for a system to remove contaminants if they  
25 occurred in the water supply.  So --

1           A.    I think we could put in an awful lot of  
2 monitoring stations and maintain them daily to get  
3 to the point of the type of costs we would be  
4 talking about for that pretreatment.

5                       COMMISSIONER WEFALD:   Thank you.

6                       JUDGE WAHL:   Commissioner Clark.

7   **FURTHER EXAMINATION**

8 **BY COMMISSIONER CLARK:**

9           Q.    Just one last followup.  You had said that  
10 your personal recommendation was installing early  
11 detection warning systems.  Is that yet an industry  
12 standard, best practice recommendation from an  
13 engineering standpoint that you would give to any  
14 water treatment facility being put in?

15           A.    It has a lot to do sort of with the nature  
16 of what the water supply is.  If I have a reservoir  
17 so I have a -- I don't have much variability from  
18 day to day, I would have no interest in that.  If I  
19 had a water such as any of the big rivers where  
20 water can change very, very quickly in the space of  
21 an hour depending upon rain events, increasingly we  
22 like to put in advance monitoring systems so we  
23 know what's going to be coming into the treatment  
24 plant, and that is part of standard -- I don't want  
25 to say standard practice.  It is what we recommend.

1 And what's happening now is we're getting more  
2 sophisticated as to the type of monitors we're  
3 putting in, so we're not just looking at very broad  
4 spectrum analyses such as the clarity of the water  
5 and how that changes.

6 Q. Mm-hmm.

7 A. We're now beginning to look at organic  
8 carbon and other type of contaminants on a  
9 day-to-day basis.

10 COMMISSIONER CLARK: Okay. Thanks.

11 JUDGE WAHL: Any further questions from  
12 the Commission?

13 COMMISSIONER CRAMER: Just thank you.

14 JUDGE WAHL: Counsel, we've overshot our  
15 mark for lunch so let's finish this witness.

16 Anything further, Mr. Johnson?

17 MR. JOHNSON: One line of questioning.

18 **REDIRECT EXAMINATION**

19 **BY MR. JOHNSON:**

20 Q. Mr. Long, in one of your answers -- I  
21 think Mr. Kelsch -- you were talking about if I  
22 knew there was a refinery upstream or a  
23 synthesizing plant of crude oil upstream, heavy  
24 hydrocarbon, then you put more attention on that.

25 A. Yes.

1           Q.     Is there a difference in terms of how a  
2 leak might occur between crude oil and -- I don't  
3 know, you call it refined -- gasoline, the kind of  
4 refined oil, that might get into a water system?

5           A.     I don't know how to answer that other than  
6 to say that if a contaminant enters a water system  
7 by whatever means, it has now entered a water  
8 system.  If a new petrochemical plant, something  
9 that was actually processing a material, was to be  
10 put into the -- let's say the Red River water  
11 system, what we would encourage, and what you would  
12 do, I'm sure, is that the City of Fargo would want  
13 to have a lot of input as to what the discharge  
14 permit would be and discharge limits.  In that case  
15 it's incumbent upon whoever is applying for the  
16 permit to put in the monitoring systems and provide  
17 the information for you.

18          Q.     But is there a difference between crude  
19 oil affecting the Fargo water treatment plant  
20 compared to, you know, a tanker of gasoline?

21          A.     Neither one is good.  The difficulty with  
22 the crude oil is just that it has so much -- it's  
23 the time factor and that is that once it coats, if  
24 it coats a surface, it takes a long time to  
25 effectively clean that material off of a surface so

1 that you don't have the illusion of contaminants  
2 over a period of time.

3 Q. In the water -- in the stream, itself,  
4 you're talking about?

5 A. I'm sorry. I'm talking about any surface  
6 that has been contaminated as this material moved  
7 down the river.

8 Q. Both the stream -- it will attach to rocks  
9 and stones on the bed of the stream as well as the  
10 surfaces of the water plant?

11 A. That is correct.

12 Q. So it would take longer to clean crude oil  
13 as opposed to refined gasoline?

14 A. Something that is volatile will tend to  
15 dissipate more rapidly than something that is  
16 nonpurgeable, nonvolatile, and especially when it's  
17 a hydrophobic nonvolatile material, it will tend to  
18 coat surfaces. An example is -- and I don't mean  
19 to be -- the only thing that comes to mind is if  
20 you look at where oil spills have occurred, what --  
21 the unfortunate images that come from that. I'm  
22 not trying to say that's what you would have, but  
23 basically that is an example. When you see people  
24 going out and cleaning the wings of waterfowl that  
25 have been coated with oil, that's kind of analogous

1 to what I'm talking about, except that we're  
2 talking rocks and --

3 Q. Is that what happens when gasoline gets  
4 into the water?

5 A. Gasoline, I think, has more of a  
6 tendency -- I can't verify how quickly it does it,  
7 but it being a volatile, it's more likely to go  
8 off.

9 MR. JOHNSON: Nothing further.

10 JUDGE WAHL: Mr. Kelsch.

11 MR. KELSCH: Thank you, Your Honor.

12 **RECROSS-EXAMINATION**

13 **BY MR. KELSCH:**

14 Q. Mr. Long, in your 30 years of experience  
15 in water treatment plants, have you or your company  
16 recommended one of these monitoring systems?

17 A. Yes, we have.

18 Q. And for a pipeline?

19 A. Not for a pipeline. It was for a water  
20 plant where they have a number of wastewater  
21 treatment plants in their watershed, and they have  
22 a very flashy watershed so if a water event occurs,  
23 the water quality can change very rapidly. In that  
24 case we recommended it.

25 Q. And are you aware of any case where it has

1       been recommended that a company put one in for a  
2       pipeline?

3           A.     I, personally, am not aware of one.

4           Q.     Now, the system that you're talking about,  
5       how does it get monitored?

6           A.     Basically it sends a -- from a chemical  
7       engineer's understanding, it sends a 4- to 20-  
8       milliamp signal that relates to whatever the level  
9       of the -- it's measuring, and as that signal  
10      changes, it tells that the concentration has  
11      changed.

12          Q.     Now, is that done across wires, is it  
13      wireless, satellite?

14          A.     Typically it's done across wires.

15          Q.     So if there aren't wires in this very  
16      rural area, you would have to construct wires and  
17      electricity to these three to five monitoring  
18      plants?

19          A.     You would have to have a power supply to  
20      them.

21          Q.     And have you factored that into your  
22      estimate of a million dollars for this?

23          A.     As I mentioned in my answer, I apologize,  
24      I don't know the cost of running wires, but I --

25          Q.     Have you looked at what the environmental

1 impact of these type of three to five --

2 A. They're nondestructive systems, so they do  
3 not take in water and do something to it.

4 Q. Do you have to have backups for those  
5 systems?

6 A. We don't usually have. If you have more  
7 than one in the system, it reduces the requirements  
8 to have redundancy at a particular point. But what  
9 we do there is we do try to maintain them.

10 Q. Now, of course, stringing the wires,  
11 either burying them or putting them aboveground,  
12 there would be some environmental impact for those?

13 A. Yes, there would.

14 Q. So it's not totally -- it's not that  
15 there's not any environmental impact?

16 A. Yeah. What may be an inaccurate answer,  
17 and I didn't mean to give you one, is with today's  
18 technologies, these could be wireless. I don't  
19 know for sure.

20 Q. Now, basically all this would do is -- or  
21 all these would do would basically say there's been  
22 a leak, and depending upon where you place them,  
23 they may be able to tell you is there still a  
24 contaminant in the water?

25 A. What we just described would be something

1 more, that would give you an indication as to when  
2 it has arrived and when it has left a particular  
3 point.

4 Q. But that all could be accomplished by  
5 actual testing at the site of the place by  
6 emergency response people and the State Health  
7 Department?

8 A. That could be done that way. What becomes  
9 a wee bit of a difficulty there is how do you know  
10 when you've gotten back to background levels if you  
11 don't have a database of what a background level  
12 is.

13 Q. So there's no testing now of the water  
14 system to know what Fargo's -- in this case Fargo's  
15 untreated water -- what's in there?

16 A. If a program was begun today and you began  
17 to develop a database, that could become -- as long  
18 as that database is continued, that could become  
19 basically a substitute for a continuous monitoring  
20 system, but you would have to have some manpower to  
21 do that kind of monitoring.

22 Q. But you're going beyond just crude oil or  
23 BTEX compounds in the water, as far as what you're  
24 talking about now?

25 A. No. Actually, I'm talking about very

1 rudimentary type of analyses, ones that -- they're  
2 kind of surrogate parameters for what could be  
3 included in that measurement.

4 Q. Given the existence of pipelines in the  
5 Red River and the Sheyenne River system, Fargo  
6 water system and even those two rivers aren't  
7 really virgin, I think as you called it, systems,  
8 are they, that now all of a sudden Keystone is  
9 coming into?

10 A. If they have pipelines that traverse them,  
11 parallel them, or whatever, I guess that your  
12 answer would be true, it's not.

13 Q. Now, I think you testified you don't know  
14 and can't testify, are not an expert, in what the  
15 risk is of any crude oil from the Keystone Pipeline  
16 even getting into the river system or getting to  
17 the Fargo water intake; is that correct?

18 A. That is correct.

19 Q. And, again, you haven't done any type of  
20 risk analysis of what the existing pipelines are in  
21 those systems to the Fargo water system?

22 A. I have not.

23 Q. Are you recommending that even if Keystone  
24 isn't built, that these monitoring systems should  
25 be put in to protect against these other pipelines?

1           A.     What I'm suggesting is that we would be  
2     advised to go back and visit this issue as to  
3     should this be something that should be put in  
4     place.

5           Q.     Now, you said Fargo is state of the art, I  
6     think you said it still was state of the art, and  
7     other than this one plant that you have recommended  
8     some type of monitoring system in the water plant,  
9     itself, you haven't done any other ones?

10          A.     We have not put monitoring systems in  
11     other plants.  However, that is going to become  
12     more of our standard.

13                 MR. KELSCH:  No further questions.

14                 JUDGE WAHL:  Ms. Linderman, anything  
15     further?

16                 MS. LINDERMAN:  Nothing further.  Thanks.

17                 JUDGE WAHL:  Mr. Binek, anything further?

18                 MR. BINEK:  Nothing.

19                 JUDGE WAHL:  Anything further from the  
20     Commission?

21                 COMMISSIONER WEFALD:  No.

22                 COMMISSIONER CRAMER:  Nothing from me.

23                 JUDGE WAHL:  Mr. Johnson, any followup?

24                 MR. JOHNSON:  Nothing further.

25                 JUDGE WAHL:  All right.  Let's recess for

1 lunch and let's be back at work at one o'clock.

2 (Recess taken at 12:12 p.m. to 1:03 p.m.)

3 JUDGE WAHL: We're on the record and  
4 reconvened following recess for lunch. Mr.  
5 Dingess, when you're ready.

6 MR. DINGESS: Thank you, Your Honor.  
7 Fargo would call Barton Schultz, please.

8 JUDGE WAHL: Mr. Schultz, as you have  
9 heard me advise previous witnesses, your testimony  
10 is required to be under oath and I'm required by  
11 law to advise you regarding perjury before  
12 administering the oath. Perjury is a false  
13 statement of material fact which you do not believe  
14 to be true; in other words, generally speaking, a  
15 lie. In North Dakota perjury is a Class C felony,  
16 punishable by a fine up to \$5,000, imprisonment for  
17 a period of up to five years, or both. Will you  
18 raise your right hand, please?

19 (Witness sworn.)

20 JUDGE WAHL: Mr. Dingess.

21 MR. DINGESS: Thank you.

22 **BARTON L. SCHULTZ,**  
23 being first duly sworn, was examined and testified  
24 as follows:

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**DIRECT EXAMINATION**

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**BY MR. DINGESS:**

Q. Mr. Schultz, could you please give your full name and business address for the record?

A. Sure. It's Barton Schultz, and my business address is 6901 East Fish Lake Road in Maple Grove. I work for Houston Engineering.

Q. All right. Would you elaborate on your employment background, your present position, how long you've been employed, previous relevant employment?

A. I'm a senior project manager at Houston Engineering. I have been there for approximately eight years. Prior to being with Houston Engineering, I was with OSM & Associates in the same capacity, as a senior project manager, working as a civil and environmental project manager. Prior to that I was with HDR Engineering as senior project manager for nine years. And then previous to that I worked for five years in the Bureau of Solid Waste Management for the Wisconsin Department of Natural Resources as a design review engineer.

Q. Could you tell the Commission your education, licensure, professional associations?

A. Sure. I'm -- I went to school, I got my

1 B.S. in -- at the University of Wisconsin in  
2 Madison in 1980. I'm a registered professional  
3 engineer in the States of Wisconsin, Minnesota,  
4 South Dakota, Iowa and Indiana.

5 Q. I've laid on the lectern a copy of a  
6 document marked as Fargo's Exhibit 9. Is that your  
7 professional resume, sir?

8 A. It is.

9 MR. DINGESS: Your Honor, I move for the  
10 admission of Fargo Exhibit 9, please.

11 JUDGE WAHL: Mr. Kelsch?

12 MR. KELSCH: No objection.

13 JUDGE WAHL: Ms. Linderman?

14 MS. LINDERMAN: No objection.

15 JUDGE WAHL: Mr. Binek?

16 MR. BINEK: No objection.

17 JUDGE WAHL: Exhibit 9 is received.

18 MR. DINGESS: Thank you.

19 Q. (MR. DINGESS CONTINUING) Mr. Schultz, was  
20 Fargo the entity that you were performing services  
21 throughout the time of your efforts on this  
22 project?

23 A. It is. It's for the City of Fargo.

24 Q. And is the compensation that you will  
25 receive from Fargo contingent in any way on the

1 outcome -- or a specific outcome of this matter?

2 A. No, it isn't.

3 Q. Okay. Thank you. Mr. Schultz, have you  
4 examined route analysis for the Keystone Pipeline  
5 project?

6 A. I have. I've looked -- I can't say that  
7 I've looked at the whole record, but I've looked at  
8 much of the record that was done on the routing.

9 Q. What is important in a routing analysis?

10 A. Well, typically in a routing analysis --  
11 and that's one of the areas that I'm responsible  
12 for at Houston Engineering when we do routing  
13 analyses for facilities. And typically how we  
14 approach them is, we identify the end points first,  
15 and the end points -- once we have identified that,  
16 we look at a corridor that we are looking to route  
17 this. And we identify factors that are important  
18 within that corridor, and typically the main  
19 categories that we look at are social factors,  
20 environmental factors and then engineering factors.  
21 And then essentially what we do is we define within  
22 that corridor exclusion areas that we need to  
23 avoid, and then -- and then the remainder of the  
24 corridor is divided up into segments, and those  
25 segments are defined through published information

1 such as wetland information, information from U.S.  
2 Fish and Wildlife Service. We also do fieldwork --  
3 quite extensive fieldwork to verify the published  
4 data that we have and to identify the segments that  
5 are going to make up the routes. Then after we've  
6 identified those routes and defined those routes,  
7 we identify a number of potential routes that are  
8 made up of these segments that we've identified  
9 during the fieldwork. An example of, if we  
10 identified -- and I'll just give you an example  
11 from a project I'm currently working on. We  
12 identified 30 individual segments within our  
13 corridor, and from that we identified 37 potential  
14 routes, and then what we do is we evaluate those  
15 based on the categories and weighting the factors  
16 within those categories depending on their  
17 importance, and social being the highest --  
18 carrying the highest rating, environmental second,  
19 and then engineering takes the third.

20 Q. Could you elaborate a bit on the  
21 considerations in social?

22 A. In social we typically look at the  
23 vicinity to residences -- we identify residences,  
24 we identify commercial businesses, we identify  
25 public water supply, if there's public water supply

1 wells or surface water intakes, we look at parks.  
2 We look at any factors that would affect the  
3 public.

4 Q. Thank you. You mentioned water supply.  
5 Was the importance of the Sheyenne River and the  
6 Lake Ashtabula storage as a source of Fargo's water  
7 supply adequately considered in the work that you  
8 examined regarding the Keystone Pipeline?

9 A. From the work that I considered, it  
10 appeared to me that the importance of Ashtabula as  
11 a water supply source for the City of Fargo was not  
12 fully understood, and they -- there's some analysis  
13 between the Lake Ashtabula reroute versus the route  
14 that -- the proposed route. And, true, there  
15 was -- they did a comparison of and indicating that  
16 there was more wetlands if they took the reroute  
17 impacted versus the proposed route that they have.  
18 They seemed to not fully understand the importance  
19 of Ashtabula. There are a number of intermittent  
20 streams or coulees, depending on how you want to  
21 term them, that the pipeline actually crosses which  
22 drain directly into the Sheyenne and Lake Ashtabula  
23 and that area. There was testimony taken  
24 previously by a gentleman from TransCanada saying  
25 that there was insignificant drainage from those

1 coulees into both Lake Ashtabula and the Sheyenne  
2 River.

3 Q. Was there any apparent explanation for the  
4 lack of consideration of Lake Ashtabula and the  
5 Sheyenne River as a water supply source for Fargo  
6 in the Keystone materials that you've reviewed?

7 A. None that I saw.

8 MR. DINGESS: Thank you. No further  
9 questions.

10 JUDGE WAHL: Mr. Kelsch.

11 MR. KELSCH: Thank you, Your Honor.

12 **CROSS-EXAMINATION**

13 **BY MR. KELSCH:**

14 Q. Mr. Schultz, isn't it true that you've  
15 never sited a crude oil pipeline?

16 A. That's correct.

17 Q. Your experience is in transmission lines;  
18 is that right?

19 A. Transmission lines.

20 Q. And waste management?

21 A. And landfills, correct.

22 Q. Landfills.

23 A. Yep.

24 Q. So no experience at all in crude oil  
25 pipelines?

1           A.     That's correct.

2           Q.     The -- now, in your testimony you talked  
3 about exclusion areas. Now, the Lake Ashtabula and  
4 Sheyenne River are not exclusion areas as defined  
5 by the North Dakota Public Service Commission  
6 regulations?

7           A.     That's correct. They're avoidance areas.

8           Q.     Now, for an avoidance area, the pipeline  
9 actual route does not go through Lake Ashtabula,  
10 does it?

11          A.     That's correct.

12          Q.     And, in fact, the one-mile corridor does  
13 not go through or does not include Lake Ashtabula?

14          A.     It doesn't. The intermittent streams that  
15 feed Ashtabula do, though.

16          Q.     Now, have you done any type of study as to  
17 whether the oil -- an oil leak from the Keystone  
18 Pipeline would be able to -- how big of a leak it  
19 would have to be to be able to get into Lake  
20 Ashtabula?

21          A.     I haven't, but my colleague that's coming  
22 up can address that.

23          Q.     Now, you're aware in siting that pipelines  
24 do have to cross rivers?

25          A.     Mm-hmm.

1 Q. Yes?

2 A. That's correct. I'm sorry. Correct.

3 Q. Just so the tape can pick it up.

4 A. Sorry.

5 Q. And so when a pipeline does cross a river,  
6 there are a number of conditions that the  
7 Commission looks at to make sure that there's some  
8 management of any potential adverse impacts; is  
9 that right?

10 A. That's correct.

11 Q. And some of the factors they look at are  
12 proposed management of any adverse impacts; is that  
13 right?

14 A. Mm-hmm.

15 Q. Orderly siting facilities?

16 A. That's correct.

17 Q. System reliability and integrity?

18 A. That's correct.

19 Q. And efficient use of resources and  
20 alternate routes?

21 A. That's correct.

22 Q. Now, Lake Ashtabula -- neither Lake  
23 Ashtabula nor the Sheyenne River are -- fall within  
24 the definition of a high consequence area under 49  
25 CFR 195?

1           A.     That's a federal definition.

2           Q.     Yeah.

3           A.     It's really not relevant here, though,  
4 because we're talking about a state. We're talking  
5 about a permitting -- a routing for -- under the  
6 state program.

7           Q.     But you agree that it is not an HCA?

8           A.     It's a sensitive area.

9           Q.     But it's not a high consequence area?

10          A.     Well, a high consequence area is also a  
11 sensitive area.

12          Q.     Mr. Schultz, I'm showing you what's been  
13 marked as Exhibit T40, and does that have the  
14 definition under Section 195.450 of what a high  
15 consequence area is?

16                 MR. DINGESS: Your Honor, I would object  
17 if this is a portion of the federal statute. I  
18 would say that the statute speaks for itself.

19                 JUDGE WAHL: Well, that's true, Mr.  
20 Kelsch. But the purpose of the exhibit?

21                 MR. KELSCH: This witness has -- I'm  
22 trying to get this witness to admit this is not a  
23 high consequence area and this is a definition of a  
24 high consequence area. If he will admit that's  
25 what it is, I'll just offer that as an exhibit and

1 go on to the next one concerning the sensitive  
2 area.

3 JUDGE WAHL: Well, let's proceed. The  
4 objection is overruled. Go ahead, Mr. Kelsch.

5 Q. (MR. KELSCH CONTINUING) So Section  
6 195.450 is the definition of a high consequence  
7 area for a crude oil pipeline -- petroleum  
8 pipeline?

9 A. Mm-hmm.

10 MR. DINGESS: Your Honor, I would again  
11 renew my objection. The definition as stated in  
12 the statute is what it is.

13 JUDGE WAHL: Let me see that, please. You  
14 haven't offered this.

15 MR. KELSCH: I move to offer Exhibit T40.

16 JUDGE WAHL: Mr. Dingess, objection?

17 MR. DINGESS: The objection is that the  
18 line of questioning appears to be asking for a  
19 translation of a federal statute and --

20 JUDGE WAHL: That's true, but he can offer  
21 the exhibit. I mean, there isn't anything wrong  
22 with this as an exhibit?

23 MR. DINGESS: I don't have an objection to  
24 it being offered as an exhibit, Your Honor. I  
25 misunderstood. I thought you were asking me to

1 follow up.

2 JUDGE WAHL: No. Ms. Linderman?

3 MS. LINDERMAN: I guess I would object to  
4 this being offered as an exhibit insomuch as this  
5 witness isn't really able to provide any foundation  
6 or context or -- just one page pulled from the  
7 federal regulations and then interpret it.

8 JUDGE WAHL: But it is what it is. Mr.  
9 Binek?

10 MR. BINEK: No objection.

11 JUDGE WAHL: Exhibit T40 is received. So  
12 now, Mr. Kelsch.

13 Q. (MR. KELSCH CONTINUING) Mr. Schultz, are  
14 you saying that HCAs -- high consequence areas are  
15 not relevant for siting a pipeline in North Dakota?

16 A. Not at all. But it's a consideration.  
17 Your definition here says an unusually sensitive  
18 area is one of the definitions of a high  
19 consequence area.

20 Q. And I guess I now show you Exhibit T41,  
21 and that's the definition of high consequence area  
22 in Section 195.6; is that correct?

23 A. Unusually sensitive.

24 Q. Excuse me. Unusually sensitive areas?

25 A. That's correct.

1 Q. Which was referenced in the T40?

2 A. Correct.

3 Q. Does Lake Ashtabula and Sheyenne River fit  
4 within that definition, and, if so, could you point  
5 out where it does?

6 A. No, it's not specifically defined in  
7 there.

8 Q. So at least under the Federal -- you would  
9 agree under the Federal Code of Regulations the  
10 Sheyenne River and Lake Ashtabula do not fit within  
11 the definition of high consequence area?

12 A. Based on what I've seen here.

13 Q. Now, how did you take into account  
14 avoidance areas and the proposed management of  
15 adverse impacts in reviewing this route?

16 A. I focused on the route -- the proposed  
17 route and the Lake Ashtabula reroute, and really  
18 that's all I looked at. And I looked at the fact  
19 that there really wasn't mention of Lake Ashtabula  
20 as an important water source for the City of Fargo,  
21 the fact that in testimony about Lake Ashtabula, it  
22 was insignificant drainage along the intermittent  
23 streams that feed Lake Ashtabula, and that there  
24 appeared to be a tradeoff between wetlands and a  
25 public drinking water source, the fact that when

1 compared to Lake Ashtabula reroute, although the  
2 reroute impacted more wetlands, the proposed route  
3 was preferred over that, and it was stated because  
4 it impacted less wetlands.

5 Q. What information did you actually look at  
6 in regard to Keystone's route?

7 A. The testimony that was given by  
8 TransCanada, the routing permit, and --

9 Q. The complete transcripts of the hearings?

10 A. I looked at -- I focused on the one from  
11 the gentleman who addressed the routing.

12 Q. And which one was that?

13 A. I don't recall his name.

14 Q. Mr. Koski?

15 A. Koski, that's correct.

16 Q. So you looked at his testimony. Did you  
17 look at any other testimony from the hearings?

18 A. I looked at some of the other testimony on  
19 the risk analysis, because really when you look at  
20 a siting study -- a routing study, it's another  
21 form of risk that you're looking at -- you're  
22 looking, because you're defining a corridor and  
23 you're looking at where you're going to have the  
24 less impact on the route that you choose, and when  
25 you come by -- when you're near sensitive areas,

1 then you have to look at the tradeoffs between  
2 keeping it in a sensitive area and relying on your  
3 engineering versus moving it further away from a  
4 sensitive area and not relying as much on your  
5 engineering as redundancy in your design or a weak  
6 detection system or some type of engineering that  
7 you're going to have to employ in the more  
8 sensitive areas.

9 Q. But when you are doing the siting, you do  
10 look at the risk analysis and make that -- that's a  
11 factor in determining how far away you should be  
12 from a --

13 A. Intuitively, yes, you do. You look at --  
14 by looking at the least -- the route that will give  
15 you the least impacts, you're weighing one risk  
16 against another, but it's not an absolute system.  
17 It's not a wrong and a right. It's a relative  
18 comparison between potential routes.

19 Q. You didn't do any fieldwork --

20 A. I did not.

21 Q. -- on this route?

22 A. I did not.

23 Q. Have you even been out looking at the  
24 route?

25 A. I didn't look at the route.

1           Q.    How much time have you spent on this risk  
2 analysis -- or review of the route analysis?

3           A.    I've spent part of -- the better part of  
4 the last two weeks preparing for this.  It came up  
5 fast.

6           Q.    How much of that was preparing your  
7 testimony versus actually doing a routing analysis?

8           A.    Well, they were one and the same  
9 basically.  Looking at what was done on the routing  
10 analysis of TransCanada was part of me preparing  
11 for this hearing.  Now, I don't want to minimize  
12 what TransCanada has done.  They spent over two  
13 years and collected a lot of information on this  
14 route to pick this route.  My only point here is  
15 that it appears that the value that Lake Ashtabula  
16 has to the City of Fargo as a drinking water source  
17 was not fully understood, and that's why they --  
18 and that's one of the reasons why they chose the  
19 route versus trying to avoid some of the impacts to  
20 the lake.

21          Q.    Now, the value of Lake Ashtabula as a  
22 drinking source has sort of an intrinsic value  
23 whether it's somebody from Valley City who may be  
24 drinking it or anybody else.  I mean, just because  
25 it's the City of Fargo doesn't give it -- make it a

1 higher --

2 A. Right.

3 Q. -- intrinsic value?

4 A. Right. But we're looking at it from  
5 Fargo's perspective, and it's their source of  
6 drinking water when they're not pulling from the  
7 Red.

8 Q. When you were looking at -- when you were  
9 doing your route analysis, I understand you're kind  
10 of going to a comparison to another potential  
11 route, but just looking at the actual route,  
12 itself, did you consider the proposed -- as  
13 provided in the PSC rules, the proposed management  
14 of adverse impacts for this route, Keystone's  
15 route?

16 MR. DINGESS: I believe that question has  
17 been asked and answered. He was asked what he  
18 considered in his work and he answered that, Your  
19 Honor.

20 MR. KELSCH: I don't recall --

21 JUDGE WAHL: Overruled.

22 THE WITNESS: Could you restate it?

23 Q. (MR. KELSCH CONTINUING) I said, not  
24 looking at -- comparing this route to some other  
25 route, but just look -- an analysis of Keystone's

1 route, have you considered proposed management of  
2 adverse impacts for the Keystone route?

3 A. I would say yes just from the fact that I  
4 looked at the information that you have on the  
5 route --

6 Q. Which --

7 A. -- for the proposed route and, you know,  
8 again, it gets back to if you site it in a  
9 sensitive area, then you're having to rely more on  
10 engineering to build a redundancy. So if you do  
11 have a spill -- number one, you minimize the  
12 possibility of a spill, and then if you do have a  
13 spill, you have some system in place that you have  
14 the time to respond.

15 Q. And, of course, having Fargo's public  
16 intake 236 miles -- river miles away from Lake  
17 Ashtabula gives a pipeline company in the unlikely  
18 event of a spill a lot of time to respond?

19 A. Provided you detect the spill. But from  
20 what I read, spills less than one and a half  
21 percent of the -- what's in the pipeline aren't  
22 always detected. So you can have a very small leak  
23 that's continuous undetected.

24 Q. Do you have any expertise on leak  
25 detection?

1           A.     It's just what I read in the record.

2           MR. DINGESS:   Your Honor, I would again  
3     object.   This is way beyond the scope of the direct  
4     examination.   We asked Mr. Schultz about his work  
5     on the route analysis work.   We do have a witness  
6     who is going to be talking somewhat about risk  
7     analysis.

8           JUDGE WAHL:   You may, Mr. Dingess, but at  
9     the same time this is cross-examination.   I think  
10    that counsel should explore both the expertise and  
11    the scope of the witness's review.   Overruled.

12          MR. KELSCH:   Thank you, Your Honor.

13          Q.     (MR. KELSCH CONTINUING)   Did you consider,  
14    again, referring to the proposed Keystone route,  
15    whether an adequate buffer zone exists between the  
16    route and Lake Ashtabula?

17          A.     I didn't.   I left that to my colleague who  
18    is looking at the spill -- the actual spill and the  
19    transport.

20          MR. KELSCH:   I have no further questions,  
21    Your Honor.

22          JUDGE WAHL:   Well, before we proceed, I  
23    need a little expert advice of my own.   Mr. Fahn,  
24    the monitor is showing that the recording is  
25    counting up rather than down.   That's not the way

1 I've seen this work before, so what do you suggest  
2 we do?

3 MR. FAHN: I'll go find somebody.

4 JUDGE WAHL: In the meantime, I'm going to  
5 go off the record. I'm going to pause the  
6 recording. It seems to be working otherwise, but  
7 that's not the way I have observed this in the  
8 past.

9 (Discussion had off the record.)

10 JUDGE WAHL: Well, I'm guessing we're  
11 recording. I'm just not sure why we're counting  
12 up, so to speak, so let's proceed. Ms. Linderman.

13 MS. LINDERMAN: Thank you.

14 **CROSS-EXAMINATION**

15 **BY MS. LINDERMAN:**

16 Q. Mr. Schultz, in your capacity with -- your  
17 professional capacity with Houston Engineering, are  
18 you a federal regulatory expert?

19 A. No. We deal with --

20 Q. Do you have any familiarity with  
21 enforcement of federal drinking water regulations,  
22 either generally or in the State of North Dakota  
23 specifically?

24 A. No, I don't.

25 Q. And when you say that the Lake Ashtabula/

1 Sheyenne River water basin are sensitive areas,  
2 what do you mean by the term "sensitive areas"?

3 A. It's a sensitive area in the fact that  
4 it's a water supply source, that there are  
5 intermittent streams that feed both the Sheyenne  
6 and Ashtabula in that area, and with a pipeline  
7 there, if there were a failure of that pipeline,  
8 there's a possibility that it could enter into that  
9 Sheyenne River and Lake Ashtabula, so that's what  
10 I'm defining as a sensitive area. And it's an area  
11 in my routing that we would look at as either we  
12 would avoid it or we would look at engineering that  
13 would be employed in that area to take care of that  
14 risk of -- to help prevent a failure of the  
15 pipeline; but, on the other hand, if there was a  
16 failure, that there would be something in place to  
17 indicate that there was a failure so you would have  
18 time to respond before it reached the river.

19 Q. You've discussed generally the tradeoff  
20 between wetlands and crossing intermittent streams  
21 and coulees. What specific -- in that respect,  
22 what specific components do you think are missing  
23 from the route analysis that TransCanada did?

24 A. Well, really, I'll get back to the point I  
25 made before. I don't think they fully understood

1 the value that Lake Ashtabula has to the City of  
2 Fargo and the other communities that are around  
3 Fargo that use Lake Ashtabula and the Sheyenne as a  
4 water source.

5 Q. Is there any specific aspect or any  
6 specific questions that you feel were unanswered  
7 other than just that general overview?

8 MR. KELSCH: Objection to the form of the  
9 question. It's too broad. She needs to ask a  
10 specific question.

11 MS. LINDERMAN: I think I was focusing in  
12 again on my previous question and the specific  
13 issue of wetlands of intermittent streams and  
14 coulees, and if he could be more specific about  
15 what details he would have included in a route  
16 analysis.

17 JUDGE WAHL: Overruled. You may answer.

18 THE WITNESS: Okay. I would -- I would  
19 have included all those things. The environmental  
20 information that they -- that they gathered for  
21 this corridor, this one-mile corridor that they  
22 looked at, I'm not saying that it's wrong what they  
23 did. What I'm saying is, when I was talking about  
24 routing and looking at social factors and those  
25 being the highest -- carrying the highest weight,

1 when you look at a route within a corridor and  
2 you're adding up all these segments to make a route  
3 and you weight things along those segments  
4 differently, the social higher than the  
5 environmental, the environmental higher than the  
6 engineering. When you weight those and compare  
7 them against each other, numerically it shakes out  
8 which is your preferred route. Okay. Then you  
9 have to step back from that and use the common  
10 sense part of it, does that make sense. And by  
11 that time you've spent a lot of time in the  
12 corridor gathering this information, verifying the  
13 published information that you've gotten from the  
14 state agencies. So I guess what I'm saying is we  
15 would have given Lake Ashtabula a high factor -- a  
16 high rating and a social factor, so it would have  
17 -- it would have pushed that route at least in that  
18 area as not the preferred route.

19 Q. (MS. LINDERMAN CONTINUING) So it's simply  
20 a question of Lake Ashtabula as a water source for  
21 the City of Fargo was not given enough weight, in  
22 your opinion, in the analysis?

23 A. Correct.

24 MS. LINDERMAN: Thank you. Those are all  
25 the questions I have.

1 JUDGE WAHL: Mr. Binek.

2 CROSS-EXAMINATION

3 BY MR. BINEK:

4 Q. Based on apparently -- I'm getting the  
5 impression that the study that you did was -- was  
6 pretty focused, but based on that study, have you  
7 formulated any recommendations as to what would be  
8 a preferable location for this pipeline? You  
9 talked about an alternative corridor -- alternative  
10 route and, you know, I think critical of the  
11 studies that were done, but based on your review,  
12 do you have a recommendation of what should be done  
13 regarding the location of the route or the design  
14 of the pipeline?

15 A. Well, I can't comment on the design of the  
16 pipeline. But as far as the route goes, I can't  
17 tell you that I can draw a line on the map at this  
18 point and it would be better, but what I would say  
19 is if I had additional time to look at the  
20 information that they gathered along that one-mile  
21 corridor and the methodology they used to come up  
22 with a preferred route, I could give you at least a  
23 confirming opinion or another opinion about what  
24 route would be better.

25 Q. But you said you could -- unless I

1       misunderstood you, at this point you could come up  
2       with a different route?

3             A.     No, I didn't.

4             Q.     Oh, I'm sorry.

5             A.     I didn't say that.

6             Q.     Okay.

7             A.     No.

8             Q.     Based on the studies that you have done,  
9       in your opinion, is the route that has been  
10      selected by Keystone in the Lake Ashtabula area the  
11      -- is that an incorrect route?

12            A.     You know, again, it's not -- it's not  
13      necessarily a wrong route.  It's really -- it's not  
14      a right and wrong answer.  It's a matter of how --  
15      how a route compares to the other routes -- the  
16      other alternative routes that you have within a  
17      corridor.  For me to sit up here and say it's the  
18      wrong route, I can't say that based on the  
19      information that I've looked at to date.  They  
20      spent two years doing this routing study, and in  
21      less than two weeks I can't -- from what I've  
22      looked at, I can't tell you that it's wrong.  Would  
23      I have routed it differently?  Maybe, but I  
24      wouldn't say specifically, yeah, I would put a  
25      different line on it.  The only thing I would -- I

1 am saying is you need to step back and look at the  
2 value of Lake Ashtabula. And just from the  
3 information that I've looked at, it doesn't appear  
4 that they fully understood the value of that. And  
5 in looking at their routing, looking at the  
6 information, the segments that they put together  
7 for their alternative routes and looking at the  
8 methodology that they used, given that time, you  
9 know, I could give a better opinion on if that  
10 route is the preferred route or if there's one --  
11 if the Lake Ashtabula reroute would be a better  
12 route.

13 Q. Okay. When you refer to the alternative  
14 route, what are you referring to?

15 A. The Ashtabula reroute that was identified  
16 by TransCanada. They bring the route east, outside  
17 of the Sheyenne River watershed for a --

18 Q. I thought that was what you were referring  
19 to.

20 A. That's what I was referring to.

21 MR. BINEK: Okay. Thank you. I have no  
22 further questions.

23 JUDGE WAHL: Questions from the  
24 Commission. Commissioner Cramer.

25

**EXAMINATION**

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**BY COMMISSIONER CRAMER:**

Q. On the reroute, Mr. Schultz, do you know if there are other environmental factors that somehow weight that one more disadvantageous, considering the social factors that you weight so heavily with Ashtabula? Have you gone to that degree of analysis?

A. I haven't. I mean, in their analysis they indicated the wetlands were one thing that they picked -- excuse me -- picked up, that there was more wetlands that would be impacted on the reroute than there are in the preferred route. They also made the argument that some of those -- there are some river crossings on the reroute that would ultimately end up in the Maple River and then which ultimately would go -- end up in the Sheyenne.

Q. Now, I think you said you didn't want to testify or that somebody later will testify to the engineering of the pipeline.

A. Right. Right.

Q. Because what I was going to ask, and I think it was asked of the previous witness, and I will ask you and you don't have to answer --

A. Okay.

1           Q.     -- but we'll get to the right person  
2 eventually, would you believe that the engineering  
3 of the pipeline where it crosses the Sheyenne  
4 River -- literally crosses some 30 miles south --  
5 30 pipeline miles south of Baldhill Dam mitigates  
6 that social risk that you have stated to a greater  
7 degree than the location of the pipeline to Lake  
8 Ashtabula? Again, considering all the risk  
9 factors, engineering versus location, is that a  
10 fair analysis? Does that make sense?

11           A.     You have two entry points. You're looking  
12 at two entry points. It's entering a point into  
13 the water supply out by Lake Ashtabula and you've  
14 got an entry point where it crosses. And I think  
15 it was stated previously that the technology is  
16 such that crossings are fairly secure and that  
17 there's a lot of redundancy in the design to ensure  
18 that, and there's also systems in place to monitor  
19 whether or not there are leaks, example, double  
20 piping and leak detection in between the piping, so  
21 if you have a failure, you have some indication  
22 that you have a failure before you have a major  
23 failure. Did that answer your question?

24                   COMMISSIONER CRAMER: It did. It did.  
25 It's getting to where I will be getting to, but I

1 suspect another witness is going to go further.

2 Thank you. That's all I have.

3 JUDGE WAHL: Commissioner --

4 COMMISSIONER WEFALD: I have no questions.

5 JUDGE WAHL: Commissioner Clark?

6 COMMISSIONER CLARK: I have none.

7 JUDGE WAHL: Followup, Mr. Dingess.

8 MR. DINGESS: Thank you, Your Honor. I'll  
9 just ask, I don't believe Exhibit 41 was entered.

10 MR. KELSCH: No. I would offer that.

11 JUDGE WAHL: Yeah, I wasn't sure he was  
12 going to offer it.

13 MR. KELSCH: I'll offer it.

14 JUDGE WAHL: All right. Exhibit 41, Mr.  
15 Dingess?

16 MR. DINGESS: No objection.

17 JUDGE WAHL: Mr. Linderman?

18 MS. LINDERMAN: No objection.

19 JUDGE WAHL: Mr. Binek? Sorry, Ms.  
20 Linderman.

21 MR. BINEK: No objection.

22 JUDGE WAHL: Exhibit 41 is received.

23 MR. DINGESS: And no questions.

24 JUDGE WAHL: Followup, Ms. Linderman?

25 MS. LINDERMAN: No.

1 JUDGE WAHL: Followup, Mr. Binek?

2 MR. BINEK: No.

3 JUDGE WAHL: Oh, I'm sorry. Mr. Kelsch?

4 MR. KELSCH: I just have maybe one.

5 JUDGE WAHL: I'm confused here. It's your  
6 fault, you didn't offer the exhibit.

7 MR. KELSCH: I'm sorry.

8 **RECROSS-EXAMINATION**

9 **BY MR. KELSCH:**

10 Q. Mr. Schultz, so as I understand your  
11 testimony, after doing a complete study, you still  
12 could possibly come to the result -- same result  
13 that Keystone has that this current route is the  
14 preferred route?

15 A. I could, correct. But I may not, either.

16 MR. KELSCH: No further questions.

17 JUDGE WAHL: Now, Ms. Linderman?

18 MS. LINDERMAN: No further questions.

19 JUDGE WAHL: Mr. Binek?

20 MR. BINEK: No questions.

21 JUDGE WAHL: Anything further from the  
22 Commission?

23 COMMISSIONER CRAMER: No. Thank you.

24 JUDGE WAHL: Thank you very much, Mr.  
25 Schultz.

1           COMMISSIONER CRAMER: Thanks. Well done.

2           JUDGE WAHL: Next.

3           MR. DINGESS: Fargo would call Mark  
4           Deutschman.

5           JUDGE WAHL: Mark?

6           MR. DINGESS: Deutschman.

7           COMMISSIONER WEFALD: I just want the  
8           audience -- the people who are present here today  
9           to know that at two o'clock I need to go and attend  
10          another meeting and my fellow Commissioners will be  
11          staying on the bench so there will be two  
12          Commissioners so the hearing can proceed, and I'll  
13          return as soon as possible and I'll be consulting  
14          with staff and listening to the full record.

15          JUDGE WAHL: Mr. Deutschman, as you have  
16          heard me advise previous witnesses, your testimony  
17          is required by law to be under oath and I'm  
18          required to advise you regarding perjury before  
19          administering the oath. Perjury is a false  
20          statement of material fact which you do not believe  
21          to be true; in other words, generally speaking, a  
22          lie. In North Dakota perjury is a Class C felony,  
23          punishable by a fine up to \$5,000, imprisonment for  
24          a period of up to five years, or both. Will you  
25          raise your right hand, please?

1 (Witness sworn.)

2 JUDGE WAHL: Mr. Dingess.

3 MR. DINGESS: Thank you, Your Honor. I  
4 have one more document to pass out.

5 **MARK R. DEUTSCHMAN,**  
6 being first duly sworn, was examined and testified  
7 as follows:

8 **DIRECT EXAMINATION**

9 **BY MR. DINGESS:**

10 Q. Mr. Deutschman, please give your name and  
11 business address.

12 A. Mark Deutschman, Houston Engineering,  
13 Maple Grove, Minnesota, 6901 East Fish Lake Road.

14 Q. Would you please give the Commission your  
15 employment background, present position, how long  
16 employed, previous employment in the same field?

17 A. Well, they tell me I'm a vice president at  
18 Houston Engineering. I have been with Houston  
19 Engineering about 10 years. Prior that I worked  
20 for another national company, and prior to that I  
21 was actually an employee of the State of North  
22 Dakota with the Department of Health.

23 Q. All right. Thank you. Could you also  
24 give the Commission your education and licensure,  
25 professional associations, et cetera?

1           A.     Yes.  I'm a licensed professional engineer  
2     in the State of Minnesota.  I hold a bachelor's of  
3     science degree in zoology from the University of  
4     Montana, a master's degree in zoology with an  
5     emphasis primarily on aquatic ecology and aquatic  
6     systems from North Dakota State University, and a  
7     Ph.D. in civil engineering from the University of  
8     Mont -- University of Minnesota.  Sorry.

9           Q.     Thank you.  I've handed you what is marked  
10    as Fargo's Exhibit 8.  Is that your professional  
11    resume?

12          A.     Yes, it is.

13                 MR. DINGESS:  I move admission of Fargo 8,  
14    please.

15                 JUDGE WAHL:  Mr. Kelsch?

16                 MR. KELSCH:  No objection.

17                 JUDGE WAHL:  Ms. Linderman?

18                 MS. LINDERMAN:  No objection.

19                 JUDGE WAHL:  Mr. Binek?

20                 MR. BINEK:  No objection.

21                 JUDGE WAHL:  Exhibit 8 is received.

22           Q.     (MR. DINGESS CONTINUING)  Mr. Deutschman,  
23    I'd call your attention to page 8 of the Exhibit 8  
24    under the bullet point James River.  Did you note a  
25    typographical error in that that you might want to

1 correct?

2 A. Let's see.

3 Q. Next to the last --

4 A. Yeah. Actually, the second one from the  
5 bottom, we did some work with the State Department  
6 of Health here on the James River and it actually  
7 wasn't below Baldhill Dam. It was below the City  
8 of Jamestown. So that's a typographical error.

9 Q. Thank you. Was Fargo the entity for whom  
10 you performed all the services that are relevant to  
11 this hearing?

12 A. That is correct.

13 Q. And is your compensation that you will  
14 receive from Fargo dependent on any specific  
15 outcome in this hearing?

16 A. Absolutely not.

17 Q. Thank you. I believe you examined risk in  
18 this project; is that correct?

19 A. I looked at several documents in the  
20 course of the compressed last three weeks or  
21 whatever it's been. Those include the volume and  
22 frequency analysis completed by DNV, and I'll  
23 probably just refer to it as DNV because,  
24 otherwise, I'll get the title wrong. I looked at  
25 the risk assessment work done by Ms. Tillman (sic)

1 from ENSR. I looked at the spill response plan  
2 that had been presented previously, I think, to the  
3 Commission. I looked at some of the testimony and  
4 other components of the record.

5 Q. Okay. If you were to explain to the  
6 Commission or describe how you would characterize  
7 risk to the City of Fargo and its water supply as a  
8 result of the Keystone Pipeline, how would you do  
9 that?

10 A. That's one of the first things that I  
11 struggled with in looking at this project. You  
12 know, it's not unlike any other project when you  
13 start on it, but one of the first things I looked  
14 at is how to characterize risk to help the City of  
15 Fargo kind of gauge what was acceptable. And in my  
16 opinion, the best way to do that is to look at just  
17 what the likelihood is of an actual failure of the  
18 pipeline system and then to compare various times  
19 associated with that failure, so how long does it  
20 take that material to move from the pipeline to  
21 whatever receiving water it may enter, how long it  
22 might take someone to actually be on site, whether  
23 it's the local fire department from Valley City or  
24 some other local community or the hazmat crew, what  
25 happens when it gets into the water body, what kind

1 of concentrations result, what levels of  
2 contaminants might result in either the river or  
3 the lake, and then basically what you do once it's  
4 there, I mean, how long it kind of takes to get  
5 from one point in the water system to the receptor  
6 that you're concerned about, whether it's a  
7 drinking water supply or whether it's, you know,  
8 toxicity to fish or some other type of receptor.

9 Q. Now, the steps that were taken in this  
10 analysis that you performed, did that involve any  
11 modeling and, if you would, please describe the  
12 steps and any specifics related to modeling.

13 A. One of the first things that I did when I  
14 got involved was I went, of course, to look at the  
15 information that had been generated, and since the  
16 issue brought before us was the potential risk to  
17 the City of Fargo water supply, what I looked at  
18 for initially was the incremental risks associated  
19 with the pipeline segments that may have the  
20 potential to, you know, rupture and result in  
21 petroleum in the water supply for the City of  
22 Fargo. So essentially I went to look to see if I  
23 could find, you know, what the risk levels were in  
24 the pipeline segments adjacent to Lake Ashtabula  
25 and then where the pipeline actually crosses the

1 Sheyenne River south of Valley City, North Dakota.  
2 I couldn't find that information so -- I really  
3 didn't want to, but I went ahead and basically made  
4 an effort to reproduce the numbers that DNV had  
5 completed, their risk analysis. And what I mean by  
6 that is that I looked at all of their base  
7 frequencies that they had for length of pipeline  
8 and the probability of failure. They had several  
9 things called modification factors that they used.  
10 And in a nutshell I tried to replicate what they  
11 had done. The exception is that what I did was, I  
12 did it using an approach that's called Monte Carlo  
13 analysis or stochastic analysis, and it's kind of a  
14 nebulous concept perhaps, but I think the best way  
15 to think of stochastic analysis or Monte Carlo  
16 analysis is that really what you're trying to do is  
17 put sideboards on the risk level. So instead of  
18 just presenting the risk as a single number, the  
19 risk is whatever, one in a million, you're trying  
20 to characterize the range of risk given the  
21 uncertainties in the numbers that you're using in  
22 the risk calculation. Not all the numbers that go  
23 into the risk calculations are absolutely known.  
24 They're based on, for example, observation of other  
25 pipeline failures, they're based on measurements,

1 and we don't know those numbers absolutely, so what  
2 the stochastic analysis we did allows us to do is  
3 factor that uncertainty into the overall risk  
4 analysis and to generate essentially a range of  
5 probabilities of that risk as opposed to a single  
6 number.

7 Q. Okay. Thank you. This might be a good  
8 point to lay a little foundation and describe what  
9 the various materials are in what I've handed you  
10 as Fargo's Exhibits 12-1 and following up to 12-9.  
11 Could you briefly explain, did you generate this  
12 material?

13 A. Yes, I did. Myself and my colleagues did.

14 Q. And this represents some of the -- this  
15 will help you explain to the Commission the results  
16 of your work?

17 A. I hope so.

18 Q. Thank you. In the future here as we go  
19 through this, would you please make reference to  
20 the applicable sheets by the exhibit numbers that  
21 are given.

22 As a result of your studies for Fargo on  
23 this project, what is the likelihood of a spill  
24 from the Keystone Pipeline along segments that  
25 could impact the water supply of the City of Fargo?

1           A.     If you'd refer to Exhibit 12-3, please,  
2     our analysis focused specifically on the segments  
3     of pipeline adjacent to Lake Ashtabula.  It's not  
4     that we didn't look at the Sheyenne River.  It's  
5     just, you know, we had only so much time to  
6     evaluate the risk associated with this.  And  
7     there's -- based on the information I reviewed,  
8     there's three segments of pipeline along Lake  
9     Ashtabula, and those -- when I say "segments," I  
10    mean portions of pipeline that are separated by  
11    either pump stations or valving.  So those are the  
12    three segments we looked at that comprise this 91  
13    miles of pipeline.  The actual reservoir length is  
14    a little bit less than that, so it's not a  
15    one-to-one relationship.  You know, there's not  
16    also 91 miles of reservoir.  The reservoir is  
17    something on the order of 70 miles, if I recall  
18    right, but I think that's important to understand.

19                 Again, what we did is, we took these same  
20    base frequencies as in the DNV report, we tried to  
21    use the modification factors that they had to  
22    represent the uncertainty in those base  
23    frequencies, and those base frequencies represent  
24    the likelihood of a failure for different  
25    conditions, so, say, like excavation if someone

1 would actually hit it, a valve failure, a hydraulic  
2 failure, that's what those base frequencies  
3 actually represent. So if you redo the analysis,  
4 trying to stay true to what they did and use their  
5 values and do this stochastically, again, you  
6 generate a range of risks.

7           So if you look at Fargo Exhibit 12-3, on  
8 the bottom axis is the risk occurrence per year, is  
9 the frequency of risk, and these are generally on  
10 the order of .02 or .03. If you look on the Y  
11 axis, it says cumulative probability, and what you  
12 can do then is from a graph like this determine  
13 what the most likely failure is essentially. So,  
14 for example, if you look at the graph and you look  
15 at cumulative probability of .5 and you follow that  
16 across and then follow it down, you end up at a  
17 number where the per-occurrence failure rate is  
18 roughly .02 in any given year. If you multiply  
19 that by either some assumed operating lifetime for  
20 the project, say, 50 years, or typically this is  
21 kind of just like hydrology in a way in  
22 probabilities of floods. If you divide one by that  
23 number, then you get the occurrence kind of on  
24 average or over the long term, in this case the  
25 median value of a failure. So our analysis shows

1 that the likelihood of a failure occurring, the  
2 median value or the most likely value along Lake  
3 Ashtabula is .02 on any given basis.

4           Again, the goal of this was to kind of set  
5 some bounds on this because the risk is not an  
6 absolute number. Again, there's all these  
7 different uncertainties that go into it. So the  
8 other thing that this graph shows us is that the  
9 probability actually varies by a factor of 2.6  
10 based on our analysis from low to high. And,  
11 again, all of these analyses are based on observed  
12 failures and other type of information that go into  
13 the calculations.

14           Q. So that it might help those of us who  
15 might be a bit more technically challenged than  
16 others, could you compare this risk, if you will,  
17 to the risk used in other situations, for example,  
18 where you might try to protect infrastructure from  
19 flooding?

20           A. Yeah. I mean, typically if -- some could  
21 argue that's not a direct comparison, but typically  
22 for a flood control-type system you're going to  
23 provide protection on average once every hundred  
24 years. Typically if you're designing a water-  
25 delivery pipeline, you don't size it for the

1 average event, you size it for the peak flows,  
2 so -- the other thing that I would add is that to  
3 me it's somewhat remarkable, I looked through the  
4 testimony and Ms. Tillman's testimony indicates  
5 that for the roughly 200 miles of pipeline in North  
6 Dakota, or 219 miles or whatever it is, she  
7 computed a risk -- or presented a risk, anyway, of  
8 about once every 42 years. So my point is that in  
9 terms of the central tendency value, that most  
10 likely risk, our numbers really are quite close.  
11 It's just that we're showing that that risk ranges  
12 and varies and that -- you know, you can look at  
13 the lower left-hand corner of this Fargo Exhibit  
14 12-3, and essentially if you look at the 80th  
15 percentile value, that means -- and over to the  
16 forecast value, you see a number of 2.56, so minus  
17 2, that means that a certain percent of the time,  
18 20 percent of the time, the risk is going to be  
19 greater than that. Conversely, there's going to be  
20 the probability that the risk could be less than  
21 the central tendency value 2 or this .023 or once  
22 every 43 years.

23 Q. Changing the focus just slightly, if there  
24 was to be a spill from the Keystone Pipeline in  
25 this high sensitivity area near Lake Ashtabula and

1 along the Sheyenne River, does your analysis enable  
2 you to give some prediction of the amount of  
3 pipeline contents that might enter the water body?

4 A. Yes. First of all, we kind of looked at  
5 it backwards in a way. We didn't necessarily do  
6 fate and transport modeling of how long it would  
7 take to move the crude oil from the pipeline  
8 actually into Lake Ashtabula. And they've  
9 referenced earlier there was actually some work  
10 that has been presented prior that shows typical  
11 travel time for these intermittent streams provided  
12 their flowing is on the order of an hour to an hour  
13 and a half from the pipeline actually into the  
14 reservoirs, so we didn't look at it from that  
15 perspective. We just kind of said, well, how much  
16 does it take of a spill on a percentage basis of a  
17 pipeline segment to get into Lake Ashtabula in  
18 order to reach the maximum contaminant level for  
19 benzene? Now, we selected benzene as a surrogate.  
20 The information that I've seen suggests that the  
21 benzene content in the crude oil is about .15  
22 percent. We didn't have any information on any  
23 other, you know, actual chemical compounds in the  
24 pipeline, so we couldn't look at any of those. But  
25 we basically then back-calculated how much benzene

1 would be required.

2           If I could refer to -- first to Fargo  
3 Exhibit 12-5, please. One of the things we did is  
4 looked at, using this same kind of stochastic  
5 approach, how much oil could potentially spill, and  
6 we were a little bit limited in this analysis  
7 because in the DNV study they actually computed, I  
8 believe, anyway, segment-specific volumes of oil  
9 based on the response time and how long oil would  
10 leak. What we had to do was use the -- I believe  
11 it's figure 12-6 in their report, which are  
12 pipeline average values and apply it to those  
13 frequencies, but essentially, in a nutshell, if you  
14 have a failure along that whole 91 segments -- 91  
15 miles of segment on Lake Ashtabula, we're  
16 estimating that the most likely spill volume would  
17 be 269 barrels. This contrasts to the 50 barrels,  
18 I think, is what was focused on primarily in some  
19 of the earlier analysis, and that there's actually  
20 a 10 percent chance that that volume would exceed  
21 2,610 barrels and that the maximum could be as much  
22 as 13,400 barrels.

23           Now, one thing to think about on the  
24 maximum is that the analyses that have been  
25 performed to date, based on what I saw, capped the

1 maximum value that can spill from any given  
2 pipeline segment based on some historical data, as  
3 I recall. Generally, if I recall right, it's about  
4 4 and a half percent of the actual pipeline segment  
5 volume.

6 We didn't think it was practical to look  
7 at, you know, simultaneous failure of three pipe  
8 segments along Ashtabula, so what we did is we  
9 redid the analysis, which is Fargo Exhibit 12-6,  
10 and we looked at just the longest pipeline segment  
11 that is adjacent to Lake Ashtabula, and the longest  
12 pipeline segment -- and, again, what I'm talking  
13 about is that portion of pipe that's separated by a  
14 pump station and a downstream valve -- is 43.5  
15 miles. If you repeat that analysis, 10 percent of  
16 the time the estimated spill volume is going to  
17 exceed about 803 barrels and the maximum is going  
18 to be roughly 2,900 barrels. Again, we're using  
19 the same stochastic technique, so not a single  
20 value, but a likelihood of a range of values.

21 If you then kind of take this backward  
22 approach and ask yourself, well, what volume does  
23 it take in Lake Ashtabula in order to reach the  
24 maximum contaminant level. And, again, this  
25 maximum contaminant level, we're using this as our

1 index because we're trying to replicate what was  
2 done. That's the same receptor or end point that  
3 was used in the previous analysis. This actually  
4 is a chronic standard that's based on, again,  
5 benzene and is related to the likelihood of  
6 occurrence of additional cancer risk. And when I  
7 say "chronic," I mean that it takes consumptions of  
8 amount of water in order to reach that risk.

9 But if you look at this, basically  
10 first -- I'm sorry, I may have said this, but  
11 Exhibit 12-8, which is for that longest pipeline  
12 segment, that 43.5 miles, what the graph shows on  
13 the Y axis is the concentration of benzene in Lake  
14 Ashtabula versus on the -- did I say X? On the Y  
15 axis -- I'm sorry -- is concentration of benzene in  
16 Ashtabula. Along the X axis is the barrels of oil  
17 essentially spilled, and that's somewhat of a  
18 misnomer. It should be actually reaching the  
19 reservoir. It shows that roughly 550 barrels of  
20 oil are sufficient to leave that maximum or that  
21 longest pipeline segment and reach the reservoir in  
22 order to hit the benzene standard. The graph also  
23 shows it is the barrels reaching the reservoir and  
24 mixing with the reservoir -- fully mixing with the  
25 reservoir increases, of course, the benzene

1 concentration increases, as well.

2 That analysis was based on -- let's see.  
3 Just a minute, please. That analysis that I've  
4 just talked about is based on the historic minimum  
5 pool elevation in Lake Ashtabula. The reservoir,  
6 of course, is going to go up and down depending on  
7 time of year, and the volume in the reservoir is  
8 going to change through time. So this 550 barrels  
9 is based on the minimum observed historic water  
10 elevation in Lake Ashtabula. And obviously the  
11 reservoir is not always going to be at the minimum  
12 elevation.

13 If you take a look at Fargo Exhibit 12-7,  
14 essentially we've repeated the analysis. Assuming  
15 that Lake Ashtabula is at the normal pool  
16 elevation, which is elevation 1,266, so in this  
17 case you've got more water essentially to dilute  
18 the benzene if it would reach the reservoir, and  
19 we're showing that it takes about 2,000 barrels of  
20 oil reaching the reservoir and mixing in order to  
21 reach that benzene maximum contaminant level. If  
22 you compare kind of the barrels of oil, you know,  
23 what I told you could potentially spill versus  
24 reaching the reservoir, we're talking generally  
25 less than 1 percent of the material leaving that

1 longest segment of pipeline actually getting to the  
2 reservoir and mixing with it to result in achieving  
3 this or hitting this benzene standard.

4 Q. If a spill made it to Lake Ashtabula, how  
5 long would it persist?

6 A. If you'd please refer to Fargo Exhibit  
7 12-9, what I did next was -- and, admittedly, this  
8 is what I would call a screening level analysis to  
9 give some sense of how long it might persist, but  
10 what I then did was take that 1 percent volume from  
11 the -- oh, I'm sorry. Actually, I'm assuming here  
12 that 5 percent of the pipeline volume reaches the  
13 reservoir, results in an initial concentration on  
14 the reservoir, if you look on the left-hand side of  
15 the graph, the Y axis, it has benzene concentration  
16 plotted against days following the spill reaching  
17 the reservoir, and this analysis assumes that it  
18 mixes completely with the reservoir at the point  
19 that it hits it, but it's going to generally  
20 persist around 30 days.

21 What I've done in this analysis has been  
22 pretty -- pretty, shall I say, liberal in terms of  
23 the decay rate of benzene in the environment. When  
24 a chemical like this is in the environment, it goes  
25 away through time, either through volatilization to

1 the atmosphere, the bugs and the microbes munch on  
2 it, and basically, you know, it consumes some of it  
3 as a source of energy. So I assumed in this  
4 analysis a daily loss rate of about 5 percent. The  
5 literature suggests that's a little bit high, which  
6 just means that essentially it would persist longer  
7 if those decay rates are slower.

8 Q. Thank you. Did your work study response  
9 time in the event of a spill?

10 A. I did. One of the things I tried to get a  
11 handle on, again, going back to what I initially  
12 mentioned was that I was trying to get some sense  
13 for the likelihood of a failure, if a failure  
14 occurs, how long does it take to get to the water  
15 source and then kind of how long does it take  
16 everyone to fix it, so to speak. So one of the  
17 things I did was, again, I went back to the DNV  
18 report, and they in their report indicated that for  
19 a small to medium-size leak, that it would take  
20 four hours for them to detect it, respond to it,  
21 and actually get to the leak and then fix it, and,  
22 I'm sorry, I don't understand all the -- the  
23 response in terms of what they do to actually fix  
24 it. My understanding is the report said they clamp  
25 it and basically try to stop the leak.

1           So I took their four hours, but instead of  
2 again just assuming that it was four hours, you're  
3 going to have varying weather conditions and you're  
4 going to have all kinds of other factors, assuming  
5 that a hazmat team comes from Fargo, they're not  
6 going to necessarily get there in four hours, but I  
7 adjust assumed that they should get there in four  
8 hours, but not necessarily. If you look at Fargo  
9 Exhibit 12-1, again, I've modeled the response  
10 times stochastically, and this is pretty close to,  
11 you know, what has been presented earlier, but  
12 basically the estimated response time exceeds about  
13 five hours 80 percent of the time and about seven  
14 hours 20 percent of the time, and if you remember,  
15 I recommended you could look at the 50th percentile  
16 value, that's about 347 minutes, whatever that  
17 turns out to be, seven -- a little over six hours  
18 for the most likely value.

19           I then kind of did my own analysis just  
20 from talking to the Fargo hazmat folks. My  
21 understanding is that they're responsible for  
22 responding to a spill in this portion of the state.  
23 It doesn't mean that there won't be some other  
24 first responder on site from -- and, I'm sorry, I  
25 can't remember the fire chief's name in Fargo, but

1 from chatting with him, he mentioned to me that,  
2 you know, typically if it occurs along Ashtabula or  
3 near a community, there's going to be the local  
4 fire people there right away, but the hazmat team  
5 will take a while to get there.

6 The response time is made up of lots of  
7 different things when you look at the DNV report.  
8 It's the time to detect the leak, and for small  
9 leaks that can range up to 90 days according to  
10 their information, then they have to shut the  
11 system down, which means they have to take the  
12 pressure off the pipe -- that's my understanding --  
13 and then someone has to get there and actually  
14 start cleaning it up.

15 So I broke all those response times out  
16 and didn't assume that it was just four hours and  
17 assign values to those. And in redoing my  
18 analysis, you know, I determined that the most  
19 typical value is probably going to be closer to 10  
20 hours for the actual response time, and I'm talking  
21 about someone getting there and actually responding  
22 and trying to mitigate any spill that occurred, and  
23 that that response time is probably going to exceed  
24 nine hours 80 percent of the time and 10 hours, 10  
25 and a half hours roughly 20 percent of the time.

1 And, again, this assumes a leak detection rate of  
2 less than 1.5 percent. And my understanding is  
3 those are the challenging leaks to detect.

4 Q. Did you have an opportunity to review any  
5 sort of a draft response plan?

6 A. Yeah, I looked at the draft response time,  
7 and, again, I was looking for these response times  
8 so I could provide some information to the city  
9 about trying to get some handle on what the real  
10 risk is, and there are no response times that I  
11 could find in the draft emergency response plan.  
12 There isn't responsibility assigned in that  
13 response plan even, to my knowledge, in terms of  
14 who is going to go there and who is going to do  
15 what.

16 Q. Well, at this point, I guess, I would ask  
17 the Mr. Binek question, and that is, do you have  
18 some suggestions?

19 A. Suggestions with regard to?

20 Q. To reducing the risk to the City of Fargo  
21 as a result of the Keystone Pipeline.

22 A. Yeah. You know, when you look at how the  
23 risk calculations are done, they're basically based  
24 on a per length of pipe segment. It seems to me,  
25 you know, the first thing that you would do is,

1     like Mr. Schultz said, try to keep it away from  
2     those conveyance systems that may bring it into a  
3     water supply source. So to me the first thing is  
4     move it, if you can. In the absence of moving it,  
5     the risk is proportional to the length of pipeline,  
6     so anything you can do to reduce those pipeline  
7     lengths and, therefore, the volume that may be  
8     available for a spill is going to reduce the risk.  
9     And it would seem to me, too, that, you know, maybe  
10    working out the details of the response plan in  
11    advance of construction would be a good idea, try  
12    to work out some of those details between  
13    TransCanada and the City of Fargo at this point in  
14    time as opposed to waiting until the pipeline is  
15    actually constructed and under operation.

16           Q.     Thank you. We didn't discuss Exhibit  
17    Fargo 12-4. Could you just take a moment and  
18    describe what that is.

19           A.     Exhibit 12-4 is just a map that shows the  
20    pipe segments that I mentioned earlier, and I  
21    apologize for this being hard to read, but the red  
22    dots on that exhibit are either the valves or the  
23    pump station locations, and the other -- I guess  
24    they're orange dots are where the pipeline crosses  
25    what I call a conveyance system. And when I talk

1 conveyance system, I mean just a coulee or a draw  
2 or something like that. If you have been in the  
3 area of Lake Ashtabula and around there, when you  
4 get near the reservoir, there's these coulees that  
5 basically drop into the reservoirs, so the orange  
6 dots represent those crossings, and I think there's  
7 like 11 of those or something where the pipeline  
8 crosses, and those are the things that from a risk  
9 perspective I guess I was concerned about, is to me  
10 those present an avenue or a conduit for the  
11 material to more easily enter the reservoir.

12 Q. Then you said there were 11 that would be  
13 tributary to Lake Ashtabula. Are there others that  
14 are tributary to the Sheyenne?

15 A. Yes, there's others tributary to the  
16 Sheyenne. I don't know what the number is, but --

17 MR. DINGESS: Thank you. Your Honor, I  
18 would move the admission of Fargo Exhibits 12-1  
19 through 12-9.

20 JUDGE WAHL: Mr. Kelsch?

21 MR. KELSCH: No objection.

22 JUDGE WAHL: Ms. Linderman?

23 MS. LINDERMAN: No objection.

24 JUDGE WAHL: Mr. Binek?

25 MR. BINEK: No objection.

1 JUDGE WAHL: Exhibits 12-1 through 12-9,  
2 inclusive, are each received.

3 MR. DINGESS: That will conclude the  
4 direct.

5 JUDGE WAHL: Mr. Kelsch.

6 MR. KELSCH: Thank you, Your Honor.

7 **CROSS-EXAMINATION**

8 **BY MR. KELSCH:**

9 Q. Mr. Deutschman, in looking through your  
10 resume -- rather extensive resume, I didn't see any  
11 reference to work on risk analysis for crude oil  
12 pipelines. Do you have any?

13 A. My risk analysis experience in general is  
14 related to other facilities like solid waste  
15 facilities or hazardous waste or medical waste  
16 incinerators. The process of doing the risk  
17 analysis is basically the same, but, no, I have no  
18 experience on a pipeline project such as this.

19 Q. And no experience for routing crude oil  
20 pipelines?

21 A. No, not on routing. My focus was on the  
22 risk analysis.

23 Q. How about, do you have any experience with  
24 crude oil pipeline leaks?

25 A. From what sense?

1 Q. Well, have you been involved with pipeline  
2 leaks? Have you designed pipelines to prevent  
3 leaks? Have you -- other than reading the DNV  
4 report on leak frequency, do you have any  
5 experience with pipeline -- oil pipeline leaks,  
6 crude oil pipeline leaks?

7 A. I have experience with pollutant fate and  
8 transport modeling of spills, but not specific to  
9 pipelines.

10 Q. Again, other than the -- reviewing the DNV  
11 information, do you have any experience with  
12 response times for -- after leaks?

13 A. You mean in terms of actually developing  
14 response plans?

15 Q. Developing response plans, reviewing  
16 response plans.

17 A. No, I have not developed response plans.

18 Q. Do you have any spills -- experience with  
19 spills about -- spills of petroleum or  
20 hydrocarbons?

21 A. Let's think. You know, no. The fate and  
22 transport modeling of a spill, whether it's a  
23 hydrocarbon or some other substance, the physics is  
24 basically the same, but, no, I have not modeled  
25 petroleum spills.

1 Q. Now, there was some testimony at the last  
2 hearings about the consistency of crude versus  
3 perhaps some other liquid's thicker consistency, I  
4 guess, affinity toward soil and plants and things  
5 like that.

6 A. Right.

7 Q. Do you have any expertise in the actual --  
8 I guess, what happens with the crude oil spill and  
9 the transport underground, overground of a crude  
10 oil spill?

11 A. Really, again, the physics is basically  
12 the same regardless of whether it's water or oil or  
13 another substance. They're both Newtonian fluids  
14 and they both behave in the same manner. You do  
15 have to vary the parameters that you use to do the  
16 modeling so the viscosity is different and some of  
17 the other parameters are different. But the actual  
18 physics of the transport is the same regardless of  
19 whether it's water or crude or any other substance.

20 Q. Now, you used this stochastic risk  
21 assessment method. Are you aware of whether that  
22 method is used in determining risk of pipeline oil  
23 leaks?

24 A. Yeah, I just did it.

25 Q. Other than yourself in this case.

1           A.    No, I'm not sure.  No.  It's certainly a  
2   valid method.

3           Q.    Now, as I understand the difference with  
4   what DNV used and Keystone in this case, they used  
5   a deterministic assessment; is that correct?

6           A.    Yeah, I think that's a fair assessment.  
7   And maybe you could tell me what you mean by that  
8   and then --

9           Q.    Well, as I understand it -- my  
10   understanding is somewhat limited -- is that you  
11   try to come up with a number rather than a range.  
12   Is that a fair statement?

13          A.    I would actually characterize it as you  
14   come up with a single number as opposed to the most  
15   likely or the probability of the number based on  
16   the uncertainty and the input values.  Again, when  
17   you do a deterministic-type modeling analysis,  
18   you're assuming that all the inputs are exactly  
19   known, so you're assuming that those base  
20   frequencies of pipeline failure, whether it's for a  
21   flange or whether it's hydraulic, or whatever, are  
22   exactly known.  They're not known.  They're  
23   estimated based on observation of historic  
24   failures.  So by doing a stochastic analysis, we're  
25   able to take that uncertainty into consideration

1 and generate the, if you wish to call it, range of  
2 probabilities of a failure.

3 Q. But in order to do that, you have to take  
4 a certain model to come up with what variables to  
5 factor into that?

6 A. We used the same model DNV used. We used  
7 the exact, same equations.

8 Q. Now, have you ever used the deterministic  
9 assessment method in evaluating risk?

10 A. Yes, I have.

11 Q. And what was that for?

12 A. I did several facilities, a medical waste  
13 incinerator -- most of them were medical waste  
14 incinerators, and what I want to make sure you  
15 understand is that this use of the deterministic  
16 approach is not unique to risk assessment. It's  
17 also applicable to general engineering. But, yes,  
18 I've used a deterministic approach.

19 Q. Now, do they call it the Monte Carlo  
20 system because you do a number of -- it's sort of  
21 like throwing the dice a thousand times and  
22 whatever comes up -- is it something like that?

23 A. It's called Monte Carlo because you're  
24 basically defining the uncertainty in those input  
25 values that go into the calculation, and the

1 computer model, based on the probability  
2 distribution for those inputs, redoes the  
3 calculation as many times as you tell it. So  
4 that's why it's called Monte Carlo or stochastic.  
5 If you look at any standard engineering textbook,  
6 it's in there.

7 Q. I'd like to have you -- do you still have  
8 the exhibit in front of you, Exhibit 12?

9 A. I do.

10 Q. We might as well start on 12-1. I've got  
11 a couple questions just to understand where you're  
12 coming with this. Now, in this you say that  
13 response -- estimated response time varies. What  
14 is the cause of that variation?

15 A. Well, again, the -- in the DNV report, the  
16 response time is presented as four hours for a  
17 small to medium-sized leak. But the response time  
18 depends upon, my understanding is, how long it  
19 takes you to detect the leak, how long it takes the  
20 system to shut down the pipe to take the pressure  
21 off the pipe, how long it takes someone to get  
22 there, and then how long it takes someone once  
23 they're there to do something about it. So those  
24 are the main factors involved in computing the  
25 response time.

1 Q. And that's where you mean by varies, or --

2 A. Sure. If you've got to mobilize a hazmat  
3 crew from Fargo, in good weather he's going to make  
4 it in 60 hours -- in 60 minutes, but if it's North  
5 Dakota like we had yesterday, he's not going to be  
6 there in 60 minutes; he's going to be there in some  
7 longer period of time. Similarly, in the DNV  
8 report, itself, it talks about the ability to  
9 detect these small leaks. Most of my analysis have  
10 been focused on small to medium-sized leaks. That  
11 report shows that the leak detection may take as  
12 long as 90 days. So that factors into the length  
13 of the response time. We considered that in our  
14 analysis that, you know, on average or the most  
15 likely response time is going to be four hours,  
16 say, based on the work that DNV presented, but  
17 based on other factors, it could be as long as 90  
18 days based on the ability to detect the leak.

19 Q. How did you determine that -- I mean, I  
20 understand that there's a lot of variations that  
21 can go into this, but what kind of variation  
22 parameter do you put into your model to come up  
23 with your numbers?

24 A. I don't understand your question.

25 Q. Do you put -- okay. I understand that the

1 stochastic method is to try to figure in some of  
2 these variables. I guess, how do you -- how do you  
3 plug those into this computer model?

4 A. Okay. Maybe an example would help. If  
5 you look at the leak detection time for a leak less  
6 than -- essentially less than 1.5 percent of the  
7 volume throughput, which is 435,000 barrels per  
8 day, as I recall, it says in the report that the  
9 most likely response time is whatever -- I can't  
10 remember, to be honest with you, but that it can be  
11 as long as 90 days. So in our analysis what we did  
12 in computing the response times is we gave  
13 basically DNV the benefit of the doubt. We just  
14 said, sure, we're going to agree, we're not going  
15 to debate it, that the most likely response time is  
16 four hours, but we are going to acknowledge that it  
17 can be as long as 90 days. So we describe  
18 statistical distribution for those data that the  
19 computer then uses to predict or to select as an  
20 input for the leak detection component of the  
21 response time. So we tried to give DNV the benefit  
22 of the doubt. You know, when they said something  
23 was going to happen, you know, at a four-hour  
24 interval or whatever, we tried to honor that.

25 Q. So you're applying a distribution to it;

1 is that what you said?

2 A. Yes, we're applying a statistical  
3 distribution.

4 Q. And, I guess, which distribution and why  
5 does that apply?

6 A. For which parameter?

7 Q. Well, I don't know. You tell me which  
8 parameter. How many parameters do we have in this?

9 A. Again, we have -- the four parameters we  
10 have are -- on the response time are the same four  
11 in the DNV report, so I'll go through them. Leak  
12 detection, and then shut the pipeline down,  
13 basically get somebody there, and then do something  
14 about it.

15 Q. And you apply a different distribution for  
16 each factor then?

17 A. It can be a different distribution.

18 Q. I mean, did you in this? I'm just trying  
19 to understand what you did here.

20 A. Yeah. Again, we set the bounds based on  
21 the DNV report, so if I go back to my earlier  
22 example for a leak detection -- and maybe it would  
23 help me if someone can get me the DNV report, I can  
24 tell you exactly on what page it is, but if you go  
25 back to the DNV report, it talks about the ability

1 to detect a leak for throughput of less than 1.5  
2 percent. Okay. And it gives a most likely value.  
3 It says we think it's going to be this, but it also  
4 says it could be as long as 90 days. So basically  
5 we fit a distribution where the most likely  
6 occurrence is in fact four hours, but that it can  
7 be as long as 90 days. It's a low probability of  
8 it being 90 days, but it still could be 90 days.  
9 So we didn't cap the bounds basically of our  
10 inputs. You know, you could have got the same  
11 approach as we did by redoing the calculations in  
12 the report 10,000 times and allowing those inputs  
13 to vary. It's no different than a deterministic  
14 approach really.

15 Q. Instead of the 90 days, you came up with  
16 the 28.9 days as the maximum?

17 A. Right. Right. We're giving you the  
18 benefit of the doubt. Exactly.

19 Q. Now, the --

20 A. So we're -- our analysis actually shows  
21 it's more in the order of -- you know, the maximum  
22 response time is probably going to be more on the  
23 order of 28.9 days. It's not going to be that 90  
24 days, but it's still longer than the amount of time  
25 it takes material to get from the pipe to the

1 reservoir and into the reservoir.

2 Q. Now, to come up with these -- you know,  
3 the -- putting these variables in 10,000 times, or  
4 whatever, don't you have to have a basis for the  
5 underlying probability curve?

6 A. Certainly. We use the DNV information. A  
7 good example of that is in the report for the base  
8 failures, the DNV report applies modification  
9 factors. Essentially what the report does is give  
10 credit for engineering considerations that reduce  
11 the risk. So, for example, the design depth is  
12 four feet. In the report if you bury it -- it says  
13 if you bury it deeper, then the risk isn't going  
14 to -- it's going to be less than that base  
15 frequency. So all we did was we took those  
16 modification factors from that report that  
17 represent essentially what we assumed DNV  
18 considered the range to be and we used those. So  
19 we didn't make anything up. We just used the  
20 ranges and the information from the DNV report.

21 Q. Should a normal distribution be used to  
22 evaluate spill frequencies?

23 A. Which parameter?

24 Q. Again, for any of the parameters or all of  
25 them.



1           JUDGE WAHL: All right. Let's be in  
2 order. We're back on the record. Mr. Kelsch, you  
3 may proceed.

4           MR. KELSCH: Thank you, Your Honor.

5           Q.     (MR. KELSCH CONTINUING) Mr. Deutschman,  
6 we'll just move to Exhibit 12-2. Basically what  
7 you did there is just added some additional time  
8 for the hazmat team from Fargo to get there and  
9 used the same sort of analysis as on the one; is  
10 that it?

11          A.     What we attempted to do was to break down  
12 the four hours that DNV had in the report into the  
13 four items for response time that they had in the  
14 report, again, leak detection -- I'm going to lose  
15 my train of thought here, I've said this a few  
16 times, but leak detection, shut the pipeline down,  
17 get someone there and then to do something about  
18 it. So all we did was, we assumed that the first,  
19 I believe it was, two components of those was four  
20 hours and that the response time for the hazmat  
21 crew to get there could be longer, and that the  
22 mitigation time would occur within -- I don't  
23 remember what the number was -- 90 minutes or  
24 something, 60 minutes, something like that.

25          Q.     Okay. Moving on to Exhibit 12-3. Now, do

1 -- are you saying that a leak anywhere along that  
2 91 miles of pipeline, regardless of the size of the  
3 leak, would reach Lake Ashtabula?

4 A. No, I'm not saying that.

5 Q. Okay. So when you're looking at this 0.23  
6 annual leak, that's looking at any size leak  
7 anywhere along the line, is that right, of this  
8 91-mile line?

9 A. That's looking at -- that's correct.

10 Q. So if a certain percentage of those leaks  
11 along that 91-mile would not reach the lake, then  
12 isn't that really what we're more concerned about,  
13 the percentage or the number per year that would  
14 actually reach the lake?

15 A. Is that a question or --

16 Q. Isn't that what we're concerned about  
17 here? I mean, isn't that why the City of Fargo is  
18 here?

19 A. Well, you would have to ask the city  
20 administrator. Obviously they're concerned about  
21 their water supply.

22 Q. Well, with your testimony, I mean, this  
23 whole risk analysis, isn't that the risk that we're  
24 talking -- isn't that the risk you're talking  
25 about, is the risk not of just a spill along this

1 91 miles, but the risk of a spill actually reaching  
2 the lake?

3 A. Yeah, again, we didn't -- our analysis of  
4 the quantity reaching the lake was based on looking  
5 at the proportion of the longest pipeline segment  
6 that needed to be in the reservoir in order to  
7 reach the benzene MCL. So that's -- that's what we  
8 looked at.

9 Q. The backwards model I think is where -- I  
10 don't know if you can call it backwards, but, I  
11 mean, from the end result forward; is that what  
12 you --

13 A. Well, it's basically looking at what  
14 concentration would be of concern and then back-  
15 calculating the mass of benzene that would actually  
16 have to enter the reservoir in order to have that  
17 concentration.

18 Q. Do you have any expertise in evaluating  
19 the -- I guess, the fate of oil or the oil actually  
20 reaching the Lake Ashtabula from this -- a leak  
21 anywhere along those 91 miles?

22 A. I just used the DNV stuff. They indicate  
23 in there roughly one hour -- one hour to one and a  
24 half hours. It's in Exhibit T42, I believe it is.

25 Q. Okay. And that would be if it's in one of

1 those areas where there's a --

2 A. I can't speculate on what they did. I'm  
3 just going off the table. I don't know how they  
4 did the analysis.

5 Q. Moving on to -- do you know how far the  
6 pipeline is along that 91 miles from Lake  
7 Ashtabula -- what the range of actual miles from  
8 the location of the pipeline is to the lake?

9 A. Again, I believe it's in Exhibit T42. If  
10 you look at that, it says the minimum distance in  
11 that exhibit. I hope that's the right one, but is  
12 a mile to a mile and a half at its closest point.

13 Q. At its closest point?

14 A. That's correct.

15 Q. Okay. How about the farthest point?

16 A. It's not in the table. I don't know. I'm  
17 just going by what's in the table. I didn't do any  
18 independent analysis of distances.

19 Q. Do you have any expertise on how far oil  
20 will flow on relatively level ground?

21 A. I guess I'm not sure what you're asking  
22 me.

23 Q. Well, I think the testimony was that other  
24 than in some of those areas where there's a stream  
25 going through or an intermittent stream area,

1 basically where the pipeline is it's relatively  
2 flat.

3 A. My biggest concern is those coulees  
4 because those are sloped, they're not flat. In  
5 fact, in that one table I think it recognizes that  
6 they're steep. I think that's your own --  
7 Keystone's own analysis. So that's my concern.  
8 It's not the flat areas. It's -- those coulees  
9 represent, in my opinion, a conveyance mechanism to  
10 get the oil into the reservoir in terms of the  
11 steep slope.

12 Q. Yeah. And that's what Ms. Tillquist did  
13 in her Exhibit T24, and maybe that's what you were  
14 referring to before, where she found that basically  
15 the only way to convey the oil to the lake would be  
16 on those ravines or the riverbeds going to the  
17 lake. Her testimony in Exhibit T24 showed about  
18 2.8 miles of area where the leak would have to  
19 occur in order for the oil to get to Lake  
20 Ashtabula.

21 A. I wasn't --

22 MR. DINGESS: I would object. That sounds  
23 like an argument based upon some previous  
24 testimony. I'm struggling to find a question in  
25 there.

1           JUDGE WAHL: Overruled. Sounds like  
2 cross-examination to me with a little bit of  
3 struggle, but that's understandable.

4           THE WITNESS: Would you repeat, please?

5           Q.     (MR. KELSCH CONTINUING) Sure. Ms.  
6 Tillquist in Exhibit T24 and her testimony that  
7 went with it said there's 2.8 miles of pipeline  
8 segments that would be able -- that if there was a  
9 leak there, is the only place that it would be able  
10 to get down to the lake.

11          A.     I can't speak for Ms. Tillman. I don't  
12 know how she did the analysis, so --

13          Q.     It's Tillquist.

14          A.     I just tried to use their numbers. I  
15 didn't -- you know, again, there's more than a few  
16 crossings there, so I don't know where 2.8 comes  
17 from.

18          Q.     You haven't done a study on that or --

19          A.     On what?

20          Q.     On what -- how much areas those ravines or  
21 the areas that you were concerned about for the oil  
22 getting down there.

23          A.     No, I have not independently calculated  
24 however you would define that area. I don't know  
25 how that area was defined in the previous work.

1 Q. Okay. If -- I guess, you know, you're an  
2 expert here and you're testifying about risk  
3 analysis to Lake Ashtabula; right?

4 A. Well --

5 Q. I mean, that's why you're here. Is that  
6 correct or not?

7 A. Yes, that's correct.

8 Q. Okay. Well, then -- and I understand you  
9 didn't do the study yourself, but I'll ask you a  
10 hypothetical question. If Ms. Tillquist was right  
11 and that only 2.8 miles of that pipeline would  
12 permit the oil actually to traverse down to the  
13 lake, then wouldn't the numbers on Exhibit 12-3, if  
14 we're looking at the chance of an annual spill that  
15 could actually get to the lake, would be a lot less  
16 than that 0.023?

17 A. That's not what 12-3 represents. It  
18 doesn't represent what actually gets to the lake.  
19 It represents the actual likelihood of a failure of  
20 the pipeline. That's independent of the surface  
21 area going to Lake Ashtabula.

22 Q. Okay. And I understand that, so the  
23 number you came up with as 0.023 is saying that in  
24 this 91-mile segment -- pipeline segment there  
25 would be 0.023 leaks per year, is that right, in

1 that whole segment?

2 A. No, I guess I wouldn't phrase it that way,  
3 but --

4 Q. The probability or whatever, that's what  
5 you -- isn't that what you're saying is the  
6 likelihood?

7 A. I would say that -- to me the easiest way  
8 to think about it is just like a flood. The chance  
9 of this occurring is once every so many years on  
10 average. It's no different. We design flood  
11 protection works for once every hundred years or  
12 better. I'm saying here that the likelihood of a  
13 failure is once every 43 years on the long term.  
14 Again, it doesn't mean that it's going to happen  
15 once in 43 years. It could happen three times in  
16 43 years and then not again for who knows how long.

17 Q. But to get that once in 43 years, you took  
18 one divided by 0.023 likelihood of a spill per year  
19 and came up with one in every 43 years?

20 A. That's correct. I used the same approach  
21 that was presented earlier to the Commission.

22 Q. So this 12-3 is calculating the likelihood  
23 of a spill anywhere in that whole 91 miles?

24 A. It's the likelihood of the pipeline  
25 failure in the 91-mile segment.

1           Q.     And, I guess, getting back to my other  
2 question of we're not -- if the crude oil doesn't  
3 get to the lake, it doesn't affect Fargo's water  
4 system; correct?

5           A.     Obviously.

6           Q.     Okay. So we're not as concerned with the  
7 chance of a spill for the whole 91 miles if there's  
8 no chance of it to get to the lake over parts of  
9 that 91 miles; is that a fair statement?

10          A.     It's got to rupture first.

11          Q.     It's got to rupture. Okay. We got a  
12 rupture. Okay. But if it ruptures in an area  
13 where that oil won't reach the lake, no problem for  
14 Fargo?

15          A.     Well, it won't get to Lake Ashtabula.

16          Q.     Okay. Okay. So if we're trying to figure  
17 out the risk to Fargo -- I mean, that's the whole  
18 purpose of this hearing, what is the risk of a leak  
19 in this pipeline to the City of Fargo. It doesn't  
20 matter if there's a leak if it doesn't get to the  
21 lake or doesn't get to the river. We're looking at  
22 what is the risk of a leak that could get to the  
23 river or it could get to the lake that would  
24 eventually maybe get to the City of Fargo; is that  
25 correct?

1           A.     That risk is quite simply comparison of  
2 the response times. We've shown that -- we've  
3 shown that -- we've shown that it takes -- or your  
4 own Exhibit T24 shows roughly one to one and a half  
5 hours to get to the lake if it hits one of those  
6 coulees.

7           Q.     Okay.

8           A.     I've suggested that it's going to take  
9 much longer than that to respond. Now, again, I've  
10 assumed that all that material hits the reservoir  
11 at one time.

12          Q.     Okay. And I guess that's my point. If it  
13 doesn't get to the coulee, it doesn't get to the  
14 reservoir, and so it shouldn't be considered in  
15 this probability -- or at least there's an argument  
16 that it shouldn't be considered as a risk to the  
17 City of Fargo?

18          A.     I would acknowledge that you and I have a  
19 difference of opinion.

20          Q.     But in order to figure out this leak,  
21 you're figuring a leak per -- 0.023 leaks per the  
22 91 miles, so if you make that number -- the 91  
23 miles number smaller, then it's going to happen  
24 less often than once every 43 years?

25          A.     The risk is based on the length of

1 pipeline, if that's -- if that's the question.

2 Q. Okay. So if we shorten the length of the  
3 pipeline that could actually get a leak to the  
4 lake, you would then increase that risk -- or  
5 decrease the risk -- decrease the number of the  
6 risk?

7 A. Yeah. Again, the base frequency risk is  
8 proportional to pipeline length. If you look in  
9 the DNV study, that's what it's proportional to.  
10 You multiply the base frequency times the pipeline  
11 length.

12 Q. Moving on to 12-5. Now, 12-5, this is the  
13 one that I believe you said really wasn't realistic  
14 because you were considering all three pipeline  
15 segments and the chance of a leak in every -- all  
16 three segments is not very realistic; is that  
17 correct?

18 A. That was my opinion. I didn't feel it was  
19 practical.

20 Q. So what you're basically saying is 12-6 is  
21 a more representative --

22 A. Yeah.

23 Q. -- risk?

24 A. In my opinion, you know, that's why we did  
25 12-6, was because 12-6 is the longest pipeline

1 segment separated by a pump station in a downstream  
2 valve, valve 5. We didn't feel it was appropriate  
3 to assume that all three segments would  
4 simultaneously rupture or fail, or whatever term  
5 you want to use.

6 Q. Now, the risk -- comparing to the other  
7 one, the risk of a leak in that longest segment  
8 would be what, about half as much as the leak in  
9 the -- over the whole 91?

10 A. This graph doesn't pertain to risk.

11 Q. Well, I understand that, but these are all  
12 part of your testimony and I assume there's some  
13 relation between the different -- the different, I  
14 guess, exhibits here. 12-3 says it's once every 43  
15 years in 91 miles. It would seem to me 43 miles is  
16 less than half. It would probably have to be once  
17 at least every 90-some years in that longest  
18 segment.

19 A. It's generally linear. You know, again,  
20 it's proportional to pipe length.

21 Q. So you shorten the length?

22 A. So the length goes down, the base  
23 frequency -- not the base frequency, but the risk  
24 declines.

25 Q. The risk would decline?

1           A.     Correct.

2           Q.     Okay.  Now, looking at this -- if I read  
3 this right, to get to the 2,000 -- on slide or  
4 Exhibit 12-7, you say you'd have to get 2,193  
5 barrels of crude oil actually to the lake to get to  
6 the five whatever -- .005 milligrams per liter?

7           A.     That's correct.

8           Q.     So going back to Exhibit 12-6, it appears  
9 that that would only happen maybe 3 percent of the  
10 time; is that --

11          A.     Yeah, the probability is less, but,  
12 nevertheless, there is a probability.  It's not  
13 zero.

14          Q.     No, I understand.  I understand it's not  
15 zero.  But we're just trying to figure out what the  
16 actual risk might be to get a -- an amount of  
17 benzene that would be, I guess, to the maximum  
18 contaminant level under the -- that's the drinking  
19 water standard, is that it?

20          A.     That's the maximum contaminant level.

21          Q.     For drinking water?

22          A.     Correct.

23          Q.     So, again, would it be a fair statement in  
24 looking at the risk, just -- we would be maybe 3  
25 percent of the once every 90 years to get that much

1 to the reservoir to get the 5 -- 5 parts per --

2 A. I don't think you can look at it on a  
3 percentage basis. I'm not sure what exactly you're  
4 asking me here, but --

5 Q. Well, again, we're trying to figure out  
6 what -- and that's the whole purpose of this.

7 A. The analysis shows that -- are you asking  
8 me what the likelihood of the spill volume is?

9 Q. What the likelihood -- if the spill volume  
10 is only 3 percent chance of having enough barrels  
11 actually spilled out of the pipeline, that seems to  
12 me to be a -- isn't that a factor that the  
13 Commission should consider as a risk to the lake?

14 A. I'm sorry. I don't feel that that's my  
15 obligation to -- I mean, the Commission -- I'm just  
16 trying to present information to them. I don't  
17 know that it's my responsibility. They're more  
18 than capable on their own to reach their decision.  
19 I mean, the graph here just shows that -- again,  
20 kind of the way to read these is, if you look on  
21 the X axis of Exhibit 12-6 is the volume annually  
22 potentially spilled with a probability on the  
23 left-hand side. So if you go to .5, that's the  
24 median amount potentially, right? So, you know,  
25 we're talking that the central tendency value or

1 the most likely value is going to be somewhere  
2 based on what we've done, realizing that we  
3 confined our analysis to DNV's 4.5 percent of the  
4 maximum segment volume that is potentially  
5 available to spill is 146 barrels. 20 percent of  
6 the time, if you look at the 80 percent value, it  
7 is 454 barrels or more. 10 percent of the time,  
8 which exceeds the 90 percent value -- and I  
9 shouldn't be reading the fit one, I should be  
10 reading the forecast values -- I'm sorry -- would  
11 be 803 barrels, and the maximum estimated is 2,880.  
12 What we did, where the 2,880 comes from is we took  
13 in good faith the DNV analysis which capped the  
14 maximum pipeline volume at 4.5 percent of the  
15 segment volume. So we didn't argue and we didn't  
16 say the whole pipe is going to rupture and the  
17 whole 200,000 barrels in that longest segment is  
18 going to reach the reservoir. We capped it because  
19 our goal was not -- our goal was to show that the  
20 risk number -- and these numbers are not absolute  
21 numbers, there's a range, and that's what Fargo is  
22 dealing with in dealing with looking at the risk to  
23 their water supply.

24 Q. And I guess what I'm trying to -- at 90  
25 percent is 803 barrels. That would be -- according

1 to this slide, that would be 803 barrels that  
2 actually leaked out of the pipe at the site; is  
3 that right?

4 A. At some site in that segment, correct.

5 Q. Yeah. And then that's all -- if the site  
6 is even a mile and a half away from the lake, do  
7 you know, will some of that evaporate, will some of  
8 that be stuck to the ground and the rock and the  
9 plants before it goes that mile and a half?

10 A. Certainly it won't all hit the lake.

11 Q. Okay. So when we're looking at the risk  
12 for 90 percent of the leaks, according to your  
13 figures, they certainly won't have enough to cause  
14 a benzene -- to reach the maximum contaminant level  
15 for benzene at the lake, much less down at Fargo at  
16 Fargo's intake?

17 A. I disagree. Figure Exhibit 12-7 shows it  
18 only takes 1 percent of that longest pipeline  
19 segment volume to get there. It takes, you know,  
20 2,000 barrels to get there. And if the reservoir  
21 is lower, it takes less, it takes 500 barrels.

22 Q. So let's --

23 A. I don't know what portion is actually  
24 going to make it there. I didn't estimate that  
25 independently.

1 Q. Let's go to 12-7. As I understand what  
2 you did here is, you took that total pipeline  
3 length from milepost 123.5 to mile marker 167; is  
4 that right?

5 A. That's correct.

6 Q. And so that's that 43.5 miles?

7 A. That's correct.

8 Q. And it's like you capped off each end,  
9 well, there's oil in there?

10 A. Correct.

11 Q. And you said, okay, this is how much oil  
12 is there, and so if there's a leak and 1 percent of  
13 that total volume of oil actually gets to the lake,  
14 that's what 12-7 is saying; right?

15 A. Yeah. It basically says if 1 percent of  
16 that reaches the lake, you're at the MCL.

17 Q. Okay. How does that jibe with 12-6 that  
18 says 90 percent of the leaks in this same area are  
19 only going to exceed -- or are going to have 803  
20 barrels or less at the point of the leak, not at  
21 the lake?

22 A. It's just to give a relative sense of the  
23 spill volume relative to the requirement in the  
24 reservoir to hit the MCL.

25 Q. But if there isn't -- if there's only a 3

1 percent chance of reaching this 1.1 percent of this  
2 total level according to your figures --

3 A. I don't know where you're coming up with  
4 3.3 percent chance.

5 Q. 3 percent. Isn't that what 12-6 says  
6 that -- where does 2,193 barrels -- what percentage  
7 is that on 12-6?

8 A. That's somewhere between the 90th and a  
9 hundredth percentile.

10 Q. I guess I estimated the 97th percentile,  
11 but is that -- it could be?

12 A. I didn't independently estimate. You can  
13 linearly interpolate between the numbers if you  
14 wish.

15 Q. Okay. Okay.

16 A. Again, my point is it's not zero.

17 Q. Did you do a risk analysis of the crude  
18 oil or the benzene -- all we're talking about is  
19 Lake Ashtabula here. Did you do an analysis of  
20 either the crude oil or the benzene getting from  
21 Lake Ashtabula, the 236 miles, to Fargo's intake?

22 A. No, I did not.

23 Q. In this 12-9, is that -- are you figuring  
24 any -- again, I've got a question here. In your  
25 testimony you said 5 percent of the volume, but

1 then at the top it says 1 percent of the volume.

2 Is that just a typo?

3 A. I believe it is. I believe this assumes  
4 that 11,000 barrels hits the reservoir.

5 Q. Okay.

6 A. I would have to check for sure. And,  
7 again, it assumes a loss rate of 5 percent per day,  
8 and I didn't separate out the physical mechanism  
9 for that, whether it's volatilization or other  
10 things. I just -- it's just a screening analysis  
11 to give the Commission some sense of how long this  
12 would persist. And we don't know that necessarily  
13 it's benzene, either. It could be a persistent --  
14 some other persistent chemical that would last  
15 longer or it could be something that lasts less.

16 Q. Now, the -- so this is 11,000 barrels  
17 reaching the pipeline because you're using 5  
18 percent of that 43 miles. Now, on 12-6 it doesn't  
19 even get up to 11,000. Is there a zero percent  
20 chance of 11,000 barrels leaking from the pipeline  
21 under 12-6?

22 A. Yeah. The reason it doesn't go to the  
23 maximum pipeline volume is because in my analysis I  
24 purposely capped it at what DNV said the 4 percent  
25 of the pipeline volume is. I could have run this

1 analysis and said it could be the whole pipeline  
2 segment. I chose not to do that in fairness to  
3 the -- you know, tried to be intellectually honest  
4 about the analysis. It doesn't mean that it  
5 doesn't go up there. It's just that I made the  
6 professional decision to cap it because that's what  
7 the DNV report said.

8 Q. Now, this 12.9 doesn't figure any  
9 emergency response planning or cleanup at the lake?

10 A. Where are we? 12 -- I'm sorry.

11 Q. 12-9, the last one.

12 A. No. And, again, it's just to give a  
13 general relative sense of timing.

14 Q. Now, the other thing I notice on here, it  
15 talks about if this -- the benzene and the oil  
16 completely mixes with the lake. How -- do you know  
17 how long -- are you an expert in mixing of water  
18 and benzene and/or crude oil?

19 A. I have experience in fate and transport  
20 modeling of pollutants.

21 Q. Okay. And how long does it take for the  
22 whole thing to completely mix?

23 A. I don't know for Lake Ashtabula. It's  
24 going to depend on turbulence and all kinds of  
25 other things.

1 Q. So you didn't factor mixing time or  
2 anything in this?

3 A. No. Again, this was a screening level  
4 analysis to give the Commission just some general  
5 sense of how long it takes. I didn't do a -- you  
6 know, a two- or three-dimensional model of a  
7 benzene plume reaching the reservoir.

8 Q. Of course, at least to start, before the  
9 benzene starts to mix with the water, the crude oil  
10 floats on top of the water so it is available to  
11 clean up? No?

12 A. I guess, yeah.

13 MR. KELSCH: No further questions.

14 JUDGE WAHL: Ms. Linderman.

15 **CROSS-EXAMINATION**

16 **BY MS. LINDERMAN:**

17 Q. Regarding your analysis, you used benzene  
18 as the contaminant that you modeled and that  
19 reaching the water at the maximum contaminant  
20 level. Is there a reason that you used that  
21 number, or did you just choose to use that as a  
22 baseline? Because I'm wondering if it would be  
23 appropriate if you did a more thorough risk  
24 analysis to model different levels of benzene  
25 perhaps lower than the maximum concentration -- or

1 the maximum contaminant level.

2 A. I used benzene for two reasons. One is  
3 because that's what the previous work had done,  
4 so -- and the second reason is that I have no other  
5 information on what else is in the pipeline on a  
6 mass fraction basis. Clearly, there's other stuff  
7 in the pipe, but I have not seen any information as  
8 to what that is.

9 Q. Okay.

10 A. There's other carbon compounds as some of  
11 the other colleagues have testified to.

12 Q. And you didn't see any analysis of any  
13 other chemical compounds in the TransCanada risk  
14 analysis that you reviewed?

15 A. No, I did not.

16 Q. Do you think it would have been  
17 appropriate to include those analyses?

18 A. I think it would have been, yes.

19 Q. In -- again, in the risk analyses that you  
20 reviewed, did you see any information about how  
21 long it would take this kind of contamination to  
22 travel from Lake Ashtabula to Fargo?

23 A. In the risk analysis?

24 Q. Yes.

25 A. No, I did not.

1 Q. So to the best of your knowledge, based on  
2 the documents that you have reviewed, that's not  
3 something that was really done by TransCanada?

4 A. No, I don't recall any. The Corps of  
5 Engineers operating manual for Baldhill Dam  
6 suggests that at 2,000 cubic feet per second, the  
7 travel time from basically the dam to Fargo is nine  
8 days.

9 Q. And just to clarify after all the detailed  
10 questions that Mr. Kelsch was asking, the inputs  
11 that you used were directly from TransCanada's  
12 information and analyses; is that correct?

13 A. That's correct. We tried to stay true to  
14 what they did.

15 Q. And you simply performed a different set  
16 of calculations based on a different model of risk  
17 analysis; is that correct?

18 A. We let the input parameters vary because  
19 the answer for risk is not a single value. It's a  
20 range of values.

21 Q. And for practical planning purposes, what  
22 kind of different information does that give you  
23 that's useful to Fargo?

24 A. It gives Fargo a range of the risks, a  
25 range of the spill volumes and the probabilities of

1 those as opposed to a single-point estimate.

2 Q. I guess the question I was trying to ask,  
3 practically speaking, if you are the City of Fargo  
4 and you're concerned about an oil spill, where does  
5 this kind of risk modeling come into play for you,  
6 or what factors on the ground day-to-day practical  
7 planning does this give you that you don't get with  
8 a deterministic approach that, I believe --

9 A. I can tell Mr. Long that if he's going to  
10 design that system for the City of Fargo, that he  
11 has to plan for not a single value in terms of the  
12 concentration that might get there or whatever,  
13 that there's some chance, be it small perhaps, that  
14 a larger amount could reach. So, again, you don't  
15 typically design systems for the typical or average  
16 value. You know, he's going to have to provide  
17 treatment for a larger spill event potentially, so  
18 it gives him information from a design perspective  
19 that he can use.

20 MS. LINDERMAN: Thank you. Those were all  
21 the questions I have.

22 JUDGE WAHL: Mr. Binek.

23 **CROSS-EXAMINATION**

24 **BY MR. BINEK:**

25 Q. When you gave your recommendations, one of

1 the recommendations that you gave was that -- to  
2 reduce the pipeline length, and what you've worked  
3 with here, as I recall, you had three separate  
4 pipeline segments --

5 A. Correct.

6 Q. -- that you're dealing with? And those  
7 pipeline segments are established by valves or  
8 pumping stations; is that correct?

9 A. That's correct.

10 Q. If you increased the number of valves, for  
11 instance, then do you reduce the probability of a  
12 spill?

13 A. You reduce the risk of a spill.

14 Q. Mr. Kelsch referred to, I think it was, a  
15 2.3-mile segment of pipeline -- I'm not sure about  
16 the exact length, but he was talking about a length  
17 of pipeline of where a spill could actually reach  
18 Lake Ashtabula. If you isolated that segment with  
19 valves, what would that do to the risk analysis?  
20 How would that change it?

21 A. Again, in our analysis we assumed that the  
22 risk is proportional to the segment length, so  
23 anything you do to shorten that length by valving  
24 or pumping stations, or whatever, according to the  
25 DNV report and what I looked at, would also reduce

1 the risk. So more valves is going to reduce this  
2 frequency of failure. It's based on pipeline  
3 length.

4 MR. BINEK: I have no further questions.

5 JUDGE WAHL: Questions from the  
6 Commission? Commissioner Clark.

7 **EXAMINATION**

8 **BY COMMISSIONER CLARK:**

9 Q. Just a few. And I do appreciate the  
10 conversation about risk assessment. I once heard  
11 someone make an observation about regulatory work  
12 that really the importance of it is always asking  
13 as compared to what. I mean, that's really what we  
14 do, whether it's siting a case or siting a pipeline  
15 or making other decisions with regard to utilities.  
16 It's always in comparison to other actions you  
17 might take, so it's an important topic and I  
18 appreciate the discussion of it.

19 I think Mr. Kelsch had asked at one point  
20 about the kind of level of acceptable risk, and I  
21 think you sort of punted on that a little bit and  
22 said the Commission can determine the acceptable  
23 level of risk, so I won't follow up on that, but as  
24 far as us attempting to figure out what is the real  
25 risk, and I'm going to follow up a little bit on

1 Mr. Binek's question, would it be most accurate for  
2 the Commission in trying to get that right risk  
3 number to calculate the risk assessment based on  
4 the length of line that actually comes in contact  
5 with those conduits to Lake Ashtabula, or is it  
6 more accurate to calculate that risk based on the  
7 full 90-mile segment?

8 A. Umm --

9 Q. I understand the risk assessment goes down  
10 as you shorten it, but what's -- I mean, what  
11 should we as a Commission look at for analyzing  
12 that risk?

13 A. You know, to be honest, probably working  
14 with the City of Fargo and others to figure out  
15 what that acceptable risk level is and what the  
16 maximum volume potentially you're willing to live  
17 with in any given pipe segment. I don't  
18 necessarily know what that number is right now.  
19 Does that make sense?

20 Q. Whether it should be 90 or 2.3? You don't  
21 know the right mileage, is what you're saying?

22 A. Right.

23 COMMISSIONER CLARK: That's all I have.  
24 Thank you.

25 JUDGE WAHL: Commissioner Cramer.

**EXAMINATION**

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**BY COMMISSIONER CRAMER:**

Q. Just following along that same line, because the question I had, and maybe this is a better way to ask it, do you disagree with -- I think it was Ms. Tillquist's testimony -- I'm trying to find the exact spot here that was referenced earlier that the length of pipe that has proximity to Lake Ashtabula, that a leak would get into one of these intermittent streams or areas where it could actually get to Lake Ashtabula is only 2.8 miles, do you know enough to know whether that's true or not?

A. I haven't looked at that independently.

Q. Okay.

A. My concern is those coulees. That's the primary concern.

Q. But if those coulees only -- and I don't know, I'm just asking -- if they only covered -- or only accessible to 2.8 miles as opposed to 91 miles, wouldn't that dramatically decrease the likelihood of your scenario being carried out, your scenario being a concentration that would be problematic getting to Lake Ashtabula?

A. Yeah. Again, the risk is proportional to

1 pipe length, so as you reduce the pipeline length,  
2 you're going to reduce the risk. The base -- in  
3 the report and what's been done, the base frequency  
4 is multiplied by the pipeline length. So to the  
5 extent that you can isolate that pipe length and,  
6 therefore, reduce the volume, you know, around  
7 critical receptors, you're reducing that risk to  
8 those two receptors, in my opinion.

9 Q. And I understand all of that. You're just  
10 not prepared to take issue with that --

11 A. I don't know what the magic volume is.

12 COMMISSIONER CRAMER: All right. I have  
13 nothing else.

14 JUDGE WAHL: Follow up, Mr. Dingess?

15 MR. DINGESS: No further questions from  
16 us.

17 JUDGE WAHL: Mr. Kelsch?

18 MR. KELSCH: Thank you, Your Honor. I  
19 just have a couple.

20 **RE-CROSS-EXAMINATION**

21 **BY MR. KELSCH:**

22 Q. Mr. Deutschman, now, if additional valves  
23 are put in, would that actually reduce the  
24 frequency of the failure or pipe leaks, or would it  
25 just impact the potential volume that might

1 actually leak out?

2 A. From a pipeline-specific segment or the  
3 whole pipeline?

4 Q. In this area you suggested maybe putting  
5 additional valves in this area and I thought your  
6 testimony was that it would reduce the frequency of  
7 leaks. My understanding is it would only perhaps  
8 reduce the frequency of volume of the leak, not the  
9 frequency of the actual leaks?

10 A. Well, basically the risk is linear on  
11 pipeline lengths, so if you take that  
12 43-and-a-half-mile segment and you divide it in  
13 two, those risks are additive now, you've just cut  
14 the risk for that whole thing into two parts in  
15 essence. The total risk for that length is the  
16 same because the pipeline length is the same. In  
17 fact, you've increased the risk because according  
18 to the analysis that was performed, you've added  
19 flanges and seals, which is also one of the risk  
20 factors. So did that answer your question?

21 Q. So it may have increased the risk, but  
22 you've reduced the potential volume of a leak?

23 A. For any given segment, correct.

24 Q. Now, you said, and I think it was a  
25 question by Ms. Linderman, that what you've done

1 here is you've provided the range of risk analysis  
2 for the City of Fargo or the water treatment plant,  
3 but you really haven't testified as to any -- any  
4 of this either crude oil or benzene getting from  
5 Lake Ashtabula to Fargo?

6 A. No. That statement is based on, again,  
7 the comparison of response times and reasonable  
8 response times. My intent was to show that, you  
9 know, depending on -- and, again, it's all  
10 hypothetical, but depending on the amount of  
11 material in the reservoir, it can persist for a  
12 period of time, and if you compare that 30 days to  
13 the travel time at 2,000 cfs to Fargo, that's about  
14 nine days. As the flow goes down on the river, the  
15 travel time goes up so it's going to take longer,  
16 and that's the struggle that the city is dealing  
17 with is, the same thing everyone else in the room  
18 is, how do you compare all these times and risks.  
19 That's why I recommended -- someone earlier asked  
20 about how do you minimize that. Well, you do a  
21 response plan now instead of waiting.

22 Q. Now -- I'm glad you mentioned that. Now,  
23 you do understand that the response plan has to be  
24 in place, in effect before any operation of the  
25 system?

1           A.    I wasn't under that understanding.

2           Q.    In fact, North Dakota is in a good  
3 position because it will be constructed and it will  
4 be a year before it will actually be used, so that  
5 would give sufficient time to do a response plan --  
6 develop a response plan with any people, including  
7 the City of Fargo.

8           MR. DINGESS:  I'm going -- is that being  
9 volunteered?

10          MR. KELSCH:  No further questions.

11          JUDGE WAHL:  Ms. Linderman, followup?

12          MS. LINDERMAN:  No further questions.

13          JUDGE WAHL:  Mr. Binek?

14          MR. BINEK:  No.

15          JUDGE WAHL:  Commissioners, anything  
16 further?

17          COMMISSIONER CLARK:  No.

18          COMMISSIONER CRAMER:  No.  Thanks.  Thank  
19 you.

20          MR. DINGESS:  Nothing further.

21          JUDGE WAHL:  Thank you very much, Mr.  
22 Deutschman.

23          MR. DINGESS:  Your Honor, we would call  
24 Mr. Allen Schlipp.

25          MR. KELSCH:  Your Honor, before Mr. --

1       excuse me.  Never mind.

2               MR. DINGESS:  Is there something?

3               JUDGE WAHL:  Be seated.  Mr. Schlipp, as  
4       you have heard me advise previous witnesses, your  
5       testimony is required to be under oath and I'm  
6       required by law to advise you regarding perjury  
7       before administering the oath.  Perjury is a false  
8       statement of material fact which you do not believe  
9       to be true; in other words, generally speaking, a  
10      lie.  In North Dakota perjury is a Class C felony  
11      punishable by a fine up to \$5,000, imprisonment for  
12      a period of up to five years, or both.  Will you  
13      raise your right hand, please?

14               (Witness sworn.)

15              MR. KELSCH:  Your Honor, I would like  
16      to -- we have been provided with the curriculum  
17      vitae of this witness and through discovery what  
18      he's intended to testify to as an expert, and I  
19      would like to, prior to his testimony, conduct some  
20      voir dire because Keystone does not believe that he  
21      has the requisite knowledge, skill, experience,  
22      training or education to be able to give his stated  
23      opinion as required under Rule 702 of the North  
24      Dakota Rules of Evidence.

25              JUDGE WAHL:  You may proceed, Mr. Kelsch.

1 MR. DINGESS: Excuse me, Your Honor.  
2 Wouldn't it be appropriate for me to lay some  
3 foundation prior to the voir dire?

4 JUDGE WAHL: Well, why don't we just get  
5 to the issue that concerns Mr. Kelsch?

6 MR. DINGESS: All right.

7 MR. KELSCH: Thank you, Your Honor.

8 **ALLEN C. SCHLIPP,**  
9 being first duly sworn, was examined and testified  
10 as follows:

11 **EXAMINATION**

12 **BY MR. KELSCH:**

13 Q. Mr. Schlipp, you're a -- you have a B.S.  
14 in civil engineering with a survey option; is that  
15 right?

16 A. Correct.

17 Q. And you're a registered land surveyor as  
18 well as a registered engineer?

19 A. That's correct.

20 Q. It looks by your curriculum vitae that  
21 your experience seems mainly to be in engineering  
22 surveying of single-family subdivisions, office,  
23 warehouse facilities, et cetera?

24 A. The bulk of my work is in land  
25 development, that is true.

1 Q. Now, you do not have any experience in  
2 risk analysis for crude oil pipelines, do you?

3 A. Do not.

4 Q. And according to your CV, you have never  
5 done anything with risk analysis in general and  
6 particular in risk analysis with crude oil  
7 pipelines?

8 A. Not with pipelines, no.

9 JUDGE WAHL: Mr. Schlipp, you'll have to  
10 pull that microphone forward a little bit. I have  
11 the volume and I take it -- I'm assuming the blue  
12 light is on.

13 THE WITNESS: It is.

14 JUDGE WAHL: Okay.

15 Q. (MR. KELSCH CONTINUING) And you have not  
16 done any risk analysis as it applies to the  
17 construction of a pipeline project, either, or  
18 operation?

19 A. Correct.

20 Q. Also, you don't have any experience in  
21 existing safety measures for an oil pipeline  
22 construction project, including construction and  
23 operation of a pipeline project?

24 A. That's correct.

25 Q. And you don't have any expertise in the

1 proposed design features for a -- designing a crude  
2 oil pipeline?

3 A. That is also correct.

4 Q. And you don't have any experience in  
5 containment features for crude oil pipelines?

6 A. That's correct.

7 Q. And you don't have any experience in the  
8 response plans or applicable response times for  
9 crude oil pipelines?

10 A. Other than my studies the past few weeks  
11 regarding this case.

12 Q. And you've never developed an emergency  
13 response plan for a crude oil pipeline?

14 A. I have not.

15 Q. And you don't have any experience in  
16 developing them?

17 A. Have not.

18 MR. KELSCH: Your Honor, I would, I guess,  
19 renew my objection -- or make my objection that I  
20 don't believe that this witness has any expertise  
21 in -- the subject matter that he was supposed to  
22 testify was risk analysis as it applied to the  
23 construction of a pipeline project, including  
24 existing safety measures, construction, design,  
25 containment features, response plans and applicable

1 response times and related matters, and this  
2 witness has admitted he has no experience in any of  
3 those areas. And he was also going to testify as  
4 to the adequacy of the federal regulations  
5 concerning crude oil pipelines, and I don't believe  
6 he has that, either.

7 JUDGE WAHL: Mr. Dingess.

8 MR. DINGESS: Kluck v. Kluck, 97 North  
9 Dakota 41, envisions the generous allowance of the  
10 use of expert testimony if witnesses are shown to  
11 have some degree of expertise in the field in which  
12 they are to testify. I think that that sets the  
13 standard here, Your Honor. We plan to ask Mr.  
14 Schlipp his work on this project. This project  
15 envisions safety to the water supply system of  
16 Fargo. We have not proffered a witness today that  
17 is expert in oil pipeline design, but we have  
18 proffered experts that are experts in analyzing  
19 risk to dangers to water supply systems. Mr.  
20 Schlipp is a part of this team. His testimony will  
21 show that he worked as part of this team and  
22 assisted in the assembly of the conclusions that  
23 you've heard testimony about today, and he will add  
24 to those conclusions.

25 JUDGE WAHL: Mr. Kelsch. You know, it

1 isn't really a question of being, per se, expert  
2 with crude oil pipelines. It's what is his -- what  
3 is his education, training and experience relative  
4 to the question to be decided by the Commission, in  
5 this case health and safety issues of the water  
6 supply to the City of Fargo. So the question is  
7 quite broad regardless.

8 MR. KELSCH: Your Honor, I guess if -- and  
9 partly it may depend upon what he has to try to  
10 testify to or attempts to testify to, but clearly  
11 if he has no expertise or experience in risk  
12 analysis for construction of pipelines, existing  
13 safety measures for pipelines, including  
14 construction, proposed design features, containment  
15 features, response plans and applicable response  
16 times and related matters, then he certainly cannot  
17 testify as to whether Keystone has done those  
18 correctly or should be doing those things  
19 differently. And that's apparently what he -- the  
20 subject matter of his testimony, even to the point  
21 of saying that adequate regulatory mechanisms are  
22 not in place through PHMSA to ensure safe operation  
23 of pipelines, and, clearly, having no experience in  
24 the operation of a pipeline, I'm not sure how  
25 anybody can testify to the fact that PHMSA doesn't

1 know what they're doing.

2 JUDGE WAHL: Well, that's an argument.  
3 That's a good argument, Mr. Kelsch. I'm not so  
4 sure that that's the focus of this witness's  
5 testimony. Let's proceed. The objection is  
6 overruled. Let's let Mr. Dingess proceed with the  
7 witness and we'll see how this plays out.  
8 Ultimately you have your cross-examination and your  
9 argument.

10 MR. KELSCH: Thank you.

11 JUDGE WAHL: You may proceed, Mr. Dingess.

12 MR. DINGESS: Thank you, Your Honor.

13 **DIRECT EXAMINATION**

14 **BY MR. DINGESS:**

15 Q. Mr. Schlipp, your name and business  
16 address for the record, please?

17 A. Allen Schlipp, P.E., R.L.S., 6901, Maple  
18 Grove, Minnesota. What else did you ask?

19 Q. You've hit it all. You've hit it all.  
20 Please go over your employment background, your  
21 present position, how long you've held that, other  
22 relevant employment in the same area.

23 A. I've worked for Houston Engineering for  
24 three and a half years. Like I said before, most  
25 of my work has been in the land development

1 business. I guess I'm somewhat offended that  
2 someone would challenge my credentials here. Being  
3 a professional engineer gives me quite a broad  
4 range of capabilities. Just because I've never  
5 dealt with an oil pipeline before does not mean  
6 that I'm not qualified to talk about the  
7 construction issues of a pipeline. I've designed  
8 hundreds of miles of water main pipeline. They  
9 carry water. This carries oil. It's just a  
10 different substance, is all.

11 Q. Could you please elaborate on your  
12 education?

13 A. I've got a bachelor of science degree from  
14 University of Wisconsin in Madison. I'm also a  
15 certified federal surveyor, kind of balance both  
16 things being a surveyor and an engineer. It works  
17 for me. My first job out of college as a  
18 youngster, I went to Saudi Arabia and I did work  
19 with the oil line industry there. Being a junior  
20 engineer, I didn't have a whole lot of authority to  
21 make some of the design decisions that were made by  
22 my company. Our main client was Spain Arabia, the  
23 largest oil company in the world, I believe. We  
24 worked for them almost exclusively. Did I do  
25 pipeline analysis for them, risk analysis for them?

1 Heck, no. But I was around the petroleum business  
2 so I do know a little bit about the petroleum  
3 business and how it works.

4 Q. Was Fargo the entity for whom you were  
5 working for on this project?

6 A. Yes, sir.

7 Q. And is your compensation from Fargo tied  
8 in any way to a particular outcome of these  
9 proceedings?

10 A. No.

11 Q. Please tell me about the work that you  
12 performed and the work that your company performed  
13 for this hearing.

14 A. Well, I was asked to look at the design  
15 standards that would apply to this project. That  
16 was my assignment. We have people that do risk  
17 analysis. We have people that do route analysis.  
18 I don't do that. So I started scouring the  
19 literature, the online public information that was  
20 out there perhaps five, six weeks ago, and I really  
21 studied up on this topic and this whole business of  
22 building pipelines and I've learned an awful lot.  
23 I don't have exhibits to show you. I could have  
24 brought, you know, lots of exhibits to offer my  
25 opinions, but I don't think that's my role here. I

1 think my role here is to speak in general terms, to  
2 talk as an experienced engineer as to what I see  
3 that could be done better with this project to try  
4 and help this whole debacle come to a conclusion.  
5 It is going to come to a conclusion eventually, and  
6 there's things that I see on this project that I  
7 don't agree with and I can speak --

8 MR. KELSCH: Your Honor, I would request  
9 that it be question and answer, not a rambling  
10 dissertation by this witness.

11 JUDGE WAHL: Objection is sustained,  
12 without the characterization.

13 MR. KELSCH: I apologize.

14 Q. (MR. DINGESS CONTINUING) Mr. Schlipp,  
15 would you please give me your observations about  
16 the TransCanada project related to the criteria  
17 that you were charged with studying?

18 A. Okay. I've studied most of the exhibits  
19 that have been presented. I've studied probably  
20 every document that I could find online. I have a  
21 stack of this amount of paperwork that I've  
22 studied, read, especially I have studied the Code  
23 of Federal Regulations as it applies to this  
24 pipeline.

25 What's particularly revealing to me is

1 when I look at a map of the proposed route compared  
2 to the topography of the land, without doing any  
3 type of analysis, just knowing that Ashtabula is  
4 being used for a drinking water source, I think the  
5 pipeline is too close to the lake. It is too close  
6 to the lake. I don't know why TransCanada put it  
7 there, but that's just my intuitive feeling, it's  
8 too close to the lake. Fargo is concerned about  
9 contaminating their water supply. My opinion, it  
10 should be moved off to the east.

11 JUDGE WAHL: You're going to have to get  
12 into a question-and-answer mode, Mr. Dingess.

13 THE WITNESS: I just want to finish up  
14 with the Code of Federal Regulations. I found some  
15 things in the Code of Federal Regulations that  
16 disturb me. They disturb me.

17 Q. (MR. DINGESS CONTINUING) What disturbs  
18 you?

19 A. What disturbs me is TransCanada is here  
20 looking for a permit, okay, and they don't have any  
21 design plans. TransCanada hasn't supplied us with  
22 any design plans.

23 Q. Are you saying the pipeline is not  
24 designed yet?

25 A. The pipeline is not designed.

1 Q. What kind of problem does that create in  
2 analyzing risk?

3 A. A lot. That is contraire to how a regular  
4 civil engineering project is constructed. When you  
5 have a civil engineering project, somebody designs  
6 it, somebody reviews it before you build it. It  
7 seems like the process is backwards here. Somebody  
8 should have an opportunity to protect Fargo's  
9 interests, in fact, protect North Dakota's  
10 interests. Once the petition is signed, this is an  
11 interstate pipeline, jurisdiction goes to the  
12 Office of Pipeline Safety, okay, and they -- they  
13 oversee it, they okay the pipeline.

14 Q. Now, does the Office of Pipeline Safety  
15 typically go through a rigorous review of plans?

16 A. I was told no.

17 MR. KELSCH: Objection to hearsay.

18 JUDGE WAHL: Sustained.

19 Q. (MR. DINGESS CONTINUING) Where do you go  
20 about finding out how the Office of Pipeline Safety  
21 reviews its plans?

22 MR. KELSCH: Again, Your Honor, I'm going  
23 to object to this line of questioning. This  
24 witness doesn't know how this process works. He's  
25 not an expert. The fact that he read some

1 regulations, he probably knows less than the  
2 Commissioners and the people here in this room that  
3 have sat through these hearings about these  
4 pipelines. The fact that somebody can read a  
5 regulation and then testify about it doesn't make  
6 them an expert on the issue. I would renew my  
7 objection to this line of testimony.

8 JUDGE WAHL: Mr. Dingess.

9 MR. DINGESS: Your Honor, the witness has  
10 testified that he is experienced in building  
11 pipelines -- water pipelines. He has testified  
12 that what the normal routine of an engineering --  
13 what an engineer goes through to obtain  
14 information.

15 JUDGE WAHL: I agree. I agree. The  
16 witness can do the research and familiarize himself  
17 with the regulations and he can testify on the  
18 basis of his education, knowledge and experience  
19 for the application of those regulations. I agree.  
20 And to that extent, the objection is overruled.  
21 But you are going to have to get into a question-  
22 and-answer mode.

23 MR. DINGESS: Yes, sir.

24 JUDGE WAHL: You really are.

25 MR. DINGESS: Yes.



1           JUDGE WAHL: All right. Let's be in  
2 order. All right. I think I've got everything  
3 back. We're on the record. Mr. Dingess.

4           MR. DINGESS: Thank you. I'll wrap up  
5 here.

6           Q. (MR. DINGESS CONTINUING) Mr. Schlipp,  
7 what regulations did you study and why were they  
8 studied as part of your work on this project?

9           A. Studied the Federal Code of Regulations, I  
10 studied state laws in North Dakota, everything that  
11 pertained to this pipeline project.

12          Q. What were the results -- or what results  
13 from that study did you use or apply to the design  
14 of the Keystone Pipeline that's been produced?

15          A. The pipeline has not been designed yet,  
16 therefore, I can't comment on the design.

17          Q. As a civil engineer, are you able to  
18 evaluate the risk and the problems that can result  
19 from a pipeline until after it's been designed?

20          A. Cannot.

21          Q. Would it be appropriate to have the  
22 pipeline design available?

23          A. Yes.

24          Q. Would it be appropriate for those that are  
25 concerned, such as the City of Fargo?

1 MR. KELSCH: Objection, leading the  
2 witness.

3 JUDGE WAHL: Sustained.

4 Q. (MR. DINGESS CONTINUING) In your  
5 experience as a civil engineer, when you have a  
6 project that needs review, do you ask for input  
7 from sources?

8 A. Absolutely.

9 Q. What sources?

10 A. Anybody who wants to comment on it.

11 Q. Who might comment on the design of the  
12 Keystone Pipeline in this circumstance?

13 A. All interested parties.

14 Q. Would the City of Fargo be interested?

15 A. Absolutely.

16 Q. And would their concerns and comments  
17 regarding the design as it affects the safety of  
18 their water supply be an appropriate consideration?

19 A. Absolutely.

20 MR. DINGESS: Thank you. No questions.

21 JUDGE WAHL: Mr. Kelsch.

22 MR. KELSCH: Thank you, Your Honor.

23 **CROSS-EXAMINATION**

24 **BY MR. KELSCH:**

25 Q. Mr. Schlipp, are you familiar with the

1 engineering professional standards that indicate  
2 that you should not provide advice or expertise in  
3 an area outside of your area of practice?

4 A. I am.

5 Q. And do you believe that pipeline -- crude  
6 oil pipeline construction, safety operation and  
7 maintenance is within your area of expertise?

8 A. I do.

9 Q. Even though you have no experience in it?

10 A. The comments I'm making are limited.

11 Q. You said you considered the Code of  
12 Federal Regulations. Which Code of Federal  
13 Regulations did you consider?

14 A. 49 CFR 195.

15 Q. Any other ones?

16 A. 49 CFR 194 and portions of 49 CFR 190.

17 Q. And what do they entail? What does 195  
18 cover?

19 A. The construction of pipelines.

20 Q. And what does 194 cover?

21 A. The operations, plans, and the response  
22 plan, spill response plans.

23 Q. And what does 190 cover?

24 A. Actually, 190 covers some of the  
25 provisions that the City of Fargo may have to

1 object after the pipeline is in operation. I felt  
2 they were pertinent in this case.

3 Q. Did the City of Fargo have an opportunity  
4 to participate in the EIS study for this pipeline?

5 A. The City of Fargo?

6 Q. Yes.

7 A. I believe so.

8 Q. Do you know whether they did?

9 A. I'm not 100 percent sure.

10 Q. You said you reviewed some of the record.  
11 What portions of the record of this case have you  
12 reviewed?

13 A. I have reviewed the history leading up to  
14 where we are today regarding this pipeline.

15 Q. History, which history? Have you read the  
16 transcripts?

17 A. I have.

18 Q. Of all the transcripts?

19 A. I've read a lot of them.

20 Q. Which witnesses have you read?

21 A. I don't have the material in front of me.

22 Q. What state laws have you reviewed?

23 A. The laws of the PUC.

24 Q. Have you -- what rules have you reviewed,  
25 state rules?

1           A.    I can't tell you title and verse what they  
2    are.

3           Q.    Now, you said that there's no design for  
4    the Keystone Pipeline, I believe.  Are there design  
5    requirements and, if so, where are those design  
6    requirements contained?

7           A.    That's the trouble, there is no design  
8    requirements.

9           Q.    There are no design requirements in  
10   49 CFR 195?

11          A.    Not at this point.

12          Q.    What size is the pipeline going to be?

13          A.    30-inch.

14          Q.    Now -- so you're telling me that  
15   49 CFR 195 does not refer to design requirements  
16   for the construction of the pipe?

17          A.    It has -- no.  It has to be designed  
18   according to the Code of Federal Regulations.

19          Q.    And doesn't that have requirements  
20   concerning the thickness of pipe and the type of  
21   steel and the type of coating?

22          A.    Absolutely.

23          Q.    And Keystone's pipeline has to meet or  
24   exceed those standards; correct?

25          A.    Yes.

1           Q.    Do you know what depth of cover Keystone  
2 is proposing for its pipeline?

3           A.    Four foot.

4           Q.    Do you know whether that meets or exceeds  
5 the Federal Code?

6           A.    Exceeds.

7           Q.    Do you know whether that meets or exceeds  
8 what North Dakota is requiring?

9           A.    Do not know.

10          Q.    Do you know what kind of coating that  
11 Keystone has proposed to have on its pipeline?

12          A.    I can find it in two minutes in the  
13 literature I have.

14          Q.    Now, you said you don't have enough  
15 information.  What additional design information  
16 would you need to evaluate the -- to be able to  
17 evaluate the design of the Keystone Pipeline?

18          A.    I'd like a complete final set of plans and  
19 specifications to intelligently comment on this  
20 project.

21          Q.    Can you have a complete and final set of  
22 plans when we don't know the exact route?

23          A.    No.

24                   MR. KELSCH:  No further questions.

25                   JUDGE WAHL:  Ms. Linderman?

1 MS. LINDERMAN: I don't have any  
2 questions.

3 JUDGE WAHL: Mr. Binek?

4 MR. BINEK: I have no questions.

5 JUDGE WAHL: Questions from the  
6 Commission? Commissioner Cramer.

7 **EXAMINATION**

8 **BY COMMISSIONER CRAMER:**

9 Q. I have a couple. Do you know if the  
10 PHMSA, or the Pipeline and Hazardous Materials  
11 Safety Administration, regulations refer to  
12 pipeline engineering standards specifically in  
13 close proximity to certain structures, populations,  
14 waterways?

15 A. Yes.

16 Q. Do they have different standards for  
17 different locations?

18 A. Correct. They're called high consequence  
19 areas.

20 Q. And do you know if state law allows the  
21 North Dakota Public Service Commission to require  
22 standards higher or -- more cautious or higher  
23 standards, I guess, than the PHMSA or the Federal  
24 Code requires in our -- in this proceeding, in our  
25 routing permit?

1           A.     As long as it's part of a condition on  
 2 your permit.   After that, you don't.

3           Q.     So just following up then, after that, is  
 4 it your understanding that PHMSA is the -- has the  
 5 jurisdiction not only for construction, but then  
 6 for regulation beyond the construction, followup,  
 7 monitoring that the owner of the pipeline is in  
 8 fact meeting those operating standards and  
 9 continuing those operating standards?

10          A.     Yes, sir.   They are the sole -- sole  
 11 regulating entity.

12                   COMMISSIONER CRAMER:   Nothing further.

13                   JUDGE WAHL:   Commissioner Clark?

14                   COMMISSIONER CLARK:   No.   Thank you.

15                   JUDGE WAHL:   Mr. Dingess, followup?

16                   MR. DINGESS:   Thank you, sir.

17   **REDIRECT EXAMINATION**

18           **BY MR. DINGESS:**

19          Q.     Mr. Schlipp, counsel for TransCanada asked  
 20 about a number of regulations that you reviewed,  
 21 witness testimony that you reviewed, parts of the  
 22 record that you've reviewed.   Could you prepare an  
 23 itemization of those materials and present it to  
 24 the Commission?

25          A.     Certainly.

1           MR. DINGESS: Move for leave to file a  
2 late exhibit showing those materials as they were  
3 questioned.

4           MR. KELSCH: Your Honor, I would object to  
5 that. The purposes -- this witness said he  
6 reviewed this information. The fact that he can't  
7 really identify what information he has reviewed I  
8 think goes to his credibility, and I would not have  
9 the ability to cross-examine him on those documents  
10 should he file them as a late-filed exhibit.

11          JUDGE WAHL: I agree. The motion is  
12 denied.

13          MR. DINGESS: All right. Thank you, sir.

14          Q. (MR. DINGESS CONTINUING) Mr. Schlipp, you  
15 testified that design is not done yet on the  
16 Keystone Pipeline. You testified that it would be  
17 appropriate to have that design done when the route  
18 is selected?

19          A. I think it should be done together,  
20 simultaneous process.

21          Q. All right. Would it -- when would it be  
22 appropriate then for entities such as Fargo to  
23 comment on the design of the pipeline?

24          A. After the route is selected and plans are  
25 drawn up, we have a design, we have specifications,

1 that would be the appropriate time.

2 MR. DINGESS: Thank you. Nothing further.

3 JUDGE WAHL: Mr. Kelsch?

4 MR. KELSCH: Thank you, Your Honor.

5 **RECROSS-EXAMINATION**

6 **BY MR. KELSCH:**

7 Q. Mr. Schlipp, wouldn't now be the  
8 appropriate time for Fargo to comment on the design  
9 of the pipeline? I mean, this is when the  
10 Commission is going to be determining what is going  
11 to be built and how it's going to be built and  
12 where it's going to be built.

13 A. I wish we had a design to look at.

14 Q. Also, I think you also testified that they  
15 certainly would have the ability to comment in the  
16 EIS process on the federal level?

17 A. Mm-hmm.

18 JUDGE WAHL: Your answer is yes?

19 THE WITNESS: Yes.

20 MR. KELSCH: No further questions.

21 JUDGE WAHL: Ms. Linderman, anything  
22 further?

23 MS. LINDERMAN: Nothing further.

24 JUDGE WAHL: Mr. Binek?

25 MR. BINEK: Nothing further.

1           JUDGE WAHL: Anything further from the  
2 Commission?

3           COMMISSIONER CLARK: Nothing.

4           COMMISSIONER CRAMER: No. Thanks.

5           JUDGE WAHL: Mr. Dingess?

6           MR. DINGESS: Nothing further.

7           JUDGE WAHL: All right. Thank you very  
8 much, Mr. Schlipp. Anything further, Mr. Dingess?

9           MR. DINGESS: That concludes the witnesses  
10 that we'll be presenting today, sir.

11          JUDGE WAHL: All right. Ms. Linderman?

12          MS. LINDERMAN: We don't have any  
13 witnesses to present, Your Honor.

14          JUDGE WAHL: All right. Mr. Binek,  
15 anything to offer?

16          MR. BINEK: No. The Commission is not  
17 taking an advocacy role in this hearing.

18          JUDGE WAHL: I'm sorry. At this time I'm  
19 going to -- Mr. Starke has asked to testify. I met  
20 with him over the noon hour and I'm going to assist  
21 him to offer his exhibits and then Mr. Starke may  
22 testify.

23                 Mr. Starke, you understand, of course,  
24 that your further testimony for this further  
25 hearing continues under oath and subject to the

1 penlites of perjury?

2 MR. STARKE: Yes, sir, I do.

3 RICHARD STARKE,

4 having been previously duly sworn, was examined and  
5 testified as follows:

6 EXAMINATION

7 BY JUDGE WAHL:

8 Q. All right. Now, Mr. Starke, you brought  
9 some papers for the Commission?

10 MR. BINEK: Excuse me, Your Honor. Do you  
11 wish to have him by a microphone?

12 JUDGE WAHL: Oh, I'm sorry. I'm sorry.  
13 Bill -- Mr. Binek, can you just hand him your  
14 microphone? I think it will reach. I think I  
15 checked last night. I think you can just -- I  
16 think it will just reach over to him. I'm sorry.

17 Q. (JUDGE WAHL CONTINUING) Mr. Starke, you  
18 have those papers in front of you, do you?

19 A. Yes, I do, Your Honor.

20 Q. All right. Now, the first one you have  
21 marked RS6?

22 A. That's right.

23 Q. And that's a memo maybe, a letter that  
24 you've got from Dan Bernhardt, the City of Valley  
25 City?

1           A.    This is right.

2           Q.    And what is Mr. Bernhardt's occupation?

3           A.    He's a technician for the Valley City  
4 Water Department.

5           Q.    And he reviewed the records for you and he  
6 gave you this memo?

7           A.    That's right, sir.

8           Q.    All right.  Then the next document you  
9 have is RS7, and that's a -- I would call it a plat  
10 of an area of North Dakota that includes your  
11 farmland; is that correct?

12          A.    That's correct, Your Honor.

13          Q.    All right.  And over on the right-hand  
14 side there's -- you have a mark there with -- along  
15 a contour line that shows 1,400 -- 1,400-foot  
16 contour line.  That's the location of where your  
17 land is that you have previously talked about?

18          A.    That's right, Your Honor.

19          Q.    All right.  And then RS8 is a map  
20 including the City of Valley City and Highway --  
21 Interstate Highway 94; is that right?

22          A.    Yes, that's right.

23          Q.    And over to the left, again, there's a --  
24 actually what it is, it's an indication for a  
25 cemetery, Memory Garden Cemetery, and, as I recall,

1 that's the area of where your land is located?

2 A. That's correct.

3 Q. All right. And then the next is another  
4 map of an area east of what -- of the area that's  
5 shown on RS8, and this is Exhibit RS9, and this is  
6 just a continuation of a map showing the area east  
7 of Valley City and east of your land?

8 A. That's correct.

9 Q. And on Exhibit RS9 there is a series of  
10 contour lines that show an elevated area, and  
11 you've written across that ridge, and by that  
12 you're indicating that those contour lines showing  
13 an elevated area are a ridge?

14 A. Yes, sir, that's right.

15 Q. All right. And you would offer -- you've  
16 told me that you would offer all of these exhibits  
17 for the record for the Commissioners'  
18 consideration?

19 A. That's right, Judge Wahl. Shall I start?

20 JUDGE WAHL: Mr. Kelsch?

21 MR. KELSCH: Your Honor, I would object to  
22 RS6 on the grounds that it's hearsay. I don't know  
23 where these numbers came from. Mr. Bernhardt is  
24 not here to testify as to their validity. They may  
25 be correct, they may not be, but without him here

1     telling where he got this information and where --  
2     where on the Sheyenne River he's talking about I  
3     think is another -- it doesn't indicate where on  
4     the Sheyenne River it covers. The other ones all  
5     deal with areas that are not part of this reopened  
6     -- the scope of this reopened hearing dealing with  
7     the City of Fargo and their water supply. Arguably  
8     RS6 may not be either, depending upon where on the  
9     Sheyenne River it is. We don't -- I guess we don't  
10    know. So I would object to all -- RS6, RS7, RS8  
11    and RS9.

12                 JUDGE WAHL: Well, it's obviously hearsay,  
13    Mr. Kelsch. As you know, I've previously waived  
14    the Rules of Evidence for the public testimony for  
15    these hearings. I think the document RS6 has  
16    sufficient reliability to be admitted. I think Mr.  
17    -- I expect that Mr. Starke's testimony will show  
18    that the only number on RS6 that he was interested  
19    in was the normal water elevation. I think that  
20    will be apparent from his testimony. And,  
21    otherwise, I think that RS6 is sufficiently  
22    reliable in the circumstances to be admitted.

23                 And I think -- talking to Mr. Starke, I  
24    think his testimony is generally relevant to the  
25    issue for this hearing based on what Mr. Starke

1 feels is a mistake in the description of the area  
2 of his land vis-a-vis the water flow from his land  
3 to the Sheyenne River, so I think to that extent  
4 it's relevant to the points of the hearing. And  
5 your further objections, Mr. Kelsch?

6 MR. KELSCH: Well, as to the other ones --

7 JUDGE WAHL: 8 and 9.

8 MR. KELSCH: -- 7, 8 and 9 do not deal  
9 with the water quality of Fargo or --

10 JUDGE WAHL: Yeah, I think -- well, in  
11 talking to Mr. Starke, Mr. Kelsch, I think there's  
12 sufficient relevance to the issue for this hearing.  
13 Your objections, Mr. Kelsch, are overruled. Mr.  
14 Johnson?

15 MR. JOHNSON: I have no objection.

16 JUDGE WAHL: Ms. Linderman?

17 MS. LINDERMAN: No objections.

18 JUDGE WAHL: Mr. Binek?

19 MR. BINEK: No objections.

20 JUDGE WAHL: All right. Mr. Starke, you  
21 may proceed along the lines that we reviewed over  
22 the noon hour, please.

23 MR. STARKE: Good afternoon, ladies and  
24 gentlemen of the Public Service Commission,  
25 Keystone representatives, Fargo representatives and

1 landowners. My name is Richard Starke. I'm a  
2 retired Air Force officer. And I would like to  
3 read this statement, and if you'll go along with me  
4 on the documents, you'll see how relevant it is.

5           During hearings conducted at our State  
6 Public Service Commission, one of the company's  
7 witnesses stated the opinion that the land from my  
8 farm three miles east of Valley City was flat and  
9 that any oil spill would not reach the Sheyenne  
10 River. In my opinion, this is not correct. I  
11 drove to Valley City for eight years to attend  
12 school and I'm certain that the terrain slopes  
13 downhill all of the way.

14           I have two documents to support my view.  
15 One is a letter from an employee of the Valley City  
16 Water Department shown here as Exhibit RS6. RS6 is  
17 a letter from the Valley City Public Works  
18 Department saying, Richard, I received some of your  
19 -- I reviewed -- researched some of our more recent  
20 flood data to obtain some realistic Sheyenne River  
21 elevation data. The normal water elevation of the  
22 Sheyenne River in Valley City is 1,207 feet. The  
23 riverbank full stage is 1,212 feet. Minor flood  
24 warning occurs at 1,215 feet. Major flood warning  
25 occurs at 1,217 feet. Top of emergency levees is

1 1,218.5 feet. Top of emergency dikes, 1,220 feet.  
2 The figure to remember is the normal water  
3 elevation.

4 The next document is a plan view of my  
5 farm starting on the left and going across the  
6 page. There are three parcels to the land. And if  
7 you'll notice on the extreme right-hand parcel, the  
8 square that I just purchased, the elevation there  
9 is 1,400 feet. Subtract 1,207 from 1,400 feet,  
10 and that is not level. It's downhill 93 feet in a  
11 scant three miles. My feeling is that this -- I  
12 better get back to my script. Excuse me.

13 My second point of view shows that City of  
14 Valley City is on one document that is RS8. The  
15 second document shows the continuation of the  
16 second first document that shows the Interstate 94  
17 and it shows the -- vertically Highway 32 as it  
18 goes north and south. This is RS9. This was  
19 Keystone's first choice for a right-of-way and  
20 should be accepted, for the long range that is  
21 shown on RS9 on the left-hand side would prevent  
22 any leaks to the right of it from reaching the  
23 Sheyenne River. It cannot climb the hill.

24 This was first -- this long-range plan for  
25 Valley City will prevent any spill from ever

1 reaching the Sheyenne River, protecting the  
2 Sheyenne River and the water supply to Fargo from  
3 ever being contaminated regardless of the spill  
4 size. This will not flow uphill.

5 This concludes my testimony since I have  
6 shown beyond any doubt that the pipeline location  
7 must be moved at least six miles east of Valley  
8 City to either the Oriska Highway 32 location or  
9 the I-29 400-foot-wide right-of-way. This is my  
10 contribution, and I have many good friend in Fargo  
11 who will appreciate my testimony. Thank you very  
12 much.

13 JUDGE WAHL: For the record, RS6, 7, 8 and  
14 9, inclusive, are received. Questions, Mr. Kelsch?

15 MR. KELSCH: No, Your Honor.

16 JUDGE WAHL: Mr. Johnson, any questions  
17 for Mr. Starke?

18 MR. JOHNSON: Just a couple.

19 **CROSS-EXAMINATION**

20 **BY MR. JOHNSON:**

21 Q. Mr. Starke, looking at RS7, there is the  
22 contour line that Judge Wahl was talking about of  
23 1,400?

24 A. Yes.

25 Q. Where is your land?

1           A.     That's the middle of one of my quarters.  
2     All of the land in red is mine.

3           Q.     Okay.  And then where is the Sheyenne  
4     River -- when you look at RS7, is the Sheyenne  
5     River somewhere on this diagram?

6           A.     The Sheyenne River is to the left.  It  
7     does not show on this document.

8           Q.     How far -- do you know how far it is?

9           A.     Yes, it's three miles.

10          Q.     Three miles.  All right.

11          A.     And I've calculated it.  In the spring  
12     when we have our runoff, a major amount of water  
13     runs over our land, and if an oil spill should by  
14     chance occur during a runoff, it would reach the  
15     Sheyenne River in 39 minutes, calculating five-  
16     mile-per-hour flow and three miles, and that is  
17     going to happen sooner or later.

18          Q.     And then on RS8, on the left-hand side of  
19     the picture is the word "Gardens," and I assume  
20     that's the --

21          A.     That shows on the other item, also.  Those  
22     are the Memory Gardens.  That's a cemetery where my  
23     father, my mother, my brother and my son are  
24     buried.

25          Q.     I'm just trying to tie in RS7, 8 and 9.

1 When you look at -- go to RS9.

2 A. Okay.

3 Q. On RS9, on the right-hand side is that  
4 Memory Gardens Cemetery mark; right?

5 A. (Nods.)

6 Q. And then to the left of that along I-94  
7 is, in red print, 94, 52 and 10. Where is your  
8 property relative to all of that?

9 A. It's just west of that. Well, actually  
10 where Memory Gardens is, that land on the south  
11 side of the road all the way down to the number 94  
12 is my land.

13 Q. All right. And then, again, looking at  
14 RS7 --

15 A. Yes, that fits, also.

16 Q. -- that's the same land you're referring  
17 to?

18 A. -- yes.

19 Q. And then when you look at RS8, it's your  
20 -- I take it it's your testimony -- along the  
21 left-hand side, is that your handwriting that says  
22 the word "ridge" --

23 A. Yes.

24 Q. -- along there? And what you're saying is  
25 if the pipeline is --

1 A. Is that No. 9?

2 Q. That's No. 8.

3 A. 8 is this one, yeah. This is 9.

4 Q. Okay. Mine may be numbered differently.

5 A. This is No. 9.

6 Q. Okay.

7 JUDGE WAHL: Okay. Did I mislabel them,  
8 Mr. Johnson?

9 MR. JOHNSON: Yeah.

10 JUDGE WAHL: I apologize. I apologize. I  
11 was thinking about lunch rather than exhibits.

12 THE WITNESS: Both show the cemetery.

13 Q. (MR. JOHNSON CONTINUING) Right. I just  
14 wanted to make sure I understand your testimony.  
15 You're saying, looking at RS9, that if the pipeline  
16 is on the east side of this ridge, any leak  
17 wouldn't go over the ridge, it would head the other  
18 direction?

19 A. That's right. It would both protect  
20 Valley City from an oil spill and offer the  
21 Keystone people a route along Highway 32, which was  
22 your first choice.

23 Q. Right. And the first choice you're  
24 referring to, the one along 32, is that a pipeline  
25 alternative that's been presented to the Public

1 Service Commission?

2 A. No, it has not been. It was planned by  
3 the pipeline people first and then they moved their  
4 line five miles west to the present position.

5 Q. When did -- when did you learn about the  
6 alternative where the pipeline is somehow close to  
7 Highway 32? When did you learn about that?

8 A. When we was -- about six months ago, I  
9 guess.

10 Q. Okay. And was it at some kind of meeting  
11 or public hearing?

12 A. No. I have a neighbor friend there, that  
13 I went down deer hunting with him and he told me.

14 Q. You heard about the Keystone having a  
15 proposed pipeline that was near --

16 A. Yes, I heard from several sources.

17 Q. -- near 32? I'm sorry. I keep talking  
18 over you. You had a friend -- you heard about it  
19 from a friend that there was a pipeline alternative  
20 along --

21 MR. KELSCH: Your Honor, I'm going to  
22 object. I think we're getting beyond the scope.

23 THE WITNESS: My cousin, Ramona Starke  
24 Klein --

25 JUDGE WAHL: Mr. Starke, just a moment.

1 There's a pending objection.

2 MR. KELSCH: We're getting beyond the  
3 scope of the direct examination here, Your Honor.

4 JUDGE WAHL: As to the -- as to what --  
5 where his -- the basis of his knowledge of the  
6 route of the pipeline?

7 MR. KELSCH: Yeah, this alternate route.  
8 First of all, it's hearsay and then, also, we're  
9 getting beyond the scope of his original --

10 JUDGE WAHL: Well, it's not hearsay. He's  
11 simply -- the objection is overruled. It's not  
12 hearsay. He's simply saying where he got the  
13 information from. He's not saying that that's the  
14 information. He's saying that that's the source.  
15 The objection is overruled. You may continue, Mr.  
16 Johnson.

17 MR. JOHNSON: Well, I think he's answered  
18 the question.

19 JUDGE WAHL: Yeah, I think he has.

20 MR. JOHNSON: I have nothing further.  
21 Thank you.

22 JUDGE WAHL: Ms. Linderman, any questions  
23 for Mr. Starke?

24 MS. LINDERMAN: No questions. Thank you.

25 JUDGE WAHL: Mr. Binek, any questions for

1 Mr. Starke?

2 MR. BINEK: No.

3 JUDGE WAHL: Any of the Commissioners have  
4 any questions? Commissioner Cramer.

5 COMMISSIONER CRAMER: I have a couple.

6 EXAMINATION

7 BY COMMISSIONER CRAMER:

8 Q. Major Starke, is it -- although I would  
9 acknowledge that your land is uphill from the  
10 river, is the route that water would generally take  
11 pretty much direct east to west, or is there some  
12 other route? Does it veer south?

13 A. Actually there are two west. Either  
14 east -- on the left side of that ridge it flows  
15 west to Valley City. On the east side of the ridge  
16 it flows to Fargo. It's 57 miles away.

17 Q. I understand that. I was talking more  
18 from the proposed route as we're looking at it  
19 going west. Are there a couple of roads between  
20 your land and the Sheyenne River that would serve  
21 to detract any flow to the Sheyenne River?

22 A. This is the right-of-way of old U.S.  
23 Highway No. 10. And it's always flowed that way  
24 since I can remember being a little kid.

25 Q. Sure. I understand that. I guess my

1 question is, doesn't the Kathryn Road -- what is  
2 known as the Kathryn Road, which runs from Valley  
3 City straight south, isn't that between your land  
4 and the Sheyenne River, and would that road serve  
5 as a -- to detract any flow directly to the  
6 Sheyenne, at least slow it up?

7 A. I don't know. I've never been on the  
8 Kathryn Road.

9 COMMISSIONER CRAMER: I have nothing.

10 JUDGE WAHL: Any further questions from  
11 the Commission? Followup, Mr. Kelsch?

12 MR. KELSCH: No, Your Honor.

13 JUDGE WAHL: Anything further, Mr.  
14 Johnson?

15 MR. JOHNSON: No, nothing.

16 JUDGE WAHL: Ms. Linderman?

17 MS. LINDERMAN: Nothing further.

18 JUDGE WAHL: Mr. Binek?

19 MR. BINEK: No.

20 JUDGE WAHL: Thank you very much, Mr.  
21 Starke.

22 THE WITNESS: Thank you, people.

23 JUDGE WAHL: I said I wasn't going to quit  
24 early. However -- let's be off the record.

25 (Discussion had off the record.)

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JUDGE WAHL: All right. We'll be in recess until eight o'clock tomorrow morning.

(Recessed at 4:34 p.m., November 27, 2007.)

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<p>873:4  <b>witnesses</b> [15] - 594:9, 595:20, 596:3, 601:5, 602:9, 651:21, 710:12, 769:9, 799:16, 867:4, 871:10, 884:20, 891:9, 891:13, 897:7  <b>WITNESSES</b> [1] - 588:2  <b>wondered</b> [1] - 758:16  <b>wondering</b> [2] - 758:16, 855:22  <b>word</b> [2] - 900:19, 901:22  <b>words</b> [11] - 603:4, 613:7, 625:14, 626:18, 638:6, 657:5, 666:14, 710:17, 769:14, 799:21, 867:9  <b>Works</b> [4] - 590:18, 755:9, 755:12, 897:17  <b>works</b> [6] - 598:3, 637:24, 842:11, 874:16, 875:3, 878:24  <b>world</b> [3] - 704:4, 730:22, 874:23  <b>worldwide</b> [1] - 712:16  <b>wrap</b> [2] - 695:1, 881:4  <b>written</b> [2] - 696:22, 894:11</p>	<p>842:9, 842:11, 842:13, 842:15, 842:16, 842:17, 842:19, 844:24, 846:15, 846:17, 847:25, 867:12, 873:24, 897:11  <b>yesterday</b> [1] - 829:5  <b>Yosemite</b> [1] - 586:18  <b>youngster</b> [1] - 874:18  <b>yourself</b> [3] - 813:22, 825:25, 841:9</p>
<b>X</b>	<b>Z</b>
<p><b>xylene</b> [2] - 735:5, 745:1</p>	<p><b>Zavoral</b> [1] - 642:10  <b>zero</b> [6] - 662:20, 701:17, 847:13, 847:15, 852:16, 853:19  <b>zone</b> [2] - 736:7, 787:15  <b>zoology</b> [2] - 801:3, 801:4</p>
<b>Y</b>	
<p><b>year</b> [37] - 609:11, 613:8, 615:22, 615:24, 616:3, 618:15, 618:18, 619:17, 636:12, 636:15, 636:19, 638:10, 639:7, 639:12, 680:6, 680:19, 680:20, 683:24, 683:25, 715:5, 751:1, 751:16, 751:17, 751:19, 751:22, 808:8, 808:18, 815:7, 836:13, 841:25, 842:18, 866:4  <b>years</b> [58] - 603:7, 605:22, 613:20, 615:6, 616:13, 618:14, 618:19, 618:20, 635:12, 636:16, 638:22, 639:13, 666:17, 667:10, 667:15, 667:16, 667:18, 667:20, 680:4, 680:21, 681:8, 681:9, 689:9, 697:10, 710:20, 713:15, 715:22, 716:15, 716:17, 730:19, 734:9, 763:14, 769:17, 770:14, 770:19, 770:20, 784:13, 793:20, 799:24, 800:19, 808:20, 809:24, 810:8, 810:22,</p>	