

**Joint Review Panel  
Public Hearing**

**Commission d'examen conjoint  
Audience publique**

**Frontier Oil Sands Mine  
Project**

**Projet de mine de sables bitumineux  
Frontier**

**Joint Review Panel**

**Commission d'examen conjoint**

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1 Fort McMurray, Alberta / Fort McMurray (Alberta)

2 --- Upon resuming on Thursday, September 27, 2018

3 at 0900 / L'audience reprend le jeudi 27 septembre

4 2018 à 0900

5 PREVIOUSLY AFFIRMED: KIERON McFADYEN

6 PREVIOUSLY AFFIRMED: LYNDON CHIASSON

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1 PREVIOUSLY AFFIRMED: CHRIS BJORNSON

2 PREVIOUSLY AFFIRMED: IVAN WHITSON

3 PREVIOUSLY AFFIRMED: JONATHAN CHUI

4 PREVIOUSLY AFFIRMED: SCOTT DONALD

5 PREVIOUSLY AFFIRMED: RICHARD SISSON

6 THE CHAIRPERSON: Good morning.

7 Please be seated.

8 Just a couple of things before we

9 return to Mr. Fluker's cross-examination.

10 Just a reminder for all the

11 participants that there is live video and audiocast of

12 this proceeding. Any of you could be captured

13 particularly on the video feed. So if you have any

14 concerns about that, please see the Panel's counsel,

15 Ms LaCasse or Ms Doebele.

16 Are there any preliminary matters that

17 we need to deal with before we move on?

18 Mr. Ignasiak.

19 MR. IGNASIAK: Good morning, Mr.

20 Chair, Panel Members. We have a couple.

21 I think the first is in relation to

22 the transcript. So I notice there's quite a

23 difference between the first day's transcript and the

24 second. So we had some concerns just about no line

25 numbering, no list of undertakings, no list of the

1 parties that are registered in the proceeding. So we  
2 see the line numbers were corrected on the second day.  
3 We're not clear on whether a revised first day  
4 transcript will be issued so they're consistent.

5 And then we do have -- we did go  
6 through, we have a number of corrections to the  
7 transcript where words are misspelled or whatever it  
8 is and we're just seeking some guidance on the best  
9 way to deal with that transcript correction issue.

10 MS LaCASSE: Mr. Chair, if we could  
11 maybe talk to Mr. Ignasiak at the break and we can  
12 advise after we've had that conversation, or with any  
13 other parties who want to be involved about that when  
14 we come back from the break.

15 THE CHAIRPERSON: Yes, that would be  
16 fine. Thanks.

17 MR. IGNASIAK: Thank you.

18 The second preliminary matter -- and  
19 we've discussed it briefly -- is with respect to the  
20 materials filed recently by Ms Gladieu-Quinn on behalf  
21 of her client John Malcolm's organization. So they  
22 filed -- on the Original August 31 deadline they filed  
23 submissions in accordance with the deadline. They  
24 filed further materials on September 12. We didn't  
25 object. They filed further materials on September 17.

1 Again, we didn't object to that despite the fact that  
2 both of those filings were after the deadline set by  
3 the Panel. Now during the course of this hearing, I  
4 think it was two days ago, we were provided with a USB  
5 stick and copied with an email to the Panel by Ms  
6 Gladue-Quinn where she's requesting to file, it's just  
7 under a gigabyte of material and I think, like I said  
8 the other day, we see it being about 3,500 pages in  
9 112 different files. Again, we've briefly looked at  
10 it. It appears most of it is irrelevant, but the  
11 larger concern, we just don't think it's appropriate.  
12 We don't think it's consistent with procedural  
13 fairness that our Panel is somehow expected to review  
14 3,500 pages in the middle of a hearing when there was  
15 a submission deadline that's now about 27 days past  
16 due. So we would ask that that additional filing of  
17 the 1 gigabyte of information not be placed on the  
18 record and not be accepted by the Panel.

19 THE CHAIRPERSON: Thank you, Mr.  
20 Ignasiak.

21 Ms Gladieu-Quinn, do you want to speak  
22 to that?

23 MS GLADIEU-QUINN: Yes, thank you, Mr.  
24 Chairman. I had sent an email last night to David  
25 Haddon and Mr. Ignasiak explaining that I will be



1 reviewing the contents of that 1 gigabyte of material.  
2 I agree a lot of it is irrelevant to these  
3 proceedings. It was at the insistence of my client  
4 that documents be brought forward to support his  
5 evidence in chief, which is going to be taking place  
6 on October the 2nd. I want to make sure that the  
7 Panel and Teck have these documents that he's going to  
8 be resorting to. I think I can safely narrow these  
9 down quite a bit and I had indicated to Mr. Ignasiak  
10 and Mr. Haddon that I would have these materials by  
11 Friday morning and if he has an issue with them at  
12 that time perhaps he can bring that up again, but I do  
13 intend to pare them down quite significantly, very  
14 much so.

15 THE CHAIRPERSON: Okay. Just a  
16 reminder, you know, through the NQCL process I think  
17 the Panel was clear that issues related to adequacy of  
18 Crown consultation was not something we are prepared  
19 to hear. Similarly, this venue is not the right venue  
20 for a discussion of rights and a recognition of  
21 rights. What we're interested in is understanding how  
22 the project might affect your clients, and really,  
23 that should be the purpose. So would you suggest that  
24 the materials help get us to that point?

25 MS GLADIEU-QUINN: Yes. As this is an

1 information Panel, we will -- you know, engaged in the  
2 process of summarizing the claims of the Aboriginal  
3 and Treaty Rights and the effects of the project on  
4 those rights, those materials will be specifically  
5 geared towards that. We will not be arguing the  
6 adequacy of the consultation, even though we will be  
7 asking questions with regards to the consultation that  
8 did take place.

9 THE CHAIRPERSON: Okay. Mr. Ignasiak,  
10 anything further?

11 MR. IGNASIAK: I think what I took out  
12 of that is that the USB stick we received and the  
13 email and the filing that was made a couple of days  
14 ago doesn't need to be put on the record and she's  
15 going to reconsider what she wants to file. If that's  
16 the case, once we see that, we'll look at it and take  
17 a position then.

18 MS GLADIEU-QUINN: That's correct.

19 THE CHAIRPERSON: Okay. Thank you.

20 MS GLADIEU-QUINN: Thank you.

21 THE CHAIRPERSON: The Panel will take  
22 that away and we'll provide any further direction.

23 MS GLADIEU-QUINN: Thank you, Panel.  
24 Thank you, Chair.

25 MR. IGNASIAK: Just two more matters,

1 sir. Yesterday we gave an undertaking, number 3 I  
2 believe it was, with respect to the corporate  
3 structure of Teck in relation to a number of its  
4 properties. So we have a response to that undertaking  
5 and Mr. McFadyen will also speak to it in a moment,  
6 because part of it was the date of the Teck Frontier  
7 partnership, the date it was established. So what I'm  
8 intending on filing now is a chart showing the  
9 corporate structures and the properties that fall  
10 under them. So I propose that be the next exhibit and  
11 that's in response to Undertaking No. 3.

12 MS LaCASSE: Mr. Chair, the CEAA  
13 Registry number and Exhibit number will be 570 for  
14 this document.

15 EXHIBIT NO. 570: Response to  
16 Teck Undertaking No. 3.

17 THE CHAIRPERSON: Thank you.

18 MR. IGNASIAK: And perhaps now then,  
19 Mr. Chair, Mr. McFadyen could just provide the  
20 information requested regarding the date of the  
21 Frontier partnership.

22 THE CHAIRPERSON: Certainly.

23 MR. McFADYEN: Thank you. So this  
24 question was raised by counsel for OSEC and the  
25 question was in relation to the formation of the

1 Frontier energy partnership incorporation. Now just  
2 to clarify, Panel, the Frontier energy partnership  
3 incorporation were formed March 20th, 2012.

4 MR. IGNASIAK: Thank you, Mr.  
5 McFadyen. And then I believe Mr. Chiasson had one  
6 clarification regarding a response he gave yesterday,  
7 Mr. Chair.

8 MR. CHIASSON: Thank you.

9 Mr. Chairman, yesterday I misspoke  
10 when I said that Teck was a signatory to the Paris  
11 Accord. Actually, Teck was a signatory to the Paris  
12 Pledge for Action, not the Accord. The Accord was for  
13 countries. Teck signed up for the Paris Pledge for  
14 Action.

15 MR. IGNASIAK: That's it from us, Mr.  
16 Chair.

17 THE CHAIRPERSON: Thank you.

18 Mr. Robinson.

19 MR. ROBINSON: Mr. Chair, having just  
20 received this new diagram of corporate structure and  
21 having just learned that there's a Frontier energy  
22 partnership, if I heard the name right, I would just  
23 like to indicate that I may need some time to consider  
24 this and I may have one or two follow-up questions  
25 based on this new information. I suggest that perhaps

1 later I'll advise the Panel if I do have questions and  
2 see where that might fit in.

3 THE CHAIRPERSON: Okay. Thank you.

4 MR. ROBINSON: Thank you.

5 THE CHAIRPERSON: Mr. Fluker, I don't  
6 know if you have a preliminary matter. I have one  
7 more matter I would like to talk about.

8 So I think it was the first day we had  
9 a number of trappers show up, Peter Hoffman, Darryl  
10 Paul Shevolup, Chuck Shevolup and George Clark, and at  
11 the time the Panel indicated and understood that the  
12 request from the trappers was to do a presentation for  
13 the Panel and on that basis the Panel indicated it  
14 would try and find a spot for them in the schedule.  
15 We've subsequently had correspondence from Donald  
16 McCargar, who I think has been retained by some of the  
17 trappers, with a request to be able to cross-examine  
18 Teck, which was not kind of discussed at the time. So  
19 I'm first wondering if Donald McCargar is present.  
20 Okay. Could you come forward, sir?

21 Mr. McCargar, I was just wanting to  
22 know a little bit more about why the group feels the  
23 need to cross-examine Teck and what it hopes to  
24 accomplish and how that may assist the Panel in its  
25 decision-making.

1 MR. McCARGAR: Thank you, Chair.

2 I was just brought into this on  
3 Wednesday. The trappers didn't have a clear idea of  
4 what the proceedings are, the process, and fortunately  
5 I was here dealing with another matter. And these  
6 particular trappers I have grown up with from the time  
7 we were five years old to our sixties now and they  
8 asked if I could step in and help and support them in  
9 their cause here, and I said I would be open to doing  
10 that.

11 There are some questions I would like  
12 to cross-examine Teck on and I was under the  
13 understanding that that might take place on Friday,  
14 with some communication I got from Tara Wheaton last  
15 night. I would just like to have confirmation on  
16 whether we are going to have an opportunity to do  
17 that, because I know the trappers aren't in line with  
18 the process at this time, or do we just have the  
19 availability next week to do a presentation to the  
20 Panel. There is absolutely no way that I can do a  
21 proper questioning of Teck. I should have received  
22 the documents two months ago to go through them and  
23 have my questions relate to their documents to do it  
24 correctly.

25 I have some preliminary questions I

1 could ask them that probably would only take maybe a  
2 half an hour. But based upon my knowledge and sitting  
3 here for this week to date, I can clearly see that  
4 there would be prejudice against my clients to go into  
5 a full-scale questioning against Teck at this time.

6 And they are not ready for their  
7 presentation tomorrow, either, as indicated by Tara's  
8 email. We were hoping maybe to do that next week,  
9 Wednesday, as they are going out to their traplines.  
10 And of course, once they're out there, they will not  
11 be coming back 'til freeze-up.

12 So I'm trying to correlate all this at  
13 this time with yourself and of course with Tara  
14 Wheaton and David. And I sure could use some  
15 direction on it, sir.

16 THE CHAIRPERSON: Okay, yeah, I think  
17 that's what we're trying to get to.

18 Mr. Ignasiak, do you have any  
19 comments?

20 MR. IGNASIAK: Yeah, thank you, sir.

21 So we discussed this with Teck. I  
22 think that we don't have a problem if it's a  
23 relatively short cross that they want to undertake  
24 this week. So we don't want any disruption to the  
25 schedule. And so our insistence would be the cross be

1 this week and that it be, you know, of the nature of a  
2 half hour or so, because we are starting to -- we're  
3 getting close to Saturday.

4 So that would be our insistence. We  
5 think that it shouldn't interfere with the schedule,  
6 given the schedule was set some time ago. So that's  
7 fine, if it fits within the schedule.

8 And in terms of their presentation, we  
9 understood they'd be making a presentation sometime  
10 next week, so we don't have any concern with that.

11 THE CHAIRPERSON: Okay, well, I think  
12 having -- sorry, anything else you'd like to add,  
13 Mr. McCargar, in response?

14 MR. McCARGAR: No. I would be in  
15 agreement with the Teck representative on his  
16 comments.

17 THE CHAIRPERSON: Okay. So it sounds  
18 like Teck is amenable to a short cross, as long as it  
19 occurs this week. And what Mr. Ignasiak was saying is  
20 correct.

21 So we expect to be done with the Teck  
22 panel probably by tomorrow -- Friday, yes? Probably  
23 by tomorrow, maybe going into Saturday. We don't want  
24 to have to reseal the panel in some future date.

25 So I think Mr. Ignasiak's suggestion



1 seems reasonable that if you're prepared to do a short  
2 cross on Friday, I think that's the extent that the  
3 panel is prepared to go. We don't want to have to  
4 reseat because of its impacts on the schedule for the  
5 hearing. And that the trappers can do their  
6 presentation next week, and we'll look for an  
7 opportunity for that, so.

8 MR. McCARGAR: And I'm fine with that,  
9 sir. I think I can keep my cross to at least a half  
10 an hour, 40 minutes max. And I do not want to be here  
11 for this weekend either, so.

12 THE CHAIRPERSON: Yeah, okay.

13 MR. McCARGAR: So and if we can set a  
14 date, if I could just remind Tara and David if they  
15 could set a date as close as possible, because I want  
16 to have the three trappers, four trappers here with  
17 myself to make the presentation. It's always good to  
18 hear their words directly. And that way I could  
19 schedule it with them and make sure they're here and  
20 not cause any chaos to the process any further on this  
21 matter.

22 THE CHAIRPERSON: Okay, so thanks for  
23 that, Mr. McCargar.

24 And just to be aware, so we're going  
25 to continue with the cross-examination of Teck today.

1 Depending on how the schedule goes, we may get through  
2 all of it today, in which case you would be the only  
3 person tomorrow. Or we may have to carry over to  
4 tomorrow, in which case you'll go later before the  
5 panel.

6 MR. McCARGAR: And that's fine. I  
7 have no problems going at the end. My understanding  
8 is that Darlene Gladieu-Quinn, who's representing  
9 John Malcolm, will be going last in the questioning.

10 THE CHAIRPERSON: Yeah.

11 MR. McCARGAR: I just can follow them  
12 and --

13 THE CHAIRPERSON: Okay.

14 MR. McCARGAR: -- we can finish it off  
15 and that would be fine with me.

16 THE CHAIRPERSON: Okay, I think that  
17 would be probably the best option, if we could.

18 MR. McCARGAR: Thank you, Chair.

19 THE CHAIRPERSON: Okay, thank you.

20 Any other preliminary matters?

21 Okay, I see none.

22 Mr. Fluker, you can continue with your  
23 cross.

24 CROSS-EXAMINATION (Cont'd)

25 MR. FLUKER: I just need a couple of

1 seconds here. But while I'm getting ready, I'll just  
2 let everybody know that I'm going to take us to the  
3 Waterfowl Protection Plan to get things starts, so  
4 that's CEAA document 293.

5 So can we start with the questions?  
6 Are we there? Everybody's got the plan? Okay.

7 So my first question of the morning is  
8 can you confirm for me that the Waterfowl Protection  
9 Plan contemplates whooping cranes coming into contact  
10 with tailings, oil residue, what have you? And if so,  
11 can you show me or pinpoint for us where that is.

12 MR. SPELLER: So Mr. Chairman, so the  
13 Waterfowl Protection Plan does discuss whooping crane.  
14 An example is on hard copy page 15 of that plan, or  
15 PDF page 18. It states -- Reporting on Avian Contacts  
16 and Mortality is the section. It's section 7.2.3.  
17 And it talks about

18 "In any event involving a  
19 whooping crane, the Teck  
20 protocol ..."

21 -- which is the protocol outlined by the Oil Sands  
22 Bird Monitoring Plan --

23 "... the ... protocol will also  
24 be in compliance with directions  
25 from Canadian Wildlife Services

1 ([through] Environment and  
2 Climate Change Canada)."

3 MR. FLUKER: Any other references to  
4 whooping crane in that plan?

5 MR. SPELLER: In Table 7.10-1, which  
6 is titled Mitigation Program Overview, there's a  
7 similar bullet. The mitigation objective in that  
8 table is identified in:

9 "Maximize recovery efficiency  
10 should birds use ponds."

11 And the final bullet says,

12 "Procedure will also be in  
13 compliance with directions from  
14 Environment and Climate Change  
15 Canada with respect to whooping  
16 cranes."

17 MR. FLUKER: Thank you. I just want  
18 to clarify from yesterday that maximizing recovery  
19 efficiency, or this phrase "bird recovery," we're  
20 talking about pulling dead corpses out of the tailing  
21 pond; correct?

22 MR. SPELLER: So Mr. Chairman, in this  
23 table, this idea of recovery is either a bird fatality  
24 or a bird that's been oiled.

25 MR. FLUKER: So is that consistent

1 with the reference to the word "bird recovery" in the  
2 table, which I'm going to locate now, that we  
3 discussed yesterday that was indicating simply bird  
4 mortalities? It didn't make any reference, if I  
5 recall, to simply oiled birds -- but I'm just going to  
6 have to take a minute to find that table to make sure  
7 we're being consistent with our terminology here.

8 MR. SPELLER: Mr. Chairman, it's  
9 possible we're being inconsistent in the wording in  
10 the table and in this plan. But the protocols we're  
11 discussing include, in this table, protocols for oiled  
12 birds.

13 MR. FLUKER: Including mortality. So  
14 bird recovery is -- includes mortalities in addition  
15 to oiled birds that may land in the pond but fly away?

16 MR. SPELLER: So, Mr. Chairman, just  
17 to clarify, the wording for this recovery is if it's a  
18 mortality or fatality or if it's a bird that's oiled  
19 on the pond and still on the pond. This recovery does  
20 not include birds if they were to land and fly away to  
21 another site. That's not part of these protocols.

22 MR. FLUKER: Okay. So in summary,  
23 then, Teck's Waterfowl Protection Plan contemplates  
24 whooping cranes landing in tailings areas and dying as  
25 a result; correct?

1 MR. SPELLER: The plan contemplates  
2 that eventuality.

3 MR. FLUKER: Thank you.

4 And that translates, if I recall  
5 correctly, into a low risk of mortality for the  
6 endangered whooping crane population. Is that  
7 correct?

8 MR. SPELLER: Mr. Ebner is going to  
9 respond to that once he gets the microphone point.

10 MR. EBNER: Derek Ebner.

11 Mr. Chair, in response to JRP IR 7.9,  
12 so I'm on PDF page 111, we reviewed the more recent  
13 data provided by Environment and Climate Change Canada  
14 in regards to the GPS collar data that had been  
15 occurring in the region. And as part of our review  
16 and response to the IR, we recognized the fact that  
17 under a conservative scenario where -- assuming that  
18 all other tailings ponds in the area have not been  
19 reclaimed, and with the new data -- even with  
20 effective bird deterrence occurring, that the low  
21 magnitude mortality risk based on the new data would  
22 likely be more of a moderate magnitude as opposed to a  
23 low magnitude.

24 MR. FLUKER: Thank you.

25 But the reason I'm asking this

1 question is because the draft Waterfowl Protection  
2 Plan -- correct me if I'm wrong here, but it was  
3 submitted before the data and the reply that you're  
4 referring to. Is that correct?

5 So this plan correlates with the low  
6 mortality risk, does it not?

7 MR. SPELLER: Mr. Chairman, the  
8 response that the Mr. Ebner was just referring to was  
9 in package 7. It was 7.9.

10 This protection plan was in response  
11 to 7.10. They were filed at the same time. They were  
12 part of the same filing.

13 MR. FLUKER: So we're talking about  
14 low or moderate mortality risk to the endangered  
15 whooping crane. I'm still struggling to put some  
16 context to those descriptors because, of course,  
17 moderate risk of mortality or low risk of mortality  
18 means different things in relation to different  
19 contexts.

20 So yesterday, we sort of started going  
21 down that path and there was a little confusion, I  
22 think, towards the end of the afternoon as to what  
23 exactly we were talking about in relation to  
24 thresholds.

25 So before I take us back to the

1 transcript from yesterday, sir, can you explain to us  
2 what a low risk of mortality means for the endangered  
3 whooping crane in terms of number of mortalities?

4 MR. EBNER: Derek Ebner.

5 In terms of defining mortality risk,  
6 Mr. Chair, in regards to all species, not just  
7 whooping crane, mortality risk is not about a number  
8 of individuals that may be killed. It's about the  
9 potential that a fatality might occur.

10 So it really gets more at the  
11 likelihood of an interaction occurring and that, based  
12 on interaction, would -- how likely is it that a  
13 fatality may occur.

14 MR. FLUKER: We did talk numbers  
15 yesterday, though, and I am really only interested in  
16 the whooping crane.

17 So for example, in yesterday's  
18 transcript, if I can take us to it -- what's the cite  
19 for this one?

20 So if we were to look at yesterday's  
21 transcript at page 423, starting at line 10, this  
22 is -- Mr. Speller, this is yourself in --

23 MR. IGNASIAK: Mr. Chair, the  
24 witnesses -- I don't think the witnesses have the  
25 transcript. They don't have Wifi on their -- on their



1 desktop, so they don't have access to the transcript.

2 MR. FLUKER: Well, we had access to  
3 the transcript yesterday evening or --

4 MR. IGNASIAK: Yeah, but they don't  
5 have them. They didn't know you were going to go to  
6 it.

7 MR. FLUKER: Okay. Well, I'm happy to  
8 read it to him, if that helps.

9 MS LaCASSE: If you give me just a  
10 moment, I'm going to see if we can pull it up.

11 MR. IGNASIAK: Thank you.

12 --- Pause

13 MR. FLUKER: If it's -- I'm happy to  
14 read it and if counsel for Teck wants to follow along  
15 to ensure I don't mis-state something, I mean,  
16 that's -- so it's line 10, starting at line 10 on page  
17 423.

18 Thank you.

19 "... Mr. Chairman, we can't speak  
20 on behalf of Teck, but in this  
21 assessment it is viewed as a  
22 species of conservation concern."

23 "For species at risk" -- I'm down to  
24 line 17, actually:

25 "For species at risk, ... a high

1                   impact for magnitude we would  
2                   consider for any -- for our key  
3                   indicators would typically be  
4                   about 20 percent loss. [But] For  
5                   species at risk we downgraded  
6                   that to be [a] 10 percent to show  
7                   the additional sensitivity of  
8                   conservation concern."

9                   So in fact, we do appear to have some  
10                  quantification here, so I just want to clarify that a  
11                  10 percent loss for a population of 500 birds on the  
12                  planet means 50 birds.

13                  MR. SPELLER: Mr. Chairman, I believe  
14                  later in the transcript -- I don't have it with me --  
15                  I clarify that that 20 percent and 10 percent in our  
16                  assessment is tied to habitat availability and habitat  
17                  loss.

18                  The 20 percent is the threshold for  
19                  habitat availability recommended through the  
20                  Terrestrial Ecosystem Management Framework through  
21                  CEMA, or the Cumulative Environmental Management  
22                  Association. We use that for habitat availability.

23                  But for species at risk, instead of  
24                  using the 20 for habitat availability recommended by  
25                  TEMFS, I'll call it, we use 10 percent.

1           I was using that example to highlight  
2 how we treated species at risk species versus a  
3 non-species at risk species.

4           I also indicated that for mortality  
5 risk, we didn't use a numeric threshold. We have a  
6 discussion of -- discussion of risk either being low  
7 or moderate or high.

8           MR. FLUKER: So I am confused by that.  
9 And if I can take us to page 367 in yesterday's  
10 transcript.

11           This is a response of Mr. Ebner to my  
12 colleague earlier in the afternoon. Page 367 starting  
13 at line 19.

14           Thank you.

15           So earlier in the afternoon, we asked  
16 Mr. Ebner roughly what number of birds dying from that  
17 perspective would have been significant in your view.  
18 And Mr. Ebner's response was specifically in relation  
19 to a 20 percent threshold. And there's no question at  
20 this time he's talking about population numbers.

21           So I'm -- it's really confusing for us  
22 because we're having difficulty understanding when  
23 you're talking about 20 percent thresholds for  
24 populations and 20 percent thresholds for habitat.

25           Mr. Ebner's response here clearly

1 says:

2 "...generally in ecological risk  
3 assessments, a threshold of  
4 approximately 20 per cent may be  
5 used."

6 And later on, at the top of page 368,  
7 he states:

8 "...if we use like a typical  
9 ecological risk assessment  
10 threshold of 20 per cent for  
11 populations, that might be  
12 suitable."

13 So the way I understood your response,  
14 sir, to my question about whooping cranes was that  
15 that's downgraded to a 10 percent population to  
16 reflect the endangered status of that species.

17 So which of these responses is  
18 correct?

19 MR. EBNER: Derek Ebner.

20 The discussion that I was having  
21 earlier previously with the -- with Mr. Fluker's  
22 partner there, we were having a general discussion, a  
23 hypothetical discussion around effects to waterfowl  
24 populations in the region in terms of what mortality  
25 might be. And he was looking -- they were -- we were

1 having a discussion around thresholds in that sense in  
2 terms of what a hypothetical threshold might be.

3 We weren't specifically referring to a  
4 species at risk like a whooping crane.

5 So as Mr. Speller has previously said,  
6 for the assessment when it comes to mortality risk,  
7 the focus of our assessment was on defining risk, not  
8 a number of individuals that may -- may be -- may have  
9 died in a tailings pond.

10 I think it's important to recognize  
11 still that this discussion around whooping crane is  
12 that there have been no reported fatalities of  
13 whooping crane over the past 40 plus years in the  
14 region due to a tailings pond. And that was really  
15 the driver in our decision and -- in terms of defining  
16 what the risk may be.

17 MR. FLUKER: Thank you, sir.

18 Is it your position that every single  
19 mortality -- bird mortality in the tailings ponds is  
20 recovered and recorded?

21 MR. EBNER: No, it's not.

22 MR. FLUKER: So it is possible that  
23 birds have landed in tailings ponds, have died as a  
24 result of that and they have not been recovered or  
25 recorded.

1                   MR. EBNER: Mr. Chair, in terms of how  
2 we determined our risk, we looked at all the data  
3 collected over the past 40-plus years to determine  
4 what that might be.

5                   MR. FLUKER: Sorry, my question was  
6 simply: You would agree it is possible that birds  
7 have landed in tailings ponds, died as a result of  
8 that landing and have not been recovered or recorded?

9                   It's a yes or no answer.

10 --- Pause

11                   MR. EBNER: I would say in response to  
12 that, Mr. Chair, that yes, there is the possibility  
13 that not every bird is going to be recovered.  
14 However, for a bird as large as a whooping crane the  
15 likelihood is much higher.

16                   MR. FLUKER: But we wouldn't know that  
17 because we haven't recovered any. Correct?

18                   We are speculating hypotheticals here  
19 when we talk about that because it has never happened.

20                   MR. SPELLER: Mr. Chairman, we would  
21 agree there is a lot of speculation in that  
22 discussion.

23                   I would also like to add on, just for  
24 clarification, in Volume 3 of the Project Update, in  
25 the Wildlife Assessment, I want to show where we talk

1 about that 10 per cent and 20 per cent tied to habitat  
2 availability.

3 So it's Table 11-9. It's hard copy  
4 page 11-40.

5 Again, this is Volume 3 of the Project  
6 Update.

7 And as I stated, for habitat  
8 availability we did a quantitative magnitude rating  
9 and you will see -- do you want to pull it up? I can  
10 wait till it's up.

11 That's great; thank you.

12 So if we look at the table, the first  
13 section is species at risk, and this shows where we  
14 have used quantitative magnitudes in our assessment.  
15 It doesn't include mortality risk, as we've mentioned.  
16 It has habitat availability and landscape  
17 connectivity.

18 The example I was giving to show how  
19 we treat a species of conservation concern, if you  
20 look at the Species at Risk columns -- there's three  
21 of them, for low and moderate and high -- for the high  
22 we see that greater than a 10 per cent change in  
23 habitat availability is used for a high magnitude for  
24 species at risk.

25 The next species is valued species,

1 which we've assessed but aren't considered a species  
2 at risk, where we use a greater than 20 per cent  
3 change in habitat availability consistent with temp.

4 So the example I gave earlier, I was  
5 speaking to what we did in this table, related habitat  
6 availability.

7 MR. FLUKER: Thank you.

8 So then you would agree that there is  
9 stopover habitat for the endangered whooping crane in  
10 the, whatever you call it, local study area for this  
11 project?

12 MR. SPELLER: Mr. Chairman, as I  
13 mentioned yesterday, there is stopover habitat  
14 potential in the region. There is the right ecosites.  
15 And in our assessment we've looked at that based on  
16 our vegetation mapping, looked at what would be  
17 removed due to the project.

18 And in the way we assess it for all of  
19 these species we assume that the species will be  
20 present and they will use it. It doesn't mean that  
21 they will but it's a possibility. So we can  
22 conservatively assume that they will use the project  
23 area and that that is a potential loss of stopover  
24 habitat or other habitat for wildlife species.

25 MR. FLUKER: I think this is a good



1 time to move to the exhibit that I tendered at the end  
2 of yesterday, which is the Bidwell Study entitled  
3 "Quantifying Risk from Oil Sands Mining to the  
4 Endangered Whooping Cranes", if I can get the Panel to  
5 turn to that.

6 I will clarify for the record that  
7 this is a Power Point presentation provided by the  
8 author of the study that is referenced in Teck's  
9 application.

10 Teck did not provide us with a copy of  
11 the actual study. I was unable to locate it.

12 I did not ask Teck for that.

13 I like the Power Point because it  
14 provides us with some visuals.

15 So I quickly want to go through this.

16 I'm looking at page 3.

17 Thank you for putting it up on the  
18 screen.

19 Just for confirmation, whooping cranes  
20 migrate in the fall and the spring, and we confirmed  
21 yesterday that Teck did not do any bird surveys in the  
22 fall or the spring in preparing this application.

23 If I can then take us to page 6, I  
24 believe, you would agree with me that this picture of  
25 oiled cranes, whooping cranes, is evidence that the

1 endangered whooping crane is attracted to ponds with  
2 oil residue. Yes?

3 MR. EBNER: Derek Ebner.

4 No, we don't agree.

5 MR. FLUKER: So this is a staged  
6 photograph?

7 MR. SPELLER: Mr. Chairman, I don't  
8 think my colleague suggested that this was a staged  
9 photograph.

10 MR. FLUKER: You would agree, though,  
11 that the picture is entitled "Oiled Cranes in Nebraska  
12 Fall 2008" and it visualizes three whooping cranes  
13 standing in oily water with black oil residue covering  
14 the lower half of their body? Yes?

15 Is that an accurate depiction of this  
16 picture?

17 MR. EBNER: Derek Ebner.

18 Based on my understanding of this  
19 photograph, the birds were not standing in oily water.  
20 They just happened to have what would appear to be oil  
21 on their lower half.

22 MR. FLUKER: Thank you.

23 If I can go to page 8, this slide  
24 talks about GPS-tracked migration. And I think we  
25 agreed yesterday that satellite -- well, we agreed

1 yesterday that cranes have been tagged. In fact, I  
2 think, sir, you mentioned that to us.

3 And we would agree that GPS-tagged  
4 surveys are more accurate than non-GPS tracked  
5 surveys.

6 Is that correct?

7 MR. SPELLER: Mr. Chairman, we would  
8 agree with that.

9 MR. FLUKER: So you would also agree  
10 that the data on this slide, which was collected  
11 between 2010 and 2016, is inconsistent with the data  
12 that you provided this Panel in relation to whooping  
13 crane migration over the Mineable Oil Sands Area.

14 Is that correct?

15 MR. SPELLER: Could you rephrase that,  
16 please?

17 MR. FLUKER: Well, I'm not going to  
18 rephrase it. My question was: You would agree that  
19 the data on this slide, which was collected between  
20 2010 and 2016 concerning the migration of the  
21 endangered whooping crane, is inconsistent with the  
22 data that you provided this Panel, that Teck has  
23 provided this Panel, in relation to whooping crane  
24 migrations over the Mineable Oil Sands Area.

25 MR. SPELLER: So, Mr. Chairman, I

1 wouldn't agree with that.

2           When we do our assessments our goal is  
3 to include the best available information that we  
4 have. This information was not available to us when  
5 we did the Project Update in 2015. When this  
6 information became available to us, we included it  
7 within Package 7 when we responded to whooping crane  
8 information.

9           And in Package 7 we identified that  
10 where previously we had thought the whooping crane  
11 migration was a little farther to the east of the  
12 Mineable Oil Sands Region, based on the previous  
13 telemetry data we had been given, that this updated  
14 data showed that most of the cranes fly over the  
15 Mineable Oil Sands Area, as I identified in my direct  
16 evidence.

17           MR. FLUKER: So your answer to my  
18 question is yes, they are inconsistent, because your  
19 application stated, as you just indicated, that they  
20 fly over maybe the northeast quadrant or quarter of  
21 the Mineable Oil Sands Area, and this study  
22 demonstrates with GPS tracking that they fly directly  
23 over; in fact, most of them do.

24           MR. SPELLER: So, Mr. Chairman, the  
25 information that's in this study is in our filed

1 material. This application has been going on since  
2 2011. For a number of topics, such as whooping crane,  
3 as information has been provided or made available, we  
4 have updated and we have tried to make sure that we  
5 have used the best available information each time we  
6 have done a filing.

7 So I believe what I said was in 2015  
8 when we did the Project Update we didn't have this  
9 information.

10 But we consider our responses to your  
11 Supplemental Information Request as part of our  
12 application, and this information is in Package 7 of  
13 our application.

14 MR. FLUKER: Thank you.

15 Just to clarify, not all of this  
16 information is in that response, correct?

17 MR. SPELLER: Mr. Chairman, we're  
18 talking about the slide that was up on the screen --

19 MR. FLUKER: Sure. Well, let's move  
20 to another slide then.

21 MR. SPELLER: -- and that's  
22 information, if I could finish, and the information  
23 that is on the slide about where the fly-over pathway  
24 is is in our Package 7.

25 MR. FLUKER: Thank you. So if we can

1 move to page -- sorry, I think it's page 12. Thank  
2 you. Bottom point on page 12 states, "Some cranes  
3 land on or adjacent to tailings ponds." Is that  
4 information in your application or your update?

5 MR. EBNER: Derek Ebner. Mr. Chair,  
6 I'm going to read what we included in our response to  
7 JRP IR 7.9, that is what counsel's referring to.

8 "Radio collar GPS data -- sorry, I'm on PDF page 110:

9 "Radio collar GPS data reported  
10 by ECCC," (As read)

11 so Environment and Climate Change Canada,

12 "from 2010 to 2016, Bidwell et al  
13 2016, shows that most cranes  
14 migrate over the mineable oil  
15 sands area, 76 per cent in spring  
16 (between 50 per cent and 90 per  
17 cent) and 92 per cent in fall  
18 (between 84 per cent and 100 per  
19 cent). Of the individuals flying  
20 over the mineable oil sands area,  
21 relatively few stopped over  
22 reported by ECC; 16 per cent in  
23 spring, and 14 per cent in fall.  
24 For cranes that did, the  
25 stopovers were generally short in

1 duration, one to two nights, and  
2 far from tailings areas, between  
3 approximately 23 kilometres, plus  
4 or minus, 17 -- approximately 16  
5 kilometres. However, some  
6 individual cranes have been  
7 observed to land on or adjacent  
8 to tailings areas, specifically  
9 at Muskeg River and Mildred Lake  
10 Mines." (As read)

11 MR. FLUKER: Thank you for that  
12 clarification. So the rest of the slide deck has  
13 visuals of exact locations of where those cranes have  
14 landed, is that correct?

15 MR. SPELLER: Mr. Chair, that's  
16 correct.

17 MR. FLUKER: Thank you. So we're  
18 going to move on then. If I can take us to the  
19 project update, these numbers always confuse me,  
20 Volume 3, Section 11, this would be CEAA Document 163,  
21 page 11-295. Just let me know when you're there.

22 So on page 11-295, about halfway down,  
23 I just want to ask you if this is still correct in  
24 light of the new data. You say, "Teck says risk of  
25 whooping crane interactions with tailings ponds is

1 currently unknown." That's an incorrect statement,  
2 correct?

3 I'll put the question in another way  
4 for you. In light of the new data, risk of whooping  
5 crane interactions is known?

6 MR. EBNER: Derek Ebner. For the  
7 project update in regards to the paragraph that is  
8 written that counsel's referring to, Mr. Chair, the  
9 conclusion where we refer to the potential for  
10 interactions or risk of interactions was currently  
11 unknown, was actually based on a statement made by  
12 Environment Canada in their submission from 2012 to  
13 the Shell Jackpine hearing.

14 So based on the more recent data that  
15 has been provided by Environment Canada -- or, sorry,  
16 Environment and Climate Change Canada, we have a  
17 better idea in terms of the migration pathway for  
18 whooping crane over the region as well as a better  
19 idea in terms of where the stopovers are occurring in  
20 the region.

21 MR. FLUKER: So the answer is that  
22 statement is no longer correct, it now should read,  
23 risk of whooping crane interactions with tailings  
24 ponds is currently known to exist?

25 MR. EBNER: Mr. Chair, we have a



1 better idea in terms of where whooping crane are now  
2 stopping over and, yes, there are a few instances of  
3 whooping crane landing near tailings ponds. However,  
4 there have been no reported fatalities of whooping  
5 crane. So, as of right now, the risk that we've  
6 identified in JRP IR 7.9 of it being moderate is still  
7 relevant.

8 MR. FLUKER: Right. I'm just trying  
9 to clarify though, your position is there is a risk of  
10 whooping crane interaction with tailings pond, yes?

11 MR. SPELLER: Mr. Chairman, as we've  
12 mentioned a couple times I believe, in Joint Review  
13 Panel Information Request 7.9 we identify -- what we  
14 had identified as a low risk in the project update,  
15 even recognizing that Environment Canada said that it  
16 was unknown we identified it as a low.

17 Based on the new radio collar data, or  
18 the telemetry data, we had said we believe it's a  
19 moderate risk instead of a low now that we know that  
20 they fly over most of the mineable oil sands area.

21 But the one thing I think we're  
22 missing in this discussion, and it was in the slides  
23 that were provided earlier, on Slide 2 there's a graph  
24 that shows the population of the whooping crane over  
25 time. I don't know if we're able to pull it up?

1                   But it shows levels from 1940 to 2015  
2 and it shows the increasing population of them where,  
3 as we discussed earlier, they were in the like low  
4 numbers. I think we've seen data that said there was  
5 about 14 or 17. So it's slide number -- it's the  
6 first slide after the title slide.

7                   So what that graph in the bottom right  
8 is showing is abundance or numbers. It shows from the  
9 1940s to the 1970s, 1985, 2000 to 2015 population  
10 numbers. Then near the end you see some error bars on  
11 them, but that counts as I think the current number is  
12 430 from the 14.

13                   We have to remember that from around  
14 1968-1969 until now oil sands tailings ponds having  
15 been built and appearing on the landscape during this  
16 time, so we recognize that there is a risk. It's one  
17 of the reasons we have bird deterrent systems in the  
18 region.

19                   But the population has been growing as  
20 the tailings pond size and number on the region have  
21 been increasing. That doesn't mean there's not a  
22 risk, as we've said a few times now. We say that  
23 there's a moderate risk. But we believe that the  
24 deterrent systems that are out there have been  
25 effective to date for whopping crane and the --

1 MR. FLUKER: I'm going to stop you  
2 there.

3 MR. SPELLER: Mr. Chairman, can I  
4 finish?

5 MR. IGNASIAK: Mr. Chairman, he's  
6 trying to give a response. I mean, he's entitled to  
7 give his answer.

8 THE CHAIRPERSON: Yes, let the witness  
9 answer the question.

10 MR. SPELLER: Okay. That we believe  
11 they're effective. As Teck has stated in their filed  
12 material, they are going to be looking at best  
13 available technology for this project, including  
14 implementing anything additional that may be required  
15 or identified potentially for whooping crane, if there  
16 is something different for whooping crane that hasn't  
17 been used in the region to date.

18 MR. FLUKER: Thank you for that. So  
19 I've got -- three things come out of that. The first  
20 is, I just did a quick survey of the number of people  
21 in this room, and it looks to be approximately 100.  
22 So the entire population of whooping crane on the  
23 planet is roughly four times the number of people in  
24 this room. You would agree with that?

25 MR. SPELLER: Subject to check that

1 there's 100 people in the room, yes.

2 MR. FLUKER: Okay. Well, just to give  
3 that number a little bit of context.

4 The second thing that I wanted to  
5 pick-up on there was when you described that graph for  
6 us you described 14 as low, is that correct?

7 MR. SPELLER: I described that the  
8 lowest number on the graph from my understanding,  
9 although the scale doesn't show it, is either 14 or  
10 17.

11 MR. FLUKER: So low, for you, is  
12 either 14 or 17?

13 MR. SPELLER: Mr. Chairman, the term  
14 low I used was related to the lowest numbers on the  
15 bottom left-hand side of the graph, which my  
16 understanding is 14 to 17, even though there isn't a  
17 scale that gradates it at that level.

18 MR. FLUKER: But you didn't use the  
19 word moderate or high or anything else in relation to  
20 that particular range of numbers, you used the word  
21 low?

22 MR. SPELLER: Mr. Chairman, I wasn't  
23 using EIA language on the magnitude or environmental  
24 consequence in describing that; I was describing the  
25 low end of a dataset.

1                   MR. FLUKER: And the last thing to  
2 pick up on, on your previous answer, was, I believe  
3 you said that, and it is certainly reflected in page  
4 11-295 of the Project update that the use of bird  
5 deterrents will aid in reducing the potential for  
6 Project tailings areas to -- well, I'll just read it,

7                   "The use of bird deterrents will  
8 aid in reducing the potential for  
9 Project tailings areas whooping  
10 crane interactions." (As read)

11                   Are you aware of any studies to  
12 support that statement?

13                   MR. EBNER: Derek Ebner. The  
14 statement where we have stated that the use of bird  
15 deterrents will aid in reducing the potential for the  
16 Project tailings area to reduce whooping crane  
17 interactions, is based on the 40-plus years of  
18 monitoring that has occurred when bird deterrents  
19 began being used in tailings areas, specifically the  
20 past number of years where the research on Avian  
21 Protection Project as well as the Oil Sands Bird  
22 Contact Monitoring Program have been collecting data  
23 and as at this time have not reported any whooping  
24 cranes - any whooping crane recoveries or fatalities.

25                   MR. FLUKER: So, that's a pretty

1 strong statement, "will aid," in light of the fact  
2 that you are inferring or speculating based on no  
3 recorded recoveries of crane carcasses out of the  
4 tailings ponds; correct?

5                   Wouldn't it be more accurate to say,  
6 the use of bird deterrents "may aid" in reducing the  
7 potential for interactions, rather than "will aid."  
8 You don't have any support for that "will aid." You  
9 don't know for sure whether it is actually going to  
10 deter cranes; is that not correct?

11                   MR. EBNER: Derek Ebner. Mr. Chair, I  
12 would just refer back to the studies that have been  
13 done with the research of the Avian Protection Project  
14 as well as the Oil Sands Bird Contact Monitoring  
15 Program that have been looking at the -- monitoring  
16 the effectiveness of these various bird deterrents in  
17 the region, and the fact still that there have been no  
18 recoveries of whooping crane or fatalities occurring.

19                   So, at this time we have no -- there  
20 is no information to basically present itself to say  
21 that the bird deterrents that are currently in place  
22 are not effective, so we do believe that they will aid  
23 in or producing the potential interactions.

24                   MR. FLUKER: So, it would be more  
25 accurate to say that Teck "believes" bird deterrents

1 will aid in reducing interactions as opposed to saying  
2 the use of bird deterrents "will aid" because, in  
3 fact, you have no support for that position; is that  
4 correct?

5 MR. EBNER: I would say it is not just  
6 Teck's view; it is the view of the work that has been  
7 occurring in the region.

8 MR. FLUKER: Did Teck submit any of  
9 that work with their application case?

10 MR. EBNER: As part of the Project  
11 update, Mr. Chair, we did cite doc--

12 MR. FLUKER: Sorry, I asked if you  
13 submitted, not if you cited?

14 MR. EBNER: No, we did not.

15 MR. SPELLER: Mr. Chair, the standard  
16 approach to EIAs in Alberta, especially for an EIA of  
17 this size and this duration is we cite the references  
18 we use to support our information, similar to the  
19 Environment Canada 2012B reference that's up on the  
20 page right now.

21 I'm not aware of a practise where we  
22 submit those actual documents as part of the EIA  
23 process. Those filings would be larger than the EIA  
24 itself.

25 But -- so there's a difference between

1 if we have cited them or if we have submitted them.

2 MR. FLUKER: Right. But you would  
3 agree that it would be important to provide evidence  
4 to support a position as important as this one,  
5 because we have established that the endangered  
6 whooping crane lands in tailings ponds, and we went  
7 through yesterday the mitigation hierarchy. And, so  
8 to establish that you're mitigation proposal, without  
9 thresholds, is going to be effective, surely you would  
10 have to give this Panel some evidence to support a  
11 strong statement that in fact those deterrent methods  
12 are going to work for the whooping crane.

13 MR. SPELLER: Mr. Chairman, just to  
14 clarify, I think counsel may have said that we've  
15 established that whooping cranes land in tailings  
16 ponds. I don't believe that that's our position.

17 MR. FLUKER: So you disagree with what  
18 we just looked at on the screen then, because there  
19 was GPS evidence of whooping cranes landing on  
20 tailings ponds.

21 MR. SPELLER: So I think we need to  
22 clarify the wording in the information that's in this  
23 slide deck. So, if you look at the data, and I think  
24 we're -- we need to clarify a word. So, what this  
25 data shows in this slide deck is not that a whooping



1 crane has landed in the water of a tailings pond; what  
2 it showed is that it landed on a bank on a side of a  
3 tailings pond. If you look at the figure and the  
4 location it is not in the pond; it's on the side of  
5 the pond. It's not in the water, and it's not oiled.

6 I think we're just having a difference  
7 between what's "on" and maybe the word "in".

8 MR. FLUKER: I think we better hone in  
9 on this then and we'll come back to the slide deck in  
10 a minute. But if I can take us to your Wood Buffalo  
11 National Park submission, which is CEAA document 364,  
12 page 22. -- sorry, is that the right page -- I'm  
13 looking about two-thirds the way down that page, Teck  
14 explicitly says,

15 "Some individual cranes have been  
16 observed to land on or adjacent  
17 to tailings areas." (As read)

18 "On?"

19 MR. IGNASIAK: Mr. Chairman, we'd be  
20 happy to address in final argument the difference  
21 between the words, "and" and "or". We'll do that.

22 THE CHAIRPERSON: I am a little  
23 worried, Mr. Fluker, how much time we're spending on  
24 this issue. I know it is very important to you, but  
25 if you can try and move us along that would be good.

1 MR. FLUKER: Okay.

2 THE CHAIRPERSON: Okay.

3 MR. FLUKER: So, I'm going to take us  
4 to the September 2018 reply. I think I'm looking  
5 at -- mainly at Attachments 11 through 14 in that  
6 reply document. It's actually specifically Attachment  
7 12. This would be a memorandum authored by Mr. Ebner  
8 and Mr. Gulley(ph).

9 MR. SPELLER: We have that.

10 MR. FLUKER: Okay.

11 MR. SPELLER: I'm going to need that  
12 article.

13 MR. FLUKER: So, there's reference in  
14 this reply document to an article authored by  
15 Elizabeth Beck, Judith Smitts, and Colleen  
16 Cassidy-St-Clair. I'd like to tender it as exhibit.  
17 And, I have 15 copies of it.

18 MS LaCASSE: Yes, thank you. I think  
19 we have a couple, please. Thank you.

20 --- Pause

21 MS LaCASSE: Mr. Fluker, before you  
22 get started, just so I'm not interrupting you, I just  
23 want to sort out one administrative matter with regard  
24 to this document.

25 MR. FLUKER: Sure.

1 --- Discussion off the record

2 MR. FLUKER: Yes. I did, yes. This  
3 was part of our package from yesterday, so it's in  
4 CEAA Document 566. Sorry.

5 MS LaCASSE: Okay. Thank you very  
6 much. And that is Document 566.

7 MR. FLUKER: So the essence of this  
8 submission is that it's taking issue with the  
9 suggestion that there will be what are called  
10 sub-lethal effects to migratory birds who land in  
11 tailings areas and fly away. That's referenced as  
12 sub-lethal, sub-acute. They're synonyms. I just want  
13 to take us through this and confirm some of these  
14 points. The exhibit I've submitted is the article  
15 that is referenced in relation to most of this  
16 discussion.

17 So on the first page, regarding the  
18 effects of the ingestion of oil sands process-affected  
19 water, you say:

20 "...there is no food [in the  
21 pond]..."

22 You would agree with me that birds  
23 flying over the tailings area can't tell whether or  
24 not there is food in the area before they actually  
25 land; correct?

1 --- Pause

2 MR. EBNER: The statement that you're  
3 referring to in Attachment 12, in Teck's submission of  
4 September 12th, the point being in terms of the  
5 presence of -- that there is no food in the tailings  
6 areas is in response to -- I guess in regards to the  
7 fact that there would be no opportunity for dietary  
8 exposure.

9 MR. FLUKER: But that's not what it  
10 says. It says:

11 "...there is no food..."

12 Is that a correct statement?

13 MR. EBNER: Mr. Chair, I'm just going  
14 to read the whole -- the opening couple of sentences  
15 here just to make it clear:

16 "Regarding effects caused by  
17 ingestion of oil sands  
18 process-affected water (OSPW), it  
19 is important to recognize that  
20 the majority of landings on  
21 tailings areas/industrial ponds  
22 during migration are not long  
23 term, with birds likely on the  
24 ponds for less than a day. They  
25 might land and rest for a while,

1 but there is no food so they do  
2 not stay in the area; scare  
3 cannons typically scare off  
4 birds..."

5 MR. FLUKER: So on the next page you  
6 say:

7 "...there is very little food..."

8 So is it no food or very little food?  
9 Top of the second bullet or first main bullet on the  
10 top of the next page you say:

11 "Waterbirds will not ingest  
12 contaminated food from the area  
13 because there is very little food  
14 in the pond;"

15 But on the previous page you said  
16 there was no food. Which of those statements is  
17 correct?

18 MR. EBNER: My colleague Mr.  
19 Vandenberg will answer.

20 MR. VANDENBERG: Mr. Chair, I'm going  
21 to refer back to some of the discussion I made  
22 yesterday about oil sands process water and the  
23 toxicity associated with that water. So it's pretty  
24 well established that in fresh, untreated oil sands  
25 process water there's acute toxicity to most forms of

1 aquatic life. There's no food chain effectively in a  
2 tailings pond, so whether it's absolutely zero or just  
3 an extremely low amount, it's effectively no food that  
4 would be available to the higher trophic species to  
5 eat. So effectively no food.

6 MR. FLUKER: Is that statement  
7 accurate for all of the tailings ponds on the site or  
8 just the fresh tailings ponds?

9 MR. CHIASSON: Mr. Chairman, I'm not  
10 familiar with the term "fresh tailings ponds". Could  
11 counsel please clarify?

12 MR. FLUKER: Well, that was my  
13 description of your colleague's description of a -- I  
14 think he said a tailings pond receiving fresh bitumen  
15 or however he described it. Is there not a variation  
16 in the type of tailings ponds on an oil sands site or  
17 are they all the same?

18 MR. CHIASSON: Mr. Chairman, there's  
19 different types of tailings deposits as part of the  
20 oil sands mining operations.

21 MR. FLUKER: And if I can take you to  
22 the exhibit, page 3 -- this is the article that I just  
23 submitted -- here we'll see a discussion of those  
24 different types. I'm just going to ask you if you  
25 agree with the paragraph that begins with the word:

1 "Although the terms 'OSPW' and  
2 'tailings' are used  
3 interchangeably in many contexts,  
4 there are several important  
5 differences among the types of  
6 OSPW that exist on the  
7 landscape."

8 And the paragraph goes on to list  
9 approximately five differences. You would agree with  
10 that discussion? This is a peer-reviewed article.

11 --- Pause

12 MR. VANDENBERG: It's Jerry  
13 Vandenberg. So yes, there are differences in  
14 different types of oil sands process waters and  
15 different types of water bodies on the oil sands, in  
16 the oil sands region that hosts these different types  
17 of oil sands process waters. So, for example, the  
18 fresh tailings I referred to earlier is essentially a  
19 tailings pond that is receiving inputs directly from  
20 the mine, so that's fresh inputs. That is associated  
21 with the higher acute toxicity. In contrast, there  
22 are some reclaimed wetlands, there are some  
23 demonstration ponds, there are pit lakes, there are  
24 other water bodies which have what's referred to as  
25 aged OSPW, which is less toxic.

1                   Now, in the context of whooping cranes  
2 and other waterfowl, the key point to keep in mind  
3 here is that the aquatic species are the most  
4 sensitive. So if they're suitable -- or if they're  
5 the type of OSPW where aquatic species live, those  
6 water bodies are also suitable for avian species  
7 because the avians are far less sensitive to the  
8 toxicity that the aquatic species are sensitive to.  
9 So in other words, if it is the aged OSPW, yes, there  
10 is food, but in that type of setting it's not a risk  
11 to avian species.

12                   MR. CHIASSON: Mr. Chairman, in  
13 response to the other part of counsel's question, I've  
14 reviewed the paragraph and I can't find fresh tailings  
15 ponds anywhere.

16                   MR. FLUKER: I think we resolved what  
17 I was trying to get at. The resolution was there is  
18 food in tailings ponds of some sort or another.

19                   MR. VANDENBERG: No.

20                   MR. CHIASSON: Mr. Chairman, I would  
21 like to add to Mr. Vandenberg's comments.

22                   MR. VANDENBERG: It's Jerry  
23 Vandenberg. No. Specifically the answer was no,  
24 there is no food in tailings ponds. There may be food  
25 in some of the reclaimed water bodies that contain



1 OSPW, but those would not be a risk to avians.

2 MR. CHIASSON: Mr. Chairman, I would  
3 like to add to Mr. Vandenberg's comments. I would  
4 like to bring this discussion up a level for my  
5 comment.

6 Teck understands the issue of  
7 waterfowl safety is a serious issue. That's why we  
8 take it seriously. We have a Waterfowl -- at this  
9 stage of the project we have a Draft Waterfowl  
10 Management Plan. We've committed to a number of  
11 mitigations, including using the best available  
12 technology for deterring waterfowl from the tailings  
13 areas, including whooping cranes, and we've also  
14 committed as part of our Attachment 13 to  
15 investigating and implementing if possible additional  
16 systems for deterring whooping cranes. So Teck does  
17 take this issue seriously and it has a number of  
18 mitigations in its design and in its plans to prevent  
19 or minimize the amount of waterfowl, including  
20 whooping cranes, from entering into or onto or in the  
21 tailings ponds.

22 DR. JOHNSTONE: Mr. Chair, I would  
23 also like to add that over the decade of consultation  
24 we've undertaken with Indigenous communities, the  
25 importance of protecting water birds, either waterfowl

1 or whooping cranes, has come up and both Indigenous  
2 communities and Teck recognize that as a responsible  
3 operator we need to be prepared for any possibility.  
4 We will continue to develop our monitoring and  
5 management plans in collaboration with Indigenous  
6 groups, as we've committed to, as well as regulators,  
7 using the best information and, as my colleague  
8 indicated, the techniques that are available to us.  
9 And further, we will review the outcome of those  
10 programs with the environmental working groups  
11 established under most of the 14 agreements concluded  
12 and identify and act on improvements where they are  
13 needed and we'll do that rapidly.

14 MR. FLUKER: Thank you.

15 So I want to take -- I'm still on page  
16 2 here. I specifically want to dig into your reliance  
17 on this journal article for the statement in your  
18 reply to the Panel that:

19 "No sub-lethal adverse health  
20 effects have been shown to occur  
21 in waterfowl that ingest oil  
22 sands produced water." (As read)

23 That is still your position?

24 --- Pause

25 MR. EBNER: Derek Ebner. Based on the

1 results of the studies, that is correct.

2 MR. FLUKER: So it is correct that you  
3 are relying on this study to support that position?

4 MR. SPELLER: So, Mr. Chairman, the --  
5 I wanted to note that tied to this issue we also have  
6 an Attachment 11 in September 12th, which is an  
7 analysis that Mr. Koppe did about sub-lethal effects  
8 related to birds landing on ponds, if that possibility  
9 were to occur, and them ingesting water and looking at  
10 those effects. That also aligns with what Mr. Ebner  
11 has written in this document.

12 MR. FLUKER: I was skipping over  
13 Attachment 11 in the interest of time, but I must  
14 admit I was hoping you could explain for me the  
15 information provided in Table 7, page 6 of that  
16 Attachment, because frankly I don't understand it.

17 MR. KOPPE: So it's Bart Koppe. Mr.  
18 Chair, I think if you are going to look at Attachment  
19 11 you have to do it alongside the work that we did as  
20 part of the wildlife health risk assessment which was  
21 presented in the Project Update Section 13, and what  
22 we've done as part of this analysis is that we tried  
23 to take a look at what the sub-lethal health effects  
24 might be with three different types of birds landing  
25 on the tailings areas. So we looked at what the

1 exposure would be to a mallard, we looked at what the  
2 exposure might be to a Canada goose, and we also  
3 looked at the whooping crane. Now, we took a pretty  
4 conservative assessment or a conservative look at  
5 this. We've already heard testimony from Mr.  
6 Vandenberg that this is not suitable habitat for  
7 waterfowl, but we've assumed that a bird could land  
8 there and effectively stay there for 30 days out of a  
9 year, acknowledging that there is no opportunity for  
10 dietary exposure but during that time that there would  
11 be incidental ingestion, so they would take in the  
12 water.

13                   And what we were able to show in  
14 Tables 5, 6 and 7 is that the exposure to those birds  
15 for the metals that would be in the tailings ponds  
16 would be very low. In fact, that opportunity for  
17 exposure at a tailings area -- and we recognize that  
18 it's a very unrealistic scenario that we've defined  
19 and that we've assessed, but the risks associated with  
20 it are actually quite low and it doesn't change any of  
21 the conclusions that were presented as part of that  
22 more comprehensive wildlife health risk assessment,  
23 which again was in the Project Update in Section 13.

24                   MR. FLUKER: So I was hoping you could  
25 explain for us what the results of that table in the

1 September 2018 Reply actually say because I mentioned  
2 I don't understand it.

3 MR. KOPPE: Sure. Yes, I'll take a  
4 stab at it.

5 So if you look at -- we'll use Table 7  
6 as an example and that's on -- I think it's on page  
7 428 of the PDF. I see that it's on the screen, 428 of  
8 the PDF.

9 So that first column just shows you  
10 the chemical of potential concern that we're looking  
11 at for the tailings ponds. And then the second column  
12 presents the exposure in milligrams per day to a  
13 whooping crane. That was presented for the Project  
14 Update. So that would be an exposure scenario that  
15 would be typical for whooping crane landing in the  
16 area, eating food in the area, just generally being  
17 exposed in the local study area, based on what we know  
18 about the soil concentrations in the area, based on  
19 what we know about the water concentrations in the  
20 area, based on what we know about the plant  
21 concentrations, fish concentrations. All of those  
22 things go into those calculations.

23 Now, the HQ, the column next to it, is  
24 the hazard quotient, but what we're really focusing on  
25 is the columns to the right, so the current exposure

1 and the predicted exposure associated with that. So  
2 we present an exposure estimate for the tailings area  
3 water alone -- so again, that's a whooping crane  
4 landing on that water, staying there for 30 days out  
5 of a year -- and then we add that to what we predicted  
6 as part of the normal exposure for a whooping crane.  
7 So that's the column next to it. So that's the  
8 tailings area water plus other local study area  
9 exposures. So we combine those to determine whether  
10 or not there's an influence associated with tailings  
11 water and we were able to show that there's really  
12 kind of an insignificant opportunity -- well,  
13 insignificant amount of exposure associated when you  
14 compare to overall exposure in the local study area.

15 MR. FLUKER: So how do the numbers  
16 demonstrate insignificant? Can you explain that?

17 MR. KOPPE: So the idea is that if a  
18 hazard quotient is less than 1, so the ratio is less  
19 than 1, that means that the exposure estimate is less  
20 than the toxicological reference value. So that's our  
21 point of reference. So that means it's below that  
22 safe level of exposure. So you see for the tailings  
23 area water alone that the hazard quotients would be  
24 well below that. So it doesn't move the needle,  
25 that's what I mean. So the risk really doesn't change

1 if you add that scenario on top of the one that we  
2 already assessed as part of the wildlife health risk  
3 assessment.

4 MR. FLUKER: So to summarize then,  
5 your position is exposure of an endangered whooping  
6 crane to the list of toxic chemicals on the left side  
7 of that table, that there is a threshold in which Teck  
8 believes that exposure is not significant?

9 MR. KOPPE: Mr. Chair, I think we have  
10 to be careful when we start going down this road  
11 because I think we start to compare apples and oranges  
12 a little bit.

13 MR. FLUKER: Now we're just talking  
14 about the whooping crane.

15 MR. KOPPE: I understand that, and as  
16 part of a wildlife health risk assessment or an  
17 ecological risk assessment you are able to compare  
18 exposure against toxicological reference values and by  
19 doing that you can then make a determination as to  
20 whether or not there's an opportunity or potential for  
21 population level health effect. So you can do that as  
22 part of the ecological risk assessment, which is what  
23 we've done.

24 MR. FLUKER: So you didn't answer my  
25 question. My question was: The table confirms that

1 there is a measure of exposure of those toxic  
2 chemicals to the endangered whooping crane which Teck  
3 believes is not significant? You used the word  
4 "significant" yourself in your last response. I  
5 didn't see "significant" anywhere in this table, but  
6 you read it in and I'm curious what you meant by that.

7 MR. KOPPE: So Mr. Chair, maybe I'll  
8 try to take a step back, I think, and just explain how  
9 it is that we do an ecological risk assessment like  
10 this.

11 And there's not necessarily a  
12 determination of significance or non-significance. I  
13 think what you try to do as part of an ecological risk  
14 assessment is determine whether or not opportunity  
15 exceeds toxicological reference value.

16 Now, if you find through your  
17 quantitative analysis that there is a potential for an  
18 exceedance of a toxicological reference value -- and  
19 again, that's a safe level of exposure -- that doesn't  
20 necessarily mean that it's automatically going to  
21 translate into an adverse effect. What that then  
22 gives you an opportunity to do is to go back and  
23 re-examine some of the assumptions that are built into  
24 your ecological risk assessment model. In this case,  
25 we didn't need to do that, because there aren't any



1 exceedances associated with the predicted exposure  
2 from the tailings area.

3           So it's not a question as to whether  
4 or not this is a significant effect. We wouldn't  
5 comment on that as part of the ecological risk  
6 assessment. It's just a determination whether or not  
7 there's an opportunity or likelihood of an exposure  
8 estimate to exceed the toxicological reference value.

9           MR. FLUKER: So if I understood you  
10 correctly, there is a risk of exposure to those toxic  
11 chemicals to the endangered whooping crane? Forget  
12 about significance, just risk.

13           MR. KOPPE: So Mr. Chair, that's an  
14 important distinction to make. So where Mr. Ebner and  
15 I differ in our analysis is that Mr. Ebner actually  
16 considers the likelihood of that exposure occurring.  
17 So he takes into account the likelihood of exposure  
18 and the consequence.

19           What we do as part of the ecological  
20 risk assessment, we just assumed that the likelihood  
21 is there, that a bird has actually landed on the  
22 tailings area. So it's a very conservative  
23 assessment. In fact, in all likelihood it's a very  
24 unrealistic scenario that we've created.

25           But there's a key difference between

1 the work that Mr. Ebner does and that we do as part of  
2 the ecological risk assessment in that we've assumed  
3 that it's occurred, when Mr. Ebner actually accounts  
4 for the likelihood of that occurring.

5 MR. FLUKER: Thanks.

6 So what is the basis for your  
7 suggestion that it's unrealistic, this exposure?

8 MR. KOPPE: I think based on the  
9 evidence that Mr. Ebner has given and our discussion  
10 of the last two hours, I think the likelihood of a  
11 whooping crane actually landing on the tailings area  
12 is remote. That's why I think it's a very  
13 conservative assessment.

14 MR. FLUKER: You would agree, though,  
15 that we just looked at GPS data which confirms it in  
16 fact happens?

17 MR. SPELLER: So Mr. Chairman, we  
18 wouldn't agree with that.

19 So we've looked at the slides and the  
20 GPS data. There are landing locations near tailings  
21 areas or in waterbodies on oil sand sites. But not  
22 all of those waterbodies are tailings ponds, and there  
23 aren't GPS locations in the tailings ponds for those  
24 facilities that we've seen.

25 MR. FLUKER: So just to clarify, when

1 we say "tailings ponds," which kind of pond are you  
2 talking about? Because we just confirmed a few  
3 minutes ago that there are variations. Is that a  
4 fresh tailings pond or a recycled water pond?

5 MR. CHIASSON: Mr. Chairman, the type  
6 of tailings pond that my colleagues were referring to  
7 is a structure where the containment is process sand,  
8 where there is process-affected water contained  
9 within, where there's fluid tailings contained within,  
10 and where there's enough of a clarity of process water  
11 at the top of the pond that's called recycled water  
12 that's used for recycle purposes. So when we refer to  
13 tailings ponds, that's the reference that we're  
14 speaking to.

15 Other types of tailings areas like  
16 treated fluid tailings we will refer to it in those  
17 terms.

18 But the tailings ponds we're referring  
19 to are structures that have sand, process sand from --  
20 which is part of the waste from the extraction  
21 process, piped. And that process sand helps to  
22 contain the fluid and the water in that area. And  
23 that's -- when we refer to tailings ponds, that's what  
24 we mean.

25 MR. FLUKER: And thank you,

1 Mr. Speller. Just, yeah, sorry, Mr. McFadyen.

2 Just to confirm your testimony from a  
3 few seconds ago, you stated that you disagreed that  
4 GPS tracking data is accurate?

5 MR. SPELLER: So Mr. Chairman, it  
6 might be helpful to go to the slides. But I'm looking  
7 at the Muskeg River Mine spring 2014 slide.

8 THE CHAIRPERSON: Mr. Fluker, not  
9 wanting to interrupt; we'll complete this discussion.  
10 But we are at the point where we would be looking for  
11 a break. So if you can find a convenient spot to kind  
12 of take a break, we'll take our morning break.

13 MR. FLUKER: I plan to finish shortly,  
14 and then I will --

15 THE CHAIRPERSON: Okay.

16 MR. FLUKER: I'll be done, yeah.

17 THE CHAIRPERSON: Oh, okay, thank you.

18 MR. SPELLER: So -- oh, could you go  
19 back? You were in the right one. That's good.

20 So in that picture of Muskeg River  
21 Mine of spring 2014, the tailings pond is the  
22 structure that has the label ETDA. It's the external  
23 tailings disposal area. The waterbody to the right,  
24 where the star is, is not a tailings pond.

25 MR. FLUKER: What about the picture on

1 the upper corner left that appears to have a star on a  
2 body of water?

3 MR. SPELLER: My understanding of this  
4 slide deck -- recognizing that, Mr. Chairman, I didn't  
5 prepare it -- is those two stars are the same  
6 location, just from different views.

7 MR. FLUKER: Okay. Just to go back to  
8 the study, then, I just want to confirm the  
9 methodology used in that study. So again, your  
10 submission to the Panel is that that study confirms  
11 that there are no substantial adverse health effects  
12 to water birds ingesting oil sands-processed water.

13 In terms of how that study was  
14 conducted, you would agree with me that it studied  
15 sparrows nesting in the region and a controlled  
16 experiment with captive ducks?

17 MR. EBNER: Derek Ebner.

18 Based on my knowledge of this paper,  
19 that is correct.

20 MR. FLUKER: So you would agree that  
21 none of these studies were conducted on the whooping  
22 crane?

23 MR. EBNER: That is correct.

24 MR. FLUKER: You would also agree with  
25 me that the article lists a number of studies where

1       sublethal impacts have been shown to have effects on  
2       migratory birds?

3                       MR. EBNER:    Could you point me to  
4       where in the article.

5                       MR. FLUKER:    Sure.  So if we turn to  
6       page 5 -- sorry, just let me find this, here.  So  
7       there's a number of studies here.  I'm just going to  
8       point to here -- naphthenic acids -- sorry, go back to  
9       page 3.  Polycyclical aromatic hydrocarbons, sort of  
10      top of page 4 is pictures, top of page 5,

11                      "Many [polycyclical aromatic  
12                      hydrocarbons] have teratogenic,  
13                      mutagenic and carcinogenic  
14                      effects in fish, amphibians,  
15                      mammals and birds ... and have  
16                      been identified as endocrine  
17                      disruptors that are also  
18                      immunotoxic."

19                      Sorry, I don't really understand how  
20      to pronounce a lot of those words.

21                      But and then a little bit later on  
22      there's a similar discussion about naphthenic acids  
23      and the like.

24                      These are all studies which actually  
25      have demonstrated a link between the toxins found in

1 oil sands-produced waters and birds.

2 MR. KOPPE: So Bart Koppe.

3 Mr. Chair, I'll try to take a stab at  
4 that question.

5 So some of the statements that are  
6 made on page 5 of those studies are just general  
7 statements with respect to the toxicity, the potential  
8 toxicity associated with those compounds.

9 We don't dispute the fact that certain  
10 types of PAHs at high enough levels of exposure can  
11 result in those types of effects. But again, this is  
12 just a general description of the toxicity that may be  
13 associated with those types of compounds.

14 I think there's probably -- there's  
15 some -- and we'll use naphthenic acids as an example.  
16 If you go to Table 1 of that study in that Gentes *et*  
17 *al.* study in 2007, they actually indicate that

18 "Birds can tolerate brief  
19 exposure to high levels of  
20 naphthenic acids."

21 So there's some implications that are actually  
22 described in those tables.

23 So I think just describing the general  
24 toxicity or the potential toxicity of compounds is  
25 maybe a little bit misleading. I think you then

1 actually -- you still need to consider the extent of  
2 exposure, the opportunity for exposure, and then  
3 compare that against toxicological reference values in  
4 order to determine whether or not there's actually  
5 potential for adverse effect.

6 MR. FLUKER: Thank you.

7 So then just turning to page 11, you  
8 would agree with me that the study that Teck has  
9 relied on to make the claim that there are no  
10 sublethal effects from the ingestion of oil  
11 sands-produced water, that same study also concludes  
12 that -- sort of top of page 11 in the right-hand  
13 corner -- that

14 "Oil sands process-affected water  
15 ponds are known to contain many  
16 constituents with potential  
17 toxicity to birds, including  
18 residual bitumen, [polycyclical  
19 aromatic hydrocarbons] and other  
20 hydrocarbons."

21 You would agree with me that the study  
22 you're relying on for the statement in your reply  
23 contains that conclusion?

24 MR. KOPPE: So I agree that that  
25 statement is in the paper. But again, it refers to



1 the potential for toxicity or the potential for an  
2 adverse effect.

3 I think if you read further down that  
4 column, there's a statement here that says -- and they  
5 describe the different work that's been done in the  
6 area, and they say that

7 "All of these effects were either  
8 modest, inconsistent among years  
9 and metrics, dependent on  
10 exacerbating weather conditions,  
11 or all three."

12 So a lot of the findings remain inconclusive.

13 Now, the paper does stress that there  
14 should be more work done in this area, and work  
15 continues in this area. And I think that's an  
16 important point to make.

17 MR. FLUKER: Which brings me back to  
18 what I'm trying to drill at here, which is to say Teck  
19 believes that a modest impact of toxicity to the  
20 endangered whooping crane is acceptable. Is it an  
21 accurate statement?

22 MR. EBNER: Derek Ebner.

23 Our conclusion aligns with the  
24 statement that is in Attachment 12 on PDF page 431,  
25 that based on the studies that have been described in

1 Beck *et al.*, 2015, that there are no -- that no acute  
2 or substantial adverse health effects have been shown  
3 to occur to waterfowl that ingest oil sands  
4 protected -- or produced water -- process water,  
5 sorry.

6 MR. FLUKER: And you would agree with  
7 me that that article caveats that its study was  
8 conducted on sparrows and captive ducks, and as well  
9 it was using wetlands -- only the wetlands receiving  
10 oil sands-produced water as a form of reclamation and  
11 one recycled water pond. So in other words, this  
12 study did not investigate any ingestion of oil  
13 sands-produced water in these so-called fresher  
14 tailings areas?

15 MR. EBNER: That is correct. I can't  
16 speak for Environment and Climate Change Canada, but I  
17 would be highly likely to get that permit to do that  
18 study.

19 MR. FLUKER: Well, but we can confirm  
20 that they didn't actually investigate that.

21 You would also agree that the authors  
22 of this article indicate at the bottom of page 11 that

23 "No study has yet examined the  
24 health of wild, water-associated  
25 birds that land on [oil

1 sands-produced] ponds."

2 That would include this study.

3 MR. EBNER: That is correct.

4 MR. FLUKER: So you're relying -- as a  
5 source for your conclusion that Teck's tailings ponds  
6 and areas will not have any sublethal impact on the  
7 wild whooping crane population, you're relying on a  
8 study that expressly indicates no such study has  
9 actually been conducted?

10 MR. KOPPE: So I hate to do this, but  
11 could you repeat your question.

12 MR. FLUKER: I was hoping we could  
13 have a break here soon.

14 --- Laughter / Rires

15 MR. FLUKER: But I will repeat the  
16 question.

17 The question is the study, the source  
18 that you're relying on, that Teck is relying on for  
19 the statement that there is no sublethal impacts from  
20 the wild whooping -- to the wild endangered whooping  
21 crane population from the ingestion of oil  
22 sands-processed water, your source for that conclusion  
23 is a study which itself says that it didn't conduct  
24 that examination and in fact there is no study that  
25 has examined the effect of oil sands-produced water on

1 the health of wild water-associated birds that land in  
2 the tailings areas.

3 MR. KOPPE: So Mr. Chair, what we've  
4 done is we've considered several lines of evidence.  
5 The Beck *et al.* study was one of the lines of evidence  
6 that we considered when we drew our conclusions.  
7 Another line of evidence is the fact that, you know,  
8 whooping cranes -- there's been no evidence that  
9 whooping cranes have landed directly --

10 MR. FLUKER: So you're drawing on no  
11 evidence for that?

12 MR. KOPPE: No, no, please let me  
13 finish.

14 So there's been no evidence that  
15 they've landed on and ingested water on a tailings  
16 pond.

17 And another line of evidence is the  
18 avian risk assessment that I described. So that's  
19 included as part of Attachment 11 where we were able  
20 to show that -- and again, we assumed that a whooping  
21 crane would be there 30 days out of a year, which  
22 is -- we know wouldn't happen. So the exposure  
23 estimates that we presented as part of that exercise  
24 we know to be conservative.

25 So when we consider -- and another

1 line of evidence that we considered is the  
2 effectiveness of a properly functioning deterrent  
3 system.

4 So when we combine all those lines of  
5 evidence, we're quite confident that the risks are low  
6 to the whooping crane.

7 MR. FLUKER: Right. But just to  
8 clarify, then, in addition to the article, your source  
9 for those conclusions were the absence of any whooping  
10 crane mortalities, right. So your source is the  
11 absence of evidence, if you like. Right? So you're  
12 not actually relying on anything tangible there,  
13 right.

14 And sorry, what was the fourth one  
15 again? I've lost my train of thought here. I must  
16 need a break.

17 MR. KOPPE: As well we had referred to  
18 the avian risk assessment, so Attachment 11.

19 MR. FLUKER: Right.

20 MR. KOPPE: And then the -- an  
21 effective bird deterrent program.

22 MR. FLUKER: And again where in that  
23 bird deterrent system does it address whooping crane  
24 deterrence? Is it Attachment 11F?

25 MR. KOPPE: Attachment 11, again, does

1 not rely on an effective bird deterrent system,  
2 because we've effectively assumed that the bird  
3 deterrent system fails and that birds land on the  
4 tailings pond. So that's -- again, that goes back to  
5 this idea that we've already assumed that the event  
6 has occurred.

7 MR. FLUKER: No, I thought you were  
8 referring, though, to one of your -- one of the bases  
9 for your conclusion that there aren't going to be  
10 sub-lethal effects to the endangered whooping crane  
11 population is because you have an effective deterrence  
12 system. I'm sure that's what you said; correct?

13 MR. KOPPE: That is one of the things  
14 that we have to consider. It's just the intent is to  
15 keep the birds off the tailings areas.

16 MR. FLUKER: Right. And there is no  
17 study to confirm the effectiveness of a deterrence  
18 system on whooping cranes and, in fact, we've -- we've  
19 agreed through these discussions over the last two  
20 days that Teck has yet to really construct any  
21 tangible notion of what that deterrence program's  
22 going to look like.

23 MR. SPELLER: So Mr. Chairman,  
24 maybe -- I don't know if this would be a good finish  
25 for this before a break because I know some people

1 here are dancing a bit.

2 The -- we discussed the effectiveness  
3 of the bird deterrence system based on the reported  
4 occurrence of mortalities of whooping cranes or  
5 sightings of whooping cranes on tailings ponds.

6 We're also not aware of any studies  
7 that suggest that whooping crane deterrence systems  
8 are not effective.

9 THE CHAIRPERSON: Mr. Fluker, if you  
10 want to carry on, we are going to need a break.

11 MR. FLUKER: Yeah. I promise this is  
12 my last question.

13 THE CHAIRPERSON: Okay. Thank you.

14 MR. FLUKER: You would agree that  
15 should there be an effect on the endangered whooping  
16 crane population that that effect should be considered  
17 significant for the purposes of this assessment.

18 MR. EBNER: Derek Ebner.

19 Mr. Chair, based on the decision  
20 report that was provided for the Shell Jackpine Mine,  
21 we know that the JRP stated that -- in their view,  
22 that the death of a whooping crane due to a tailings  
23 area, for instance, would be a significant effect.

24 Sorry. And that the -- but also said  
25 that the likelihood of that actually happening was

1 low.

2 MR. FLUKER: I have an excerpt from  
3 that decision, and I'll just read it out. I would  
4 suggest that that's an incorrect recollection of that  
5 Panel report because paragraph 588 says:

6 "Should a species at risk land in  
7 a tailings pond, the Panel finds  
8 there to be a significant  
9 effect." (As read)

10 You would agree with me that that's  
11 something different than a mortality.

12 That's at paragraph 588.

13 MR. EBNER: Mr. Chair, I don't have  
14 that in front of me.

15 MR. FLUKER: I have copies of that  
16 excerpt. I'm going to have to tender them as an  
17 exhibit, unfortunately, then.

18 --- Pause

19 MR. FLUKER: I'll just get you to  
20 confirm, then, that a proper reading of that  
21 decision -- that report states in paragraph 588:

22 "Should a species at risk land in  
23 a tailings pond, the Panel finds  
24 there to be a significant  
25 effect." (As read)



1                   You would agree that that's what that  
2 report says.

3                   MR. SPELLER: Mr. Chairman, yes, that  
4 sentence -- I'll just read the last two sentences:

5                   "Should a species at risk land in  
6 a tailings pond, the Panel finds  
7 there to be a significant effect.  
8 The Panel notes that there have  
9 been no reported incidents of  
10 whooping cranes landing in  
11 tailings ponds and believes that  
12 the effects of tailings ponds on  
13 whooping crane to be not a likely  
14 one." (As read)

15                  MR. FLUKER: And you would agree with  
16 me that this report was issued in 2013, so it didn't  
17 have the benefit of more recent studies that would  
18 bring that into question.

19                  MR. SPELLER: Mr. Chairman, that's  
20 correct.

21                  MR. FLUKER: Thank you.

22                         Thank you, Mr. Chairman, other  
23 Panelists, for your time. I appreciate it.

24                  THE CHAIRPERSON: Okay. Thank you,  
25 Mr. Fluker.

1 Ms LaCasse?

2 MS LaCASSE: Mr. Chair, just before we  
3 finish, I just want to clarify that last document from  
4 Mr. Fluker was part of CEAA number 566.

5 THE CHAIRPERSON: Okay. Thank you.

6 It is about five after, six after  
7 1:00, so we'll take a break till 11:30. And by my  
8 counting, Katl'odeeche First Nation will be up next  
9 for their cross-examination.

10 --- Upon recessing at 1106 / Suspension à 1106

11 --- Upon resuming at 1132 / Reprise à 1132

12 THE CHAIRPERSON: Thank you. Please  
13 be seated.

14 Mr. Ignasiak.

15 MR. IGNASIAK: Thank you, Mr.  
16 Chairman. If we could just take a moment.

17 As you know from the opening  
18 statement, ACFN and Teck have reached an agreement in  
19 this proceeding, and we've provided counsel to the  
20 Panel with copies of a joint letter between Teck and  
21 ACFN and would like to file it on the record.

22 I think Dr. Johnstone would like to  
23 speak to it briefly, and Mr. Eamon Murphy on behalf of  
24 ACFN would like to make a few points about it.

25 MS LaCASSE: Can I provide that to the

1 Panel now?

2 MR. IGNASIAK: Yes.=

3 MS LaCASSE: Assuming it gets entered,  
4 the next number is 571.

5 MR. IGNASIAK: Thank you.

6 DR. JOHNSTONE: Mr. Chairman, as we've  
7 previously noted, Teck has been very pleased to  
8 confirm that it has reached participation agreements,  
9 in addition to other indigenous communities, with  
10 Athabasca Chipewyan First Nation and Mikisew Cree  
11 First Nation, respectively.

12 The ACFN and Teck are joint filing in  
13 front of you, and Mikisew Cree First Nation's August  
14 31st submission to the Panel set out key areas of  
15 agreement with respect to shared objectives for  
16 environmental management, mitigation commitments from  
17 Teck in support of these objectives, and areas for  
18 respectfully requested Crown action and support in  
19 furtherance of these objectives.

20 Teck is committed to carrying out its  
21 commitments to ACFN, MCFN and all of its indigenous  
22 partner communities. We respectfully request that the  
23 Joint Review Panel consider the following objectives,  
24 commitments and requested recommendations in preparing  
25 its report regarding the Frontier project.

1 Thank you.

2 THE CHAIRPERSON: Mr. Murphy?

3 MR. MURPHY: Thank you, Mr. Chair.  
4 Eamon Murphy, ACFN.

5 If I could just add to that just a bit  
6 about the timing of it. The letter that you have  
7 before you was just signed this morning, so that's  
8 partly why it's coming before you.

9 I would concur with Dr. Johnstone that  
10 ACFN is going to have further things to say about the  
11 letter, specifically advocating that it become part of  
12 the report that this Panel issues at the end of the  
13 hearing.

14 We should also say that in addition to  
15 the report, ACFN continues to participate in the  
16 hearing, specifically to advocate for those things  
17 that the Crown is still responsible for over and above  
18 the mitigations that you'll find in that letter.

19 So we just wanted to be clear, and  
20 that sort of sets the stage for ACFN's continued  
21 participation.

22 THE CHAIRPERSON: Okay. Thank you,  
23 sir.

24 So it doesn't sound like there's any  
25 concern about entering this an exhibit, so do we have

1 a number?

2 MS LaCASSE: Just a housekeeping  
3 question since I'm not entirely in the loop. Do we  
4 have an electronic copy of that document yet?

5 So as I said, that is document 571.

6 EXHIBIT NO. 571: ACFN and Teck  
7 Environmental Management  
8 Objectives, Commitments and  
9 Recommendations

10 THE CHAIRPERSON: Thank you.

11 Any other matters?

12 Okay. Then we'll proceed with  
13 cross-examination by the Katl'odeeche First Nation,  
14 and Mr. -- is it "Tesealie"?

15 CROSS-EXAMINATION

16 MR. T'SELEIE: Yes. Good morning, Mr.  
17 Chair and Panel. My name is Daniel T'seleie. I'm  
18 counsel for Katl'odeeche First Nation, also known as  
19 KFN.

20 In cross-examination, I'll be  
21 referring to document 480, which is Katl'odeeche First  
22 Nations' Submissions to the Frontier Oil Sands Mine  
23 Project Joint Review Panel. That's the KFN  
24 submission.

25 I will also be referring to document

1 401, The Strategic Environmental Assessment for Wood  
2 Buffalo National Park World Heritage Site, the SEA.  
3 And I may refer to some other documents. If I do,  
4 I'll give the document numbers.

5 So good morning, Teck panel. I  
6 appreciate the time with you.

7 I want to start out by asking some  
8 questions regarding your direct evidence, specifically  
9 about KFN and consultation.

10 So in your direct evidence, you  
11 suggested that KFN's written submission indicated  
12 concern that KFN was not consulted by Teck.

13 So I want to confirm, were you  
14 referring to KFN's August 24th, 2018 submission? And  
15 that's document number 480.

16 --- Pause

17 MR. T'SELEIE: And before you answer,  
18 I'll just -- I'll just let you know that I'm fine with  
19 any or all of you answering my questions. If I have a  
20 question for a specific panel member, I'll specify  
21 that, but otherwise, I'll leave it to you to determine  
22 who answers.

23 DR. JOHNSTONE: Mr. Chair, we had  
24 interpreted the letter to -- that there was an  
25 inference that additional consultation would be sought

1 and, if that's the case, then we apologize for that  
2 error.

3 MR. T'SELEIE: So just to clarify, can  
4 I confirm that that is in error, that Teck -- that  
5 KFN's submission is alleging a lack of consultation?

6 DR. JOHNSTONE: Mr. Chair, I think I  
7 would defer to the Nation itself for that. And if we  
8 have done that in error, then we acknowledge that.

9 MR. T'SELEIE: Thank you. I  
10 appreciate that clarification.

11 And similarly, based on KFN's  
12 submission, would you say that it's pretty clear from  
13 the submission that KFN is concerned about the  
14 potential impacts of the project on the ecological  
15 integrity and outstanding universal value of Wood  
16 Buffalo National Park?

17 DR. JOHNSTONE: Mr. Chair, that's  
18 correct.

19 MR. T'SELEIE: Thank you. I  
20 appreciate that.

21 So I want to talk about the Park.  
22 That's Wood Buffalo National Park. I'll just refer to  
23 it as "the Park" from now on.

24 Does Teck agree that the Park is a  
25 special area that needs to be protected?

1 MR. McFADYEN: Yes.

2 MR. T'SELEIE: And do you agree that  
3 Canada and others have a mandate to protect the  
4 ecological integrity and outstanding universal value  
5 of the Park?

6 MR. McFADYEN: Yes.

7 MR. T'SELEIE: Excellent.

8 And so considering the uniqueness and  
9 the value of the pristine ecosystems in the Park, do  
10 you agree that protecting the ecological integrity and  
11 outstanding universal value of the Park might require  
12 more stringent standards than are required in other  
13 areas in the jurisdictions outside the Park?

14 DR. JOHNSTONE: Could you please  
15 repeat the question?

16 MR. T'SELEIE: So in the context of  
17 the Park, of the pristine ecosystems and the value of  
18 those ecosystems, do you agree that protection of the  
19 ecological integrity and outstanding universal value  
20 of the Park might require more stringent standards  
21 than are required in other areas in jurisdictions  
22 outside the Park?

23 DR. JOHNSTONE: Mr. Chair, I think  
24 that would be dependent on the nature of the  
25 protection or restriction being referred to outside



1 the Park.

2                   There are certainly processes and  
3 protection measures in a variety of places in Canada  
4 that we would regard as extremely stringent and -- but  
5 we absolutely recognize the importance of Wood Buffalo  
6 National Park, both in its ecological merits and as in  
7 terms of traditional land use as well.

8                   MR. T'SELEIE: But for example, do you  
9 think a mine would be or should be allowed in the  
10 Park?

11                   DR. JOHNSTONE: Mr. Chair, no, we do  
12 not think a mine would be appropriate within the Park  
13 borders.

14                   MS. T'SELEIE: So you agree, then,  
15 that there are some activities that are allowable  
16 outside the Park that should not or would not be  
17 allowed in the Park.

18                   DR. JOHNSTONE: Mr. Chair, correct.

19                   MR. T'SELEIE: So given that, that --  
20 I think that common understanding from a lot of people  
21 that there are some activities or impacts that are  
22 allowable outside the Park that would not be allowed  
23 inside the Park, would you agree that those impacts  
24 that would not be allowed in the Park that are allowed  
25 outside the Park could be considered to have a higher

1 or more severe consequence when they occur in the Park  
2 than outside the Park?

3 DR. JOHNSTONE: Mr. Chair, I think I  
4 would back it up a bit to the point of, we recognize  
5 that some activities, period, would be inappropriate  
6 with the -- with the purpose of a national park. And  
7 whether that's townships, whether that's a mine, we  
8 recognize that those would be inappropriate for a  
9 national park.

10 MR. T'SELEIE: So certain activities  
11 would be inappropriate for a national park.

12 What about other impacts, for example,  
13 contaminant loading in wildlife, in plants or in  
14 water? Do you think that certain -- certain levels of  
15 contaminants that may be allowable or should be  
16 allowable outside the Park should either not be  
17 allowable in the Park or have stricter or more  
18 stringent requirements for levels of contaminants?

19 DR. JOHNSTONE: Mr. Chair, Teck would  
20 say that we think that there are standards and -- that  
21 are -- that should ensure protection of wildlife and  
22 wildlife species wherever they occur in Canada and  
23 that whether that's a migratory bird species or a more  
24 resident species, that should be the case.

25 MR. T'SELEIE: So if there were

1 standards for the Park that were more stringent than  
2 those outside the Park, if those were established by  
3 Canada then that would be the case that Teck would  
4 accept.

5 DR. JOHNSTONE: Mr. Chair, absolutely.  
6 If Canada established guidelines or regulations, we  
7 are obliged and fully intend to follow them.

8 MR. T'SELEIE: So to confirm, this is  
9 the first time Teck has worked on a project that's in  
10 the vicinity of the Park; correct?

11 DR. JOHNSTONE: Mr. Chair, it is the  
12 first time that we have worked in -- that we've worked  
13 upstream from Wood Buffalo National Park. We have  
14 worked -- an earlier company of Teck worked at Pine  
15 Point in the Northwest Territories just outside of the  
16 Park borders.

17 We also have a Cardinal River  
18 operation in Hinton, Alberta that is on the boundaries  
19 of the National Park -- Jasper National Park.

20 MR. T'SELEIE: So with respect to Wood  
21 Buffalo National Park, did the Pine Point Mine take  
22 into account the outstanding universal value or  
23 ecological integrity of the Park, or is this project  
24 the first time that Teck has really accounted for the  
25 OUV and EI of Wood Buffalo National Park in its work?

1 DR. JOHNSTONE: Mr. Chair, I don't  
2 have confirmation of this, but my -- I expect that  
3 given when Pine Point operated, which is a long time  
4 ago now, we would not have been expected to consider  
5 the outstanding universal values of Wood Buffalo  
6 National Park.

7 So I think the short answer is, you're  
8 correct.

9 MR. T'SELEIE: I suspect you're right  
10 on Pine Point.

11 So in this -- for this project, am I  
12 correct in my understanding -- and admittedly, I have  
13 not been through all your filings. But am I correct  
14 in my understanding that the work that Teck has done  
15 specific to the outstanding universal value of the  
16 Park is document 364, the March 2018 document on -- I  
17 believe it's the OUV assessment from Teck, or are  
18 there other documents that are looking specifically at  
19 the outstanding universal value of the Park?

20 MR. SPELLER: So Mr. Chairman,  
21 document 364 is the primary assessment of the OUV of  
22 the Park as the JRP requested we do in August of last  
23 year.

24 Feeding into that assessment is the  
25 Project Update that we did in 2015.

1           The linkages that we have made between  
2 Frontier and the OUV of the Park, many of them are  
3 linkages that were identified in the Project Update,  
4 so we looked at project cumulative effects on the Park  
5 and pieces of the Park as part of the Project Update.

6           But specific to framing those linkages  
7 and discussing them in -- towards the three criteria  
8 for the OUV, that OUV Assessment is the primary  
9 document.

10           MR. T'SELEIE: So the material that is  
11 linked to in the OUV Assessment, when that material  
12 was being prepared was it being prepared with the  
13 outstanding universal value of the park in mind and  
14 the protection of that OUV?

15           MR. SPELLER: So, Mr. Chairman, the  
16 2015 assessment did not focus on the OUV, the three  
17 criteria of the park. But many of the linkages that  
18 we identified between Frontier and the spacial  
19 location of the park -- so air quality receptors that  
20 we had, health risk receptors that we had, the bison  
21 range that went into the park, our aquatics study area  
22 that goes into the Peace Athabasca Delta, looking at  
23 concentrations within Fort Chipewyan -- those items  
24 were all focused on the park.

25           But we didn't assess it or discuss it

1 in terms of the outstanding universal value.

2 MR. T'SELEIE: My understanding is  
3 that Parks Canada has a mandate to protect the  
4 ecological integrity of the park.

5 If I'm correct, that's not mentioned  
6 in Teck's OUV Assessment.

7 So looking at the park and an  
8 assessment of impacts or potential impacts on the  
9 park, am I correct in my understanding that Teck  
10 didn't do that through an ecological integrity  
11 assessment or through an ecological integrity lens?

12 MR. SPELLER: I'm struggling a bit  
13 with the term "ecological integrity lens". Could you  
14 maybe give me more on what you're thinking for that?  
15 I could probably answer your question better.

16 MR. T'SELEIE: I can pull up one of  
17 the definitions, if you like.

18 MR. SPELLER: No, I've got you.

19 So, Mr. Chairman, the lens that we  
20 look through in terms of the effect on ecological  
21 effects to these criteria and looking at, for  
22 instance, for migratory birds, what is the potential  
23 effect on the population of waterfowl or whooping  
24 crane that use the park?

25 One of the outstanding universal

1 values in the criteria is the great concentrations of  
2 migratory wildlife are of world importance. So we  
3 looked at the great concentrations in the populations  
4 of these species.

5 When we looked at flows and water  
6 quality or health risk, we're looking at ecological  
7 indicators for those in order to determine the  
8 magnitude of the potential effect from the project.

9 MR. T'SELEIE: Okay. I will refer you  
10 to the Park Strategic Environmental Assessment, PDF  
11 page 19. It has a definition of ecological integrity  
12 taken from Canada's *National Parks Act*.

13 And that is: a condition that is  
14 determined to be characteristic of its natural region  
15 and likely to persist, including abiotic components  
16 and the composition and abundance of native species  
17 and biological communities, rates of change and  
18 supporting processes.

19 So I wanted to flag this because this  
20 is, as I said, Canada's *National Parks Act*. The  
21 outstanding universal value is a lens that is somewhat  
22 different. And my reading of this ecological  
23 integrity definition is that it encompasses the entire  
24 ecosystems of the park and not necessarily the aspects  
25 that have been identified as being key indicators of

1 outstanding universal value.

2 So that's what I mean by the  
3 ecological integrity lens: is looking at the park's  
4 ecosystems in their entirety.

5 MR. SPELLER: Mr. Chairman, what we  
6 have done for each of those criteria, that's actually  
7 what we have done.

8 We used the indicators to look at  
9 potential effects on the indicator, but our final  
10 conclusion is actually a roll-up of those effects in  
11 terms of how does it affect that criteria?

12 Our focus is on, as it's worded in the  
13 portion you just identified, characteristics of its  
14 natural region and likely to persist.

15 So that was a key factor when we  
16 looked at the effects on let's say populations of  
17 migratory birds or effects on bison. We were looking  
18 at likely to persist, tied to the three criteria for  
19 the OUV.

20 MR. T'SELEIE: Mr. Chair, I'm going to  
21 move on to some other questions. Once I get into  
22 this, I'm expecting it's going to take upwards of half  
23 an hour for this next line of questioning, maybe a  
24 little bit more, depending.

25 So I'm wondering if we should break



1 now for lunch or if I should get into that?

2 THE CHAIRPERSON: I think this would  
3 be a good time to take a break because it is about 12  
4 o'clock.

5 So if you would like to resume after  
6 the break, that would be fine.

7 MR. T'SELEIE: That's fine, thank you.

8 THE CHAIRPERSON: Okay. So we'll take  
9 our break now and we we'll resume at 1 o'clock.

10 --- Upon recessing at 1154 / Suspension à 1154

11 --- Upon resuming at 1258 / Reprise à 1258

12 THE CHAIRPERSON: Thank you. Please  
13 be seated.

14 Mr. Robinson?

15 MR. ROBINSON: Yes, Barry Robinson for  
16 OSEC.

17 I have not had a chance to review the  
18 document that Teck provided in response to the  
19 undertaking with respect to corporate structure, and  
20 it does raise some questions that I would like to ask.

21 I expect those questions would only  
22 take perhaps 15 minutes, and I would be pleased to do  
23 them at whatever time is appropriate for the Panel.

24 THE CHAIRPERSON: Maybe we could do it  
25 after Mr. T'seleie is finished his cross.

1 MR. ROBINSON: That would be fine.  
2 Any time is fine; thank you.

3 THE CHAIRPERSON: Okay, thank you.  
4 Mr. T'seleie.

5 MR. T'SELEIE: Thank you, Mr. Chair.  
6 Again for the record, it's Daniel  
7 T'seleie for Katl'odeeche First Nation.

8 I also have some questions about  
9 whooping crane, starting with some of the stuff that  
10 Teck said in your direct evidence.

11 So if I understood correctly, Teck  
12 disagrees with the Parks Canada conclusions that the  
13 project will impact whooping crane in two ways: and  
14 those were loss of stopover habitat and exposure to  
15 contaminants during migration.

16 Am I correct in that understanding?

17 MR. SPELLER: Mr. Chairman, what we  
18 said in our direct evidence was in response to Parks  
19 Canada's position that those effects are significant  
20 effects.

21 We have identified in our information  
22 that that's not what our assessment concludes. We  
23 recognize, as we talked about this morning, that there  
24 is a potential risk of mortality, but we wouldn't  
25 classify it the way that Parks Canada has.

1                   So that's where our disagreement was.

2                   MR. T'SELEIE:   Okay.   I'm not talking  
3 necessarily about mortality, though.   I'm talking  
4 about contaminant exposure even if that does not  
5 result in mortality.

6                   So are you saying, then, that you  
7 agree there is a risk of loss of stopover habitat to  
8 whooping crane and a risk of contaminant exposure to  
9 whooping crane during migration?   You just don't  
10 consider it significant?

11                  MR. SPELLER:   So, Mr. Chairman, we  
12 identify in our assessment that where the project is  
13 located there is a potential for loss of stopover  
14 habitat because there is potential whooping crane  
15 stopover habitat within the area where the project is  
16 proposed to be developed.

17                  As we talked about a bit this morning,  
18 there is a potential for exposure to waters in a  
19 tailings pond if whooping crane were to go into a  
20 tailings pond.   As we discussed our view, although  
21 there is a risk, we think it's not a very likely event  
22 based on historic conditions that we've seen and the  
23 effectiveness of bird deterrent programs.

24                  MR. T'SELEIE:   So those two issues,  
25 the loss of stopover habitat and the exposure to

1 contaminants during migration, you don't think there  
2 is a significant risk there with either of those two  
3 issues?

4 MR. SPELLER: Mr. Chair, we don't.

5 So especially when we're looking at  
6 the OUV for the park, we recognize that again there  
7 will be loss of stopover habitat but our assessment  
8 shows there is not a large amount of stopover habitat  
9 that's being removed by the project.

10 The telemetry data that we've looked  
11 at show that whooping crane have flown over, and there  
12 has been some stopover in the local study area but not  
13 actually in where the project is right now.

14 MR. T'SELEIE: And in your direct  
15 evidence, after talking about those Parks Canada  
16 conclusions, it sounded to me like you were citing the  
17 Parks' Strategic Environmental Assessment as support  
18 for your refutation or disagreement with those Parks  
19 Canada conclusions.

20 Can you explain what you meant by  
21 that?

22 MR. SPELLER: Yes, I would be happy  
23 to.

24 Maybe it would be helpful to go to the  
25 Strategic Environmental Assessment.

1 I think Mr. T'seleie identified it as  
2 Registry document No. 401. Is that right?

3 MR. T'SELEIE: Yes, that's correct.

4 MR. SPELLER: I don't know if we want  
5 to pull it up.

6 I'm going to point to a table. It  
7 might be helpful to pull it up, if that's possible.

8 It's hard copy page 6-44 of the  
9 Strategic Environmental Assessment, and it's the last  
10 page of Table 6-9.

11 Mr. Chairman, this table is  
12 entitled -- I won't get you to flip it; I will just  
13 read the title. It's "Projected Cumulative Effects  
14 Trends and Desired Outcomes for the Wood Buffalo  
15 National Park" is this table out of the Strategic  
16 Environmental Assessment.

17 As you can see from the columns, it's  
18 got the Desired Outcomes. So there's 16 desired  
19 outcomes identified in this assessment for the park.

20 The second column is talking about  
21 Current Conditions and do they think currently it's  
22 being achieved, the desired outcome?

23 So I will use No. 15 as an example.

24 It says: "Whooping crane population  
25 reaches recovery strategy goal".

1                   And it says: "Does weight of evidence  
2 indicate outcome is currently being achieved?" And it  
3 says "No".

4                   And then it looks at four cumulative  
5 or future looking items. So there's climate change,  
6 changes in surface water quantity, changes in  
7 groundwater and surface water quality, including  
8 aerial deposition. I'm summarizing that, metals and  
9 hydrocarbon plumes. And then other impacts.

10                  And then it shows under Other Impacts  
11 that migratory habitat is decreasing, which is the  
12 same thing that our assessment found; that if you  
13 assume the whooping crane is using the stopover  
14 habitat where the proposed oil sands developments  
15 would be, there is a loss of habitat.

16                  The last column is: "What is the  
17 likely future trend direction regarding that desired  
18 outcome?"

19                  So the Strategic Environmental  
20 Assessment concludes that for whooping crane  
21 population reaching recovery strategy goal, No. 16,  
22 recovery and downlisting from endangered status, that  
23 they believe that that future trend is positive.

24                  So what our direct evidence was  
25 identifying is that it's unclear to us, or it appears

1 contradictory, this finding from Parks Canada's  
2 assessment and the way that they describe this issue  
3 within their filing for the project.

4 That's what the direct evidence was  
5 trying to say.

6 MR. T'SELEIE: And by "this issue",  
7 you mean the two things they identified: the loss of  
8 stopover habitat and the exposure to contaminants?

9 MR. SPELLER: If you read within the  
10 Strategic Environmental Assessment, Mr. Chairman, what  
11 you will see is that those are wrapped into their  
12 discussions on the population reaching its recovery  
13 strategy goal and it being downlisted. What are the  
14 potential effects of stopover habitat loss, exposure  
15 to chemicals in the environment from processed water,  
16 those sorts of things?

17 MR. T'SELEIE: So do you consider this  
18 SEA to be a reliable document?

19 MR. SPELLER: I think the  
20 recommendations from this document are very sound.  
21 Our assessment doesn't necessarily agree with all of  
22 its findings. But our assessment does agree with  
23 these two items within the assessment.

24 MR. T'SELEIE: Okay. I would like to  
25 look at the previous page in this SEA, if we could, at

1 row 14.

2 And that's PDF page 211 at the bottom.

3 So in row 14 the desired outcome is:

4 "Habitat continues to support strategy goals for  
5 whooping crane breeding pairs and demonstrates  
6 resilience to climate change impacts."

7 And in the last column, which again is  
8 the "likely future trend direction resulting from all  
9 stressors", it's listed as "unknown".

10 So my reading of this row is that  
11 based on the habitat being able to continue to support  
12 the whooping crane population, there is uncertainty in  
13 what the future trend of that desired outcome is.

14 Would you agree with that?

15 MR. SPELLER: Mr. Chairman, the way  
16 that I read that, yes, absolutely it says that it is  
17 unknown. The text associated with this being unknown,  
18 I take to be some words that are on page 6-39.

19 I can read it. I don't know if you  
20 want to go to it.

21 It's called Section 6.4.9, Hydrologic  
22 Changes in Karst Whooping Crane Nesting Area.

23 What the first paragraph reads is:

24 "Changes in hydrology could  
25 affect both the karst and the



1                   whooping crane nesting area.  
2                   Forestry is the only reasonable  
3                   foreseeable project that could  
4                   contribute to this pathway of  
5                   effect, in combination with  
6                   climate change effects on  
7                   hydrology. The hydrology of this  
8                   habitat is not understood  
9                   sufficiently to make a prediction  
10                  about the impacts of climate  
11                  change and these proposed  
12                  developments. As a result, the  
13                  future trend for the related  
14                  desired outcomes is considered  
15                  unknown." (As read)

16                         So what I want to highlight about that  
17                   -- and I feel bad about making the nice woman working  
18                   the projector jump around.

19                         Maybe in our OUV Assessment that we  
20                   did, we can pull up a figure, because the area that we  
21                   are talking about is actually quite a ways north.

22                         So I'm going to -- and I think, Mr.  
23                   T'seleie, you mentioned the reference number.

24                         It's Registry document 364.

25                   --- Pause

1 MR. SPELLER: And the page for the  
2 figure.

3 I think maybe I'll just go to Figure  
4 1, if that's okay.

5 It's PDF page 6 of 93.

6 Actually, I'm going to give you a  
7 better one. I'm going to go to the next page. It's  
8 Figure 2, so PDF page 7.

9 Mr. Chairman, this is a figure that  
10 we've taken from Parks Canada. We thought it was a  
11 good figure because it highlights a lot of the items  
12 that were identified in the criteria for the  
13 outstanding universal value, like the breeding  
14 habitats, the nesting habitats, the karst landscape,  
15 et cetera.

16 So just to frame this, since we're  
17 looking at it. So the green area I think most people  
18 will recognize as the Wood Buffalo National Park, the  
19 4.5 million hectares. Down in the south where the  
20 south boundary of that is, where it turns into a  
21 brown -- so the Frontier project doesn't actually  
22 appear on this figure, it would be a little bit off  
23 the bottom of it. We have other figures in here that  
24 show it.

25 But what I want to highlight is at the

1 very top of the park, about 240 kilometres away, the  
2 orange area, I wish I could make my finger stretch and  
3 hit it, it's titled Whooping Crane Nesting Habitat, so  
4 it's right above the highway at the furthest north  
5 part of the park where it has an irregular shape.  
6 Then the karst landscape is just to the west of that  
7 on the other side of the highway.

8           So that's a long way of saying -- when  
9 I read the assessment and read the unknown tied to  
10 that item, it was related to that Section 6.4.9 in the  
11 hydrology and forestry near the karst and whooping  
12 crane nesting areas, which I believe are at the very  
13 north end of the park. We're not predicting that  
14 Frontier will have any hydrology changes in the north  
15 end of the park, and that the areas we are predicting  
16 them are very small, but they're in the south.

17           MR. T'SELEIE: So you're saying that  
18 SEA is talking about the north end of Wood Buffalo  
19 National Park, so way up there?

20           MR. SPELLER: My interpretation of  
21 that row for Item 14 is the karst landscape and the  
22 nesting area in the north.

23           MR. T'SELEIE: Linked back to Section  
24 6.4.9?

25           MR. SPELLER: That's my understanding.

1                   MR. T'SELEIE: Okay. Because later on  
2 in Section 6.4.9, and this is page 207 PDF page of the  
3 SEA, it says, "The whooping crane recovery strategy  
4 indicated that further studies were needed to identify  
5 critical habitat beyond Wood Buffalo National Park."  
6 It goes on later to say, "Critical habitat has not yet  
7 been identified and protected outside of Wood Buffalo  
8 National Park."

9                   So it seems clear to me that this SEA  
10 is raising an issue that there's uncertainty in where  
11 exactly the extent and nature of critical habitat  
12 outside of Wood Buffalo National Park, and that  
13 there's a need to identify that. Would you agree with  
14 that?

15                  MR. EBNER: Derek Ebner. That is what  
16 the recovery strategy talks about, yes.

17                  MR. T'SELEIE: Okay. Earlier on you  
18 said in your assessment that you didn't identify a  
19 large amount of stopover habitat being removed, is  
20 that correct?

21                  MR. SPELLER: That's correct.

22                  MR. T'SELEIE: So I'm wondering how  
23 you really made that determination about habitat  
24 outside Wood Buffalo National Park when this SEA,  
25 which is very recent, is indicating that the

1 habitat -- there are still uncertainties in  
2 identifying that habitat outside the park?

3 MR. EBNER: Mr. Chair, in regards to  
4 what the SEA is discussing in regards to critical  
5 habitat, I think it's important to recognize that the  
6 critical habitat that has currently been identified  
7 for whooping crane in Wood Buffalo National Park is  
8 specific to breeding habitat.

9 So for the Frontier project there is  
10 no known breeding habitat within the vicinity of the  
11 project. Our focus was only on looking at the effects  
12 on stopover habitat.

13 As of right now, the definition of  
14 critical habitat for whooping crane, as far as I  
15 understand, does not -- only focuses on the breeding  
16 habitat for whooping crane.

17 MR. T'SELEIE: So do you think this is  
18 an error then in the SEA where it says, "Critical  
19 habitat has not yet been identified and protected  
20 outside of Wood Buffalo National Park?"

21 MR. EBNER: As far as we understand  
22 right now, the breeding range of whooping crane is  
23 actually beginning to expand further to the north. As  
24 of right now, that area has not been identified as  
25 critical habitat. So that could potentially be what

1 Environment Canada is referring to in their recovery  
2 strategy.

3 MR. T'SELEIE: I'm sorry, can you  
4 explain that? I didn't catch that.

5 MR. EBNER: As of right now, the  
6 critical habitat that has been identified for whooping  
7 crane is located within Wood Buffalo National Park.  
8 Based on some data that we've seen lately, the  
9 breeding range is beginning to expand outside the park  
10 to the north, and that area has not been identified as  
11 critical habitat.

12 MR. T'SELEIE: So you're confident  
13 then that you have adequate information to actually  
14 assess where whooping crane habitat is in the project  
15 area?

16 MR. EBNER: We have, as part of what  
17 Mr. Speller discussed, we modelled the potential for  
18 stopover habitat, not breeding habitat, because that  
19 has not been identified within the project area.

20 MR. T'SELEIE: This was based on work  
21 done by Teck?

22 MR. EBNER: Based on the assessment  
23 that we conducted. We conducted literature review to  
24 look at the type of stopover habitat that whooping  
25 crane do use in their flyway within the mineable oil

1 sands region. Based on literature we found in terms  
2 of, you know, gramminoid, marshes, open fens, shallow  
3 open water, those were the areas that we've identified  
4 as being suitable stopover habitat.

5 MR. T'SELEIE: Then, based on that  
6 literature review, you did your assessment of stopover  
7 habitat?

8 MR. EBNER: That is correct.

9 MR. T'SELEIE: So I want to look at  
10 PDF page 98 of the SEA. This is talking about  
11 whooping crane stopover in the mineable oil sands  
12 region. The SEA says that:

13 "There is a plausible link  
14 between whooping cranes and known  
15 risk to water birds associated  
16 with industrial water bodies  
17 present on mine sites in terms of  
18 direct mortality and/or  
19 contamination through contact,  
20 ingestion, and inhalation  
21 pathways." (As Read)

22 It goes on to say, "The contaminant  
23 pathways have not yet been demonstrated for whooping  
24 cranes," but it says there is a plausible link there  
25 between whooping cranes and those known risks.

1 I'd also like to bring your attention  
2 to page 99 of the SEA, which says that:

3 "Overall, there's mounting  
4 evidence that current mitigation  
5 methods to protect migratory  
6 birds, including whooping cranes,  
7 in the mineable oil sands region  
8 are ineffective and the risks of  
9 exposure to contaminants in  
10 industrial water bodies at oil  
11 sands mines remains high.

12 Although crane survival appears  
13 high during migration through the  
14 mineable oil sands region, the  
15 degree of risk posed to whooping  
16 cranes from contaminant exposures  
17 in the mineable oil sands region  
18 and the potential for sublethal  
19 effects remains unknown."

20 (As Read)

21 So, to me, this is saying that there's  
22 a lack of certainty in the actual risks to whooping  
23 cranes during migration with respect to exposure to  
24 contaminants from oil sands mines.

25 So I'd just like to clarify, your



1 refutation of the Parks Canada conclusions and your  
2 reference to the SEA to support that, what were you  
3 basing that on in the SEA?

4 In light of these passages, do you  
5 think the SEA supports your assertion that Parks  
6 Canada is incorrect in their concern about the risk of  
7 contaminant exposure to whooping cranes during  
8 migration?

9 MR. SPELLER: So, Mr. Chairman, I'm  
10 going to start, then I'm going to pass it to Mr.  
11 Koppe.

12 Again, with our direct evidence or  
13 where we have disagreements with some of Parks  
14 Canada's conclusions, and I mentioned this in my  
15 direct evidence a bit, that many of the changes that  
16 Parks Canada or the risks that they've identified  
17 we've also identified and we've assessed.

18 Where we disagree is what the  
19 potential severity is of that risk to the park and the  
20 outstanding universal value of the park, especially as  
21 they're defined within UNESCO. So that's where the  
22 disagreement is.

23 But I'm going to let Mr. Koppe talk a  
24 bit about what we looked at in terms of this issue in  
25 our assessment.

1                   MR. KOPPE: So, Mr. Chair, just to  
2 follow-up on that. As part of the Teck Frontier  
3 assessment, we did look at the risk to the whooping  
4 crane. So that would have been covered off in the  
5 project update, Volume 3, Section 13.7.2.2, and as  
6 part of that assessment we really did a detailed  
7 quantitative analysis of what the potential risks  
8 could be to whooping crane.

9                   The focus of our assessment was on the  
10 areas of greatest influence. So those areas where the  
11 project could have the greatest potential change in  
12 magnitude with respect to air quality and water  
13 quality. So by doing that we were able to present a  
14 reasonable worse case for the whooping crane, and we  
15 were able to show that the risks were low associated  
16 with those.

17                   So that means that at the areas where  
18 you're expected to see the highest air concentrations,  
19 the highest water quality concentrations, we've  
20 essentially assumed that a whooping crane would be  
21 there all of the time, and that's what they would be  
22 exposed to throughout the duration of their lifetime.

23                   Again, by doing that, we were able to  
24 show that the risks were quite low.

25                   MR. CHIASSON: Mr. Chairman, I'd just

1 like to reiterate some comments I made earlier today.

2 Teck understands that protection of  
3 waterfowl is a very important issue. As we've  
4 described in our draft Waterfowl Protection Plan, it's  
5 our intent and commitment to use the best available  
6 technology for deterrents to help mitigate, minimize,  
7 and reduce, the access or landing on the ponds of all  
8 waterfowl, including the whooping crane.

9 In addition to that we've also  
10 committed, as submitted in Attachment 13, to  
11 investigating and implementing, if possible,  
12 additional systems for deterring whooping crane. So  
13 we do understand that this is an important issue and  
14 we take it very seriously.

15 MR. T'SELEIE: So I want to go back to  
16 this passage though, because what I'm hearing is that  
17 your assessment of the risk was different than  
18 Environment Canada's.

19 So I'd like to ask what you think of  
20 what this passage in the SEA is saying. Again, this  
21 is the one that I just read last on page 99. Because  
22 it says, "the degree of risk posed to whooping cranes  
23 from contaminant exposures in the MOSR and the  
24 potential for sublethal effects remain unknown."

25 So it sounds like you have assessed a

1 risk that this SEA is saying can't be assessed,  
2 remains unknown, that actual risk. Somehow they  
3 weren't able to assess that. Can you tell me, how did  
4 you do that when it seems like this SEA was not able  
5 to do that?

6 MR. SPELLER: Again, I'm going to  
7 start, and if Mr. Koppe wants to add, he will.

8 So there's a couple of fundamental  
9 differences between the work that we've done for the  
10 Frontier project and what's in the SEA. So one piece  
11 is the SEA, and I'm going to use this wording, and I  
12 don't mean to say something not aligned with what they  
13 did, but I think of it as a synthesis of information  
14 from a number of different sources to do this, which  
15 is typical for a Strategic Environmental Assessment.

16 But one thing that they've identified  
17 is they haven't done any new analysis, they haven't  
18 done any modelling tied to this, which you typically  
19 wouldn't do in a Strategic Environmental Assessment.  
20 So that makes sense to me.

21 The other thing that they didn't do in  
22 the Strategic Environmental Assessment is use any  
23 information from the Frontier project EIA. Actually,  
24 I'm going to correct that. They did use, I think,  
25 some of our Peace River flow data, but they didn't

1 actually use the model predictions that we've  
2 included, at that's in front of the Panel, in doing  
3 the Strategic Environmental Assessment.

4 They give rationale for that at the  
5 front end why they didn't use project-specific EIA  
6 information. When they explain that they're  
7 differentiating between a Strategic Environmental  
8 Assessment and a project Environmental Impact  
9 Assessment.

10 I do actually feel that was a missed  
11 opportunity for them. Because what Mr. Koppe's  
12 discussing is a conservative risk assessment on  
13 potential exposures to whooping crane. Again,  
14 assuming that a whooping crane's entire life is at a  
15 location where it's being exposed to emissions from  
16 industry, which know would never happen, but it's  
17 standard risk assessment. But what that shows is what  
18 Mr. Koppe has just previously told us. So that's why  
19 there's a difference.

20 Another difference -- and this again I  
21 think a fundamental difference, and it's okay that  
22 they're different because these are two different  
23 kinds of reports -- so the Strategic Environmental  
24 Assessment is looking at trends. If you think of that  
25 table we looked at earlier, you don't have to pull it

1 up, it has identified desired outcomes and then it's  
2 looking at trends for current conditions and future  
3 conditions.

4 But a trend isn't the same thing as an  
5 effect. A trend isn't the same thing as a risk.  
6 They've used the trends to identify 44 recommendations  
7 that are in the back of this report that I think speak  
8 for themselves.

9 What my colleagues have done in our  
10 Environmental Impact Assessment is we've looked at  
11 those changes which the trends represent based on the  
12 information that we have, and then we've looked at  
13 them through effects analysis or we've looked at them  
14 through risk assessment. I think that gives a better  
15 level of detail as to whether there's a risk and, if  
16 so, is it a risk we should be concerned about.

17 So when Mr. Koppe mentions he's done a  
18 risk assessment and that that's what he's found, those  
19 are some of the reasons why it doesn't show-up in  
20 here. Because that sort of information wasn't done  
21 and wasn't used when it was available. Again,  
22 recognizing a Strategic Environmental Assessment is  
23 different than a project-specific Environmental Impact  
24 Assessment.

25 MR. KOPPE: I think Mr. Speller has

1 covered it well. Maybe the only thing that I would  
2 ask is that -- we undertook two different exercises.

3 The Wildlife Health Risk Assessment  
4 that was submitted as part of the project update in  
5 Section 13 really related to just exposure to  
6 operational emissions. Then the more recent Avian  
7 Risk Assessment that was filed as part of Attachment  
8 11 on September 12, 2018, that was an assessment of  
9 the risks associated with birds actually landing on  
10 the tailings areas. That's the only thing that I  
11 would add.

12 MR. T'SELEIE: So would it be correct  
13 to summarize then that the SEA thinks that those risks  
14 are unknown, because it hasn't taken this available  
15 data that Teck has and done the same type of  
16 assessment that Teck has?

17 MR. SPELLER: Mr. Chairman, I think  
18 that's part of it. Another part is often the way  
19 these risks are discussed often is through a series of  
20 monitoring or research that's done. Our assessment  
21 approaches one way of looking at that, it's  
22 predictive. There's other ways that you could look at  
23 those risks, often through monitoring and research.

24 When you look at the recommendations  
25 in the back of the Strategic Environmental Assessment

1 the majority of them are actually for additional  
2 monitoring and research. I don't know if I have the  
3 number in front of me -- yeah, sorry, I can finish  
4 that...

5 MR. T'SELEIE: I want to follow-up on  
6 that because I would tend to agree with you. To me,  
7 it seems like one of the things it's saying is that  
8 there is a lack of information in some key areas. It  
9 seems like this is one of those key areas, that's how  
10 I read this.

11 So, I'm wondering, is Teck able to  
12 assess this risk that the SEA didn't because of the  
13 additional work you've done in terms of data analysis  
14 and assessment that the SEA didn't do because it's a  
15 literature review?

16 MR. KOPPE: For my benefit, would you  
17 mind repeating the question?

18 MR. T'SELEIE: The SEA says that this  
19 particular risk, the risk to whooping cranes from  
20 contaminant exposure in the mineable oil sands region  
21 and the potential for sublethal effects, it's saying  
22 that risk remains unknown. What I'm hearing is that  
23 Teck has assessed that risk.

24 So, I'm wondering, is the reason that  
25 the SEA was unable to assess that risk and said it



1 remains unknown is that because the SEA is a  
2 literature review and they didn't do the work that  
3 Teck has done in addition to that existing  
4 environmental literature landscape of assessing  
5 specific data?

6 MR. KOPPE: I do think that that's  
7 part of it. I think as part of the SEA they're  
8 looking at or they're trying to focus on the potential  
9 for risk. I think what we try to do -- and now if  
10 we're talking about birds landing on tailings, what we  
11 try to do is just take it to that next step. So what  
12 happens if the birds do land and they have an  
13 opportunity to take off again, whether or not there  
14 could be a long-term impact associated with that.

15 That wasn't done as part of that SEA,  
16 but it was done as part of the recent filing that we  
17 did in September 2018 where we tried to take it to the  
18 next step and we tried to link exposure to potential  
19 effect.

20 MR. T'SELEIE: So what's that  
21 additional analysis that you've done that actually  
22 allows you to assess that risk?

23 MR. KOPPE: That allowed us to assess  
24 that particular risk. But, again, we did file a  
25 comprehensive Wildlife Health Risk Assessment as part

1 of the project update that also allowed us to look at  
2 the risks associated with whooping crane flying over  
3 the area, spending extended periods of time in the  
4 area. Not necessarily landing on the tailings, that  
5 wasn't part of the original comprehensive Wildlife  
6 Health Risk Assessment. But again, birds, including  
7 whooping crane, being exposed to the maximum  
8 concentrations of air, of soil, of water, of dietary  
9 items, things like that, all of that was included as  
10 part of that original comprehensive Wildlife Health  
11 Risk Assessment.

12 MR. T'SELEIE: So that would address  
13 what the SEA is saying here when it talked about risks  
14 of, for example, inhalation, so not just direct  
15 contact with oil sands process-affected water or  
16 tailings, but that flying over? You're saying Teck  
17 has done that assessment as well?

18 MR. KOPPE: Yeah, I believe we have.

19 MR. T'SELEIE: So, would you agree  
20 that without that assessment that Teck has done of all  
21 these risks to whooping crane that if you're just  
22 working off what the SEA is working off, that those  
23 risks, as it says, are unknown?

24 MR. KOPPE: So, Mr. Chair, this isn't  
25 the first Ecological Risk Assessment that's been done

1 in the oil sands. And others, in the past, have  
2 looked at the issue of migratory birds, as well. But  
3 I think it is worth noting that these types of  
4 assessments, these Environmental Impact Assessments do  
5 contribute to the body of science and the body of  
6 knowledge with respect to potential impact to  
7 migratory waterfowl, so I think it offers a line of  
8 evidence.

9 Now, to answer your question whether  
10 or not this issue would be completely unknown without  
11 the work that we did; I think some work has been done  
12 in the past; I think work continues to be done in it,  
13 so I wouldn't -- I wouldn't define it as being  
14 unknown, but I would say that I think still before we  
15 did our work, I think it was still -- there was more  
16 uncertainty then than there is now. I think that the  
17 work that we have done at least has helped reduce some  
18 of that uncertainty.

19 MR. T'SELEIE: So you think that might  
20 be -- that might be an error in the SEA to say that  
21 that risk remains unknown?

22 MR. SPELLER: So, Mr. Chairman, I  
23 think that without accessing some of the environmental  
24 impact assessments that are available over the last 10  
25 or 15 years with some of this data and analysis and

1 all of the back and forth discussions that we have in  
2 this kind of setting, without that information I think  
3 the SEA likely came to the right conclusion based on  
4 the information that they were looking at, at the  
5 time.

6 As I mentioned earlier, we do think it  
7 was a missed opportunity to include this level of  
8 information, recognizing what a daunting task they had  
9 in front of them and how daunting it would be to add  
10 in all the information in those binders behind us.  
11 But, we think it would have been a more well-rounded  
12 analysis if they had somehow found a way to do that.

13 MR. T'SELEIE: So, I want to go to  
14 page 55 of the SEA, and this is something you alluded  
15 to, the reasons that their - the materials they  
16 selected were selected. So, they say,

17 "With a few exceptions  
18 information contained in  
19 Project-level impact assessment  
20 or supporting technical documents  
21 or other documents submitted as  
22 part of environmental assessment  
23 review processes were not  
24 included for three reasons."

25 (As read)

1                   So, it said,  
2                    "First, Project-level assessments  
3                    tend to inadequately assess  
4                    cumulative effects..." (As read)  
5                   I won't read the rest of those two  
6 paragraphs about that. But, the second reason is,  
7                    "Project-level impact assessment  
8                    documents such as Environmental  
9                    Impact Statements and supporting  
10                   technical documents submitted as  
11                   part of environmental assessment  
12                   review processes are evaluated  
13                   through environmental assessment  
14                   reviews contain a range of views  
15                   and opinions on the matters under  
16                   review and typically do not  
17                   present final conclusion but,  
18                   instead, represent the materials  
19                   for the decision-making  
20                   authorities to consider when  
21                   reaching conclusions and making  
22                   project approval decisions.  
23                   Referring to one document and the  
24                   counter-argument in another  
25                   document as part of this SEA

1                   would lead to a replication of  
2                   the whole environment assessment  
3                   review process." (As read)

4                   So, I just want to ask, do you think  
5                   given that a purpose of this SEA is to assess the  
6                   cumulative -- the cumulative impacts to the Park and  
7                   the Outstanding Universal Value of the Park, do you  
8                   think that they made an error in not including  
9                   environmental assessment-specific materials, given  
10                  their reasons for not doing so?

11                  Like, do you think it is impossible to  
12                  assess that risk to whooping cranes without including  
13                  environmental assessment materials?

14                  MR. SPELLER: Maybe I'll start at the  
15                  higher level and then we can talk about the whooping  
16                  crane example. So, there are these three reasons why  
17                  they excluded Project-level impact assessments. I  
18                  don't think we would agree that they tend to  
19                  inadequately assess cumulative effects; it is a major  
20                  portion of the work that we do in these projects.  
21                  But, we understand there are people who have  
22                  disagreements on whether enough of the cumulative  
23                  effects have been considered.

24                  The example that they give below that  
25                  paragraph where it says, "This problem is

1 exemplified...." that paragraph says it is because a  
2 pre-industrial baseline presented to describe the  
3 state of the system isn't used. Well, our assessment  
4 includes a pre-development scenario, so we must be in  
5 the, "rarely" category here where it says, "rarely is  
6 it included" because we have in ours.

7           The second item about the review  
8 process and looking at the range of views and  
9 opinions, I think that's aligned with my earlier  
10 comment about the daunting task to bring in this  
11 information and how it may have been a missed  
12 opportunity to be able to do so.

13           And then it said that most Project  
14 level environmental assessment reviews undertaken to  
15 date have not required an assessment of the impacts on  
16 World Heritage Values.

17           So, as I mentioned earlier many of the  
18 assessments include portions of the Park, maybe not  
19 the Outstanding Universal Value. I know our  
20 assessment has an Outstanding Universal Values  
21 assessment in it but based on the timing this  
22 document -- I think the draft of this document came  
23 out on March 22<sup>nd</sup>. We submitted OUV assessment on  
24 March 1<sup>st</sup>. I can understand how there could be a  
25 timing issue with its inclusion.

1                   So, I understand these rationale, I  
2           don't know if I agree with them all, but again a very  
3           daunting task in front of Parks and their consultants  
4           to put this together.

5                   Specific to whooping crane, again I  
6           think as Mr. Koppe said, if they had looked at  
7           Project-level assessments I think where they said that  
8           the risks are unknown, they may have concluded that  
9           sentence maybe with a piece that said, 'Although some  
10          risk assessments conducted in the region suggests that  
11          that risk is low,' if they had. But, again, that's --  
12          I can't write on behalf of these authors but that  
13          would be -- if it was me authoring it, that's likely  
14          how I would add to that piece.

15                   MR. T'SELEIE: So, and that would  
16          include Teck's assessment for this project and maybe  
17          some of the other projects in the area?

18                   MR. SPELLER: Yes, and that would have  
19          referenced -- again, if I was writing that, that would  
20          have referenced the filed material that's behind us,  
21          for that.

22                   MR. T'SELEIE: And that would be  
23          predominantly the material filed by Teck that does  
24          that assessment?

25                   MR. SPELLER: That would be one



1 source. Again, there are other assessments that have  
2 been done in the region that look at some of the items  
3 that are in the SEA that are discussed.

4 MR. T'SELEIE: Okay. And I want to  
5 follow up on Teck's Outstanding Universal Value  
6 assessment and again that's document 364. That, as  
7 you said, came out in March 2018 and that is 93 pages;  
8 is that correct-- or so?

9 MR. SPELLER: Or, so, yeah, that's  
10 correct.

11 MR. T'SELEIE: All right. And I'm not  
12 a biologist, I'm not a hydrologist, but it seems like  
13 reading that, there's a lot of references to the other  
14 filings that -- that Teck has done; is that correct?

15 MR. SPELLER: Mr. Chairman, that's  
16 correct. The -- if this had been the first request  
17 for assessment tied to the Frontier Project this would  
18 have been a much larger document, so the baseline data  
19 that is used to support this, the modelling methods,  
20 the information tied to the models that were used in  
21 the assessment, the uncertainty analysis that we do,  
22 all of that information would accompany a report like  
23 this.

24 Recognizing that, instead of repeating  
25 all of that material, what we did, and I'll take

1 you -- I'm going to take you to Table 4, which is on  
2 hardcopy page 14, and I'll give you a PDF page in a  
3 sec -- perfect, yeah, it's PDF page 18 of 93.

4 So, in order to try to not repeat too  
5 much information that's already been filed and to  
6 focus on the assessment at hand we provided a table  
7 with cross-references to our filed material or other  
8 important references. So, for instance, we've been  
9 talking about migratory birds so if we look at the  
10 bottom of that page we show our study areas, the  
11 temporal considerations, our indicators, our  
12 prediction methods, a description of our models used,  
13 and it goes on.

14 And if you flip this table for -- it's  
15 a few pages, that's to ground our assessment  
16 methodology and information into the overall filed  
17 material instead of repeating it all in this  
18 assessment. Bringing in all of the migratory bird  
19 baseline information into this would have, as one  
20 example of all this data -- would have made it a much  
21 larger report. And since we use similar data and  
22 similar methods we thought it was easy to link. Does  
23 that make sense?

24 MR. T'SELEIE: That makes sense,  
25 though the one thing I would wonder, though, is,

1 because a lot of this material was -- was produced and  
2 filed before this Panel was given -- given direction  
3 to really look at the Outstanding Universal Value of  
4 the Park. So, was Teck assessing the impacts of the  
5 Project with respect to the Outstanding Universal  
6 Value of the Park from the get-go, or does it just so  
7 happen that all of this work that had been done before  
8 then happens to support that analysis?

9 MR. SPELLER: So, Mr. Chairman, it is  
10 mainly the latter. It is mainly that when we set up  
11 our assessment methods and our study areas we included  
12 portions of the Park or the PAD, so we were able to  
13 use that information.

14 MR. T'SELEIE: And so that information  
15 you produced is applicable to an OUV assessment of the  
16 Park?

17 MR. SPELLER: Yeah, so that what is  
18 different -- I said the majority. So, what's  
19 different is we looked at the three criteria for the  
20 OUV and we said, what environmental factors or key  
21 indicators represent those OUVs to us in what we've  
22 read in the filed material related to the park? And,  
23 then we looked and said, Okay, have we actually done  
24 an analysis of this that's relevant to the Park? And,  
25 in many cases we had.

1                   There were some linkages we had never  
2 looked at before, so linkages to Karst or the Salt  
3 Plains, but they are hundreds of kilometers away and  
4 when we did the linkage analysis in this assessment,  
5 the OUV assessment, there wasn't a valid linkage. So,  
6 we were, by picking appropriate study areas to start,  
7 which is looking to where the Project effects are  
8 negligible out to their edge, it allowed us to use a  
9 lot of that information to feed the OUV assessment,  
10 keeping in mind that kind of lens was different  
11 because we were looking at it from a lens of OUV so  
12 our conclusion isn't what's the effect on migratory  
13 birds, or what's the effect on water quality; our  
14 conclusion is how do those items and our predicted  
15 change due to the project affect the OUV.

16                   MR. T'SELEIE: Okay, that -- I want to  
17 look at the next page though in the text of the OUV  
18 assessment, this is PDF page 19, looking at the  
19 Peace-Athabasca Delta hydrology, and there is a bullet  
20 point here kind of mid-page that talks about  
21 conservative water balance and discharge water level  
22 relationship models for Athabasca River. And it talks  
23 about water withdrawals and models and the allowable  
24 cumulative river water withdrawal under the Surface  
25 Water Quantity Management Framework and future climate

1 change scenarios.

2                   And I noticed that that framework is  
3 cited several times on this page. So, that's one of  
4 the pieces of analysis that you had done previously  
5 that was applicable to this impact on the OUV of the  
6 Park?

7                   MR. SPELLER: So, Mr. Chairman, that's  
8 correct. When we look at Project effects on flows in  
9 the Athabasca River, and then later when we looked at  
10 water level changes and flows in Lake Athabasca we  
11 took into consideration the limitations that the  
12 Surface Water Quality Management Framework place on  
13 industrial withdrawal in the oil sands region.

14                   MR. T'SELEIE: Okay, I want to go back  
15 to the Strategic Environmental Assessment at PDF page  
16 199 because they have some comments about that  
17 framework, and they say that,

18                                 "The withdrawal limits discussed  
19                                 above from the Surface Water  
20                                 Quality Management Framework  
21                                 provide mitigation for the World  
22                                 Heritage Values. But the limits  
23                                 were set with limited knowledge  
24                                 about the implications for the  
25                                 World Heritage Values. The

1 Surface Water Quality Management  
2 Framework acknowledges gaps in  
3 ecological knowledge about winter  
4 habitat in the Delta, although  
5 said to later have been  
6 addressed, riparian vegetation  
7 and aquatic mammals in the Delta,  
8 access to tributaries, Richardson  
9 Lake connectivity in the  
10 Athabasca Delta, Big Egg Lake  
11 connectivity, Perched basins, and  
12 dissolved oxygen in some parts of  
13 the Athabasca River. Thus, not  
14 only are there concerns about the  
15 future achievability of the  
16 current limits, but it is unknown  
17 if the current limits adequately  
18 protect the ecological World  
19 Heritage Values in the PAD right  
20 now." (As read)

21 So, to me, and again, I'm not a  
22 hydrologist, but this seems to suggest that that  
23 Surface Water Quantity Management Framework that there  
24 are at least six key gaps there that raise concerns  
25 about whether or not that's adequate to protect the

1 Outstanding Universal Value of the Park.

2 So, I'm wondering, in light of that,  
3 can you explain how those analysis that you did that  
4 you then brought into the OUV assessment are still  
5 adequate to protect the World Heritage Values of the  
6 Park?

7 MS. SPELLER: So I think maybe to  
8 start, what I'll ask is, maybe Dr. Biftu will explain  
9 how we did our analysis and what he found, and then I  
10 will answer the last piece about how we took those  
11 results and talked about the OUVs based on these.

12 MR. BIFTU: So, in terms of analysis,  
13 Mr. Chairman, for analysis of effect of the Project on  
14 the Peace-Athabasca Delta, what we assumed is  
15 basically a conservative water withdrawal of 4.2  
16 meters cubed per second, occurring throughout the year  
17 without any consideration of Surface Water Quantity  
18 Management Framework just to assess the effect of the  
19 Project on Peace-Athabasca Delta.

20 So, we considered for Teck is going to  
21 withdraw a maximum of 4.2 meters cubed per second each  
22 single day of the year, and based on that we did an  
23 effect assessment. And our conclusion in terms of  
24 water level change in the Peace-Athabasca Delta is  
25 about one centimeter.

1                   This conclusion is actually even  
2 supported with some of the assessments -- independent  
3 assessments done by using some of the data, the  
4 communicating, monitoring best data sought, collected  
5 in different locations within the Peace-Athabasca  
6 Delta, and they came up with the same conclusion, that  
7 the changes as a result of 4.2 meters cubed per second  
8 withdrawal by Teck is about one centimeter.

9                   For cumulative impact assessment, Mr.  
10 Chairman, what we did is we used the Surface Water  
11 Quantity Management as a guide and assumed that, for  
12 example in fall season even though the current  
13 withdrawal is only about 4.4 meter cubed per second in  
14 total, we assumed cumulatively in the future if it is  
15 allowed and the Surface Water Quantity Management  
16 Framework, 29 meters cubed per second for fall season,  
17 and depending on the flow it varies based on the  
18 Surface Water Quantity Management what is the effect  
19 on the water level changes in the Peace-Athabasca  
20 Delta.

21                   So, the result of the cumulative water  
22 withdrawal on the Surface Water Quantity Management  
23 Framework, which will allow up to 29 meters cubed per  
24 second is, we came up with a maximum of a 7 centimeter  
25 change in water level.



1           In addition, also we looked at some of  
2 the climate change scenarios that's projected by  
3 different models, climate models, and came up with  
4 what's the change as a result of future climate change  
5 on the Peace-Athabasca Delta. So, the conclusion is,  
6 depending on the climate change scenario, some of the  
7 climate change scenarios, Mr. Chairman, shows the lake  
8 water level can increase up to half a -- I mean .5 --  
9 I have to give the correct number -- about half a  
10 meter. But, also, some of the models will show it can  
11 decrease up to 13 centimeters.

12           So, the climate change scenarios has  
13 some uncertainty into it.

14           MR. SPELLER: Just to close that off,  
15 so knowing that the conservative predicted Project  
16 effect was less than one centimeter when we look at  
17 these items about effects on the winter habitat, so  
18 under the Surface Water Quantity Management Framework  
19 there's not an expectation that water will be allowed  
20 to be withdrawn in the winter; although we have  
21 assessed it as if it were we're still at that small  
22 level.

23           The riparian vegetation and aquatic  
24 mammals in the Delta. Again, when we look at the  
25 Project's predicted change, we're not expecting to see

1 changes in the grassland eco system with a one  
2 centimeter change.

3 We don't predict that the Project is  
4 going to have an effect on some of the flooding that  
5 happens in the Delta or the Perched Basins or in the  
6 Distributary Channels more than we have seen, so when  
7 we look at those results and see how small they are,  
8 recognizing that there are some unknowns as identified  
9 in this paragraph we're still confident in our  
10 conclusion that it is a negligible effect, especially  
11 knowing that it is conservative since we've assumed  
12 the Project can withdraw maximum water all year long.

13 MR. T'SELEIE: So this Surface Water  
14 Quantity Management Framework was done for the  
15 cumulative assessment but you're saying you did some  
16 additional analysis to fill in some of the gaps that  
17 have been identified?

18 MR. SPELLER: Mr. Chairman, I think I  
19 would probably say it the other way, that we -- we  
20 looked at our analysis and recognizing in these areas  
21 that whether there are gaps or not, that the Project's  
22 change would not influence this area, in our opinion.

23 MR. T'SELEIE: So, but that's not  
24 the -- the regulatory requirements, the issues with  
25 those regulatory requirements specifically with

1 respect to protecting the Outstanding Universal Value  
2 of the Park you're saying the work Teck did to go  
3 beyond that, in your assessment that's adequate to  
4 protect the Outstanding Universal Value of the Park?

5 The work you have done that's  
6 additional to what would kind of be the bare  
7 minimum -- or, no, I shouldn't say bare minimum, but  
8 with the specific gaps that have been identified  
9 you've filled those in?

10 MR. SPELLER: So Mr. Chairman, what  
11 our predictions show is that the Project's effect is  
12 small, and we don't expect it to affect the  
13 Outstanding Universal Value of the Park.

14 MR. T'SELEIE: I want to jump back to  
15 birds for a while, and this is something that I've  
16 been listening in for the last few days and it is a  
17 little -- I'm not entirely sure what -- where the  
18 assessment is on this.

19 So, not necessarily talking about --  
20 actually, specifically not talking about bird  
21 mortality in tailings ponds or process affected water,  
22 but looking at incidents of birds coming into contact  
23 either directly with process-affected water or issues  
24 of contamination through inhalation due to the project  
25 effect.

1                   So in the SEA, and this is on page 79  
2 I believe, they said that the estimates are upwards of  
3 200,000 birds contacting or landing on industrial  
4 water bodies, i.e. exposed to oil sands  
5 process-affected water every year, and these are  
6 non-mortality events. So this is what I'm wondering  
7 about. What is Teck's estimate of how many birds  
8 actually come into contact with process-affected water  
9 every year and then fly away or what's your projection  
10 for what that number is going to be for this project?

11                   MR. SPELLER: Mr. Chairman, our  
12 assessment -- and Mr. Koppe talked about this a bit  
13 earlier -- our assessment doesn't predict how many  
14 birds we think may contact the ponds. What our  
15 assessment conservatively assumes is birds do contact  
16 the pond, and Mr. Koppe discussed the potential risks  
17 associated with that. And in Mr. Ebner's work we talk  
18 about what we think the likelihood is of bird contacts  
19 in terms of mortality risk and we also talk about what  
20 we know about the bird deterrence systems. But from  
21 the exposure to the oil sands process water, we skip a  
22 step. We don't try to figure out how many birds we  
23 think will go into the water, we actually assume they  
24 have and then we ask ourselves, what's the risk if  
25 they do. And so that's the risk assessment that Mr.

1 Koppe explained earlier.

2 MR. T'SELEIE: Okay. So on pages 82  
3 and 83 of the SEA it says:

4 "To date, there have been no  
5 studies investigating the outcome  
6 of the thousands of migratory  
7 waterfowl that contact industrial  
8 waterbodies but fly away..."

9 And talks about the risks.

10 So the SEA saying that there have been  
11 no studies on that, this is again a situation where  
12 Teck has done that analysis and it's project-specific  
13 for an environmental assessment, which is why it  
14 doesn't end up in the SEA?

15 MR. SPELLER: Mr. Chairman, just  
16 confirming that if project-specific EIAs had been  
17 considered -- and again we understand the rationale  
18 why they were not -- I think there could have been  
19 more information in the section on those predicted  
20 risks.

21 MR. T'SELEIE: And that information  
22 would have come entirely -- that additional  
23 information is all from project-specific EIAs?

24 MR. SPELLER: As far as I'm aware,  
25 yes, project-specific EIAs.

1                   MR. T'SELEIE: And to clarify some of  
2 this stuff on -- well again, back to whooping crane.  
3 When you were looking at the impact, potential impact  
4 of the project on the outstanding universal value of  
5 the park, did you look at potential risk to whooping  
6 crane from inhalation, inhalation of fumes or vapours  
7 maybe from a tailings pond or other activities onsite  
8 during migration? I know that the OUV assessment,  
9 Teck's OUV assessment does look at things like  
10 mortality from contact with tailings ponds, but I'm  
11 wondering, did you do that same kind of two-step  
12 assessment that you outline in that OUV assessment for  
13 inhalation of toxins or contaminants while in flight?

14                   MR. KOPPE: It's Bart Koppe.

15                   So, Mr. Chair, the emissions from the  
16 tailings ponds are included as part of the air quality  
17 assessment. So the output from the air quality  
18 assessment in the form of predicted ground-level air  
19 concentrations is then used as input for the wildlife  
20 health risk assessment. So again, that was included  
21 as part of Project Update Volume 3, Section 13. So we  
22 use those predicted ground-level air concentrations  
23 and when available we compare those against  
24 inhalation-based toxicological reference values. Now,  
25 I recognize that there's limited, really limited avian

1 data with respect to inhalation toxicity. Ideally,  
2 that's a growing field of research. But, again, when  
3 those toxicological reference values were available,  
4 we did use those as part of the wildlife health risk  
5 assessment. So when we could, we did assess it.

6 MR. T'SELEIE: Was that in line with  
7 the air quality management framework for the Lower  
8 Athabasca Region? Is that the basis for that  
9 assessment?

10 MR. KOPPE: The basis of the  
11 assessment is to meet the terms of reference that are  
12 set out by the provincial government, and the  
13 comprehensive wildlife health risk assessment  
14 considered all routes of potential exposure, which is  
15 somewhat unusual, because if you just adhere to  
16 Government of Canada guidance on doing ecological risk  
17 assessments, the focus tends to be on that oral  
18 exposure pathways, again recognizing that the risks  
19 tend to be quite low associated with the inhalation  
20 pathway. So if you were just to follow Government of  
21 Canada guidance, you probably would have relied only  
22 on the oral exposure pathways, but again, we added  
23 that inhalation pathway and part of the reason for  
24 that is because we've done enough of these in the past  
25 where we know that it's of interest. The question has

1       been posed to us by the provincial regulators, they're  
2       curious about it. We're curious about it as well. I  
3       think it's worth assessing and that's why we include  
4       it in the wildlife health risk assessment.

5                       MR. T'SELEIE: Thank you.

6                       I have one more question on whooping  
7       crane, going back to the direct evidence that Teck  
8       gave. If I heard correctly on Tuesday, and I think it  
9       was reiterated yesterday, in the context of refuting  
10      those Parks Canada conclusions and then citing the SEA  
11      in that context, I believe Teck said that your  
12      understanding is that the considerations in the SEA  
13      take into account future considerations of mineable  
14      oil sands region activity including the project. So  
15      given that it seems like there's at least three things  
16      we've identified here where the SEA doesn't have any  
17      kind of conclusion and says it's unknown and Teck has  
18      done an assessment, I'm wondering, what do you mean by  
19      saying that the SEA took into consideration the  
20      mineable oil sands region activity and this project?

21                      MR. SPELLER: So, Mr. Chairman,  
22      earlier when we were looking at the table from the SEA  
23      looking at desired outcomes 15 and 16 for whooping  
24      crane, we identified there was four columns that they  
25      looked at in their cumulative effects assessment. One



1 of them is tied to development in the region and when  
2 you look in Section 6 of the SEA where they talk about  
3 the cumulative effects assessment and where that table  
4 was presented, they talk about oil sands projects in  
5 development. The Fort Hills is -- sorry, I was just  
6 looking at a Fort Hills table.

7           Frontier is mentioned and discussed as  
8 a project. It's on page 6-10; it's the top facility,  
9 "Teck Resources", "Frontier". So when they did their  
10 cumulative effects assessment they looked at existing  
11 development as well as reasonably foreseeable  
12 developments, as you would do in a cumulative effects  
13 assessment. What's unclear, and the reason why we use  
14 the wording about "It's our understanding", is because  
15 it's a strategic environmental assessment, sometimes  
16 it's not exactly clear how one piece affects the next  
17 piece of the assessment. So that's why we said it's  
18 our understanding. It appears to be in there, it's  
19 discussed, but we wanted to couch it appropriately to  
20 make sure we didn't say something that was incorrect.

21           MR. T'SELEIE: But I thought we had  
22 already established that -- you're saying that they  
23 didn't review any of your materials with respect to  
24 whooping crane and contaminant risk during  
25 migration --

1 MR. SPELLER: Yes.

2 MR. T'SELEIE: -- which was one of the  
3 issues that Parks Canada had, one of the concerns they  
4 brought forward.

5 MR. SPELLER: Yes, that's correct. So  
6 they didn't use our filed material and our assessments  
7 of the region, including the project in cumulative  
8 effects, but they did include a list of potential  
9 future projects and Frontier is on that list.

10 MR. T'SELEIE: That's true. That  
11 actually -- there's one thing I'll bring up with  
12 respect to that and this does have to do with air  
13 quality which does impact those risks of contaminant  
14 pathways for whooping crane. So this is in the SEA at  
15 page 203 and they say:

16 "...the fact the proposed Teck  
17 Frontier project is located  
18 within 30 km of the south border  
19 of the [Wood Buffalo National  
20 Park] indicates a potential  
21 increased risk to the air quality  
22 of [Wood Buffalo National Park].  
23 However, the current downward air  
24 quality trend is relatively weak  
25 and the Teck Frontier project is

1                   currently being reviewed through  
2                   the environmental assessment  
3                   process and mitigation measures  
4                   are not known for this project.  
5                   Thus, the future status of the  
6                   air quality trend for the WBNP  
7                   world heritage values is  
8                   unknown."

9                   So I read that as saying they're  
10                  reserving judgment really on what the impacts will be  
11                  because they don't know what mitigation measures are  
12                  going to come out of this hearing and until that's  
13                  known they can't say what that future trend will be.  
14                  Given the proximity of this proposed project to the  
15                  park, would you agree with that assessment of this  
16                  passage?

17                  MR. SPELLER: Mr. Chairman, I think  
18                  that's a fair interpretation of this paragraph. It  
19                  says the mitigation measures are not known for this  
20                  project. There's actually been quite a bit of  
21                  information filed about the mitigation measures for  
22                  this project. But again, recognizing that they're not  
23                  using the filed materials, your interpretation makes  
24                  sense to me, yes.

25                  MR. T'SELEIE: And that's a really

1 good point and I noticed in -- and I'm not going to  
2 refer to any but I'll just give the document number  
3 for the record: Teck's Reply Submission filing,  
4 Document 504.

5 I noticed in going through that that  
6 Teck agrees with a large number of the recommendations  
7 that were made by Environment and Climate Change  
8 Canada and also Parks Canada but agrees in part or  
9 disagrees with a significant number of them and so I  
10 think it's fair to say that at this point there is  
11 dispute about the recommendations for mitigation  
12 measures that will come out of this hearing. As a  
13 general question, do you think that Teck is better  
14 situated than Environment and Climate Change Canada  
15 and Parks Canada to recommend mitigation measures that  
16 will protect the outstanding universal value of the  
17 park?

18 --- Pause

19 MR. CHIASSON: So, Mr. Chairman, I  
20 guess it's Teck's view that it's the park's role to  
21 set objectives and values and it will be Teck's role  
22 to make sure that we comply and we align with those,  
23 and Teck is committed to working with Parks Canada but  
24 we see it as their role to address the question by  
25 counsel.

1 MR. T'SELEIE: All right, I'm going to  
2 leave it at that. Thank you for your time and your  
3 candour, and thank you, Panel.

4 THE CHAIRPERSON: Thank you, Mr.  
5 T'seleie.

6 Mr. Robinson, if you only have a few  
7 minutes of questions, I'm just wondering if we can  
8 deal with them before the break. Do you need a break?

9 MR. ROBINSON: Mr. Chair, they're  
10 strongly advising me they need a break.

11 THE CHAIRPERSON: Okay, fair enough.  
12 It's 2:16, so we'll return at 2:35 and we'll deal with  
13 Mr. Robinson's questions first and then it will be  
14 Keepers of the Athabasca's opportunity for  
15 cross-examination.

16 MR. IGNASIAK:  
17 --- Upon recessing at 1416 / Suspension à 1416  
18 --- Upon resuming at 1438 / Reprise à 1438

19 THE CHAIRPERSON: Thank you. Please  
20 be seated.

21 Okay, Mr. Robinson.

22 CROSS-EXAMINATION

23 MR. ROBINSON: Yes, thank you,  
24 Mr. Chair. For the record, Barry Robinson for Oil  
25 Sands Environmental Coalition.

1 I just have a very few brief questions  
2 around document 570, which was filed this morning in  
3 response to an undertaking.

4 I wonder if we could just confirm that  
5 in document 570 on the right-hand side in the far  
6 right column it indicates two entities, Frontier  
7 Energy Project Corporation and Teck Frontier Energy  
8 Partnership. Is that correct?

9 MR. McFADYEN: Correct.

10 MR. ROBINSON: And Mr. McFadyen, I  
11 believe you indicated earlier today that the  
12 partnership was formed in March 2012; is that correct?

13 MR. McFADYEN: Twentieth of March.

14 MR. ROBINSON: Even more accurate,  
15 thank you.

16 And am I correct in reading this chart  
17 that the Teck Frontier Energy Partnership has two  
18 partners, Frontier Energy Project Corporation with  
19 0.01 per cent and Teck Resources Limited is the other  
20 partner with 99.99 per cent? Is that correct?

21 MR. McFADYEN: Chair, you know, I  
22 think I mentioned yesterday, this is a general  
23 partnership, common in Teck and common in the  
24 industry.

25 MR. ROBINSON: So those are the only

1 two partners in the partnership?

2 MR. McFADYEN: Yeah.

3 MR. ROBINSON: Thank you.

4 And I did electronic search through  
5 the project update, the project information responses,  
6 the corporate documents that are in our submission  
7 557, and I did not find any reference in any of those  
8 documents to Frontier Energy Project Corporation or  
9 Teck Frontier Energy Partnership.

10 And I just want to make sure, is  
11 anyone from Teck aware of any reference to either of  
12 those two anywhere in the hearing record other than  
13 document 570?

14 MR. McFADYEN: Chair, apparently not.

15 MR. ROBINSON: Okay, thank you.

16 And just for absolute clarity, then  
17 can you confirm Teck Resources Limited is the  
18 applicant in this proceeding; is that correct?

19 MR. CHIASSON: Mr. Chairman, that's  
20 correct.

21 MR. ROBINSON: Thank you.

22 And if this project is approved, which  
23 of the legal entities will own and operate the  
24 project?

25 MR. McFADYEN: Chair, to be frank, I'm

1 a bit puzzled and remain surprised that we're still  
2 having this conversation, given the conversation that  
3 we had yesterday. I think as we pointed out at the  
4 time, when you look at this structure, it is a very  
5 complex structure. And as my counsel said yesterday,  
6 I'm not qualified to talk about the corporate  
7 structure of Teck.

8 Looking at it -- so if you just refer  
9 to the figure, I mean it is -- it is a very complex  
10 structure. It involves many companies, many  
11 partnerships, in many jurisdictions throughout the  
12 world. So I'm a bit puzzled as to why we're still  
13 having this conversation.

14 What's crucial, I think -- and I want  
15 to repeat it's incredibly important -- if we get  
16 approval from this Panel to develop Frontier, we are  
17 committed to construct, operate, and decommission this  
18 project in a responsible way. So there's no question  
19 at all about us walking away. None whatsoever. And I  
20 think that's a crucial point in this conversation.

21 MR. ROBINSON: I guess I'll have to  
22 try this a different way, then.

23 Will Teck Resources Limited -- if the  
24 project is approved, will Teck Resources Limited be  
25 the owner and operator of the project?



1 MR. McFADYEN: The operator of the  
2 project will be Frontier, which is wholly owned by  
3 Teck, as I mentioned yesterday.

4 MR. ROBINSON: So when you say  
5 "Frontier," you mean Teck Frontier Energy Partnership?

6 MR. McFADYEN: That is correct.

7 MR. ROBINSON: Thank you. Those are  
8 my questions.

9 THE CHAIRPERSON: Thank you,  
10 Mr. Robinson.

11 Ms. Asterisk.

12 CROSS-EXAMINATION

13 MS ASTERISK: Thank you very much for  
14 this opportunity to cross-examine.

15 Before we start, I'd like to  
16 acknowledge that we're on Treaty 8 land, and where we  
17 are all sitting today has been the grocery store,  
18 pharmacy, means of existence for many First Nations  
19 and Métis people since time immemorial.

20 I wanted to ask is Teck familiar with  
21 the United Nations Declaration on the Rights of  
22 Indigenous Peoples?

23 DR. JOHNSTONE: Yes, we are.

24 MS ASTERISK: And do you support the  
25 United Nations Declaration on the Rights of Indigenous

1 Peoples?

2 DR. JOHNSTONE: Yes, we do.

3 MS ASTERISK: Thank you.

4 Are you familiar, then, with the  
5 concept of free, prior, and informed consent?

6 DR. JOHNSTONE: We absolutely are.

7 MS ASTERISK: And are you familiar  
8 with the Treaty 8 document?

9 DR. JOHNSTONE: I have seen it, but  
10 I'm not familiar with all of its contents.

11 MS ASTERISK: Are you familiar with  
12 the passage that states that the effects of  
13 colonization won't extend past the depth of a plough?

14 DR. JOHNSTONE: No, I'm not.

15 MS ASTERISK: Thank you.

16 Are you familiar with the Truth and  
17 Reconciliation's 94 Calls to Action?

18 DR. JOHNSTONE: Yes, I am, which Teck  
19 supports.

20 MS ASTERISK: Thank you. Are you  
21 familiar with Call to Action number 92 regarding the  
22 corporate sector in Canada?

23 DR. JOHNSTONE: Yes, I am.

24 MS ASTERISK: Just going back to the  
25 direct presentation by Teck when you were

1 cross-examining yourselves about outstanding issues  
2 from Indigenous communities.

3 I'm not sure who it was, but someone  
4 said that all of the issues raised pertain to  
5 government actions, not Teck. Does someone recall  
6 making that statement?

7 DR. JOHNSTONE: Mr. Chair, I can  
8 confirm that we have stated that. And I think it's  
9 important that the Panel understand that in working  
10 with our partners, we have reached joint language  
11 where we refer to Teck being able to confirm that by  
12 reaching agreements we've resolved all concerns and  
13 issues of our Indigenous partners within our control  
14 and that these Indigenous communities have no  
15 outstanding requests of Teck.

16 Now, I do -- I would note, though, for  
17 that precise language you should refer to those  
18 individual communities' submissions to regulators  
19 regarding the scope of their non-objection or, in some  
20 cases, support of the project.

21 MS ASTERISK: So that call does ask  
22 that the corporate sector apply the principles of the  
23 United Nations Declaration on the Rights of Indigenous  
24 Peoples to all of

25 "its principles, norms, and

1 standards, to [your] corporate  
2 policy ... core operational  
3 activities ... Indigenous peoples  
4 [including] their lands and  
5 resources"

6 Including:

7 "meaningful consultation,  
8 building respectful  
9 relationships, and obtaining the  
10 free, prior, and informed consent  
11 ... before proceeding with  
12 economic development projects."

13 So before formulating your proposal,  
14 your application, did you consult with Indigenous  
15 peoples and traditional knowledge holders?

16 DR. JOHNSTONE: Mr. Chair, yes we did.  
17 And I think just in relation to UNDRIP and free,  
18 prior, and informed consent, I would like to highlight  
19 Teck's Indigenous Peoples Policy, which notes that, in  
20 the spirit of reconciliation, a key focus is building  
21 relationships and maintaining those and having sincere  
22 dialogue and a process for ongoing consultation.

23 We also refer in our Indigenous  
24 Peoples Policy to free, prior, and informed consent.  
25 Now, we believe that that is the responsibility of

1 government; however, Teck's commitment is to work to  
2 achieve. And we think that we have demonstrated  
3 alignment with that policy in working with our  
4 Indigenous communities to conclude the 14 agreements.

5 MS ASTERISK: Did you have a chance to  
6 have a look at our aid to cross-examine, the  
7 interviews with traditional knowledge holders?

8 DR. JOHNSTONE: Yes, I did.

9 MS ASTERISK: Okay, I'm going to be  
10 just using some quotes there, for the record, and to  
11 clarify some questions about this.

12 "Industry talks about  
13 development. I say don't use  
14 that word. What you are doing is  
15 a disaster, not development."

16 "It's the bottom of the  
17 barrel here, the toilet bowl of  
18 the world. And when it  
19 overflows, everyone will be  
20 affected."

21 "I am 65 years old and  
22 industry is not 65, so I saw the  
23 changes from the start. We never  
24 thought there could be such a  
25 drastic change."

1                    "I don't think First Nations  
2                    were ready for the onslaught, the  
3                    destruction."

4                    "The future looks bleak,  
5                    dead. I don't see anything good  
6                    happening out of industry at all.  
7                    It's getting worse. Even the  
8                    planes go a different way so they  
9                    don't fly over all the plants.  
10                   It's going to be a wasteland, and  
11                   the effects we feel already.  
12                   What we've always said is that  
13                   the land does not belong to us.  
14                   It was loaned to us to pass on to  
15                   our children." (As read)

16                   My question is has Teck hired any  
17                   traditional knowledge holders to work on the  
18                   development of the application? I'm talking about the  
19                   original application now, yeah.

20                   DR. JOHNSTONE: So our approach to the  
21                   inclusion of traditional knowledge was, first of all,  
22                   the holders own that knowledge. We worked with  
23                   government-industry relations or industrial relations  
24                   corporations to identify consultation process that  
25                   worked for the community, and we took direction from

1       them.

2                       In many cases where there was a  
3       contribution of knowledge, we provided funds to the  
4       communities to be able to collect that knowledge and  
5       for a community to come to its own conclusions. And  
6       I'll leave that there for the moment.

7                       MS LaCASSE: I'm sorry to interrupt.

8                       Just a housekeeping matter so we can  
9       keep track of where the documents are. So I think you  
10      provided a copy of this document electronically to the  
11      Secretariat.

12                      MS ASTERISK: Yes.

13                      MS LaCASSE: I don't know if you have  
14      any paper copies that the Panel could look at.

15                      MS ASTERISK: I'm sorry, I wasn't  
16      asked for paper copies.

17                      MS LaCASSE: That's fine.

18                      So this document would be on the  
19      registry as document 564.

20                      MS ASTERISK: Thank you.

21                      MS LaCASSE: Thank you. I'm told it  
22      will be on there soon.

23                      MR. IGNASIAK: Perhaps, Mr. Chair, I  
24      can assist. We did circulate the document to our  
25      witnesses yesterday, so it's not really necessary to

1 read it in. Our witnesses who would be responding  
2 have reviewed it.

3 THE CHAIRPERSON: Thank you,  
4 Mr. Ignasiak --

5 MS ASTERISK: My questions are -- in  
6 directing these questions to Teck, I'm trying to get  
7 an understanding of how Indigenous knowledge holders  
8 were consulted originally about the need for such a  
9 project, the largest bitumen mine in Canada and the  
10 closest to a national park.

11 What I understood you to say is that  
12 you spoke with government about consultation  
13 processes, and you did not consult traditional  
14 knowledge holders about the need for another bitumen  
15 mine. Is that a good reading of what you said?

16 DR. JOHNSTONE: Actually, that's a  
17 mischaracterization.

18 When a proponent is seeking to work  
19 with a First Nation, for instance, to collect  
20 traditional knowledge, we don't go directly to a  
21 traditional knowledge holder. We followed the  
22 direction of an Indigenous community's government as  
23 to when and who we should talk with. And so when I  
24 referred to the likes of a government industry  
25 relations group, that was one of the Indigenous



1 community government structures that we used to get  
2 our marching orders on how we would work with the  
3 community.

4 MS ASTERISK: Okay. So you've said  
5 that Teck believes in free, prior, and informed  
6 consent.

7 DR. JOHNSTONE: We agree that working  
8 to achieve free, prior, and informed consent as per  
9 UNDRIP is an important principle.

10 MS ASTERISK: Just a couple more  
11 quotes here.

12 "I'm worried about the water.  
13 Industry is just increasing.  
14 It's not stopping. Water  
15 withdrawals are going up.

16 The stuff going into water is  
17 another concern. There are toxic  
18 spills. The tailings ponds are  
19 in close proximity to the  
20 Athabasca River and they leak.

21 More development is a  
22 concern. Companies have been  
23 issued permits to go ahead and  
24 expand their existing projects.  
25 Why do we still need new ones?

1                   It will still cause even more  
2                   negative impacts on the  
3                   environment in general."

4                   (As read)

5                   Is it your position that Teck wishes  
6                   to respect free, prior, and informed consent when it  
7                   comes to the Frontier project?

8                   DR. JOHNSTONE: Could you just repeat  
9                   the question.

10                  MS ASTERISK: Is it your position that  
11                  Teck wishes to respect the principle of free, prior,  
12                  and informed consent when it comes to the Frontier  
13                  project?

14                  DR. JOHNSTONE: Teck considers that it  
15                  has done so.

16                  It's undertaken early engagement. We  
17                  started this process 10 years ago.

18                  We've supported communities so that  
19                  they've had the capacity to participate in an  
20                  extensive regulatory process. We've provided  
21                  approximately \$10 million in funding for communities  
22                  to hire their technical experts of their own choosing  
23                  to run their industrial relations offices, to  
24                  complete -- to undertake and complete studies they  
25                  themselves have identified as being important to them.

1                   And all of that has created a base of  
2 knowledge on which communities can come to their own  
3 conclusion around whether the project should proceed  
4 or not.

5                   So we think we've certainly shown that  
6 and that we have fulfilled the principles of free,  
7 prior, and informed consent.

8                   MS ASTERISK:

9                   "I notice a big change from the  
10 good to the bad. The animals  
11 are, let's say, sick. They drink  
12 the water that we can't drink."

13                   (As read)

14                   "My concern is about  
15 pollution. When they release gas  
16 in the air, it causes pollution.  
17 Major explosions cause pollution.  
18 Commercial fishing is gone three  
19 years ago because the fish are so  
20 damaged from pollution they  
21 stopped the fishery. We're going  
22 to be starving within the next 10  
23 years. I might be gone by then,  
24 but I'm thinking about the other  
25 ones, the other generations."

1 (As read)

2 Do you feel that if free, prior, and  
3 informed consent is achieved, all parties would feel  
4 good about their work and about the decisions?

5 MR. IGNASIAK: Mr. Chairman, two  
6 things. One, I'm not sure why the questioner is  
7 reading these things in that then seem not to have to  
8 do much with the question; but second, like I'm just  
9 not sure these questions -- like Teck's views on some  
10 of these, we're getting a little deeper than simply  
11 Teck's Indigenous policy and its views on what's  
12 happened in this case.

13 So I'm not sure these questions are  
14 relevant, and I'm not sure the witnesses should be  
15 required to answer them.

16 MS ASTERISK: I only have one more  
17 question when it comes to the free, prior, and  
18 informed consent.

19 THE CHAIRPERSON: Okay. Proceed.

20 Just a caution -- as we've talked  
21 about before, this is your opportunity to ask  
22 questions of the Teck panel. It's not meant to be an  
23 opportunity for argument or introducing evidence. So  
24 again, try and keep to the questions.

25 MS ASTERISK: Understood. Okay. My

1 last question, then.

2 If any party or its representatives  
3 didn't feel good about their decision or stated that  
4 they had no other option or they felt a sense of  
5 defeat, would you consider that free, prior, and  
6 informed consent had still been achieved?

7 DR. JOHNSTONE: I think it's important  
8 that the Panel be clear that I've been referencing the  
9 need to work to achieve and I think Tech has  
10 demonstrated that. I think it's also very important  
11 to recognize that free, prior and informed consent  
12 does not mean veto from any one party that may  
13 disagree, and that's obviously one of the great  
14 difficulties around free, prior and informed consent,  
15 but it does allow for dissenting parties.

16 We also believe, within that, that as  
17 a responsible company we have to talk with the duly  
18 elected leadership of a community. And we  
19 purposefully talk with them in the process of  
20 establishing agreements. To bypass that would be  
21 highly inappropriate, and that's why we go to the  
22 democratically elected leaders of the communities.

23 That's not to say that individuals  
24 will not -- individual community members may have  
25 different views than us or their leadership, but we

1 think that we go back to the original principle in  
2 UNDRIP, and that it does not mean that any one  
3 community has the right of veto.

4 MS ASTERISK: All right. Changing  
5 tack now, I'm going to Mr. McFadyen's presentation at  
6 the beginning, your direct talk.

7 And you were talking about COSIA, that  
8 Teck is a founding member of COSIA, and that all these  
9 technologies are available.

10 Had you also ever worked with Alberta  
11 Innovates?

12 MR. McFADYEN: No, I haven't.

13 MS ASTERISK: No? Or any of the  
14 prior -- has Teck ever worked with the prior  
15 iterations of Alberta Innovates?

16 MR. McFADYEN: So let me check with  
17 Mr. Chiasson.

18 MS. ASTERISK: Like AOSTRA was one of  
19 them. I think that was a very early iteration of  
20 Alberta Innovates.

21 --- Pause

22 MR. CHIASSON: Mr. Chairman, Teck is  
23 currently funding projects with Alberta Innovates. We  
24 also fund projects and participate in COSIA. And  
25 Alberta Innovates often participates as a -- as a

1 participant with COSIA projects as well.

2 So yes, Teck does participate with and  
3 collaborate with Alberta Innovates.

4 MR. McFADYEN: So when you asked the  
5 question initially, I thought you pointed the question  
6 at me, have I dealt with them, hence my answer no.

7 MS ASTERISK: Understood, yeah. No,  
8 sorry. I meant as a -- as a group, if the group had  
9 been working all along because they've done a lot,  
10 really, over decades in terms of research and  
11 technologies and that sort of thing.

12 Had you ever heard about the Green  
13 Chemistry ideas for detoxifying tailings that were  
14 presented in the eighties?

15 MR. CHIASSON: Mr. Chairman, I have  
16 not heard of that.

17 MS ASTERISK: Not heard about those.

18 Apparently there is thousands of good  
19 ideas and hundreds of practical ideas for how to get  
20 the toxic qualities removed from tailings, and they  
21 would have cost between three to five dollars a cubic  
22 metre, and none of them were ever implemented.

23 MR. CHIASSON: Was that a question?

24 MS ASTERISK: My question is, have you  
25 heard of the concept of full containment for tailings?

1                   MR. CHIASSON: Mr. Chairman, tailings  
2 does have full containments, so if -- if I understand  
3 the question correctly, do I understand about full  
4 containment, absolutely.

5                   When tailings -- when tailings are  
6 placed, they are placed within full containment.

7                   And if I could elaborate, I guess, on  
8 earlier remarks, Teck is not yet an operator in the  
9 oil sands, yet we were one of the founding members of  
10 Canada's Oil Sands Innovation Alliance. And this  
11 Innovation Alliance has brought together, to date,  
12 \$1.4 billion of technology in collaboration, including  
13 in tailings, and Teck, along with the other  
14 companies -- well, I'll speak for Teck.

15                   Teck is benefiting from its  
16 participation on COSIA because in the oil sands, there  
17 were many companies operating before Teck, and we're  
18 leveraging those learnings of best practices and best  
19 technology.

20                   In fact, we've incorporated the fluid  
21 tailings treatment approach centrifuge fluid tailings  
22 based on our learnings from our participation in  
23 COSIA.

24                   So the technologies that the  
25 representative from the Keepers of Athabasca is



1 speaking about I'm not aware of, but I can tell you  
2 that they're not -- for one reason or another, they  
3 were not advanced.

4 And the leading technologies within  
5 the best minds in the business, centrifuge fluid  
6 tailings for treating fluid tailings, Teck has adopted  
7 that technology and included it in the Frontier  
8 project.

9 MS ASTERISK: Are the proposed tailing  
10 ponds open to the air?

11 MR. CHIASSON: If the question is are  
12 the proposed tailings ponds open to the air, the  
13 answer would be yes.

14 MS ASTERISK: That's not full  
15 containment.

16 Are the tailings ponds deposited on  
17 sand, compacted clay? Do they have a liner  
18 underneath?

19 MR. CHIASSON: Mr. Chairman, they are  
20 compacted on what I would call over-burdened material  
21 or in the industry we call it plasticine till or  
22 over-burden.

23 Part of the work that a company does  
24 is to understand the underlying materials and design  
25 the tailings facility appropriately, so yes, the -- as

1 far as liners, that's -- that's not typically done in  
2 the oil sands tailings.

3 MS ASTERISK: Even municipal landfills  
4 have liners.

5 However, I am going back to the answer  
6 given -- well, it's kind of hard to figure out from my  
7 notes who. I think it was to Kirk from Ecojustice.

8 Has Teck incorporated any emergent  
9 technologies, and the answer was, "No, we have not  
10 committed to any emerging technologies".

11 I found that to be quite interesting.

12 But the waste -- so you've not  
13 committed to any emerging technologies. You're using  
14 all of the technologies that other companies already  
15 use. Is that right?

16 MR. CHIASSON: Which part of your  
17 question would you like me to answer first, the we're  
18 not using any emerging technologies or we're using  
19 technologies that have been proven by other companies?

20 MS ASTERISK: I'd like you to clarify  
21 the answer about no, you've looked at all these  
22 technologies and you're not using any of them. Is  
23 that the case?

24 MR. CHIASSON: So could you please  
25 refer to your reference in that statement? Where did

1 that come from?

2 MS ASTERISK: Sure. That comes  
3 from -- oh, sorry. It's Barry's -- co-counsel for  
4 OSEC. It would have been yesterday, I think.

5 MR. IGNASIAK: Mr. Chair, since we  
6 don't have a transcript reference, maybe the easier  
7 way would be just simply not to rely on the reference  
8 and just ask -- just ask the full question so that --

9 MS ASTERISK: Okay.

10 MR. IGNASIAK: -- so that it's not  
11 based on anything they said previously.

12 MS ASTERISK: Thank you.

13 The question is, is Teck going to be  
14 using any emerging technologies out of all the COSIA  
15 work that you've done?

16 MR. CHIASSON: Mr. Chairman, the  
17 answer to that question is yes. In fact, through our  
18 participation in COSIA, as I mentioned, we included  
19 one of the leading or, in our view, the leading  
20 technology for managing fluid tailings, which is --  
21 and treating fluid tailings, which is centrifuge  
22 technology.

23 From our involvement in COSIA, we're  
24 participating in advancing a number of other  
25 technologies.

1           There's a number that have not yet  
2       been commercially proven. We discussed some of those,  
3       I believe it was, yesterday morning about a list of  
4       GHG emerging technologies that, in Teck's view, have  
5       not yet been commercially proven.

6           But we'll be keeping a close eye on  
7       those because, as mentioned yesterday in my testimony,  
8       we believe that a lot of those are showing promise.

9           And throughout the life of the  
10      project, we're going to continue to look for ways to  
11      adopt best practices and technology as applicable to  
12      improve the project and to improve or lower our GHG  
13      emissions intensity, for one, to reduce our river  
14      water use intensity, for another.

15          So as mentioned earlier, even though  
16      we're not yet operating a project, Teck's value --  
17      Teck's values align with those of COSIA, and that's --  
18      that's why we became a founding member while not being  
19      an operator. So we're going to continue to  
20      participate.

21          And we will adopt technologies as they  
22      become proven should they help to improve the project  
23      as applicable.

24          MS ASTERISK: See, our questioning  
25      along these lines is based on historical evidence that

1 even though emerging technologies continue to be  
2 developed, they are not used because they create an  
3 additional cost like the three to five dollars per  
4 cubic metre for getting the toxicity out of tailings.

5 None of those were ever used, and I'm  
6 going to ask you now, if there was a technology that  
7 came forward, hypothetically, that would detoxify  
8 tailings for three dollars a cubic metre, is that  
9 something that Teck would consider?

10 Green Chemistry options, AOSTRA,  
11 1980s.

12 MR. CHIASSON: Mr. Chairman, Teck is  
13 absolutely committed to continuous improvement. If  
14 there was an emerging technology in any way that would  
15 be an improvement for the project, we would certainly  
16 consider it.

17 That is -- that is the notion with  
18 COSIA.

19 And for the Frontier project, which is  
20 a 41-year operating asset or should the project be  
21 approved, it would be a 41-year mine life operating  
22 asset, Teck is absolutely committed to continuous  
23 improvement. And that's through best practices,  
24 that's through adopting the best available technology  
25 economically achievable, all of those things.

1                   So the answer to the question is  
2 absolutely.

3                   MS ASTERISK: During the  
4 cross-examination, there was a fellow reporting -- not  
5 sure which because it's hard to tell from back there.  
6 But fellow said that -- this is about building  
7 water -- potential for building a water treatment  
8 plant.

9                   He said that "effective treatment of  
10 all contaminants can occur through constructed  
11 wetlands".

12                   And my question about that is, you've  
13 just said that you're up for continual improvement and  
14 working towards eliminating risk. How does not  
15 building a water treatment plant but, instead, using  
16 wetlands to treat your water -- how does that -- how  
17 does that even work with continual improvement?

18                   It seems to me like a big step  
19 backward.

20                   I think the other statement on this  
21 was that "We estimate active water treatment will not  
22 be required".

23                   MR. CHIASSON: Mr. Chairman, that is  
24 correct.

25                   The pit lakes that will be developed

1 at the end of mining will be essentially, for lack of  
2 a better phrase, treatment facilities. All process  
3 affected water will be directed to the pit lakes where  
4 they will be -- they will receive passive treatment  
5 and achieve acceptable water qualities before --  
6 before being released.

7 And we feel that that is a -- is the  
8 best approach from a number of reasons.

9 When plants are constructed, there's  
10 power required. So we look at the net environmental  
11 effects and we also look at cost as well. There's a  
12 number of considerations.

13 But passive treatment of water at the  
14 end of mine life through the use of pit lakes is, in  
15 our view, a very good approach, and that's the one  
16 that we've included for Frontier.

17 MS ASTERISK: I find it fascinating  
18 that you're quoting energy use as a reason not to make  
19 a water treatment plant, but yet you're using  
20 centrifuges. Is that not contradictory?

21 Which -- centrifuges are very energy  
22 intensive, I'm sure you know.

23 MR. CHIASSON: Mr. Chairman, we -- I  
24 discussed this yesterday in my remarks.

25 The -- a project like Frontier,

1 there's a lot of components. There's a lot of aspects  
2 of the project.

3 The way that we assess and design  
4 Frontier is with the whole system in mind because  
5 there's often certain aspects that can be approved  
6 from an environmental perspective but at the detriment  
7 of others.

8 The centrifuge technology system that  
9 was included to treat fluid tailings was part of the  
10 overall changes from our design that was the original  
11 design in the integrated application that we submitted  
12 in 2011, so there were several changes that were made  
13 to the project design, one of which includes  
14 centrifuging fluid tailings.

15 And the net effect -- the net  
16 environmental effect -- the net environmental effects  
17 of the changes that were made to the project were that  
18 we reduced the overall footprint and the linear -- not  
19 the linear, but the perimeter of the project by --  
20 from -- by 20 percent.

21 We reduced the river water use  
22 intensity from 2.5 barrels of river water for every  
23 recovered barrel that we produced.

24 We reduced our GHG -- the emissions  
25 intensity from 41.4 kilograms per barrel of recovered



1 barrel down to 38.4.

2                   And our tailings plan treats the fluid  
3 tailings and it puts in a geotechnically stable  
4 location in the mine pit so that we don't actually  
5 require any active tailings dams in the final closure  
6 landscape.

7                   So when we do a project design and  
8 when we develop a plan and when we do the design for a  
9 project like frontier, we look at the whole system and  
10 the net environmental effects, and we select the  
11 optimum design and the optimum plan, taking into  
12 consideration all of the components.

13                   MS ASTERISK: Okay. There is some  
14 cross-examination around the hydraulic barrier, the  
15 physical wall that is supposed to prevent horizontal  
16 seepage.

17                   My question now is, what is going to  
18 prevent vertical seepage?

19 --- Pause

20                   MS ASTERISK: From the tailings down  
21 into the groundwater.

22                   We worry about surface water, about  
23 our aquifer water. The bitumen mines will contaminate  
24 this underground water.

25                   Using aquifers for withdrawals should

1 not be allowed.

2 Oh, that's different.

3 Tailings ponds leak into the  
4 groundwater. These oil sands plants, they deprive the  
5 people in the area of their cultural ties to the land  
6 where water is polluted. Fish are not good. Animals  
7 are not good. Even the berries are not good. That's  
8 directly due to the oil sands plants.

9 We're adding more plants --

10 THE CHAIRPERSON: Ms Asterisk, you  
11 asked a question. I think the panel's ready to  
12 answer.

13 MS ASTERISK: Oh, ready. Okay.  
14 Just try to take up some time here.  
15 Talking about vertical seepage.

16 MR. CHIASSON: Sorry. So, Mr.  
17 Chairman, during operations the plan includes using  
18 pumping wells to manage seepage from tailings.

19 We have perimeter ditches around the  
20 tailings facilities. We have pumping wells in place.  
21 We have monitoring wells to ensure that the pumping  
22 wells are performing as expected.

23 Pumping wells have been used in the  
24 industry for many decades. It's a robust plan.

25 For closure, we're going to continue

1 to investigate and learn, and learn more, about the  
2 hydrogeological setting of the project over the life  
3 of the project while managing seepage from the ETA  
4 using pumping wells, the knowledge that we're going to  
5 gain over the life of the project, and from our  
6 continued participation in COSIA should better  
7 technology be developed for managing seepage from  
8 tailings or best practices.

9           And at the end of the mine life with  
10 the learning about the hydrogeological setting of the  
11 project, increased learning, incorporating that with  
12 the best technology of the day and the best approach  
13 of the day, that is the plan for designing the  
14 hydraulic barrier system for the closure.

15           We think that that's a robust approach  
16 for managing the seepage and using a system during  
17 operations that's proven and tested and robust, and  
18 then designing and implementing a system for closure,  
19 taking into account all the learnings during  
20 operations.

21           And also, should the project be  
22 approved, the end of mine life is 2066, taking into  
23 account the best technology and the best practices for  
24 that design, we think that will help us optimize that  
25 design and plan.

1 MS ASTERISK: So trying to better  
2 understand this concept of hydraulic pumping wells,  
3 how does that even work with groundwater?

4 I know that in a municipal landfill  
5 setting there's often a set of two different barriers  
6 and then the pumping well pumps between them. You  
7 know if there's leakage from the first barrier, then  
8 it goes into the middle and then it gets pumped out.

9 But how does that work in an  
10 environment where there are no barriers, there's no  
11 liner, there's nothing?

12 MR. CHIASSON: Mr. Chairman, I would  
13 like Scott Donald to answer the question.

14 MR. DONALD: Mr. Chair, Scott Donald  
15 here.

16 In terms of pumping wells to control  
17 the seepage, these would be located around the  
18 perimeter of the tailings facility. They would pump  
19 groundwater around that perimeter and locally lower  
20 the water table.

21 So seepage from the tailings facility  
22 would go to the base of the facility and then it would  
23 move towards the pumping wells and we would pump the  
24 water out at that location back to the closed circuit  
25 of the operations.

1 MS ASTERISK: So did I understand you  
2 correctly that you are planning on lowering the water  
3 table first before tailings is deposited into the  
4 tailing pond, and then any consequent water would be  
5 tailing water into the groundwater and you would be  
6 able to recirculate that?

7 Is that what you just explained?

8 --- Pause

9 MR. CHIASSON: Mr. Chairman, we are  
10 going to answer that question in two parts.

11 The part I will start with absolutely  
12 we will have the pumping well system in place prior to  
13 placing tailings in the external tailings area. We  
14 will have the wells operational and working prior to  
15 placing tailings.

16 And for the second part of the  
17 question I was going to ask Scott Donald to respond.

18 MR. DONALD: Scott Donald here.

19 I think the question was related to  
20 the timing of when the pumping would begin. Did I  
21 understand that correctly?

22 MS ASTERISK: I'm just trying to get a  
23 better understanding about how these pumping wells  
24 work.

25 To me, groundwater has a lot of

1 interesting geology going on. How do you even know  
2 you're pumping tailings?

3 I understood your answer was that you  
4 were going to first lower the water table so that any  
5 subsequent water in the groundwater area would be  
6 tailings, and then you will know that you are  
7 recirculating tailings.

8 So I'm just trying to understand the  
9 process for these pumps.

10 MR. DONALD: Thank you for that.

11 So to try to describe the process from  
12 initial construction and then moving forward,  
13 initially the pumping wells would be in place at the  
14 same time the tailings facility is constructed. You  
15 would then monitor the groundwater conditions in that  
16 area. So you wouldn't be pumping the water level  
17 lower initially. You would first monitor and look for  
18 indications of seepage conditions from the tailings.

19 At that time, if you see that is when  
20 you would operate the pumping wells. Then at that  
21 time you would know that you are pumping the tailing  
22 seepage from the facility.

23 So that time won't be right away. It  
24 will take some time for that seepage to arrive at the  
25 pumping wells.

1 MR. CHIASSON: And just to add to Mr.  
2 Donald's comments, I think part of the question too  
3 was well, how do you know that it's pumping the  
4 tailings seepage?

5 Assurance for that is through a series  
6 of monitoring wells that are out beyond, outside of  
7 where the pumping wells are located. Monitoring wells  
8 are just that. We monitor the quality of the water in  
9 that area to ensure that the pumping well system is  
10 acting as expected and as designed.

11 MS ASTERISK: So are we to understand,  
12 then, that you are going to be using the monitoring  
13 wells to determine when to start the pumps basically?  
14 --- Pause

15 MR. CHIASSON: Yes, thanks for the  
16 question.

17 As Mr. Donald mentioned, we expect it  
18 will take some time for seepage from the tailings,  
19 external tailings facility, to reach the pumping  
20 wells' location. We will be monitoring the  
21 groundwater inside of the pumping wells, inside of the  
22 project area, to understand the seepage, to know when  
23 to expect the pumping wells to be returning the  
24 seepage back to the tailings area.

25 MS ASTERISK: You can expect all you

1 like. I'm going to suggest that no matter how many  
2 monitoring wells you have, underground geology, it's  
3 not something you can visibly observe.

4 So my question to you is: How do you  
5 know that you are going to get all of the seepage  
6 before it hits the Athabasca River?

7 MR. CHIASSON: Mr. Chairman, this is a  
8 proven methodology to ensure, I guess -- the system of  
9 pumping wells is proven in industry to address  
10 seepage.

11 The purpose of the monitoring wells is  
12 to ensure that any water, or any groundwater, external  
13 to the pumping wells, so beyond where the pumping  
14 wells are located in relation to the tailings area, to  
15 make sure that that groundwater quality is acceptable  
16 for outside of the project.

17 It's confirming that the pumping wells  
18 are working as expected.

19 The beauty of a system like pumping  
20 wells is should there be an issue that arises or  
21 should there be an observation that things are not  
22 happening as expected, additional wells can be added  
23 to make sure that seepage is being properly managed.

24 MS ASTERISK: Were you aware that  
25 there is a current NAFTA challenge to Canada regarding



1 our tailings treatment because of the amount of  
2 tailings that is currently in the Athabasca River?

3 And you are talking about proven  
4 technology here.

5 MR. CHIASSON: Mr. Chairman, yes, we  
6 are aware of the NAFTA challenge.

7 MS ASTERISK: It would suggest that  
8 this proven technology might not be working as  
9 intended. There's been multiple studies about the  
10 amount of tailings getting into the Athabasca River.

11 I'm going to ask you again: Will Teck  
12 consider full containment, and by that I mean tanks, I  
13 mean fully contained tailings that are not open to the  
14 air, that are not placed onto sand that leaks into  
15 groundwater? Will you consider full containment of  
16 your tailings in a tank?

17 MR. CHIASSON: Mr. Chairman, no.

18 MS ASTERISK: Thank you.

19 Modernization of the current oil sands  
20 mining technology and use is badly needed. The Teck  
21 mine proposal has planned a large facility with much  
22 of the same outdated technology, appears to have basis  
23 in their facility design on previous mine designs.  
24 These technology origins are very old.

25 The question is: Who did the design

1 of the proposed facility?

2 MR. CHIASSON: Sorry, just for  
3 clarification. Which facility are you speaking of?

4 MS ASTERISK: Frontier Oil Sands  
5 Project.

6 MR. CHIASSON: So there were a number  
7 of -- the effort was led by Teck obviously. But we  
8 had a number of consultants and engineering firms  
9 helping with the design for Frontier.

10 As Mr. Johnstone alluded to in his  
11 remarks previously, we started engaging and consulting  
12 on the project back in 2008. We started doing  
13 exploration work around the same time. We developed  
14 and designed this project in stages. As we gained  
15 more information over the years the stage of the  
16 project advanced from, in engineering terms,  
17 pre-scoping, scoping, pre-feasibility.

18 So that language pertains to increased  
19 level of detail, increased level of engineering.

20 We have used firms that have done many  
21 designs in the oil sands.

22 For plant facilities it would have  
23 been companies like Amec and WorleyParsons. For water  
24 management it would have been companies like Golder  
25 Associates. For terrestrial design and ecosites it

1 would have been companies like Stantec. For baseline  
2 studies it would have been a number of companies,  
3 including Stantec. For geotechnical engineering it  
4 would have been Norwest, a company that now has been  
5 acquired by Stantec. For mine plan and tailings plan  
6 design we would have gotten help from companies like  
7 Norwest.

8 And there's more. But that's just an  
9 example of the many people, engineering firms, in  
10 addition to Teck staff, that worked on baseline  
11 studies, exploration programs, plant design, tailings  
12 facility design, river water intake design, seepage  
13 management design, all aspects of the design.

14 MS ASTERISK: Thank you.

15 You have worked with a lot of people  
16 obviously to come up with these designs, but it is all  
17 headed by Teck; that is, Teck is overseeing all of  
18 this. It's all coming together somewhere. Right?

19 MR. CHIASSON: That is correct, yes.

20 MS ASTERISK: Okay. So a question  
21 about the various experts that you've used for project  
22 design.

23 Do you know if there are any  
24 traditional knowledge-holders included in that group,  
25 indigenous traditional knowledge-holders?

1 DR. JOHNSTONE: Mr. Chair, to my  
2 knowledge, there were no indigenous knowledge-holders  
3 in the specific design. Indigenous knowledge provided  
4 feedback to the project in a number of areas.

5 You know, one simple example was at an  
6 early stage of consultation we talked with  
7 knowledge-holders about potential for roads around the  
8 facility, and there was specific feedback, for  
9 example, that communities did not want roads around  
10 the Birch Mountains.

11 So we changed the alignments of the  
12 road. We removed those entirely from the project.

13 So there are many areas where  
14 indigenous knowledge has informed project design.

15 I think it's also important, too, that  
16 a robust process around inclusion of indigenous  
17 knowledge is really very important. And at a very  
18 early stage we worked with Fort McKay First Nation in  
19 2010 to pilot their traditional ecological knowledge  
20 best practices for the Frontier Project.

21 We welcomed that. We worked  
22 collaboratively with them to ensure that their  
23 traditional ecological best practices were  
24 incorporated, were applied to the environmental  
25 assessment that was submitted on September 11<sup>th</sup>.

1                   And certainly Fort McKay First Nations  
2 subsequently recognized that Frontier assessment and  
3 application satisfied a number of their best  
4 practices.

5                   MS LaCASSE: Ms Asterisk, sorry to  
6 interrupt you, but just for the benefit of the Court  
7 Reporter, if I could remind the witnesses in the back  
8 row again to identify themselves before speaking.

9                   Thank you.

10                  MS ASTERISK: During the design and  
11 planning, the current operating mine known as Suncor  
12 did not include a tailings waste pond.

13                  In the original design tailings ponds  
14 were not required, but when the facility was built it  
15 didn't work as planned and they created a large amount  
16 of waste materials that they didn't know what to do  
17 with. So they quickly decided to build a holding pond  
18 with available soil on an island right in the  
19 Athabasca River. They thought we'll figure something  
20 out in a couple of years and solve this problem. That  
21 was 50 years ago.

22                  This is the worst example in the  
23 history of Canadian mining history, which did not  
24 scale up well at all. In fact, it's an example of  
25 disastrous scale-up problem. One of the key sources

1 of the problem is the extraction method chosen 50  
2 years ago. It uses sodium hydroxide, which creates  
3 the emulsion problem that they have chosen not to fix  
4 or change.

5 The question is: Why would Teck Mine  
6 use the same or a similar extraction method in this  
7 new mine proposal when this extraction method has  
8 proven not to work well and to cause so many expensive  
9 and detrimental problems?

10 MR. IGNASIAK: Mr. Chair, I think  
11 we're getting to the position where it's hard for the  
12 witnesses to answer a direct question because of the  
13 lengthy preambles.

14 I'm wondering whether we could get a  
15 direction to just have somewhat more crisp questions.  
16 With the preamble rolled in, quite frankly I don't  
17 think the witnesses can accept the question.

18 THE CHAIRPERSON: Thank you.

19 Yes, Ms Asterisk, if you can try and  
20 shorten up the front end. It does make it hard to  
21 follow all the items in your list in the question.

22 MS ASTERISK: Okay.

23 It's hard for me because this is from  
24 one of our co-chairs. So I'm kind of obligated to do  
25 what I can with it.

1                   The main point of the question is why  
2 are you using technology that you say is proven  
3 technology but in fact it's proven to fail?

4                   That's why we have a NAFTA challenge  
5 about our tailings management. This is proven to fail  
6 technology. Why are you still using it?

7                   MR. CHIASSON: Mr. Chairman, Teck's  
8 design includes technology such as -- I mentioned a  
9 couple before, but learnings from best practices  
10 within the oil sands, emerging technology.

11                   A couple of examples would be the  
12 paraffinic froth treatment process for extraction  
13 treatment to recover the bitumen. This practice was  
14 first implemented in the early 2000's. It would have  
15 been done by Shell at its MRM mine.

16                   And as discussed in some of these  
17 proceedings, that technology is one of the -- is  
18 amongst the lowest GHG intensity production compared  
19 to any oil sands.

20                   So I think I do understand the  
21 question, but I would argue that Teck has adopted, you  
22 know, new proven technology into its design, such as  
23 the paraffinic froth treatment process, such as  
24 centrifuged fluid tailings process.

25                   With respect to tailings seepage, I

1 can't speak for other companies. What I can speak for  
2 is Teck. In our commitment, in our design, is --  
3 there's a reason that we use proven technology in our  
4 designs, it helps to reduce the risk that the  
5 technology will perform as expected.

6 So I think this question had a couple  
7 of aspects but, yes, Teck has included new technology  
8 and, yes, Teck has a robust external tailings area  
9 seepage management plan that does use proven  
10 technology and we think that's important. I cannot  
11 speak for other companies, but I can speak for Teck;  
12 we will have a robust seepage system in place. That  
13 is in our design, that is in our plan. We will  
14 monitor seepage to ensure that that system is  
15 performing as expected.

16 Now, if I could just add. You know,  
17 Teck has been around for 100 years, more than 100  
18 years actually, and since 1979 we have received  
19 70-some reclamation and environment awards. We are a  
20 responsible development company, and we will do that  
21 for Frontier.

22 MS ASTERISK: There are several new  
23 oil sands extraction methods which do not create  
24 tailings waste. They've been proposed or are now in  
25 practice. One example is the CNRL in-pit extraction



1 method. There are at least four other tailings-free  
2 methods that this writer is familiar with.

3 Are the Teck mine engineers familiar  
4 with these more modern extraction methods?

5 MR. CHIASSON: I'll start with the  
6 CNRL process, and then I'll ask you about the other  
7 ones that you have in mind. The CNRL process, we're  
8 very interested to see how that pilot unfolds. That's  
9 not yet in commercial production, it is something that  
10 CNRL is piloting. The intent of that is to have  
11 extraction at the pit face. So that's something we're  
12 going to keep a close eye on, like we will with any  
13 other technology that we think can improve the  
14 project. It is not commercially proven yet and, as  
15 such, we have not included it into the Frontier  
16 design.

17 MS ASTERISK: Okay. Just back to a  
18 little bit of history about innovative technologies,  
19 including the work of AOSTRA, which is now Alberta  
20 Innovates.

21 There's a sand reduction process  
22 designed and hand-tested in 1963 by Richard et al, and  
23 it's a good example of an ignored technology. An  
24 AOSTRA book, the 1987, described this process again in  
25 detail, but was ignored. Technical publication from

1 1994 reviewed several alternatives to the hot water  
2 process, the authors, Dr. Lauren Hepler and Dr. R.  
3 Smith, recommend serious review of the --

4 THE CHAIRPERSON: Ms Asterisk --

5 MR. IGNASIAK: Mr. Chairman, again,  
6 I'm not trying to be difficult, I apologize. But I  
7 think -- I mean, who wrote the articles? I mean, if  
8 there's a technology she wants to ask about, I think  
9 the best way would be to just ask and the Panel will  
10 do their best to respond.

11 But again, I mean, with the preamble,  
12 by the time we get to the question, I'm not sure the  
13 witnesses can be expected to fully understand what the  
14 question was.

15 THE CHAIRPERSON: Okay. Yeah --

16 MS ASTERISK: Just one more sentence  
17 of explanation and then I've got one, two, last  
18 questions from this guy with the big exposition in  
19 front. So I'll be done with that.

20 THE CHAIRPERSON: Okay. So just,  
21 again, to follow Mr. Ignasiak's point though. So,  
22 yes, finish your question here, but if you have any  
23 further questions really try and shorten up the  
24 preamble and just kind of give us the nugget of what  
25 the background is.

1 MS ASTERISK: Sure. I just think that  
2 the goal in some of this is to make sure that the  
3 Joint Review Panel knows about all of this innovative  
4 technology that's been developed, at great expense and  
5 over a period of decades, that has been ignored and  
6 not processed.

7 THE CHAIRPERSON: Just a comment on  
8 that. So I would agree, that could be helpful to the  
9 Panel.

10 MS ASTERISK: Yeah.

11 THE CHAIRPERSON: But you will have an  
12 opportunity when you do your direct to present some of  
13 this material. You don't have to try and get it all  
14 in during the cross.

15 MS ASTERISK: Okay. So in the past 10  
16 years new developments in the field of green  
17 technology have added additional options related to  
18 clean extraction and improved remediation. Are Teck  
19 Resources engineers familiar with green chemistry  
20 options?

21 MR. SPELLER: Mr. Chairman, we're just  
22 going to speak to one of the folks in the back row  
23 there that's been sworn in on this question. So just  
24 give us a second.

25 MR. CHIASSON: Mr. Chairman, I guess

1 in answer to the green chemistry, we are somewhat  
2 familiar that it was tested years ago. To our  
3 knowledge, it's not commercially proven, it's not  
4 being advanced by any of the oil sands mining  
5 companies that we're aware of. We participate in all  
6 of the environmental priority areas with in COSIA.

7 \$1.4 billion of technologies have been  
8 contributed and shared. This technology, because it's  
9 our understanding that it's not commercially proven,  
10 is not being advanced.

11 MS ASTERISK: Thank you. So what  
12 modernization methods, if any, are Teck bringing to  
13 the table, or it's all proven?

14 MR. CHIASSON: Mr. Chairman, there's  
15 two questions there, I believe. Is Teck committed to  
16 helping to advance, develop technologies that will  
17 become commercially proven? Absolutely. That's why  
18 we participate in COSIA, we're doing research and  
19 development, we'll continue to do that.

20 With respect to concluding technology  
21 into a design, it is not prudent practice to  
22 incorporate something that's not commercially proven  
23 into your design of a facility because the risk is too  
24 high that that technology may not work.

25 Teck's approach is to incorporate

1 technology that has been proven in that regard. That  
2 said, we are also very committed to continuous  
3 improvement, we're involved in COSIA, we're continuing  
4 to do research and development, we've incorporated  
5 centrifuge fluid tailings as an example, which was  
6 implemented in its application in treating fluid  
7 tailings only three years ago at Syncrude.

8 So while centrifuges have been around  
9 and used in the mining industry for many years, in the  
10 application of treating fluid tailings commercially  
11 they've been proven within the last five years. That  
12 would be an example of where Teck has included recent  
13 commercially-proven applications of technology or  
14 technology as an example.

15 MS ASTERISK: Thank you. Has Teck  
16 Resources reviewed the serious problems with the  
17 current heavy oil mines?

18 MR. CHIASSON: Could you be more  
19 specific in your question?

20 MS ASTERISK: Well, I'm pretty sure  
21 this relates to the NAFTA challenge and the tailings  
22 leaking into the Athabasca, but there's many others.  
23 There's aerial emissions, sulphur dioxide is  
24 travelling for thousands of kilometres, not 20 or 50.  
25 There's a large number, I'm not going to spell them

1 all out.

2 Our question is, have you looked at  
3 those? Have you seriously reviewed the serious  
4 problems that already exist in the current heavy oil  
5 or bitumen mines?

6 MR. SPELLER: Mr. Chairman, I'll  
7 start. So in the Environmental Impact Assessment that  
8 we've done when we've looked at air quality and noise  
9 and all of the disciplines that we've looked at, we  
10 start with identifying what are potential linkages  
11 from the project? So what could come from the project  
12 into the environment, and we look for valid linkages.

13 But then what we also look at is  
14 existing monitoring data, frameworks, and we end up  
15 identifying a number of potential key issues or key  
16 questions. So through that exercise a number of the  
17 items that you've identified, or that you've mentioned  
18 in your filed material, we have looked at in our  
19 assessment.

20 So to do that, we take monitoring data  
21 to make sure that we understand the current conditions  
22 as well as we can. Then we predict, using models and  
23 other techniques, what we think the future  
24 environmental condition will be. So we have looked at  
25 things like aerial emissions, we've predicted those

1 and what the concentrations may look like in water.

2 We've looked at what I call PAI,  
3 potential acid input, what we tend to call more now  
4 acid deposition. So we've used the models and  
5 techniques that are required by different regulatory  
6 agencies, or the ones that we consider as best  
7 practice, to look at these items.

8 A lot of that information ends up  
9 going into our risk assessments. We have a Human  
10 Health Risk Assessment, a Wildlife Health Risk  
11 Assessment, and an Aquatic Health Risk Assessment to  
12 get conclusion.

13 So that's a bit of an overview to say  
14 that, yes, we have considered those items in the  
15 assessment that's in front of the Joint Review Panel  
16 right now.

17 MS ASTERISK: Okay. Last question  
18 from this fellow. What have you identified as the key  
19 challenges you will confront with the technologies  
20 you've chosen?

21 MR. CHIASSON: Sorry, I was just going  
22 to add to Mr. Speller's comments. If it would be  
23 helpful, the key decisions that were made for the  
24 project and technologies considered, that was the  
25 purpose of Volume 1, Section 2 of our Integrated

1 Application that we filed in 2011 that discussed the  
2 various decisions and the various technology  
3 selections, if that would be helpful.

4 Then of course that was updated with  
5 the project update. Volume 1, Section 2 discusses the  
6 key technology or decision changes from the Integrated  
7 Application. So I don't know if that would be  
8 helpful, but there are a number of decisions that were  
9 made in that section that touch on, I think, some of  
10 the questions you're asking about how, you know, some  
11 of the decisions were made.

12 MS ASTERISK: Okay. I guess I'll  
13 repeat the last question again, you kind of jumped me  
14 there.

15 MR. CHIASSON: Sorry.

16 MS ASTERISK: What have you identified  
17 as the key challenges you will confront with the  
18 technologies you have chosen?

19 MR. CHIASSON: I don't know quite how  
20 to answer that. I think we're very confident in the  
21 design and in the technology that we have selected.  
22 Does that mean that we're not looking to continuously  
23 improve from that design? The answer to that is no.  
24 We are looking to continue to find ways to do better.  
25 We feel we have a robust design and a robust plan.



1                   So I guess I would answer that with  
2 continuing to find ways to improve to reduce  
3 environmental effects such as greenhouse gas  
4 intensity, river water withdrawal use, compress our  
5 footprint to the degree we can further than what we've  
6 done, things along that nature. Fluid tailings  
7 treatment. Continue to look for ways to try to  
8 reclaim quicker and treat more tailings quicker.

9                   So I think there's a number of -- and  
10 we'll look at all of those to continuously improve  
11 from the design and the plan we have, but we do feel  
12 we have a robust design for Frontier.

13                   MS ASTERISK: Thank you. So speaking  
14 about those air emission, again in Mr. McFadyen's  
15 presentation at the beginning he was saying that all  
16 emissions were deposited within 20 kilometres,  
17 although some were up to 50 kilometres.

18                   Were you aware of the Environment  
19 Canada study that shows sulphur dioxide emissions  
20 going for over 1,000 kilometres from the existing  
21 plants? I'm really concerned about this tendency and  
22 understatement. It's really...

23                   MR. CHIASSON: Mr. Chairman, we're not  
24 sure of the reference. I'm fairly sure that Mr.  
25 McFadyen didn't include that in his opening remarks.

1                   That said though, to be helpful, we'd  
2 like to Mr. Person to respond.

3                   MR. PERSON: Reid Person. The  
4 reference I believe the question refers to is the  
5 Makar et al study where they evaluated acid  
6 deposition, it was a modelling exercise that  
7 Environment and Climate Change Canada undertook.

8                   This study was considered in the  
9 application. If I could point your attention to --  
10 just one second -- it's Attachment 7 to Teck's  
11 September 12 response. In this, where we've gone  
12 through and evaluated the Environment Canada modelling  
13 study we've looked at the same data, we've evaluated  
14 their modelling, and we come to a different  
15 conclusion.

16                   The fundamentally different conclusion  
17 that we come to is the Environment Canada modelling  
18 study predicts the potential for risk or risk  
19 associated with acidification. Our analysis compares  
20 that to the entire body of measurement data and finds  
21 that the model predictions are generally inconsistent  
22 and not supported by any of the measurement data or  
23 any of the snowpack direct measurements, water  
24 chemistry measurements.

25                   I'll ask my colleague, Jerry

1 Vandenberg, to elaborate on that.

2 MR. VANDENBERG: Jerry Vandenberg. So  
3 maybe I can pick-up on that using some of the data  
4 that would be more relevant to waterkeepers. So,  
5 namely, some of the measured water chemistry in the  
6 region and lakes. So I'm referring here to our  
7 September 12 submission, Attachment 7.

8 In this submission we have a table,  
9 it's Table 1, and it looks at the change in pH in 50  
10 lakes in the region. I'll just draw your attention to  
11 the final column in that table. So we have  
12 significance as I for increasing and N for not  
13 significant.

14 So there were two cases in these  
15 lakes. But kind of at the high level what we see is  
16 about half of the lakes are actually increasing in pH,  
17 which is the opposite of what we would expect if  
18 sulphur dioxide were to be a major issue. There's a  
19 lot of technical reasons for that, which are detailed  
20 in this attachment. But, you know, at the basic level  
21 we actually see the opposite of what would be  
22 occurring if sulphur dioxide emissions were  
23 essentially depositing sulphuric acid in these lakes.

24 So for more details, I guess have a  
25 look at that attachment. I'll leave it at that.

1 MS ASTERISK: The other study that  
2 shows that lakes hundreds of kilometres away from the  
3 current existing bitumen mines are affected and  
4 getting more acidic. How does that jive with your  
5 research?

6 MR. VANDENBERG: Jerry Vandenberg  
7 again. I'm assuming you're still referring to the  
8 report by Makar. Just for maybe the benefit of the  
9 Panel, that was a major section in ECCC's submission  
10 as well, so I suspect we'll be hearing more about this  
11 study.

12 So, again, we see the opposite of what  
13 would be expected if acid deposition were a widespread  
14 phenomenon in the oil sands region and beyond. We see  
15 this in the snowpack data, we see pH which is higher  
16 than pure rainfall. So, in other words, it's more  
17 alkaline, it's the opposite of what we would expect if  
18 acid deposition was an issue. We see this in lakes,  
19 we see this in a number of different lines of evidence  
20 which are laid out in Attachment 7 of the reply to  
21 ECCC.

22 MS ASTERISK: It just seems like  
23 there's, you know, contradictory research, and of  
24 course you're going to cherry-pick the ones that  
25 favour your project. But some of the knowledge

1 holders that we've been working with, and I won't read  
2 it all out again, but just to I guess ask Teck about  
3 some of these concerns that are raised by people who  
4 say that -- well, I guess I will have to read some of  
5 it.

6 I'm thinking of this one fellow in  
7 particular.

8 MR. IGNASIAK: Mr. Chairman, sorry to  
9 interrupt again. But, I mean, let's just get to the  
10 questions. They're going to have an opportunity next  
11 week, which we're all looking forward to, where  
12 they'll give their direct evidence and they'll be able  
13 to provide these views at that point.

14 MS ASTERISK: But we won't be able to  
15 get your response, that's the thing that I'm trying to  
16 get now. What's your response to, "Some things may  
17 not be conducive to putting coin in my pocket," and,  
18 "These things have a harder time getting accepted."

19 THE CHAIRPERSON: Ms Asterisk --

20 MS ASTERISK: "How can they find  
21 something against the person who is paying you?"  
22 "Where does the money come from? It comes from  
23 industry."

24 THE CHAIRPERSON: Ms Asterisk --

25 MS ASTERISK: Yes.

1 THE CHAIRPERSON: It is not that  
2 helpful to read those quotes. I would say if you have  
3 a question you want to ask the Panel, try and ask the  
4 question. If you want to read some of those during  
5 your direct, you know, you may.

6 MS ASTERISK: Okay.

7 THE CHAIRPERSON: Okay.

8 MS ASTERISK: How do you respond to  
9 allegations of ignoring important research because it  
10 doesn't suit your goals?

11 MR. SPELLER: So Mr. Chairman, that's  
12 not a practise that we do, so the discussion that we  
13 just had about that air quality study, we actually --  
14 what we have done is when we saw it we were surprised  
15 by the results. And the work that my colleagues were  
16 just speaking about was what we -- so, that was a  
17 modelling exercise that ECCC had done. So what we did  
18 is, we took the monitoring data that was available and  
19 said to ourselves, so how does this monitoring data  
20 compare to what the predictions are that they have?  
21 And we looked at them together and as Mr. Vandenberg  
22 and Mr. Person mentioned, when we look at those they  
23 don't align.

24 So I don't -- I don't think we cherry  
25 pick. I don't think we ignore data that we don't

1 agree with. What we tend to do is summarize the  
2 information that we have available, as I mentioned  
3 earlier, then we do our own analysis. And you're  
4 right in that sometimes those don't agree. And I  
5 think that's part of the reason why the oil sands is  
6 one of the most monitored regions in the world; there  
7 are complex issues that people are trying to figure  
8 out, but there is a lot of monitoring going on in the  
9 region right now.

10 DR. JOHNSTONE: Chair, I would just go  
11 on to say that, look, we have read Ms. Asterisk's  
12 submission today. I read it last night in detail. We  
13 recognize that there are traditional knowledge-holders  
14 that come from a very different perspective and  
15 framework than Teck resources and a scientific  
16 approach. We've done our best to work with  
17 traditional use-holders through the Nations or Metis  
18 communities to gain their input and the assessment and  
19 the design of the Project.

20 At the end of that process, 14 of the  
21 Indigenous communities have reached agreement with  
22 Teck that either identifies support or non-objection  
23 to Frontier in the filings with regulators and we  
24 defer to the written submissions around what that  
25 scope of non-objection may be, recognizing there's a

1 variety.

2 But, on top of that, there are joint  
3 recommendations that for the likes of Mikisew and  
4 Teck, ACFN and Teck, have jointly developed and  
5 submitted to the Panel that we think will further  
6 assist in managing the effects of the Project or  
7 cumulative effects in the region.

8 MS ASTERISK: Wow, three answers.

9 MR. CHIASSON: Mr. Chairman, just one  
10 more add. Along the lines of what Dr. Johnstone said,  
11 it was during early engagement with the Indigenous  
12 communities where they expressed concern about  
13 tailings in Pit Lakes to us and as a result we  
14 advanced a design. Our design includes -- it does not  
15 include placing tailings in Pit Lakes as a result of  
16 that feedback.

17 That is just one example of where we  
18 listened to concerns and we committed to advancing a  
19 design and a plan, taking those concerns into account  
20 as part of the design for Frontier.

21 MS ASTERISK: All right. Just to get  
22 to some more examples of chronic evasion here, why did  
23 you not include gasoline or diesel used on site in  
24 your greenhouse gas estimates?

25 MR. SPELLER: So, Mr. Chairman, to



1 clarify, we have included the gasoline and diesel used  
2 on site in your greenhouse gas emissions before you.

3 When we look at what we call the  
4 direct emissions, it is based heavily on the amount of  
5 diesel that would be burned, or the amount of gasoline  
6 and others.

7 The discussion we had earlier in the  
8 proceedings was related to including other emissions  
9 from other projects that develop that gasoline or  
10 develop that diesel; that was what that discussion was  
11 regarding. However, we have included the gasoline and  
12 the diesel that is going to be predicted to be  
13 combusted at the site in the greenhouse gas inventory.

14 MS ASTERISK: Thank you. You claim  
15 that work showing naphthenic acids contain other  
16 chemicals and they will degrade aerobically; the  
17 toxicity breaks down with time. Is it possible that  
18 naphthenic acids also evaporate into the air and can  
19 cause dangerous results?

20 UNIDENTIFIED SPEAKER: It's Jerry --  
21 Jerry Vandenberg?

22 MR. VANDENBERG: Oh, sorry, Jerry  
23 Vandenberg. Naphthenic acids are ions; they are very  
24 soluble in water. All chemicals would have some level  
25 of volatility, but these would be extraordinarily low

1 on the scale of volatile chemicals, and you know  
2 that's kind of the fundamental answer.

3 The second answer is that studies have  
4 looked for naphthenic acids on snowpack and it is not  
5 found. So, no, naphthenic acids are not one of the  
6 compounds that would be volatile or that would  
7 evaporate.

8 MS ASTERISK: Again, in Mr. McFadyen's  
9 presentation he quotes a figure of an estimate using  
10 163 birds annually between 2014 and 2016. What about  
11 the 5400 birds? Like, how is that not significant?  
12 Why do you insist on cherry picking the years that  
13 have fewer birds? Why not do a broader analysis?

14 MR. McFADYEN: Sorry, could you repeat  
15 that quote, please? I don't think it was me, but I  
16 want to check.

17 MS ASTERISK: Yeah, you bet. I'm just  
18 finding it now. You were -- oh, you're right, it was  
19 not you, it was during the cross-exam -- it was  
20 basically the very first in the cross-exam -- your  
21 self cross-examination, you're talking about ECCC  
22 acknowledging risk to birds, and the statement was  
23 about this 163 birds is the estimate for annual  
24 exposure.

25 MR. McFADYEN: Yeah. Mr. Speller

1 will cover that.

2 MR. SPELLER: It was either me or Mr.  
3 Ebner but I'll respond. So the 163 and the 167 that  
4 we discussed were actually shown in one of the tables  
5 that we pulled up I think it was yesterday afternoon  
6 around this time. So those were numbers that were  
7 reported by oil sands operators, so those weren't  
8 estimates, those were actually reported numbers.

9 The 5400 was an estimate that Mr.  
10 Ebner and a colleague of mine put together about  
11 potential birds landing in an area.

12 So, they are different numbers. They  
13 are both birds in our -- one is an estimate and then  
14 one was a recorded number taken from the oil sands  
15 operators in past years.

16 MS ASTERISK: Over two years, though?  
17 Just the two years, 2014 to 2016 -- I guess that's  
18 three years.

19 MR. SPELLER: Yeah, I believe it may  
20 have been 2013 to 2015 but, yes, a two, three or four  
21 year period.

22 MS ASTERISK: Thank you. Also, during  
23 the cross-exam it was I think about the -- about the  
24 cancers, it was stated that Teck has completed a  
25 comprehensive health study; is that correct?

1 MR. KOPPE: So it's Bart Koppe. Yes.  
2 Yes, that's correct, we did undertake a comprehensive  
3 human health risk assessment and as part of that human  
4 health risk assessment of the Teck Frontier Mine we  
5 considered the incremental cancer risks associated  
6 with -- with not just the Project but other projects  
7 in the region as well, forecast into the future, and  
8 that would have included the community of Fort  
9 Chipewyan.

10 MS ASTERISK: So what is it exactly  
11 that you mean by a comprehensive health study?

12 MR. KOPPE: So the use of the term  
13 comprehensive just means that we would have looked at  
14 an extensive list of chemicals of potential concern.  
15 We looked at a lot of different receptor locations or  
16 places where people could spend an appreciable amount  
17 of time. And, we also considered all possible  
18 exposure pathways.

19 It's just a description of the type of  
20 human health risk assessment that was conducted.

21 MS ASTERISK: Can you provide the  
22 terms of reference for the health study?

23 MR. KOPPE: Mr. Chair, before I answer  
24 that question I think it is important to differentiate  
25 between the work that we did in support of the

1 application, which is a human health risk assessment  
2 and a health study. A health study is quite different  
3 where you start tracking incidence of disease and  
4 illnesses and things like that.

5 That's not what we did as part of the  
6 application. We did a human health risk assessment.  
7 So, really, what we're looking at are just what are  
8 the risks associated with exposure to different types  
9 of chemicals in the communities in the local study  
10 area and even beyond the local study area.

11 Now, the terms of reference for the  
12 work that we do are dictated by the Government of  
13 Alberta for the most part. And, as well, they are  
14 dictated by guidance that's offered by not only  
15 Alberta Health, but also by Health Canada, and they  
16 really stipulate on how a human health risk assessment  
17 as part of an environmental impact assessment needs to  
18 be conducted. And those are the guidelines that we  
19 followed in our work.

20 MS ASTERISK: Okay, now I'm really  
21 confused because a human health risk assessment is not  
22 a comprehensive health study, so I just wonder which  
23 is it?

24 MR. KOPPE: Mr. Chair, just to be  
25 clear, we referred to a comprehensive human health

1 risk assessment study. We did not refer to a  
2 comprehensive health study.

3 The health study that we referred to  
4 in our direct evidence referred to the work that was  
5 being done by Alberta Health Services, so that did not  
6 involve Teck.

7 MS ASTERISK: Thank you. So which  
8 aspects of health did you measure in your  
9 comprehensive human health risk assessment study?

10 MR. KOPPE: So we look at a number of  
11 different endpoints. We consider things like acute or  
12 short-term exposure to air concentrations. We also  
13 look at long-term or ongoing exposure associated with  
14 changes in air quality, water quality, diet quality,  
15 so traditional foods that might be consumed; we  
16 consider all of those are part of the comprehensive  
17 human health risk assessment. And we do that for a  
18 number of different exposure pathways.

19 And then the end result is you are trying to determine  
20 whether or not there's an increased risk for specific  
21 endpoints, like respiratory illness, it could be  
22 things like asthma, chronic obstructive pulmonary  
23 disease, we look at things like cancer; so it is  
24 really kind of an extensive list of potential diseases  
25 or illness that are covered off as part of the human

1 health risk assessment.

2 Those endpoints really are dictated by  
3 the toxic potential of the chemicals that are  
4 associated with industrial emissions. And, again, I  
5 stress the word potential because it doesn't mean that  
6 it is going to translate into a health effect. That's  
7 what a human health risk assessment does; it predicts  
8 health risks and then as part of that exercise you  
9 interpret what those risk actually may mean.

10 MS ASTERISK: Did it involve taking a  
11 full medical history and physical exam of every member  
12 of the community?

13 MR. KOPPE: No, Mr. Chair, that's not  
14 what a human health risk assessment does. Again, it  
15 is a predictive exercise.

16 Again, it is one that's dictated by  
17 guidance that's set out by Alberta Health and Health  
18 Canada. But there is no - there's no physical  
19 examination; there's no tracking of disease; those  
20 types of studies are typically covered by the  
21 regulators.

22 MS ASTERISK: Did it involve any  
23 biometrics, x-rays, bloodwork, lab tests, that sort of  
24 thing?

25 MR. KOPPE: No, and again the reason

1 is that that's not part of a human health risk  
2 assessment.

3 MS ASTERISK: And I believe you  
4 list -- you stated where the findings are; they are  
5 in one of your documents, if you can repeat that?

6 MR. KOPPE: Certainly. I would bring  
7 you to the Project update and it is in Volume 3, in  
8 Section 12.6.3, and that's just a description of the  
9 non-communicable diseases, so cancer rates and things  
10 like that; work that's been done by others in the  
11 area. So not work that has been done as part of the  
12 Teck application.

13 The findings of the human health risk  
14 assessment are described throughout that section, so  
15 once you get to the results section which is Section  
16 12.10, that's when we get into the predicted risks  
17 associated with industrial emissions.

18 MS ASTERISK: Okay. Did this study  
19 fit the comprehensive health study that the Alberta  
20 Cancer Board had recommended in 2009 and Alberta  
21 Health and Health Canada both had agreed to at that  
22 time?

23 MR. KOPPE: So Mr. Chair those studies  
24 were described in Section 12.6.3. We touch on the  
25 initial study that was done by the Alberta Cancer



1 Board that came out that looked at cancer incidence  
2 for the 12 year period between 1995 and 2006.

3 In 2014 Alberta Health Services issued  
4 a follow-up report which looked at the dates between  
5 1992 and 2011. Again, that work was done by the  
6 provincial agencies. And then it is our  
7 understanding, and again we were not involved with  
8 this work, but that there is a follow-up work or a  
9 third report that's in the process of being finalized.

10 Now, we haven't had access to any of  
11 that information so I can't really comment on the  
12 status of that report.

13 MS ASTERISK: Thank you. Were First  
14 Nation leadership and communities consulted on the  
15 health study, on the development of your comprehensive  
16 human health risk assessment study?

17 MR. KOPPE: So to answer your  
18 question, we followed -- and I mentioned this earlier,  
19 we follow the terms of reference that are identified  
20 or that are produced by the Government of Alberta. So  
21 the terms of reference, and the way to do a human  
22 health risk assessment are set by those provincial  
23 agencies. However, the human health risk assessment,  
24 and again that's Section 12, does address some of the  
25 Indigenous concerns that have been raised as part of

1 this process. We have had an opportunity to go to  
2 some of the communities and some of those are  
3 explicitly addressed in sections of the human health  
4 risk assessment.

5 MS ASTERISK: Thank you. And did  
6 First Nations leadership and communities agree to the  
7 terms of reference, the ones that were set by Alberta  
8 Health, I realize, but did they -- did you consult  
9 with them and they agreed that those were good?

10 And the reason I ask this is because  
11 in the proposed health study that never took place  
12 First Nations walked away when industry became part of  
13 the oversight committee for that study; they were not  
14 in favour of industry overseeing their health study,  
15 so we're very interested in this answer.

16 MR. SPELLER: Mr. Chairman, our folks  
17 are just convening about the -- a lot of this stuff  
18 was done back in the 2011 era; they just want to make  
19 sure they give the right answer, so just one second.

20 DR. JOHNSTONE: So once again this  
21 will be a multi-part answer. I'll start off and  
22 that's with the comment that the terms of reference  
23 for the environmental impact assessment were developed  
24 with input from Indigenous communities and there was  
25 extensive consultation around those.

1                   But I'll hand over to Mr. Koppe again  
2 regarding the specific input on the health study.

3                   MR. KOPPE: So, Mr. Chair, it is my  
4 understanding that there is an opportunity to comment  
5 on the terms of reference, as well to provide input on  
6 the methods that were used in the environmental impact  
7 assessment which would have included the human health  
8 risk assessment.

9                   Again I would refer you to specific  
10 sections of the human health risk assessment that  
11 attempted to respond to some of the Indigenous  
12 concerns that had been raised and that's Volume 3,  
13 Section 12.10.2.10. And, as well, there's a Section  
14 12.10.3.10. And, again, those sections attempted to  
15 address some of the concerns that have been raised.

16                   MS ASTERISK: Thank you. And what  
17 year was your comprehensive human health risk  
18 assessment study initiated?

19                   MR. KOPPE: Mr. Chair, I've been  
20 working on this project a long time. Actually, it  
21 goes all the way back to I think it was 2007 when this  
22 had a different life.

23                   We submitted a human health risk  
24 assessment as part of the integrated application, and  
25 then again we submitted a new Human Health Risk

1 Assessment as part of the Project Update in 2015.

2 DR. JOHNSTONE: One additional  
3 comment, Mr. Chair.

4 Ms Asterisk has asked actually a  
5 pretty nuanced question and we don't want to be  
6 evasive, it's just difficult to give an answer to. So  
7 a critical element, we consulted over the terms of  
8 reference for the project. That included the Human  
9 Health Risk Assessment. I think it's important that  
10 we are just clear that we never sat down with  
11 leadership in the communities for confirmation on  
12 whether they agreed or not with the conclusions of the  
13 study. There has been an opportunity for that, for  
14 their review, for their technical review of the  
15 environmental assessment, but I just want to make sure  
16 that people are clear that we have not sat down with  
17 leadership around these specific results of the Human  
18 Health Risk Assessment.

19 MS ASTERISK: Thanks for that  
20 clarification.

21 One final question on health. I know  
22 my colleague will also have some questions on health  
23 when I'm done. What year was the Comprehensive Human  
24 Health Risk Assessment study completed?

25 MR. KOPPE: So the Comprehensive Human

1 Health Risk Assessment for the Project Update was  
2 completed in 2015. Since then questions have been  
3 raised and posed with respect to the work that's been  
4 done both by the provincial agencies, by the federal  
5 agencies and by the Indigenous communities, and we've  
6 had an opportunity to respond to those as well.

7 MS ASTERISK: Okay. So I'm going to  
8 move on to a different tack here. Just out of  
9 interest and curiosity, how many of the Teck experts  
10 and people that are here today have lived through an  
11 extreme weather event? I'm talking about our extreme  
12 fires and floods that we've seen, the plough wind, the  
13 microbursts that blew down all those trees by the  
14 Athabasca River at Smith. Just a show of hands.

15 MR. IGNASIAK: Mr. Chairman, I'm  
16 failing to see how this has anything to do with the  
17 project at this point or with the assessment, and as a  
18 matter of fact, I mean I appreciate she's entitled to  
19 test Teck on its evidence, but by the nature of the  
20 questions it doesn't appear they've looked at the  
21 actual evidence filed by Teck in preparation of a  
22 question. So I'm a little concerned about that as  
23 well. So I'm wondering if we could focus on the parts  
24 of the application they don't agree with and ask  
25 questions about them.

1 THE CHAIRPERSON: Ms Asterisk, I would  
2 agree. I'm struggling with the relevance of that  
3 question. You know, the question should be about the  
4 application materials and the project.

5 MS ASTERISK: Okay. It's about  
6 climate change and I'm trying to get a sense of  
7 whether people have lived experience with climate  
8 change before I phrase my questions about it. Really,  
9 that was my reason for asking it. So that question is  
10 not allowed? All right.

11 THE CHAIRPERSON: Yes. I just  
12 struggle with the relevance, as Mr. Ignasiak says.

13 MS ASTERISK: Okay. So in discussion  
14 around climate change, the statement that Teck gave us  
15 was that the approach to the greenhouse gas limit for  
16 Canada has slowed, so it's slowing down, so it's going  
17 in the right direction. Do you recall giving that,  
18 somebody? I'm not sure who it was.

19 MR. CHIASSON: Mr. Chairman, that's  
20 correct, we did make that statement.

21 MS ASTERISK: Okay. And that abundant  
22 room exists within the proposed limit for Frontier;  
23 that's part of your statement?

24 MR. CHIASSON: That is correct, that's  
25 what we said.

1 MS ASTERISK: And then later -- I  
2 think this is answer to Barry from OSEC it looks  
3 like -- you said that the base case forecast is 2.7  
4 degrees above the Paris -- so that's above the Paris  
5 Accord that Canada signed on to?

6 MR. CHIASSON: Mr. Chairman, no,  
7 that's not correct. That part of the discussion was  
8 about the International Energy Agency forecast and  
9 they have a scenario that aligns with 2 degrees  
10 increase in temperature from pre-industrial levels,  
11 which was the goal of the Paris Accord, and they have  
12 a scenario which is their base case forecast, which  
13 shows oil demand increasing -- world population  
14 increasing to 9 billion by 2040, demand for oil  
15 increasing from 95 million barrels a day to 110  
16 million barrels a day by 2040, and that base case  
17 forecast they state aligns with a 2.7 degree increase  
18 in temperature not on top of the Paris Accord goals  
19 but from pre-industrial levels.

20 MS ASTERISK: So, in fact, you can  
21 confirm that our greenhouse gas emissions are going up  
22 and will probably pass the agreement, the Paris  
23 agreement, if this project is approved?

24 MR. CHIASSON: Mr. Chairman, I did not  
25 state that. The discussion that was -- that there was

1     pertaining to the International Energy Agency and its  
2     oil price forecast was their analysis showed that  
3     their base case aligns with a 2.7 degree increase in  
4     temperature from pre-industrial levels. Based on  
5     their analysis, including increased use of renewables,  
6     increased use of electric vehicles over time, their  
7     analysis aligns with a 2.7 degree temperature increase  
8     from pre-industrial levels.

9                   MS ASTERISK: So yesterday our  
10    Environment Minister Shannon Phillips said that  
11    Alberta expects to decrease our greenhouse gas levels  
12    by 32 megatonnes by 2030. And if this project is  
13    approved, that will be right during your operating  
14    time, like you'll be pretty much full bore at that  
15    time; is that correct?

16                   MR. IGNASIAK: I'm not sure if we've  
17    heard about that. We haven't been able to follow the  
18    news very well. Is there -- do you have a reference  
19    for that?

20                   MS ASTERISK: I just heard it on the  
21    radio, sorry.

22                   MR. IGNASIAK: Yes. But again, Mr.  
23    Chair, the Panel is not here to offer its views on  
24    whether certain jurisdictions will or will not meet  
25    targets and precisely how they'll do that. Those are



1 decisions being made by a very different group of  
2 people in a different place, so I'm not sure how the  
3 Panel is supposed to be answering these questions.

4 MS ASTERISK: Well, the questions that  
5 I'm trying to ask are getting to the fact that adding  
6 huge amounts of carbon emissions through bitumen  
7 mining will increase our greenhouse gas emissions. Do  
8 you think that might be possible?

9 MR. CHIASSON: So, Mr. Chairman, I  
10 wouldn't characterize it that way.

11 Should the project be approved,  
12 Frontier includes the use of paraffinic froth  
13 treatment and includes a cogen facility. As stated in  
14 previous responses, as per the IHS Markit Report from  
15 2014, the IHS Markit Report from 2018, Teck's public  
16 document of its Climate Action and Resilience Report,  
17 paraffinic froth treatment produced bitumen is among  
18 the lowest GHG intensity of any oil sands production.  
19 In fact, it's lower intensity than 75 percent of oil  
20 sands production. It's in the top quartile. And it  
21 is lower intensity than half of all of the oil refined  
22 in the United States.

23 So should this project be approved, by  
24 its GHG emissions intensity being lower than 75  
25 percent of all other oil sands production, we view

1 that as helping to maximize the recoverable resource  
2 within Alberta while living up to Alberta's commitment  
3 to limit emissions to 100 megatonnes, which is  
4 referred to in the PanCanadian Framework as Alberta's  
5 contribution.

6 So Teck's view is Frontier production  
7 would replace ultimately higher intensity -- higher  
8 GHG emissions intensity production from somewhere else  
9 in the world and being an environmentally responsible  
10 plan and low GHG emissions intensity and providing the  
11 economic benefits to the people of Alberta and Canada  
12 and the local area of Fort McMurray and the Indigenous  
13 communities in the region, we feel that this project  
14 should be preferred development and is in the public  
15 interest.

16 MS ASTERISK: And so if that's the  
17 case, I just don't understand, can you qualify your  
18 response to Barry yesterday that the reason why you  
19 don't have a decline of two per cent for the life of  
20 the project is that the Government of Alberta and the  
21 Government of Canada will protect against carbon  
22 leakage, that regulations will get more lenient, that  
23 stringency is outpacing other jurisdictions?

24 MR. CHIASSON: Mr. Chairman, those  
25 comments were made with respect to our assessment of

1 the Oil Sand Environmental Coalition's assessment of  
2 our carbon costs analysis. And those remarks included  
3 two areas where Teck differs from OSEC's analysis, the  
4 first being an assumption that, should the project be  
5 approved, over its 41-year mine life and further  
6 engineering construction and then operation -- so  
7 through further engineering, design, construction,  
8 should the project be approved, and 41 years of  
9 operating life, OSEC's analysis did not account for  
10 one -- any GHG intensity improvement whatsoever.

11 And when we look at IHS Markit's  
12 report, that shows -- it's the 2018 report,  
13 September -- that shows that mining bitumen companies,  
14 mining oil sands companies have improved their GHG  
15 intensity performance by 25 per cent from 2009 to  
16 2017. And they predict that those same companies will  
17 improve or could improve or should improve, should be  
18 able to improve their GHG intensity performance by as  
19 much as 24 per cent by 2030, we don't think that  
20 that's a realistic assumption.

21 And then with respect to the  
22 output-based allocation, which will get revisited  
23 every five years, next time being in 2022, due to the  
24 fact that Canada -- other jurisdictions other than  
25 Canada have been slow to adopt carbon legislation for

1 those jurisdictions, and OSEC's assumption was that  
2 for the next 50 years -- every year for the next 50  
3 years that the output-based allocation continues to  
4 get more stringent, regardless of what the rest of the  
5 world is doing.

6 The United States just backed out of  
7 the climate accord. They're not advancing carbon  
8 legislation. They're part of our competition. In  
9 light of that, in light of the fact that the  
10 Government of Canada and the Government of Alberta  
11 have stated that they're going to protect  
12 trade-exposed sectors from carbon leakage, and by that  
13 they mean a more intense barrel being produced in  
14 another jurisdiction at the expense of Canadian  
15 production for a lower intensity barrel because this  
16 jurisdiction has higher carbon tax, and that's not an  
17 equal playing field.

18 So while possible that the  
19 output-based allocation will become more stringent  
20 every year for the next 50 years, Teck believes that  
21 to be unlikely.

22 MS ASTERISK: Thank you.

23 And maybe you would consider this  
24 statement too, this other statement. To us, it seems  
25 like the race to the bottom. But can you confirm that

1 someone replied to a question "Not every country is  
2 living up to their agreements; not every country has  
3 signed on to the Paris Accord."

4 MR. CHIASSON: Mr. Chairman, I mean we  
5 have transcripts for a reason. So if they want to  
6 refer to this in direct evidence or they want to refer  
7 to it in their argument, if it's in the transcript,  
8 it's there. I don't -- I'm not sure what it adds to  
9 get people to confirm every sentence that they said  
10 yesterday to someone else's questioning. Like I don't  
11 think it's fair to the witnesses without the benefit  
12 of a transcript in front of them and without  
13 references being provided. And I'm not sure what  
14 value it adds to the process.

15 THE CHAIRPERSON: Yeah, so I would  
16 agree. It's not necessary to get them to confirm  
17 things that are on the record. If you have a  
18 question, that's fine.

19 But given that we're kind of talking  
20 about this right now, I was hoping to get through your  
21 cross-examination, but I need a sense from you of how  
22 much more you have, because we're at the point where  
23 we're probably going to have to take a bit of a break  
24 and then come back. So could you give me a sense --

25 MS ASTERISK: Sure.

1 THE CHAIRPERSON: -- of what you have.

2 MS ASTERISK: It's awfully hard for  
3 me. I'm more than halfway through, for sure, maybe  
4 even three-quarters of the way through. But it is my  
5 first hearing, so I'm not really -- yeah, I'm getting  
6 through my notes and then Jean, our co-chair, also has  
7 a few questions.

8 THE CHAIRPERSON: Okay, well I'm going  
9 to suggest we take a 15-minute break. It's 5 to 5.  
10 Let's break 'til 10 after 5 and then you can resume.  
11 And you know, maybe you can use the opportunity just  
12 to review your notes, try and focus up your questions  
13 a bit.

14 MS ASTERISK: If I could finish this  
15 subject --

16 THE CHAIRPERSON: Sure.

17 MS ASTERISK: -- of climate change.  
18 There's just one more question on that one.

19 THE CHAIRPERSON: Okay.

20 MS ASTERISK: That might help us.

21 So what with all of this, you know,  
22 trying to make sure that Canada doesn't have a great  
23 and the best climate change regulations that we  
24 possibly can, Teck is encouraging us to race to the  
25 bottom.

1                   My question is why, then, are you  
2                   expecting to drop your greenhouse emissions by 50 per  
3                   cent by mid-century with innovative technologies? If  
4                   you're expecting all of these regulations to get so  
5                   much less stringent, and everyone's going to walk away  
6                   from the accord, and -- that was the point of my  
7                   asking as well who has lived through climate change,  
8                   because I'm sorry, but things change once you've been  
9                   through a fire or a flood. If you've ever stood up in  
10                  a 230-kilometre wind, you might change your opinion  
11                  about some of that.

12                  MR. CHIASSON: Mr. Chairman, I'm not  
13                  quite sure where to begin on responding to that  
14                  question. But I'll start with it is not Teck's --  
15                  Teck is not supporting or advocating to race to the  
16                  bottom I believe was the characterization.

17                  As described in our Climate Action and  
18                  Portfolio Resilience, Teck has four pillars to its  
19                  climate action strategy. This is on -- this has been  
20                  filed. Positioning Teck for the low-carbon economy is  
21                  one of the pillars. Reducing our carbon footprint is  
22                  another of the pillars. Advocating for climate action  
23                  is another of the pillars. And adapting to the  
24                  physical impacts is another of the pillars.

25                  Teck prides itself in helping the

1 world change to a low-carbon economy and in so doing  
2 producing metals such as copper that will be required  
3 in electric vehicles to transition to the low-carbon  
4 economy, metallurgical coal to build, to help with the  
5 steel that will be required for rapid transit.

6           And how energy fits with that, how oil  
7 sands production from Frontier fits with that is  
8 helping to fill the need that people of the world  
9 have -- oil demand increasing to 2040 -- by putting  
10 forward a project that has a GHG intensity amongst the  
11 lowest of any oil sands production, in the top 25 per  
12 cent, and better, lower intensity than half of the oil  
13 refined in the United States.

14           So that means that if production were  
15 to be shut in on an apples-to-apples comparison basis,  
16 from highest intensity to lowest intensity, half of  
17 the oil currently refined in the United States would  
18 be shut down before Frontier's GHG intensity, and 75  
19 per cent of all oil sands production would be shut  
20 down before Frontier project GHG intensity, which is  
21 in the top 25 per cent of all oil sands production.

22           So I would not agree with the  
23 characterization made that Teck is supporting or  
24 advocating or helping a race to the bottom. That is  
25 not what Teck stands for and that's not what we're



1 doing with the Frontier project.

2 THE CHAIRPERSON: Yeah, so it's 5:00,  
3 so let's take a 15-minute break and then we'll come  
4 back and finish up.

5 --- Upon recessing at 1659 p.m. / Suspension à 1659

6 --- Upon resuming at 1716 p.m. / Reprise à 1716

7 THE CHAIRPERSON: Thank you. Please  
8 be seated.

9 Just, again, a reminder, before we  
10 start again, for the witnesses, particularly those in  
11 the back row, speak your name every time you speak.  
12 The court reporter is still having a little trouble  
13 sometimes identifying the speaker.

14 Thank you, carry on, Ms Asterisk.

15 MS ASTERISK: Okay, thank you.

16 All right, on to a different topic  
17 now.

18 How does Teck justify using a discount  
19 rate on their cleanup liabilities of greater than 14  
20 per cent under international accounting rules in 2015?

21 MR. CHIASSON: So Mr. Chairman,  
22 Teck --

23 MS ASTERISK: Sorry, who's speaking?  
24 Oh, hi.

25 MR. CHIASSON: So this touches on a

1 topic that was included in the Keepers of Athabasca  
2 materials submitted, and I believe it was on  
3 August 31st. There was an article that was submitted.  
4 It was titled "Alberta over a Barrel: Environmental  
5 Liabilities and Royalties in the Oil Sands." That  
6 article asserted that Teck manipulated numbers for its  
7 own purposes, utilized suspect accounting practices.

8 So in our filed materials, we provided  
9 a response to that article. And I'm not going to read  
10 the whole thing.

11 So for the record, Teck does not  
12 manipulate accounting estimates and has not acted  
13 inappropriately. As a Canadian public company, we are  
14 required to follow international financial reporting  
15 standards -- for short, that's IFRS -- for financial  
16 reporting purposes. As with all public companies, our  
17 financial statements are audited by independent  
18 auditors -- and that's PricewaterhouseCoopers, in our  
19 case.

20 And although there are areas within  
21 IFRS that allow for management estimates and judgment,  
22 these are applied on a consistent basis each quarter  
23 and on an annual basis. These estimates, judgments  
24 are also audited by PricewaterhouseCoopers, where they  
25 confirm that these are reasonable and applied in a

1 consistent basis. Any new estimates, judgments, or  
2 changes in methodology in determining estimates,  
3 judgments are assessed and scrutinized by Teck  
4 management, Teck's audit committee, and  
5 PricewaterhouseCoopers.

6 Teck does not manipulate accounting  
7 estimates, has not acted inappropriately. In fact, it  
8 has acted in accordance with the IFRS and our  
9 third-party independent auditor,  
10 PricewaterhouseCoopers, agrees.

11 MS ASTERISK: Thank you.

12 And that's just what we're wondering.  
13 Because a normal discount rate would be closer to two  
14 per cent and 5.5 per cent for a longer project. So  
15 how did you get your auditors to approve a 14 per cent  
16 discount rate?

17 MR. IGNASIAK: Mr. Chairman, first of  
18 all, there's no evidence that those are the  
19 appropriate discount rates.

20 And second, the panel isn't here to  
21 talk about the auditors and what they did or didn't do  
22 with respect to Teck's financial statements. There's  
23 not a chartered accountant on the panel that I know  
24 of.

25 THE CHAIRPERSON: So I would tend to

1 agree. You know, the focus needs to be on the  
2 applications and the project, not on the financial  
3 statements.

4 MS ASTERISK: Yeah, we're really  
5 concerned about the economic viability of the project.  
6 In our day and age the price differential is actually  
7 greater than the cost -- the value of bitumen right  
8 now. So, you know, we've got a lot of concerns that  
9 we'll present in our direct evidence. I only have a  
10 couple more questions about this.

11 THE CHAIRPERSON: Okay, yeah, and that  
12 was going to be my suggestion. You'll have an  
13 opportunity during direct to present your views on  
14 these matters.

15 MS ASTERISK: Yeah, but ... okay.  
16 So the question about how they got  
17 their auditors to approve the 14 per cent is not  
18 answered? Okay.

19 How has Teck planned for the economic  
20 contingency that Alberta could eventually raise its  
21 royalty rate from among the lowest on earth to be more  
22 competitive?

23 MR. CHIASSON: Mr. Chairman, that's --  
24 to Teck, that's a hypothetical situation. We've  
25 analyzed the project using royalty rates that apply

1 today, tax rates that apply today, the latest  
2 information on how to apply taxes, how to apply  
3 royalties. We've done our financial and economic  
4 analysis using that methodology.

5 Teck can't speculate on what the  
6 Government of Alberta may do with royalty rates in the  
7 future.

8 I would say that the economic benefits  
9 put forth by this proposed project equal \$70 billion  
10 in the forms of taxes and royalties to all level of  
11 government, so using the -- the values of today that  
12 are current today, are in place today, Teck has done  
13 its assessment.

14 MS ASTERISK: Okay. So no planning  
15 for that. Okay.

16 About the price of oil, it was stated  
17 that it's driven by access, not quality. So this is  
18 about the pipeline situation.

19 So if we get pipelines to Tidewater or  
20 a pipeline to Tidewater, somehow the price of  
21 bitumen's going to jump up and there won't be any more  
22 price differential with what, Texas Intermediate? Is  
23 that your position?

24 MR. CHIASSON: I find I'm going  
25 through response that I already have previously, but

1 I'll do this again.

2 That's not Teck's position. Teck's  
3 position that currently the high differentials  
4 relative to oil price is a reflection of constraints  
5 on pipeline access to markets. Teck's confident that  
6 pipelines will be built.

7 When markets have access to Tidewater,  
8 they compete in an international market as opposed to  
9 land-locked northwest United States, which is a  
10 one-market option. When companies have options, when  
11 there's numerous markets within which you can compete  
12 and supply your product, you get higher prices for  
13 your product.

14 The differentials --

15 MS ASTERISK: Thank you.

16 MR. CHIASSON: -- in place today, in  
17 Teck's view, are unsustainable. They're extremely  
18 high, and they're a result of not having enough access  
19 to market.

20 MS ASTERISK: And we feel the  
21 opposite. We feel they're a result of the quality of  
22 our product.

23 Which other countries in the world can  
24 process bitumen, all these markets?

25 MR. CHIASSON: Mr. Chairman, our

1 product can compete in an international market as  
2 well. And with respect to customers --

3 MS ASTERISK: That's -- are we going  
4 to get a list of countries that can process bitumen?  
5 Is that what you're looking for?

6 MR. CHIASSON: Mr. Chairman, I'm  
7 trying to respond to the question asked.

8 THE CHAIRPERSON: Yes. Let the  
9 witness respond to the question.

10 MR. CHIASSON: SO Teck is currently a  
11 partner in the Fort Hills project. Its list of  
12 customers for the product that is similar, it's like  
13 the product that will be produced from Frontier, its  
14 customers include Flint Hills, Exxon Mobil, Shell,  
15 Total, Totel, Suncor, Vitara, PBF, BP, Cenex Harvest  
16 States, Motive, Phillips 66 and Marathon.

17 There are a number of companies who  
18 are willing and have bought our product. We expect  
19 that that will continue and that will be the case for  
20 Frontier.

21 MS ASTERISK: So that's all in the  
22 U.S., though.

23 MR. CHIASSON: Mr. Chairman, a number  
24 of these companies are international companies.

25 MS ASTERISK: Can you tell me of any

1 other country in the world that can process bitumen  
2 besides Canada and the U.S.?

3 MR. CHIASSON: Mr. Chairman, our  
4 market analysis for Frontier is commensurate with the  
5 level of the study, the stage of the project. We will  
6 be -- if the project becomes approved with  
7 respecting -- with respect to finding customers for  
8 our product, we will do that at more detailed stages  
9 of design and construction.

10 And I would also point out that by  
11 having options to market doesn't mean that Teck has to  
12 send its oil to those market. If some other supplier  
13 from Canada or from North America or from the world  
14 sends it to that market, that provides less companies  
15 supplying product to the United States which will  
16 drive up prices.

17 So there's a lot of dynamics in the  
18 market. Teck has not come out with a full, detailed  
19 marketing plan for the product from Frontier. It's  
20 premature for that.

21 We know that getting -- having  
22 options, being able to get the product to the  
23 Tidewater will -- and having pipelines in place will  
24 ultimately reduce the differentials in place.

25 MS ASTERISK: Thank you.



1                   So no other countries.

2                   There was a statement about the  
3 preference Teck has for increasing the price for  
4 environmental goods and not changing the discount  
5 rate.

6                   So my question to you is, what is the  
7 current cost of environmental goods to Teck and what  
8 do you consider environmental goods?

9                   That should have been the first one.

10                  MR. CHIASSON: Could you please add  
11 more clarity to the question that you're asking?

12                  MS ASTERISK: Well, that's -- I'm  
13 actually asking for clarity around this concept of  
14 environmental goods. What are they?

15                  I didn't bring up that term.

16                  MR. CHIASSON: Mr. Chair, I'm trying  
17 to be helpful.

18                  Are you asking me what your question  
19 is?

20                  MS ASTERISK: No. I'm asking you what  
21 the term "environmental goods" means to Teck. What  
22 does that mean?

23                  You'd rather see the price on  
24 environmental goods raised and leave the discount rate  
25 alone? What does that mean?

1                   What are environmental goods?

2                   THE CHAIRPERSON: Ms Asterisk, where  
3 are you getting that from?

4                   MS ASTERISK: Okay.

5                   THE CHAIRPERSON: I think that's what  
6 they're struggling with.

7                   MS ASTERISK: Oh, I see. Okay.  
8 Sorry.

9                   Yeah. That is from Kirk from OSEC.  
10 It's towards the end of his -- yeah.

11                   It's, you know, towards the end of his  
12 presentation.

13                   I just wonder what you mean by  
14 "environmental goods". And it's -- there's another  
15 place where there was a question about ecosystem  
16 services.

17                   And I just find that really hazy,  
18 environmental goods and ecosystem services. I'd like  
19 that better defined so we can ask --

20                   MR. IGNASIAK: Mr. Chairman, I think  
21 we're agreed we find that hazy.

22                   Look, there's no transcript. I mean,  
23 I think -- I don't think any of the witnesses used  
24 that term. They can correct me if I'm mistaken.

25                   But again, without a specific

1 reference, if Mr. Stilwell used that term, I don't  
2 believe any of our witnesses did.

3 THE CHAIRPERSON: Yeah, I would tend  
4 to agree. I don't recall the witnesses saying it.

5 Unless you're able to kind of point to  
6 something that's a little more definitive or frame  
7 your question a little more clearly, it's pretty hard  
8 for the witnesses to answer.

9 MS ASTERISK: Well, I'm going to have  
10 to ask for a record of the transcript to be able to  
11 point to it.

12 So is that provided? Maybe I can get  
13 into that tomorrow, or -- how late are we going,  
14 anyways?

15 THE CHAIRPERSON: Well, no. We're  
16 going to finish your cross today.

17 The transcripts are provided on the  
18 CEAA registry, so they are available --

19 MS ASTERISK: On the web site.

20 THE CHAIRPERSON: -- they are  
21 available for people to look at.

22 MS ASTERISK: Okay. 'Cause I'm not  
23 going to -- like it would take a long time for me to  
24 find it right now, is what I'm saying.

25 THE CHAIRPERSON: Okay. But I guess

1 the point is if you aren't able to clearly articulate  
2 the question that you're asking, it's going to be  
3 pretty hard for the panel to answer it, so you know,  
4 I'll suggest maybe you just move on to the next  
5 question.

6 MS ASTERISK: It doesn't seem fair to  
7 me that we're basically negating a whole line of  
8 inquiry in the cross-examination because I can't pull  
9 up the statement that they made yesterday about this  
10 environmental goods.

11 And I didn't hear the answer about the  
12 ecosystem services, so we have to eliminate that whole  
13 line of inquiry now. Is that right?

14 THE CHAIRPERSON: I wouldn't suggest  
15 we have to eliminate the whole line of inquiry based  
16 on the fact that you can't find the reference.

17 I think the issue is more about your  
18 ability to clearly articulate what it is you would  
19 like the panel to answer.

20 MS ASTERISK: Sure. Well, it's just  
21 that, you know, I have an impression of what ecosystem  
22 services are. I never heard the term environmental  
23 goods before.

24 For example, a wetland is generally  
25 given, I think it's, \$2,400 per hectare in terms of

1 the filtration it provides. There's a dollar amount  
2 associated with ecosystem services.

3 And I was going to ask about your  
4 definitions, if that's the same for environmental  
5 goods or different.

6 And I would really appreciate some  
7 information about how Teck evaluates the costs of  
8 environmental goods or ecosystem services if they are,  
9 in fact, the same thing. And I have a lot of  
10 questions.

11 Our Board feels very strongly that  
12 ecosystem services are often under-accounted for, and  
13 so it's -- it is a line of questioning I'd like to --

14 THE CHAIRPERSON: Okay. So here's a  
15 suggestion.

16 Would it help if you got a five-minute  
17 break and you could look at the transcript? Staff can  
18 at least help you access the transcript and look for  
19 the reference that you're looking for.

20 MS LaCASSE: You found it?

21 THE CHAIRPERSON: Okay. So Mr.  
22 Speller will provide what he's found. You tell us --  
23 you tell the Panel if that's what you're wanting to  
24 talk about.

25 MS ASTERISK: Thanks for looking.

1 MR. SPELLER: Yeah. While you were  
2 talking, I was looking.

3 MS ASTERISK: Awesome.

4 MR. SPELLER: The cost-benefit  
5 analysis that we discuss in Attachment 2 that we  
6 discussed yesterday that was done by our friends at  
7 Nichols talks about environmental goods.

8 So in that format -- I'm not going to  
9 pull one of those guys up yet, but we may if we have  
10 to.

11 So an environmental good is something  
12 like clean air or clean water. It's a natural  
13 environmental item, but they use the term that's  
14 environmental goods.

15 MS ASTERISK: So when you say increase  
16 the price for environmental goods, what price do we  
17 pay for clean air? What price do we pay for clean  
18 water?

19 Is it just to do with water treatment?  
20 Is it to do with scrubbers?

21 MR. SPELLER: So Mr. Chairman, the  
22 concept of the cost-benefit analysis and the  
23 frameworks that we use for them are you basically take  
24 the world around a project or the thing that you're  
25 analyzing and you try to put a dollar amount to it.

1 So you try to say how much does a project cost, what  
2 are the profits from it, what are the royalties from  
3 it, what is the cost in terms of equipment. So  
4 there's the -- there's that piece of it.

5 What the cost-benefit analysis is  
6 trying to achieve is actually looking at what are  
7 other costs that might be associated, so a dollar  
8 amount to greenhouse gas emissions or a dollar amount  
9 to air emissions or a dollar amount to a terrestrial  
10 disturbance.

11 So the cost-benefit analysis tries to  
12 take all of those factors that we look at in our  
13 environmental impact assessment and our socioeconomic  
14 impact assessment, tries to put them all in the same  
15 unit of dollars.

16 It's not actually something that we do  
17 in our assessments usually. It seems a bit coarse to  
18 try to distil a lot of that stuff down to dollars.  
19 But we have because it was -- there was cost-benefit  
20 analyses provided in the August 31st submissions.

21 And when we were speaking about the  
22 discount rates yesterday, it was a discussion about  
23 what was the right rate to use. And that was in terms  
24 of our Attachment 2 from September that was discussing  
25 one of the challenges that we saw in the cost-benefit

1 analysis that was provided by OSEC.

2 MS ASTERISK: That's very helpful.  
3 Thanks for that.

4 So when we're talking about the  
5 analysis that was done by Teck in 2014 when the oil  
6 price was over \$100 a barrel and there -- there was a  
7 question about whether that analysis has changed now  
8 that the oil price has changed dramatically.

9 And the answer was yes, it has  
10 changed, but it's still consistent.

11 So I am -- my question, I guess, I can  
12 say how does the changed economic analysis with the  
13 new lower oil price remain consistent with the old  
14 economic analysis when it was \$70 more a barrel?

15 MR. CHIASSON: I can answer that one.

16 Teck has updated its analysis since  
17 2014. We did the -- we did the work in 2014 and 2015  
18 to include as part of the project update, which was  
19 submitted in June 2015.

20 There was a financial analysis that  
21 was done at that time, a socioeconomic analysis that  
22 was done at that time.

23 We received a Joint Review Panel  
24 Package 5 and responded to that. That included  
25 questions about oil price, socioeconomic analysis,



1 benefits, taxes, royalties. And that was Joint Review  
2 Panel Package 5.1 in particular.

3 So we responded to that in April-May,  
4 that -- those questions, that package in April-May of  
5 2017.

6 So the original -- for the Project  
7 Update, the financial analysis that was done was done  
8 in 2015 and then it was updated in 2017 as part of our  
9 response to Joint Review Panel question 5.1 in Package  
10 5.

11 And there was also a discussion about  
12 the new *Carbon Competitiveness Incentive Regulation*  
13 that came into effect in January of 2018, so we -- for  
14 the Project Update -- we did the original analysis for  
15 the Project Update in 2014-2015. We updated the  
16 analysis in 2017.

17 We evaluated the impact of the new  
18 carbon -- I'm going to say CCIR, *Carbon*  
19 *Competitiveness Incentive Regulation* once it came into  
20 effect in early January.

21 So we've updated our financial  
22 analysis.

23 That said, the principles, the  
24 forecast, the oil demand, those -- we look at a number  
25 of oil price forecasts from oil price forecasters. I

1 mentioned a couple in my remarks yesterday and the day  
2 before.

3                   The International Energy Agency is  
4 one. The U.S. EIA, which is Energy Information  
5 Administration, is another.

6                   So for the part that's consistent is  
7 2015 when we did our financial analysis and  
8 socioeconomic analysis, in 2017 -- the last  
9 information published by the International Energy  
10 Agency was in November 2017. The demand for oil is  
11 consistent in the 2017 report and analysis by  
12 International Energy Agency and the EIA as it was back  
13 in 2015 when we did the original work. So the  
14 consistency is that.

15                   For the operating period of the  
16 project should it be approved, 2026 to 2066, those  
17 forecasts show an increased demand for oil in their  
18 base case forecast, the IEA from 95 million barrels to  
19 110. And both forecasts show for the vast majority of  
20 the period of the operating life of the project that  
21 the WTI, the U.S. dollar West Texas Intermediate, WTI  
22 price for oil during the vast majority of the life of  
23 the project -- operating life is \$95 a barrel or more.

24                   So the consistency, that's the  
25 consistency part.

1                   The updating part is we've done an  
2 update on the analysis.

3                   MS ASTERISK: You're still making  
4 money even at under 30 a barrel.

5                   This might be my last question.

6                   In the original application, Teck  
7 claimed that you would provide full financial  
8 security. It's in there.

9                   But yesterday, you said you would  
10 comply with the regulations like all the other  
11 companies.

12                   So yeah. So the question is, what  
13 changed for you to -- to stop the idea of providing  
14 full financial security the way you first proposed?

15                   MR. CHIASSON: Mr. Chairman, could I  
16 please ask for a reference where we said we were going  
17 to post full financial security?

18                   MS ASTERISK: It's in the original  
19 2011 document. Like I don't have it right in front of  
20 me, but there's a paragraph about royalties. And it  
21 says that Teck is prepared to post full financial  
22 security.

23                   MR. CHIASSON: Mr. Chairman, I'm not  
24 familiar with that paragraph. If a reference could be  
25 provided, that would be helpful.

1 MS ASTERISK: Yeah, it's in your own  
2 material, so I'll have to try and find it. Thousands  
3 of pages.

4 MR. CHIASSON: So Mr. Chairman, I  
5 don't think that's in our filed materials. That's the  
6 part I'm struggling with. I do not recall that  
7 statement.

8 MS ASTERISK: Interesting.

9 Oh, sorry. It's not my last question.  
10 I still have Dr. -- well, okay.

11 This is my last question.

12 And I think this is for Mr. Shewchuk.  
13 He stated yesterday that in conducting cost-benefit  
14 analysis:

15 "...we ... compare the present  
16 value of benefits to the present  
17 value of costs to determine if  
18 one outweighs the other. And if  
19 so, whether or not the project or  
20 policy being contemplated  
21 provides net benefit to society."

22 That's page 135 of the hearing  
23 transcript September 25th.

24 Teck has justified its project on the  
25 grounds it will yield substantial net benefits to

1 residents of the Athabasca oil sand region, to Alberta  
2 and to Canada. That's in the Project Update.

3 Given that Teck does not believe a  
4 cost-benefit analysis should be used to assess this  
5 project and given that the input-output model used in  
6 Teck's socioeconomic impact analysis quantifies  
7 economic benefits but does not quantify economic  
8 costs, what evidence can you offer to support the  
9 claim that the project will provide net benefits to  
10 society?

11 MR. CHIASSON: Mr. Chairman, as in our  
12 filed materials, Teck has an environmentally  
13 responsible development plan for the Frontier project,  
14 socially responsible development plan for the Frontier  
15 project.

16 In consideration of environmental and  
17 social effects, we do -- we do feel we have a very  
18 responsible development plan, and in consideration of  
19 the economic benefits provided by the project should  
20 it be approved, and those economic benefits are also  
21 included in our materials: up to 7,000 jobs during  
22 construction; 2,500 jobs during operations; local  
23 contracting and services, opportunities, and in  
24 contracts; taxes and royalties in the amount of \$70  
25 billion for all levels of government within Canada.

1                   When we consider the fact that we have  
2                   an environmentally-responsible development plan with  
3                   those economic benefits, we feel that the project is  
4                   in the public interest.

5                   MS ASTERISK:   Okay.   Just a couple  
6                   more random questions and then I'll introduce our  
7                   Co-Chair.

8                   Is Teck aware of the Alberta  
9                   Biodiversity Monitoring Institute?

10                  MR. CHIASSON:   Mr. Chair, yes, we are.

11                  MS ASTERISK:   Have you participated in  
12                  the Alberta Biodiversity Monitoring Institute?

13                  MR. CHIASSON:   Mr. Chairman, through  
14                  our work in COSIA there's a lot of collaboration  
15                  amongst various groups.   Through our work in COSIA  
16                  there's a lot of collaboration amongst various groups.  
17                  Through our work in COSIA we have worked with I  
18                  believe the acronym was ABMI.

19                  MS ASTERISK:   Have you utilized data  
20                  from ABMI?

21                  MR. SPELLER:   MR. Chairman, my  
22                  colleague is indicating that we have.

23                  MS ASTERISK:   Have?

24                  MR. SPELLER:   Have.

25                  MS ASTERISK:   Okay, thank you.   This

1 question is in regard to the timing of coal mine  
2 closures, climate change. I would have done this  
3 after the climate change thing, but that whole line of  
4 inquiry was kind of a wash. So there was an objection  
5 about the practices -- objection about asking about  
6 the funding for closures of other projects.

7 But what my question is going to be is  
8 do you acknowledge that the world is currently in  
9 transition away from fossil fuels?

10 MR. CHIASSON: Mr. Chairman, we  
11 acknowledge that the world is in transition, moving  
12 towards renewables, away from fossil fuels.

13 MS ASTERISK: Thank you. I imagine  
14 it's not an easy place to be in when you own a bunch  
15 of coal mines, but there's also metal coal, so  
16 that's...

17 MR. CHIASSON: So, Mr. Chair, I can  
18 answer that. Actually, Teck's coal mines are  
19 metallurgical coal mines, which are used in steel  
20 making coal as opposed to use --

21 MS ASTERISK: Energy production.

22 MR. CHIASSON: -- you know, as opposed  
23 to electricity, thermal coal type of thing.

24 MS ASTERISK: Okay. So seeing as  
25 that's the case, it's mostly metal coal, that the

1 timing of the closure of thermal coal mines is not  
2 going to affect you greatly?

3 MR. CHIASSON: No.

4 MS ASTERISK: Okay. I believe that's  
5 it for me. I'll just call up our Co-Chair, Jeane  
6 L'Hommecourt, she can do her own introduction as well.

7 MS L'HOMMECOURT: Good afternoon, AER,  
8 Alberta Environment Panel, Joint Review Panel, and  
9 Teck.

10 I'll introduce myself first. My  
11 colonized name is Shara Jeane L'Hommecourt. I am of  
12 Dene dissent, great-great-great-grandfather --  
13 granddaughter to Treaty 8 signatory Adam Boucher. I  
14 am a mother of five and grandmother to six, to which  
15 my last grandchild was born last week, which is why I  
16 wasn't here at the beginning of the hearing, because I  
17 was helping my daughter deliver my new grandson in  
18 Calgary, Alberta.

19 I also am an Executive Board Member of  
20 Keepers of Athabasca. I'm a representative to my Dene  
21 peoples. I belong to Poplar Point, my ancestral Dene  
22 territory, which is right across from Teck Resources'  
23 proposed Frontier project. But I am registered as a  
24 Fort McKay First Nation member.

25 I am here to speak for my future



1 grandchildren and generations to come. My inherent  
2 treaty rights are already broken by all the industry  
3 in my backyard. This is my introduction.

4 I have a few questions. How or have  
5 you implemented the UNDRIP to assert our inheritance  
6 rights as Indigenous peoples in your proposal for  
7 Frontier/Teck?

8 DR. JOHNSTONE: Mr. Chair, as I stated  
9 before, Teck recognizes UNDRIP and supports the  
10 implementation of it by the Canadian Government.

11 MS L'HOMMECOURT: I know about the  
12 Canadian Government because I am a residential school  
13 survivor, and I was put in a residential school for  
14 six years of my life, from when I was six years old  
15 until I was 12. Taken from my ancestral grounds,  
16 ripped from my mother and father's arms and taken to  
17 Holy Angels Residential School in Fort Chipewyan,  
18 Alberta. So don't tell me about the Canadian  
19 Government, because I have experienced everything they  
20 have against me as an Indigenous woman.

21 Which articles did you include in  
22 UNDRIP and why not the rest were taken into account,  
23 specifically Article 31?

24 If you like, I'd like to read Article  
25 31, it might give you a better chance to answer this

1 question. Article 31 states in the United Nations  
2 Declaration on the rights of Indigenous peoples. It  
3 goes to say:

4 "Indigenous peoples have the  
5 right to maintain, control,  
6 protect and develop their  
7 cultural heritage, traditional  
8 knowledge and traditional  
9 cultural expressions, as well as  
10 the manifestations of their  
11 sciences, technologies and  
12 cultures, including human and  
13 genetic resources, seeds,  
14 medicines, knowledge of the  
15 properties of fauna and flora,  
16 oral traditions, literatures,  
17 designs, sports and traditional  
18 games and visual and performing  
19 arts. They also have the right  
20 to maintain, control, protect and  
21 develop their intellectual  
22 property over such cultural  
23 heritage, traditional knowledge,  
24 and traditional cultural  
25 expressions."

1                   Number 2:

2                    "In conjunction with Indigenous  
3                   peoples, states shall take  
4                   effective measures to recognize  
5                   and to protect the exercise of  
6                   these rights."

7                   Now, can you answer me that question  
8                   that I just asked previously?

9                   DR. JOHNSTONE: Yes, thank you, Elder  
10                  L'Hommecourt and Mr. Chair. As I said, we fully  
11                  ascribe to Canada's adoption of UNDRIP, and so  
12                  therefore the article that you've mentioned is  
13                  inclusive in that.

14                  MS L'HOMMECOURT: Another article,  
15                  Article 28. Are you familiar with Article 28? If  
16                  not, I can read it.

17                  DR. JOHNSTONE: Mr. Chair, I have read  
18                  the entire declaration.

19                  MS L'HOMMECOURT: Okay. I will  
20                  refresh your memory. Article 28 states:

21                  "Indigenous peoples have the  
22                  right to redress, by means that  
23                  can include restitution or, when  
24                  this is not possible, just, fair  
25                  and equitable compensation, for

1 the lands, territories and  
2 resources which they have  
3 traditionally owned or otherwise  
4 occupied or used, and which have  
5 been confiscated, taken,  
6 occupied, used or damaged without  
7 their free, prior and informed  
8 consent."

9 Number 2 of Article 28 states:

10 "Unless otherwise freely agreed  
11 upon by the peoples concerned,  
12 compensation shall take the form  
13 of lands, territories and  
14 resources equal in quality, size  
15 and legal status or of monetary  
16 compensation or other appropriate  
17 redress."

18 That is Article 28.

19 So my question is, where is Total(ph)  
20 which owns 50 per cent shares of Teck? Why are they  
21 not cleaning up their mess in our backyard, which they  
22 clear cut right behind our community? Yet Total(ph)  
23 is hiding behind the name of Teck, which they own 54  
24 per cent shares of, and yet they're going to go ahead  
25 into an oil sands business when they haven't cleaned

1 up their backyard.

2 The government allows them to keep  
3 that leased land directly in our backyard. All our  
4 medicines and all our wild foods have been ripped away  
5 from there.

6 DR. JOHNSTONE: First of all, Mr.  
7 Chair, I think a critical element is, as I've already  
8 stated, Teck supports Canada's full adoption of  
9 UNDRIP. I hope I've made that clear.

10 Secondly, we are somewhat confused by  
11 the question because Teck is wholly owned. So we are  
12 not owned by Totel(ph).

13 MS L'HOMMECOURT: I did not say -- I  
14 might have said owned, but I do know that 54 per cent  
15 of the shares are Totel's(ph).

16 I'll move onto another question if  
17 you're confused about that.

18 How are you going to protect and  
19 ensure that my inherent rights to continue my  
20 traditional lifestyle on my ancestral grounds during  
21 the construction phase of your project? How am I  
22 going to gain access to my traditional territory that  
23 Teck is proposing to rip apart?

24 DR. JOHNSTONE: Mr. Chair, first of  
25 all, there are undoubtedly going to be some areas of

1 the project area which won't be able to be accessed,  
2 we recognize that. There are going to be active  
3 operations and so traditional land use won't be a part  
4 of that.

5 We have established and made  
6 commitments with communities, Fort McKay included, as  
7 well as Athabasca-Chipewyan First Nation and Mikisew  
8 Cree First Nation regarding access management  
9 planning, and we have committed to forming a joint  
10 working group to facilitate safe travel in appropriate  
11 areas through or around the mine site.

12 We recognize that won't be able to  
13 ensure your travel right through the site. I think  
14 it's important that one of the things that we have  
15 worked sincerely and hard, and for a long time doing,  
16 is to establish consultation processes that are  
17 ongoing. These will last the lifetime of the mine.  
18 We have entered into agreements with 14 communities  
19 which really provide us contractual obligations with  
20 the Nations or the --

21 MS L'HOMMECOURT: Excuse me. I am not  
22 talking about how are you going to consult with 14  
23 First Nations. I stand here before you as a  
24 grandmother and I want to know that my inherent rights  
25 and access is protected.

1 DR. JOHNSTONE: Teck's focus and  
2 obligation is really to work with individual  
3 communities and to mitigate impacts to tradition  
4 land --

5 MS L'HOMMECOURT: What about the  
6 landowners, land users? Excuse me, but there are  
7 grassroots people that are not on board with all these  
8 agreements. Where are our elders here? Where are our  
9 First Nations? Why are they not partaking here?

10 You don't have to answer that  
11 question, but I'd like to ask another question.

12 How are you going to ensure the  
13 protection of our sacred sites, our burial grounds,  
14 the decline of wildlife that we depend on to survive  
15 as a First Nations people?

16 DR. JOHNSTONE: Mr. Chair, we have a  
17 contractual obligation with Indigenous communities to  
18 ensure the protection or mitigation of ancestral grave  
19 sites. So that's critical. In terms of rights, we  
20 are able to mitigate some of those impacts and we have  
21 worked to accommodate those which we can mitigate.

22 MS L'HOMMECOURT: Can you clarify  
23 which mitigations you're going to use to some impacts?  
24 Which impacts are those that you are referring to?

25 DR. JOHNSTONE: Sure. So example -- I

1 think it would be useful if people were able to refer  
2 to the joint recommendations that were filed this  
3 morning by ACFN, I don't know the document number.  
4 But also with the September 31st submission by Mikisew  
5 Cree First Nation.

6 MS L'HOMMECOURT: I'm sorry, but  
7 you're bringing up First Nation groups. I am a Fort  
8 McKay First Nation member, so I am specifically  
9 talking about my Dene heritage, my Dene people which  
10 have been separated and divided into groups.

11 DR. JOHNSTONE: I understand that, and  
12 I respect that that's occurred. We have an agreement,  
13 a long-term sustainability agreement that was signed  
14 with Fort McKay First Nation, the contents of that are  
15 confidential and I'm not able to share those.

16 MS L'HOMMECOURT: Those confidential  
17 agreements with our leadership, we are not privy to  
18 those confidential agreements that you speak of.  
19 Where do you plan to include reconciliation in your  
20 project?

21 DR. JOHNSTONE: Mr. Chair,  
22 reconciliation is a founding principle of our  
23 engagement from Day 1. If you look at the Truth and  
24 Reconciliation Commission, it talks about  
25 reconciliation being an ongoing process of



1 establishing and maintaining a relationship, or words  
2 to that effect. That's certainly what we have done in  
3 the 10 years since we've initiated consultation. That  
4 will continue throughout the mine life, as with the  
5 processes that we've established.

6 I think it's important to note that  
7 Canada, as a whole, is facing the issue of  
8 reconciliation. Teck, as a company, is stepping up to  
9 play its part by doing things like focusing on  
10 long-term relationships.

11 MS L'HOMMECOURT: With that said,  
12 reconciliation, we always talk about cultural -- they  
13 say we went through a cultural genocide through the  
14 residential school era. But that genocide is  
15 happening today, it is not something that happened in  
16 the past, and we are living it as we speak. Our First  
17 Nations are suffering, are dying.

18 Just yesterday they buried my cousin's  
19 son, a young man coming from Fort Chipewyan, Alberta.  
20 We used to think of our people as dying off as  
21 elders. That is no longer the case. It is now our  
22 children that are dying, our teenagers are dying.

23 How are you going to address that in  
24 your comprehensive health and risk assessments that  
25 you have done how many years ago? Those are all

1       outdated information.  When are you going to update  
2       the real statistics that have happened in the last 10  
3       years?

4                   DR. JOHNSTONE:  I think, Mr. Chair,  
5       there are a couple of critical elements there.  One is  
6       that we recognize the cultures change.  We also,  
7       through our discussions with communities, have heard  
8       very much that they have opportunities and interests  
9       regarding cultural maintenance and how important that  
10      is, and that by entering into agreements with Teck  
11      they have opportunities --

12                   MS L'HOMMECOURT:  Which we are not  
13      privy to, agreements that I do now know what is in  
14      those clauses.  How am I going to be ensured when I'm  
15      not privileged to read those documents that you have  
16      made, those agreements that you have made with our  
17      leadership?

18                   DR. JOHNSTONE:  If I can finish the  
19      question.  To begin with, I think the critical element  
20      is that those agreements provide opportunities for  
21      communities to, if they're interested, have cultural  
22      programming and cultural funding, and we've heard that  
23      that's important to some communities.

24                   In terms of the second question around  
25      how does a Nation member, how do they have access to

1 the agreements, I think that's something that has to  
2 be addressed with their leadership, not Teck's.

3 MS L'HOMMECOURT: Okay, I'll move on  
4 seeing as I'm not getting anywhere with those answers.

5 How are you going to ensure that the  
6 distinctive Ronald Lake buffalo, which you call  
7 bison -- these are buffalo. How are you going to  
8 ensure that these do not become extinct? How are you  
9 going to ensure that they don't go from distinctive to  
10 extinction?

11 DR. JOHNSTONE: Mr. Chair, I think a  
12 number of ways in which we want to support Nations'  
13 interests and deep concerns about bison and the  
14 resolution of --

15 MS L'HOMMECOURT: Excuse me, but I  
16 said buffalo. These are buffalo that come from time  
17 immemorial. They are not connected to the bison that  
18 you brought to Wood Buffalo National Park. These  
19 are -- they are very, very -- I don't want to use the  
20 word "old", but they were there before any of us.

21 DR. JOHNSTONE: M'hmm. Absolutely.

22 So we are making joint commitments  
23 with Indigenous communities that are supporting those  
24 communities and goals around the conservation of  
25 Ronald Lake buffalo. A number of those are on the

1 record, including a submission today and that on the  
2 31st of August, and those objectives will be for the  
3 benefit of anybody, irregardless of which Indigenous  
4 community they belong to, and that includes a focus on  
5 restoration of high-quality habitat by supporting the  
6 communities' demand on government for a complete ban  
7 on hunting of the Ronald Lake buffalo by  
8 non-Indigenous hunters, by jointly recommending that  
9 key provincial and federal strategies for management  
10 of the Ronald Lake buffalo for those purposes are  
11 implemented, including a provincial management plan, a  
12 Parks Canada disease transmission management plan, and  
13 federal recovery strategies. So we are supportive of  
14 Indigenous communities. In a number of the  
15 initiatives they're required at a governmental level,  
16 provincial and federally, to ensure protection of  
17 buffalo. Teck will play its part in ensuring that we  
18 have programs onsite that avoid things like  
19 vehicle-buffalo collisions as an example. So there's  
20 a number of things that we are fully supportive of.  
21 We've heard that from communities and we've heard that  
22 loud and clear and we've adopted them.

23 MS L'HOMMECOURT: I am 56 years old  
24 and I've been to four or five hearings so far that  
25 affected my lands; 99.9 of projects have been approved

1 by AER. When you use words, "if the project gets  
2 approved", I already know it's not if, it's when. We  
3 just finished having a hearing with Prosper Petroleum  
4 proposing to be putting 10,000 million barrels  
5 production per day, 6 kilometres from our reserve  
6 lands at Moose Lake. We are in talks with the Moose  
7 Lake Access Management Plan. Are you involved and  
8 will you be involved in those talks and how will you  
9 support us to ensure that we have access from the  
10 River, from Athabasca River to Moose Lake, whereas my  
11 ancestral grandparents and father had traditional  
12 trails connecting to that area?

13 DR. JOHNSTONE: So, Mr. Chair, we  
14 haven't been involved with the Moose Lake access  
15 management planning initiative there, nor has Fort  
16 McKay requested that of us. So at this stage we don't  
17 have a plan to pursue that, unless of course Fort  
18 McKay requests us.

19 MS L'HOMMECOURT: I am requesting it.  
20 I am from Fort McKay.

21 DR. JOHNSTONE: So, Mr. Chair, I think  
22 that is something where we would have to get a request  
23 from the leadership.

24 MS L'HOMMECOURT: I stand here as a  
25 grandmother. Again, I say, I understand that you have

1 talks with the leadership. We are the grassroots  
2 people. We were not included in some of those talks  
3 that you had behind closed doors with our leadership.  
4 So therefore, I cannot understand how you can say that  
5 you are going to accommodate us as grassroots people,  
6 as people of the land and traditionalists. We are  
7 not -- we were not included in those talks behind  
8 those doors. So please help me to understand how it  
9 is that you claim to protect and to ensure that we  
10 have access.

11 DR. JOHNSTONE: Yeah. So we rely on  
12 the development of plans and agreements through  
13 negotiation with a community's elected leadership.  
14 That's unfortunately -- you know, for grassroots  
15 members that's unfortunately the reality. We think  
16 that's really -- in the scheme of things that's the  
17 appropriate path to go. You know, we do note that we  
18 have had a variety of community groups and community  
19 meetings throughout the consultation process in Fort  
20 McKay and that have included grassroots members.

21 MS L'HOMMECOURT: Yes. I thank you  
22 for all the Tim Hortons coffee and all the doughnuts  
23 that you have brought us when you have come to meet  
24 with our peoples.

25 DR. JOHNSTONE: Was there a question

1       there?

2                       MS L'HOMMECOURT:   That's not a  
3       question, that was just a statement.   That is  
4       considered buying and bullying into an agreement and  
5       bringing forth all this coffee and doughnuts when you  
6       come to consult with us.

7                       DR. JOHNSTONE:   I think a really  
8       important point to make here is these agreements are  
9       substantive, complex agreements and the communities  
10      that we have dealt with have been sophisticated, tough  
11      negotiators that have had a clear vision of what they  
12      want to achieve and what is for the good of their  
13      people.   If we've made mistakes around what we regard  
14      as common courtesy of bringing food to share a meal,  
15      to have coffee, then we apologize for that.   That's  
16      not the big item.   We have dealt with leadership.   The  
17      community members overall should be very comfortable  
18      that they have had a sophisticated negotiation team  
19      that has, you know, put us through our paces.   They've  
20      got good deals and I don't mean just financially, I  
21      mean with respect to environmental commitments and  
22      cultural commitments through all of these agreements.

23                      MS L'HOMMECOURT:   I have one more  
24      question, I believe.   How are you going to protect our  
25      water for our future generations when you divert --

1 when you have plans to divert creeks that flows from  
2 the Birch Mountains into the Athabasca River, you are  
3 proposing to divert creeks and rivers around your  
4 project.

5 How will that protect our waters?

6 DR. JOHNSTONE: There are a couple of  
7 critical elements to this.

8 One is a principle of keeping clean  
9 water clean. So where there is water flowing down  
10 from hillsides, in this case the Birch Mountains  
11 towards the mine site, we want to keep that water  
12 clean. So we diverted around the edge of the  
13 community.

14 The water diversion channels, similar  
15 to what is used in many parts of the world from cities  
16 to mine sites. And those are reliable structures.

17 Another --

18 MS L'HOMMECOURT: Excuse me, but we  
19 are talking about the boreal forest here. We're not  
20 talking about cities and municipalities and so forth.

21 DR. JOHNSTONE: Yes, you are right.  
22 And Teck has got experience from the High Arctic in  
23 Canada to mountainous regions in Canada where we deal  
24 with a lot more snow and much more rugged terrain and  
25 in many cases in a lot colder circumstances than



1 experienced here.

2 We believe we've got the experience to  
3 be able to handle it.

4 A critical element that we heard from  
5 communities was we couldn't impact the northern  
6 watersheds that feed into Lake Claire. So we needed  
7 to make sure that we had water diversion features that  
8 maintained that flow.

9 So that's one of the ways in which we  
10 tried to address that.

11 Another one has been our commitment,  
12 which is in the documentation filed today and on  
13 August 31<sup>st</sup>, to use aboriginal stream flow of 500  
14 cubic metres per second as a key indicator and  
15 performance threshold.

16 So we are wanting to plan to use that  
17 as a planning tool as per the interest expressed by a  
18 number of indigenous communities within the region.

19 MS L'HOMMECOURT: I want to make  
20 reference to one of your projects that affected a  
21 mountain slide, Southern Alberta Turtle Mountain.

22 Does that ring a bell?

23 Referred to as Frank Slide?

24 DR. JOHNSTONE: Mr. Chair, Teck was  
25 not involved in the Frank Slide or any mining in that

1 area at that time.

2 MS L'HOMMECOURT: I don't have any  
3 more questions, but I must add that all the answers  
4 given does not satisfy me and it does not ensure my  
5 inherent rights as an indigenous woman.

6 This project will kill my people.  
7 This project will forever devastate the boreal forest.  
8 We will have no more boreal forest for it to clean the  
9 waters for this planet.

10 I stand here before you to advocate  
11 for water because every one of us in this room will  
12 have children in the next two or three generations  
13 that will be crying for water because there will be no  
14 fresh water.

15 In Fort McKay there's a sandbar that's  
16 right on the river, right in front of my house. In my  
17 56 years of life I have never seen that and I've asked  
18 my elders if anybody has ever seen that sandbar in  
19 that location. And everybody confirmed that it was  
20 the very first time.

21 Those are the signs of industry  
22 encroaching on our lands and taking up our waters and  
23 ripping apart our berries and our foods and driving  
24 our wildlife away so that we people will be just  
25 another dead Indian.

1                   Think of your grandchildren that come  
2 behind you. Each and every one of you go home tonight  
3 and think about that. What are we leaving for our  
4 children for the future? What is the future of our  
5 planet?

6                   As far as climate change goes, it's  
7 happening right now. It's in our face. And we as  
8 indigenous peoples are the guardians of this land,  
9 which is why we are called First Nations.

10                  Thank you.

11                  DR. JOHNSTONE: Thank you.

12                  THE CHAIRPERSON: Thank you, Ms  
13 L'Hommecourt and Ms Asterisk.

14                  We are at the end of the day. We will  
15 resume tomorrow morning at 9 o'clock.

16                  First up will be the Government of  
17 Canada for their cross-examination of Teck.

18                  Thank you.

19 --- Whereupon the hearing adjourned at 1831, to resume  
20 on Friday, September 28, 2018 at 0900 /  
21 L'audience est ajournée à 1831, pour reprendre  
22 le vendredi 28 septembre 2018 à 0900

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CERTIFICATION

WE HEREBY CERTIFY that the foregoing has been reported  
and transcribed to the best of our skill and ability

\_\_\_\_\_  
Kristin Johansson                      Heidi Petersen

\_\_\_\_\_  
Monique Mahoney                      Jackie Clark

\_\_\_\_\_  
Jennifer Cheslock                      Fiona Potvin