

ENCANA SHALLOW GAS INFILL DEVELOPMENT PROJECT  
AND EUB APPLICATION NO. 1435831

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JOINT REVIEW PANEL HEARING CONDUCTED PURSUANT TO:  
SECTION 4.5 OF THE "AGREEMENT TO ESTABLISH A PANEL  
FOR THE ENCANA SHALLOW GAS INFILL DEVELOPMENT PROJECT"  
AND THE EUB'S RULES OF PRACTICE

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PROCEEDINGS AT HEARING

OCTOBER 25, 2008

(Saturday)

VOLUME 17

PAGES 3789 TO 3996

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Held at:  
Energy Resources Conservation Board  
Govier Hall, 640-5th Avenue S.W.  
Calgary, Alberta

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1 (PROCEEDINGS COMMENCED AT 8:35 A.M.)

2 THE CHAIRMAN: Ladies and Gentlemen, before  
3 we begin, we have two problems this morning. One  
4 we've corrected with the technical problem of getting  
5 the presentation on the screen. It seems like the  
6 sound -- or the system seems to go to sleep on  
7 weekends here, I think. But that's been fixed.

8 The second thing, which is probably even more  
9 important, is I understand coffee has just arrived.  
10 So if you want to just quickly take a, take a stroll  
11 back to get a cup of coffee, please do so. I'm going  
12 to grab one myself. So we'll resume in just a minute.

13 (BRIEF BREAK)

14 THE CHAIRMAN: Good morning, Ladies and  
15 Gentlemen. I'd like to begin now. And thank you for  
16 the -- bearing with us for the, the few delays this  
17 morning. But we are now ready to start.

18 I would like to welcome you all back for  
19 these proceedings, and particularly on a Saturday  
20 morning. We thank you for joining us to assist us in,  
21 in working through the proceedings today.

22 We're going to begin this morning with  
23 presentations by the two Panel experts, beginning with  
24 Mr. Woosaree, followed by Dr. Whidden, and then we  
25 will begin the cross-examination process after that.

1                   So I will turn first of all to Mr. Woosaree  
2                   who will make the first presentation.

3   A.   MR. WOOSAREE:                   Thank you, Mr. Chairman. Do  
4                   we have to swear in first?

5   THE CHAIRMAN:                   I'm sorry, sir?

6   A.   MR. WOOSAREE:                   Do I have to swear in, or  
7                   affirm?

8   THE CHAIRMAN:                   Yes. Yes, of course. It's  
9                   early here in the morning.

10   A.   MR. WOOSAREE:                   Thank you, sorry.

11   THE CHAIRMAN:                   Yes, back up a little. I'm  
12                   anxious to get going obviously, so, yes, we will have  
13                   the court reporter swear both of you in.

14   **JOINT REVIEW PANEL EXPERT WITNESSES (SWORN)**

15                   **JAY WOOSAREE (SWORN)**

16                   **TROY WHIDDEN (SWORN)**

17   **PRESENTATION BY JOINT REVIEW PANEL EXPERTS, BY**

18                   **MR. WOOSAREE:**

19   A.   MR. WOOSAREE:                   Thank you, Mr. Chairman.  
20                   Panel Members, Ladies and Gentlemen, good morning.

21                   Just one second. Okay, now it works.

22                   **EnCana Shallow Gas Infill Development**

23                   **In The Suffield National Wildlife Area**

24                   **By**

25                   **Jay Woosaree**

1     **Objectives**

2                   I was contracted by the Joint Panel, Joint  
3     Review Panel to provide advice with regard to analysis  
4     of impacts, reclamation planning, proposed mitigation  
5     measures, conservation of rare plants and ecosystem  
6     integrity.

7                   I have been working on native plant  
8     development and habitat restoration for the last  
9     20 years. And I am here today to determine if there  
10    was enough information in the EIS to meet the  
11    requirements of a JRP, and with regard to  
12    environmental effects of the proposed Project and the,  
13    and the significance of those effects.

14    **Project Description: Infill Drilling Development Project**

15                   We all know what the Project is about. And  
16    one of the overarching questions, given the  
17    sensitivity of Suffield NWA, should -- and the high  
18    density of species at risk, if the Project should go  
19    ahead, what level of development can this ecosystem  
20    sustain?

21    **Observations**

22                   What I will do, I will make a few  
23    observations with regard to the EIS and the  
24    submissions received from the various intervenors and  
25    then I will highlight some of the major points raised



1 during the hearing process and make some  
2 recommendations that have potential to mitigate some  
3 of the effects should the Project go ahead.

4 With regard to the EIS, there were some  
5 uncertainties regarding environmental effects and  
6 cumulative effects.

7 There were also uncertainties regarding  
8 effectiveness of mitigation measures from the Project  
9 activities and also with regard to a species at risk  
10 and their critical habitat, and also to some of the  
11 wetlands setback distances, and viable population of  
12 indigenous species that might be affected.

13 And the EIS was not perfect, but this is what  
14 this process is about, with technical information  
15 session provided on -- in February 7th and 8th, and  
16 with various Information Requests we do have adequate  
17 information to gauge potential effects of this  
18 Project.

19 And with regard to the major intervenor  
20 submissions, we have concern with regard to spread of  
21 invasive species, protection of critical habitat for  
22 endangered wildlife and plants, conflict with  
23 over-land uses with regard to Military, Military  
24 training, oil and gas, livestock and wildlife.

25 We have some compliance issues that we'll

1 raise. Lack of baseline data were also reported and  
2 also, there was a lack of a management framework for  
3 the Suffield NWA.

4 We've -- we heard a lot about benchmark data.  
5 I came across some -- a couple of places in the  
6 minutes of SEAC that -- where there were benchmark  
7 data being covered.

8 And what I brought forward here, like,  
9 Alberta Sustainable Resources Development was  
10 governing benchmark data for Suffield. I don't know  
11 for how long, but in their Annual Report, every year  
12 you will see benchmark survey for, for Suffield area.

13 What you see from this slide is the legal  
14 land description, the type of soil, and the species,  
15 plant community species and the various composition  
16 and also the amount of vegetation and bare ground and  
17 so on.

18 So when we talk about benchmark data or we  
19 look at measurement of effectiveness of mitigation,  
20 this is, this data set is something we can use trying  
21 to compare with, trying to relate to, in order to, to  
22 gauge success when mitigation is used.

23 There were over-indicators which can be used,  
24 talking about reclamation, or in this case, it should  
25 be more like restoration.

1                   Yesterday we heard about some question being  
2                   raised about indicators, like what are the indicators  
3                   we need to measure if -- when, when the disturbed  
4                   sites is revegetated? A particular example, what I  
5                   put here, is some of my work in the fescue grassland.

6                   And when the indicators can, can be many, but  
7                   like in this case, we look at fescue as a major plant  
8                   community and in this case, it can be like rough  
9                   fescue, in this case it's 32 percent. We have various  
10                  plant habitat -- plant species that make up this plant  
11                  community. We have a total vegetation which give us  
12                  an indication of how much cover will be expected and  
13                  we also have a rangeland health assessment.

14                  And basically this is a system adopted by  
15                  Alberta Sustainable Resource Development just to gauge  
16                  potential effects on a particular disturbed site when  
17                  it's reclaimed and try to compare it to some of the  
18                  benchmark.

19                  So the information out there, it's just a  
20                  matter of adapting it to existing conditions in the  
21                  Suffield NWA.

22                  The next slide, again, we talk about  
23                  indicators. And with, with management of the NWA, I  
24                  believe there should have been a clear plan as a  
25                  direction we want the NWA to go. And when they are

1 claiming it could be like to measure the effectiveness  
2 of a habitat, we talk about -- we can -- about, like,  
3 in this case arthropods, frequenting a certain  
4 habitat. This can be an indicator. I pulled a couple  
5 of paper just to give you an idea. Like in Australia,  
6 we use ants to, to measure effectiveness, how  
7 successful an habitat has been reclaimed.

### 8 **Anthropogenic Footprint**

9 We talk about anthropogenic footprint. In  
10 the EIS, Mr. Kansas explained about using digitized  
11 air photo to, to calculate the different habitat  
12 types. Although I agree, but this produced some ideas  
13 of a percentage of an area that had been directly  
14 affected by human activity.

### 15 **Pipeline Reclamation in Suffield**

16 But I want to make the point, if you look at  
17 the slides, this is a slide I received from Alberta  
18 Sustainable Resources a couple of years ago, from  
19 Medicine Hat with regard to the Suffield. And this is  
20 a particular pipeline that has been seeded to wheat as  
21 a means of assisted natural recovery. And from what  
22 you see adjacent to the seeded stuff by the harrow  
23 right here, it's Crested Wheatgrass invasions. And it  
24 happened because Crested Wheatgrass has been used in  
25 that landscape for so, so many years and the seeds are

1           there and they will take advantage of available  
2           resources to spread.

3                       So when you talk about the size of a  
4           footprint, if you calculate the amount of disturbance  
5           caused by Crested Wheatgrass, the footprints,  
6           footprint size might be larger. But when, in  
7           calculating direct footprint, which was used by  
8           Mr. Kansas, it was estimated to be less than  
9           4.5 percent because in the digitized air photo it was  
10          about 4.5 metres and in actual -- in reality, it was  
11          less than 4 metres, so I would not argue that. It  
12          could be less, but we have to take the indirect  
13          effects of the footprint which include the spread of  
14          non-native species and other weeds. So it might be a  
15          little bit larger but that's agreeable.

16       **Reclamation Plan**

17                       Also, when we talk about effective habitat  
18          loss, many of the wildlife species, the, the use of  
19          wheat will not make any difference in terms of  
20          vegetation for them. For example, for the elk and  
21          pronghorn, it's not an issue. But for small  
22          arthropods who spend pretty well most of their  
23          lifecycle in small patches, that could prove to be a  
24          disadvantage. So it is appropriate to have  
25          appropriate plant species when using the reclamation.

1                   And when we talk about control of invasive  
2 species, I believe it should involve all stakeholders,  
3 oil and gas, PFRA, and the Government of Canada.

4                   Because in the early years, many of that  
5 Crested Wheatgrass and other non-native foragers were  
6 prescribed for use in the NWA as a means of soil  
7 erosion control. And we see from an exhibition from  
8 Alberta Environment, but at some point even Crested,  
9 Crested Wheatgrass was endorsed by their department  
10 and adopted in Suffield, and later SEAC decided  
11 what -- they were not going to seed to Crested  
12 Wheatgrass, they were just going to go with natural  
13 recovery.

14                  And with natural recovery, when you have a  
15 particular landscape being exposed to available  
16 nutrients and the resources, there's potential for  
17 invasion and Crested Wheatgrass will invade and this  
18 is the effects you see right here.

19                  Another point I want to mention is in the  
20 Government of Canada report, there were two major  
21 reports, by Roland and one by Brent Smith. They talk  
22 about invasiveness of Crested Wheatgrass from  
23 associated pipelines, but it, it's not fair because  
24 they cater only to oil and gas companies. Animals,  
25 livestock move from one hand to the next, Pronghorn

1 and elk carry seeds, birds carry seeds. I mean, there  
2 are many indirect effects. We don't see an  
3 indication, but the Military was available when we  
4 entered the NWA. I mean, mitigation measures,  
5 especially when dealing with the NWA, should apply to  
6 all users, Military and non-Military, and all of them  
7 have a role to play.

#### 8 **Pipeline Reclamation in Suffield**

9 We heard about reference to a southern  
10 Alberta Sustainability Strategy, with regard to the  
11 spread of invasive species. What they don't state is  
12 what along the major pipeline corridor in the  
13 Foothills, many of pipeline right-of-ways were seeded  
14 with non-native species, like Timothy, Brome Grass,  
15 and so on. So that's why when you look at the land's  
16 habitat fragmentation and invasiveness, you see a  
17 greater impact from oil and gas activities. But it  
18 should have been noted that much of the right-of-way  
19 was seeded to non-native species.

#### 20 **Reclamation Plan**

21 My next slide will talk about the Reclamation  
22 Plan. We use Reclamation Plan vaguely throughout this  
23 process. I believe we should gear more towards a  
24 restoration plan.

25 If we have to define what the intended goals

1 are and what should be stated in the National Wildlife  
2 Management Plan. Because if we reclaim, it has to be  
3 reclaimed to some intended use. And what is that use?  
4 Previously like cattle grazing has a major impact on  
5 NWA. And if we want to reclaim and the us is towards  
6 cattle, cattle grazing, then go ahead, put more  
7 Crested Wheatgrass because that's (indiscernible)  
8 goal.

9 But I believe the, the goal, the objectives  
10 of the NWA is to maintain or conserve the genetic  
11 diversity and therefore we should move more towards a  
12 restoration plan, which is even in Colonel Bruce's  
13 interpretation yesterday, was to reclaim to some  
14 pre-disturbed condition, which in this case, is more  
15 like restoration. And if this is the case, then we  
16 should use appropriate native seed mixes to do  
17 reclamation and monitor for that.

18 Seeding is one thing; trying to get the plant  
19 community to resemble more of its pre-disturbed  
20 condition. But after seeding, we need to have a  
21 strategy how to manage the non-native species, such as  
22 Crested Wheatgrass and other major weeds, like your  
23 Canada Thistle, your Brome Grass, your Tumbleweed,  
24 Eurasian thistle. So we should have a weed management  
25 plan how to deal with those. We cannot just seed and



1 walk away. And there are times when we need to  
2 encourage grazing in order to facilitate the processes  
3 so that there's seeded plant materials will be right  
4 on a trajectory but will represent its pre-disturbed  
5 condition.

6 From this slide, I think it's a particular  
7 pipeline upon my visit to the NWA in February. We see  
8 the soil surface to be roughened, which I think it's  
9 pretty good, because a rough surface like that, it  
10 provides the safe environment for seeds to catch, like  
11 especially native seeds, to germinate and grow. And  
12 with the soil being the cost actualities (phonetic),  
13 it will trap snow, conserve moisture, and at the same  
14 time prevent soil from blowing away.

15 And from several observations, species like  
16 Crested Wheatgrass will prefer -- like Crested  
17 Wheatgrass will prefer the fine smooth soils where it  
18 can invade easily. So to have a site like this one,  
19 which roughened will be an advantage to facilitate the  
20 vegetation.

21 Also on my February visit to the NWA, we talk  
22 about some native seeds being collected and I did see  
23 some plots there. And information collected on  
24 testing of these species, whatever they are, would  
25 better put to use if that information is shared with

1 the industry because, again, we have to remind  
2 ourselves that the goal number one is to protect and  
3 maintain the integrity of that NWA.

4 So I feel that information was not shared  
5 freely between the various land users and a management  
6 plan will address that.

7 And by the size of plot, it's not a small  
8 plot, looks like, you know, there's quite a few  
9 species being tested there.

10 I will take this opportunity to talk more  
11 about reclamation, because that was brought up  
12 yesterday about why would harvesting seeds. Wild  
13 harvesting seeds, it's okay to collect from some  
14 adjacent areas and try to use it as time goes by in  
15 the reclamation. But it doesn't give us the diversity  
16 we need at time to make it more effective.

17 And the reason I say that, if you look at our  
18 grass community, in this particular area, it's mostly  
19 Blue Gramma, June Grass, Western Porcupine Grass, and  
20 so on, and some old/new grass. They flower different  
21 times of the year. June Grass will flower towards  
22 middle of June, early July. The Western Porcupine  
23 Grass will flower more towards the end of July and  
24 same with Slender Wheatgrass, towards the end of  
25 July and so on.

1                   What I'm trying to say, plants have different  
2                   flowering time. And if you try to do -- harvest hay  
3                   to revegetate particular sites, you may not capture  
4                   all the diversity represented in that harvest because  
5                   of the different maturity. Some of the early species  
6                   will have shattered seeds. So, If you go too early  
7                   you miss the late one, if you go too late, you miss  
8                   the early species.

9                   So that's one of the reason, like when you  
10                  use native hay, which is being proposed lately in  
11                  quite a few projects, it has some good, it has some  
12                  bad.

13                 And also given that the area has a lot of  
14                 weedy species, you have to find areas what are pretty  
15                 clean to be sure that whatever you're going to seed  
16                 doesn't have any of the tumble weeds, your wild  
17                 mustard, Eurasian thistle, and so on. So this way you  
18                 try to reduce some of the problems that you might have  
19                 in the future.

20                 In the past, we did not have too many choices  
21                 in terms of what species we used in the seed mix. So  
22                 we used mostly whatever was available on the market  
23                 and whatever was recommended to industry by various  
24                 government agencies.

25                 Today we have a better knowledge of what

1 works, what doesn't work. We have many more native  
2 ecotypes available in the market and such species  
3 could be used to make a revegetation seed mix that  
4 will help accelerate once the site has been disturbed.

5 During the National Resource Canada  
6 presentation, some issues were brought up about soil  
7 risks. And I know in the EIS they rate soils  
8 according to different risks as high, medium or low.  
9 And there's nothing wrong with that.

10 In fact, for -- though proposing a scientific  
11 way to do it, and one of the most common methodology  
12 to assess soil rates is by texture. You look at a  
13 particular area, you look at the soil texture, look at  
14 the amount of sand, silt and clay. And based on those  
15 percentage, if it's more clay, the risk is low. If  
16 it's more sandy, the risk is high. So you can easily  
17 have a system where you can assess soil risk.

18 So on the national risk analysis, or Natural  
19 Resource Canada presentation, I don't know how -- what  
20 else -- how else to explain it, but I believe a  
21 system, just looking at a texture of soil, help  
22 explain the risk associated at a particular site. And  
23 it can easily be done in the field.

24 With regard to EnCana's mitigation technique,  
25 I believe that many of these mitigation techniques

1 will work. I have reviewed the videoclip as proposed  
2 by EnCana in terms of how well some of the sites will  
3 reclaim. And also the presentation made by Flint  
4 Energy were some good examples of successful  
5 reclamation there. And if it's put to use, such as  
6 matching equipment to terrain, the SpiderPlowing and  
7 so on, we might see some good restoration on the way.

8 It's not perfect because the landscape is  
9 quite variable, it's quite dynamic, so we cannot just  
10 assume that it will be like that for all the sites.  
11 But each site needs a special attention and wherever  
12 we have a lack of vegetation, we need to address as to  
13 why we have a lack of vegetation. Do we have to  
14 reseed again or cross seed it? And those attention we  
15 have to pay to each of the site.

16 In terms of traffic control methodologies to  
17 protect vegetation, seed bank and soil, we saw the,  
18 the use of remote monitoring such as the SCADA has  
19 been proposed. My only concern there, that SCADA has  
20 been in existence for about 15 years and has been used  
21 by oil and gas since. And I would have liked to see  
22 some examples, but would have been used in the NWA.

23 I would like to see more like being proactive  
24 rather than have waited should the Project go ahead  
25 we'll use this technology, given that the technology

1 was available 15 years ago. So a little bit proactive  
2 would have gone a long way to show that we can more  
3 effectively reduce traffic and so on.

4 And with regard to traffic and, and soils,  
5 whatever compaction will have on the trail for the  
6 first year or two, this will be it. No matter if you  
7 drive on the same trail for the next 20 years, the  
8 soil won't be compacted any more than it is, already  
9 is. And when it comes to the vegetation, I believe it  
10 can be revegetated again by ripping the soil and using  
11 some mulchings and so on we can revegetate it.

12 And recapitulating a little bit about soil  
13 risk, in many sand -- soils with highest percentage of  
14 sand, it's not an issue of reclaiming. With a  
15 combination of mulching, using straw crimping or maybe  
16 at times, if possible, we can -- on certain slopes we  
17 can use snow fencing to cut down the prevailing wind  
18 and to facilitate vegetation establishment.

19 And, again, I say that we have new native  
20 seed mixes that are available now. Our understanding  
21 of plant community recovery is much better than  
22 before, than 20 years ago.

23 And we seen for various informations exchange  
24 and technical session, even from EnCana, that there is  
25 a willingness to control invasive species on pipelines

1 and so on. But, again, I strongly believe that any  
2 willingness to control it, non-native species, should  
3 involve all parties because it will be sort of  
4 detrimental if one party tried to control some of  
5 these Crested Wheatgrass and so on while others don't  
6 do anything about it. It won't be feasible and it's  
7 not practical. So it should involve all the  
8 stakeholders.

9 And it will be appropriate to know what are  
10 some of the critical high risk habitat how. But given  
11 like some of the accounts for rare species was not  
12 done and so on, in this case, the PDA is a type of  
13 pre-adaptive management which is justifiable in this  
14 case.

15 We talked about adaptive management  
16 yesterday, briefly mentioning it. And it was referred  
17 as a smoke, a smoke glass. It has its merits. Only  
18 place where we're not too sure when it comes to  
19 critical habitat, because once was species -- we don't  
20 know the thresholds. Like whether a number four is  
21 enough, or five would have been better, or three is  
22 detrimental, as an example.

23 So this way, adaptive management may have  
24 some issues. But other than that, such as in the PDA,  
25 it is just -- I believe, it is justifiable.

1                   While we talk about EnCana's past reclamation  
2                   experiences, again, through some of the minutes from  
3                   SEAC and some of materials mentioned in the EIS, we  
4                   see some good examples. We know from the analysis of  
5                   the data in the EIS, we could not see clear  
6                   correlation, for example, between paired pipelines and  
7                   native plant, native plant community integrity.

8                   That, that's okay, because many of the  
9                   pipelines, when they were done in the early days, it  
10                  was used, it was revegetated using non-native species.  
11                  And that's why we could not a see clear correlation.

12                  But today we see some good examples and I  
13                  believe we could have some success if it's done  
14                  properly. However, some of the sites, but showed poor  
15                  vegetation cover, increase bare ground, eroded soils,  
16                  or presence of Crested Wheatgrass, needs attention  
17                  because now we have better tools, it will be  
18                  appropriate to go back and try to revegetate those  
19                  sites appropriately and deal with it.

20                  And with many of the problems found on the  
21                  sites as brought forward by SEAC and by Mr. Lambrecht  
22                  with regard to cement and wastes, multiple trails and  
23                  things like that, that was left of the landscape is, I  
24                  believe, unacceptable. It should not have happened.

25                  Although we heard during this hearing that



1 EnCana and -- well, that's the next slide. We heard  
2 about covering responsibility from EnCana and Flint  
3 Energy Company about how well their people are trained  
4 and about some of -- how sensitive they are to  
5 environment and how the respect of the environment and  
6 the high performance contract, that most people are  
7 measured against.

8 Given what we have seen from SEAC minutes and  
9 from Mr. Lambert's presentation, I would urge that we  
10 hold some of these people responsible so that in terms  
11 of waste and cement and multiple trails and so on  
12 doesn't repeat itself again. It should never have  
13 happened and I hope it will be taken care of in the  
14 future should the Project go ahead.

15 And with regard to ruts and so on, and  
16 multiple trails, sometimes when we see a particular  
17 trail of a landscape, it's easy to follow it. But we  
18 tend to associate it with oil and gas. But upon my  
19 visit in the NWA, it was normal for our driver just to  
20 cut through the landscape, same way. When I ask the  
21 driver, like, "Don't proceed because of snow. You  
22 cannot go ahead." "We do it all the time. There was  
23 a trail there last -- just yesterday."

24 So it appear that we need some clear  
25 objectives in terms of trail. If we're going to have

1           some trail, stick to it. Like, you know, like it's  
2           not one rule for the oil and gas and another  
3           particular rule is for the Government of Canada,  
4           because I am the custodian, I can do whatever I want.  
5           It should not be that.

6                         With regard to rare plants, as listed by  
7           SARA, those are three of the main species. It will be  
8           good to know the location where those plants are found  
9           and in what population numbers. And once we  
10          understand the biology, we develop the recovery  
11          plan -- which I think there, there is a recovery plan  
12          for Tiny Cryptanthe and Sand Verbena -- we should look  
13          at ways how maybe to propagate them.

14                        To propagate plants and introduces them back  
15          into the community is not unusual. It's done  
16          throughout the world. Many of the botanical gardens  
17          reproduce rare plants and try to establish them again  
18          in ex situ garden and where they can be reintroduced  
19          into their natural environment.

20                        Here, I don't have experience with Tiny  
21          Cryptanthe and Sand, Sand Verbena, but I have  
22          experiences with other plants which are considered  
23          OS1, OS2. For example, like in this case, it's Sand  
24          Begonia which loves disturbances. And when you look  
25          for them, the only place you will find them is

1 associated with certain disturbances, like road sites.  
2 And with Senate grass, we, we propagate them very  
3 easily.

4 And we have lots of literatures on  
5 germination on some of the species of rare plants.  
6 And this can be either coal stratification, use of  
7 jubilic acid (phonetic), use of ethylene.

8 So what I'm saying, there are lots of  
9 information out there on how to reproduce rare plants.  
10 And perhaps it would be appropriate to look at some of  
11 the species and see if we can reintroduce them so that  
12 they should not stay rare anymore.

13 When we talk about wetlands, I know there's a  
14 wetland policy, No Net Loss of Wetland Policy, with  
15 regard to conservation and protection of wetlands.  
16 What I tried to show here, despite the policy we have  
17 from 1996 from DFO, we still see many of oil well  
18 being put near waterbodies. In this case, the top  
19 left, right here, is a particular wellhead near  
20 Hardisty. You look at this one down here, it's in the  
21 Fort Saskatchewan area where a wellhead blew off and  
22 it's quite a mess to clean up.

23 And if you look at this one here, it's -- it  
24 is Jasper National Park. And, of course, it's a  
25 National Park and you ask yourself, what is an oil

1 well doing there? And this one last week I found near  
2 an ephemeral area near Vermillion.

3 My message here, given that we have a policy  
4 for No Net Loss of wetland function, I think we should  
5 be more diligent when issuing licences so that such  
6 scenarios is not repeated again.

7 For example, in NWA, we hear about well  
8 removal from wetland. Whether it's a wetland or not,  
9 we can always argue about that. But the point I want  
10 to make, that these particular wetland, unless you  
11 know the, the critical function in terms of habitat  
12 for critical species, it should not be messed with.

13 So that's why, as a recommendation later you  
14 will -- I -- for application in the NWA, either like  
15 the Base Commander, one of his representatives, or  
16 SEAC, will be appropriate to be along with EnCana to  
17 determine where future sites should be.

18 I make the remarks about "Big Bob" because I  
19 saw that particular site. And the wait -- to me it  
20 looks more like a constructed wetland ponds, or a  
21 construction ponds. And there's always the potential  
22 for spill should a pipeline break or spill of gasoline  
23 or whatever. And, of course, when, when you are  
24 dealing with, with wetland, there's always a rich  
25 number of species associated with it. It's rich in

1 plant. It's very productive. It's a critical source  
2 of food for many species.

3 So, therefore, the further we stay away from  
4 them, the better it is. And we hear from EnCana that  
5 they will try to adhere to known distances or trying  
6 to steer away from any particular wetlands.

7 And these wetlands are important because  
8 there are so few of them in the -- this region, but it  
9 serve a very important functions and it gives the  
10 landscape character, also.

11 And when we talk about wetlands, we talk  
12 most, mostly about SARA, the species at risk. But we  
13 forget two more pieces of -- two conventions; the  
14 *Migratory Bird Act* of 1918 of which Canada is a party.  
15 And what this called is for to protect the habitat and  
16 environs necessary for bird survival. So that's why  
17 areas like "Big Bob" I feel is very important in this  
18 dry mixed region to protect migratory birds.

19 And we also have a Ramsar Convention, which  
20 is an International Treaty between a number of  
21 countries to protect fundamental ecological functions  
22 of wetlands and their economic, cultural, scientific,  
23 and recreational value.

24 So in addition to SARA, we have this  
25 convention which our Federal Government signed and I

1 think we should respect them.

2 And with critical habitat, once we identify  
3 them, we have to stay away until we know their effects  
4 upon the particular wildlife. And with activities  
5 being in the winter, we don't see some -- I don't see  
6 some issues and I think Troy will touch more on that.  
7 But to me, I think of some of the animals which spend  
8 most of their winter range in the NWA, such as the  
9 Pronghorn in this case, and some of the --I think the  
10 Prairie Chicken because they were too far away and I  
11 could not tell what they were.

12 **Recommendations**

13 So going to recommendation, I think there are  
14 some information out there. I know we talk about  
15 doing some modelling. I don't see the value of  
16 modelling because it's all based pretty well on what  
17 you put into the model, but I think we can use the  
18 baseline data if they are there. And I know, like, I  
19 saw there some baseline data and based on what's  
20 collecting every year from the Government, we could  
21 try to gauge some -- to what level of development is  
22 ecologically sustainable in this environment.

23 We should finalize the Environmental Effects  
24 Monitoring Plan to include a management plan, a well  
25 management plan for the Suffield NWA. One with the

1 objectives, timeline, and have capacity building, so  
2 that we know who is doing what in, in what timeframe.

3 And any decision with regard to sitings and  
4 infrastructures should involve DND and SEAC.

5 And all -- we should identify all the  
6 critical habitats and we heard from EnCana again, but  
7 we'll try to avoid wetlands, and I think we should  
8 stick to that, because the wetlands are key habitat to  
9 wildlife. And complete vericable plant for all  
10 species at risk and try to -- and all industry should  
11 work together, all land users should be -- should work  
12 together.

13 And also I want to emphasize, because we are  
14 working with species at risk, and what liabilities  
15 involve should certain species not be able to recover.  
16 So that's a question mark. I don't know what it is.  
17 But I thought it should be there should habitat  
18 deteriorate over time.

19 Habitat loss and fragmentation can have large  
20 impact on wildlife from psychological stresses and it  
21 should be minimized wherever possible.

22 And I believe that mitigation should at best  
23 take into account the potential for restoration of the  
24 land to pre-disturbed conditions. And that should be  
25 specified in a management plan for the NWA, because I

1 strongly believe the goal of the NWA is to protect and  
2 maintain the genetic diversity. If it's not that,  
3 then we have to define it what it, what it is if it's  
4 grazing or not.

5 So I mention about wildlife in terms of  
6 avoiding sensitive areas and did whatever constraint  
7 mapping we have to do before any well siting is  
8 finalized.

9 I mentioned about management plan again to  
10 control invasive species and in order to reduce  
11 impacts to the land and to wildlife and the habitat.

12 Regular monitoring is essential. I see from  
13 the SEAC minutes and SEAC report that they did a  
14 wonderful job with regard to monitoring, but  
15 monitoring has to be fair because from the report from  
16 what I read, it was more targeted towards oil and gas.

17 But in fact, when you monitor, it should be  
18 more towards all land users, including PFRA, because  
19 upon my visit to the NWA, even by -- when walking by  
20 the cattle covering or loading area, you could see  
21 lots of weedy species. You could see lots of Crested  
22 Wheatgrass. So when you, when you monitor, you  
23 describe the Crested Wheatgrass invasion and so on, it  
24 should include all the activities from all land users,  
25 not only oil and gas.



1                   And we should not have any loss of habitat  
2                   that's critical to species at risk. And because --  
3                   this is important because many of the small Arthropods  
4                   associated with a particular habitat, like I said  
5                   before, for them that little slew or pot or prairie  
6                   potholes, as we say, on the prairies is representative  
7                   of their lifecycle and it's very important to maintain  
8                   that, because once the animal are gone, like -- most  
9                   likely in the beginning, they will find refuge on  
10                  adjacent land, but after four years, maybe five years,  
11                  we don't know the timeframe, but at a certain  
12                  timeframe, if it disappeared, we are gone, and what  
13                  cycle is not reversible because animals don't tell us  
14                  when they go, they just disappeared.

15                  I will re-emphasize about employees receive  
16                  environmental awareness training during orientation,  
17                  because from what we have seen before, despite about  
18                  the high performance standard and the training  
19                  received, it appears that it hasn't sink for some of  
20                  the employees by leaving debris on the landscape.

21                  And this should also apply to the Government  
22                  of Canada because in one of their report, the 2006  
23                  Access Report have some recommendation for mitigation  
24                  and but, and but debris should not be left on the  
25                  landscape. So I believe maybe they noticed something

1 on the landscapes in terms of debris that was there  
2 and should not be there. And that's why I thought it  
3 should apply to all parties, not only one particular  
4 land users.

5 And, of course, employees should be held  
6 accountable for non-compliance. And I think we hear  
7 from EnCana and others about high performance  
8 contract.

9 Given -- should the Project go ahead, I see a  
10 greater role for SEAC and we have to define that role.  
11 And that will be part of a management strategy or  
12 management plan for the NWA. Right now, it's sort of  
13 loosely defined. So I think, if we have a clear  
14 management plan, SEAC role should be re-defined again  
15 to accommodate the extra load provided by the proposed  
16 Projects.

17 And to be sure what past performance in terms  
18 of detrimental effects like well in the wetlands, ruts  
19 and so on not being repeated again, and habitats are  
20 protected.

21 And there should be close scrutiny of all  
22 project activities with DND approval when it comes to  
23 final sitings because, as an example, what we heard  
24 from the hearing about wells found in well sites and  
25 so on, and I think if, if there is a scrutiny of all

1 the Projects, we can avoid repeating some of those  
2 unfortunate events.

3 And, again, what are the consequences  
4 associated with violating these conditions?

5 I believe it should not be status quo like we  
6 just get a licence, we go and drill. So we should  
7 raise the bar when it comes to dealing with the  
8 national wildlife. And according to The World [Well]  
9 Conservation Conservation Union, a protected area is  
10 dedicated to the protection and maintenance of  
11 diversity and associated cultural resource, and  
12 associated cultural, cultural resources and it should  
13 be managed -- there's a mistake there.

14 But it should be managed through legal and  
15 established objectives. And this way I thought we  
16 should define what is established objectives in a  
17 management plan so that everybody is, is on the same  
18 level.

19 **Closing Remarks**

20 And in closing, I strongly believe that  
21 environmental liabilities from source extraction, in  
22 addition to over-land use should not be passed to  
23 future generations. I think we have enough  
24 information to properly mitigate future impact and  
25 some, of course, we'll develop along the way.

1                   We should consciously, purposely, protect the  
2 biological, functional and genetic diversity, which I  
3 think as humans, is what it's all about.

4                   So can the proposed Project be ecologically  
5 sustainable? I think with appropriate mitigation, we  
6 can do some -- we can reduce or lessen the impact,  
7 taking into consideration some of the avoidance of  
8 critical habitat, some of the development for recovery  
9 plan for some of the species, so we should determine  
10 those thresholds and proceed cautiously.

11                   Thank you very much. I think that's the end  
12 of my slides. I will pass it on to Troy.

13                   Mr. Chairman.

14 THE CHAIRMAN:                   All right. Thank you,  
15 Mr. Woosaree. We'll hear next from Dr. Whidden.

16                   Yes, please go ahead, sir.

17 A. DR. WHIDDEN:                   We just need to hook in here,  
18 first.

19 THE CHAIRMAN:                   Okay, just one moment, then,  
20 we'll try to get you connected properly.

21 **PRESENTATION BY JOINT REVIEW PANEL EXPERTS, BY**

22 **DR. WHIDDEN:**

23 A. DR. WHIDDEN:                   Good day, Panel Members,  
24 Ladies and Gentlemen.

25                   **Encana Shallow Gas Infill Development in the**

1                                   **Suffield National Wildlife Area**

2                                   **Wildlife Review**

3                                   **Prepared by**

4                                   **Whidden Environmental Ltd.**

5       A.    DR. WHIDDEN:                                   My name is Troy Whidden  
6                                   and I was hired in late 2007 to review wildlife  
7                                   related aspects surrounding EnCana's shallow gas  
8                                   infill development in the Suffield National Wildlife  
9                                   Area.

10       **EnCana Suffield Review Purpose**

11                                   Generally speaking, I was hired to assist the  
12                                   Joint Review Panel to fulfill its mandate with respect  
13                                   to wildlife, to make recommendations for management of  
14                                   wildlife, and to address the overarching question:

15                                   Is there enough quality information to gauge  
16                                   the potential impacts to wildlife from EnCana's  
17                                   proposed Project in the EIS?

18       **EnCana Suffield Review Objectives**

19                                   More specifically, I was commissioned to do  
20                                   this by generating two reports independent from the  
21                                   Joint Review Panel. These are -- I don't have the  
22                                   exhibit numbers, I'm sorry, but Wildlife Management  
23                                   Report No. 1 and 2.

24       **Wildlife Report 1**

25                                   So, within Wildlife Report No. 1, like I

1           said, I was commissioned to advise the JRP on the  
2           regulatory setting in which the EIS was formulated  
3           with a focus on evaluation of project impacts on  
4           wildlife.

5                       Two, I was also commissioned to advise the  
6           JRP on the EIS issues, analysis, impacts, and proposed  
7           mitigation measures relating to wildlife.

8                       I was also asked to determine the relative  
9           level of uncertainty associated with impact  
10          predictions and proposed mitigation measures.

11                      And I was also asked to determine how EnCana  
12          dealt with potential impacts to and effects on  
13          wildlife with a consideration of species of special  
14          management concern and Provincially and SARA-listed  
15          species.

16                      To summarize, wildlife report No. 1 was  
17          generated by reviewing EnCana's EIS.

18       **Wildlife Report 1: Recommendations**

19                      I would now like to summarize the  
20          recommendations I put forth in Wildlife Report No. 1.  
21          Background information, and rationale associated with  
22          these recommendations can be found throughout the  
23          report itself.

24                      Recommendation No. 1 was to facilitate the  
25          design and implementation of a formal Environmental

1 Management Plan for the Suffield NWA. Detailed  
2 wildlife conservation goals are required to gauge  
3 product impacts.

4 Two, or the second recommendation, sorry, was  
5 to facilitate the clarification of the regulatory  
6 spider-web covering the Suffield NWA.

7 The third recommendation was to explain the  
8 process behind finalizing the EIS guidelines  
9 themselves, particularly in association with the  
10 timing of field work completed and the meaningful  
11 consideration of stakeholder input into the  
12 guidelines.

13 Number 4. Or the fourth recommendation,  
14 sorry, was to request formal guidance for species at  
15 risk in the Suffield NWA, including recovery plans and  
16 definitions of critical habitat for some species.

17 The fifth recommendation was to have EnCana  
18 discern between V-E-C or, VEC habitat suitability and  
19 species at risk critical habitat, while considering or  
20 keeping in mind the legal and environmental  
21 consequences of their loss.

22 Recommendation No. 6 was to examine the  
23 'baseline' databases for wildlife to ensure sufficient  
24 power for statistical testing in association with any  
25 formal or -- or with a -- in addition with any in

1 association with any follow-up or monitoring program.

2 Recommendation No. 7 was to ensure that the  
3 involvement of the Responsible Authority and  
4 stakeholders in design and implementation of a  
5 monitoring program should the Project proceed.

6 Recommendation No. 8 was to determine how  
7 expected monitoring results will demonstrate the  
8 effectiveness of the proposed mitigation measures. In  
9 particular, have wildlife management targets been  
10 reached?

11 Recommendation 9 was to determine successful  
12 mitigation. For example, how will testable questions  
13 be developed through monitoring programs to determine  
14 whether mitigation has been successful. And to  
15 consider what quantifiable approaches will be employed  
16 in wildlife monitoring.

17 Number 10, determine how many PDAs are  
18 required and which species would be covered in each.  
19 We have covered some of this, I know.

20 In particular, how would this data that's  
21 gathered through the PDA process be used in monitoring  
22 project wildlife interactions at the landscape scale.

23 Recommendation 11, was to consider arthropod  
24 species and assemblages as key indicators of  
25 environmental impacts to wildlife.



1 Recommendation 12 was to examine use of  
2 Before-and-After-Control-Impact approach to gauge  
3 cause and effect relationships, if any, between  
4 project activities and wildlife.

5 13, request detailed discussions and analysis  
6 of consequences of linear disturbance on all wildlife  
7 VECs.

8 14, was to obtain additional information on  
9 timing of disturbances and linear ranges of ungulates  
10 in the Suffield NWA.

11 Winter timing requires a little more  
12 attention and there needs to be acceptable mitigation  
13 strategies employed.

14 15, consider impacts from increased traffic  
15 in sufficient detail for all VECs. And potentially  
16 consider dust impacts in terms of the assessment.

17 16, determine why pellet group surveys were  
18 not conducted to gauge ungulate habitat use and  
19 distance from roads with particular attention paid to  
20 Pronghorn.

21 Recommendation 17 was to not permit dugouts  
22 or water holes to be constructed in or around  
23 wetlands. There is potential for disruption of  
24 hydrology and hydrogeology.

25 Recommendation 18 was to clarify the

1 Environmental Construction Reporting System that was  
2 presented by EnCana to ensure that SEAC sees all  
3 environmental reporting documentation and that relates  
4 to clarifying Figure 2 of the Environmental Protection  
5 Planned, EPP.

6 **Wildlife Report 2**

7 So, secondly, I was also commissioned to  
8 generate a report to advise JRP on formal hearing  
9 submissions submitted by -- submitted in response to  
10 the EIS, which was filed by EnCana. And I was to  
11 advise the JRP on supplemental submissions and  
12 Information Requests with a focus on intervenor  
13 positions related to wildlife and wildlife habitat.

14 These submissions included -- or the aspects  
15 reviewed included submissions by DND, Environment  
16 Canada, submissions by the Environmental Coalition  
17 members, submissions by SIRC and SEAC, a variety of  
18 Information Requests, and many supplemental  
19 submissions.

20 As with the first wildlife report, a series  
21 of recommendations were made to the JRP based upon  
22 these submissions, and their contents. Background  
23 information and rationale for these is provided in the  
24 report. Some of these recommendations are not  
25 mutually exclusive from the recommendations in the

1 first Wildlife Report. And I'll go through those now.

2 So, again, Wildlife Report No. 2 was based  
3 upon the review of all, all the intervenor  
4 submissions, essentially.

5 Recommendation 1 was to ensure that past,  
6 present and future surface disturbance in the Suffield  
7 NWA is quantified.

8 Number 2, when considering potential effects  
9 to SARA-listed species, other wildlife species and  
10 their habitat consider the ecological context or the  
11 fact that we're looking at an NWA here, or that an NWA  
12 is involved.

13 Recommendation No. 3 was to clearly define  
14 the PDA review and assessment process. The PDA  
15 process should not be a substitute for systematic  
16 surveys. PDA is nothing new in the environmental  
17 assessment industry. But given the sensitivity of the  
18 area we're dealing with, the process itself needs  
19 clear direction and definitions.

20 Recommendation 4, address the outstanding  
21 issue of regulatory guidance from Federal or  
22 Provincial representatives.

23 Recommendation No. 5, was to determine and  
24 publicize why Alberta Environment and ASRD have not  
25 acknowledged responsibility to the ecological

1 resources to the Suffield NWA.

2 Recommendation No. 6 was to suggest that SEAC  
3 be provisioned with resources to monitor NWA user  
4 activities should the Project proceed.

5 Recommendation No. 7 was to suggest that SIRC  
6 work with SEAC in monitoring oil and gas activities in  
7 the NWA if the Project proceeds.

8 Recommendation 8 was to consider the  
9 scientific certainty of impact predictions related to  
10 wildlife.

11 Recommendation 9 was to facilitate the design  
12 and implementation of environmental management plan  
13 for the Suffield NWA. As Dr. Ross said yesterday,  
14 "The devil's in the details" and goals for a wildlife  
15 conservation need to be formalized.

16 Recommendation 10 was a requirement for a  
17 clear definition of sustainable ecosystems within the  
18 NWA and this should be done by the RA for all NWA  
19 users.

20 Recommendation 11 was to streamline and  
21 clarify regulations relating to grazing, fire  
22 suppression and hydrocarbon activities in the NWA.

23 Recommendation 12 suggested the systematic  
24 investigation of the impact of roads, traffic, and  
25 trails on wildlife in the NWA.

1                   Thirteen was to have all wetlands in the NWA  
2 delineated and classified. This information could be  
3 used to facilitate avoidance and mitigation by all  
4 land users.

5                   Fourteen was to ensure that EnCana  
6 demonstrated mitigation effectiveness from its past  
7 activities should it involve the gathering, analysis  
8 and application of empirical data.

9                   Fifteen was to determine the number of PDAs  
10 required and the surveys required in each PDA. And  
11 again, to consider how this information could be used  
12 to monitor project wildlife interaction should the  
13 Project proceed.

14                   Sixteen, again, suggesting an increase in  
15 SEAC staffing to accommodate the obviously increased  
16 workload due to the Project proceeding, including  
17 revisiting SEAC's role and mandate.

18                   And, again, suggesting that detailed  
19 discussion and analysis of effects of linear  
20 disturbance on all wildlife VECs.

21                   Request more information on the impact of  
22 winter oil and gas activities on winter herds,  
23 including antelope, elk, mule deer and white-tailed  
24 deer.

25                   Consider the impact of increased traffic in

1 detail for all VECs.

2 And, finally, do not permit dugouts or water  
3 holes to be constructed in or around wetlands for  
4 reasons of compromising wildlife habitat and hydrology  
5 and hydrogeology, potentially.

6 So, my next three slides, I believe they  
7 summarize and capture the primary overarching issues  
8 surrounding uncertainty with EnCana's proposed EIS.  
9 As outlined in part, in Intervenor submissions, in  
10 relation to wildlife management in the Suffield NWA.

11 So, again, these overarching comments I  
12 believe capture some of the main -- or a lot of the  
13 main, the detailed issues.

14 **Summary**

15 A detailed management plan for the NWA is  
16 required and it should include specific conservation  
17 goals, objectives and targets for wildlife and  
18 wildlife habitat.

19 There needs to be a close scrutiny of all  
20 project activities under any approval conditions.

21 Follow-up and monitoring program details are  
22 required if the Project proceeds. For example, how  
23 will mitigation success be gauged?

24 All parties need to be aware and expect a  
25 heightened attention in effort in designing mitigation

1 measures.

2 And, finally, the PDA process needs to be  
3 reviewed and finalized should the Project proceed.

4 The proposed PDA process (including  
5 management framework) requires input from the ERA,  
6 SEAC, and the JRP.

7 So, in conclusion, I would like to come back  
8 to the original overarching question of:

9 "Is there enough quality  
10 information to gauge the potential  
11 impacts to wildlife from EnCana's  
12 proposed Project in the EIS?"

13 This is not an easy question to answer in terms  
14 of providing an all encompassing answer or single  
15 solution. Uncertainties exist in the EIS with its  
16 conclusions surrounding wildlife that are unacceptable  
17 to many parties.

18 However, the main point that I would like to  
19 draw the Panel's attention to and others is that  
20 without a formal management plan, it remains difficult  
21 now and it will remain difficult in the future to  
22 gauge the success of wildlife management in the  
23 National Wildlife Area.

24 And that's all.

25 THE CHAIRMAN: Thank you, Dr. Whidden.

1 We'll now begin the cross-examination and -- sorry.

2 MS. LaCASSE: Mr. Chairman, I think there's  
3 a preliminary question or two that we need to ask  
4 these two witnesses for the purposes of the record.

5 THE CHAIRMAN: Yes, and please go ahead.

6 MS. LaCASSE: Mr. Whidden, I'll start with  
7 you, were exhibits 009-002, your February 8  
8 submission, and 009-006, which is your  
9 August submission, Exhibit 009-004, which is your  
10 response to Information Request, and 009-009, which is  
11 your *curriculum vitae* prepared by or under your  
12 direction?

13 A. DR. WHIDDEN: Yes.

14 Q. And do you have any corrections to those documents?

15 A. Not that I'm aware of. Other than a few typos.

16 Q. Okay, all right. And is the information within those  
17 documents accurate to the best of your knowledge?

18 A. Yes.

19 Q. And do you adopt those exhibits as your evidence in  
20 this proceeding?

21 A. Yes.

22 Q. Thank you. Mr. Woosaree, were exhibits 009-001, which  
23 is your February 18th, '08 submission, 009-005, which  
24 is your August 15th, '08 submission, Exhibit 009-003,  
25 which is your reply to Information Request, and



1           009-007, which is a reply to request from the  
2           Government of Canada, and Exhibit 009-008, which is  
3           your *curriculum vitae*, prepared by you or under your  
4           direction?

5           A.   MR. WOOSAREE:                    Yes.

6           Q.   Okay.  And do you have any corrections to those  
7           documents?

8           A.   No.

9           Q.   Okay.  And is the information in those documents  
10          accurate to the best of your knowledge?

11          A.   Yes.

12          Q.   And do you adopt these exhibits as your evidence in  
13          this proceeding?

14          A.   Yes.

15          Q.   Okay.  And I'm actually going to ask one other  
16          preliminary question, Mr. Chairman, and I'll start  
17          with Mr. Whidden again.

18                         Mr. Whidden, the following clause was  
19          included in your service contract for this Project  
20          and I'm just going read a little bit of it to you:

21                         "The role of the contractor is to  
22                         provide independent expert analysis  
23                         and recommendations to the Joint  
24                         Review Panel.  However, recognizing  
25                         the nature of the joint review

1 process, the contractor shall have  
2 no direct contact with the Joint  
3 Review Panel and all subsequent  
4 communications from the contractor  
5 [which is you, Mr. Whidden]  
6 following the execution of the  
7 service contract shall be in  
8 writing.

9 I would just like to confirm that you've complied  
10 with this contract in that you haven't communicated  
11 directly with the Panel members; is that correct?

12 A. MR. WHIDDEN: That's correct, yes.

13 Q. Okay. And Mr. Woosaree, I have the same question the  
14 for you, is it correct that you have not communicated  
15 directly with the members of this Panel?

16 A. MR. WOOSAREE: You, that's correct.

17 Q. Thank you very much.

18 THE CHAIRMAN: Thank you, Ms. LaCasse.

19 We can now begin the cross-examination and we  
20 would start with -- no, I see the Coalition,  
21 Environmental Coalition does not wish to  
22 cross-examine. Then I'll turn next to Government of  
23 Canada, Mr. Lambrecht, please.

24 Mr. Lambrecht, before you begin, we should  
25 mark the two presentations from the Panel Experts as

1 exhibits. And I would give Mr. Woosaree's  
2 presentation, the slide document, Exhibit 009-010.

3 **EXHIBIT NO. 009-010: Curriculum Vitae of**  
4 **Mr. Jay Woosaree**

5 THE CHAIRMAN: And Mr. Whidden's,  
6 Exhibit 009-011.

7 **EXHIBIT No. 009-011: Curriculum Vitae of**  
8 **Mr. Troy Whiddens**

9 THE CHAIRMAN: Please proceed.

10 **CROSS-EXAMINATION BY THE GOVERNMENT OF CANADA, BY**

11 **MR. LAMBRECHT:**

12 MR. LAMBRECHT: Gentlemen, thank you for  
13 coming today and trying to help us and the Panel with  
14 the difficult issues we've got to address here.

15 Q. There are a couple of general questions that I wanted  
16 to ask, ask you in order to sort of get a better  
17 sense of, of the material that you've had to look at  
18 prior to your attendance here today.

19 So I thought maybe I could just ask of -- one  
20 question and then invite both of you to answer in any  
21 sequence that you wish. And that is, to what extent  
22 have you had an opportunity to review and consider  
23 the materials that have been, and the, the documents  
24 and the testimony that has been given to the joint  
25 Review Panel since it commenced its proceedings on

1 about October 6th?

2 A. DR. WHIDDEN: I can answer that for myself.  
3 I attended the first week of hearings, October 6th  
4 through until the first week was over, the 10th, I  
5 believe, and I had the opportunity to access all of  
6 the hearing transcripts, which were made available as,  
7 as they became available.

8 Q. Although you had an opportunity to access them, did  
9 you have an opportunity to review and consider them?

10 A. To review and consider? In part, yes. It depends  
11 when they came up and, you know, a couple of hours of  
12 going through them at night usually looking at  
13 wildlife information. They didn't make it in to my  
14 presentation in terms of -- it did add to -- some  
15 things were amplified and there were a few new things  
16 that came up which I noticed which I wasn't aware of.

17 Q. And what about some of the documentation that would  
18 have been provided to the Panel during the course of  
19 the hearing? A number of exhibits were entered that  
20 are new to the record.

21 A. Yes. And depending upon what it was, I would have to  
22 look at the transcript to see about the context of the  
23 documents that were -- at least I did -- that were  
24 submitted.

25 Q. All right. So you would have had a chance to review

1           some of them?

2           A.    To review all of them, sorry.

3           Q.    Oh, you did review all of them?

4           A.    Nothing that was submitted last -- I was here  
5           yesterday, so I didn't look at --

6           Q.    But everything before?

7           A.    As far as I'm aware, yes.

8           Q.    Okay, thank you, sir.   And Mr. Woosaree?

9           A.    MR. WOOSAREE:                   Likewise, I, I was here on  
10           October 6th, October 10th.   And after that I have -- I  
11           had an opportunity to review the transcript, most of  
12           them, except the last two days, which was Thursday and  
13           Wednesday, due to computer crash, but what, what -- I  
14           reviewed most of the transcript.   I, I reviewed some  
15           of the presentation by National Defence Canada.   I  
16           reviewed some of the documents which was entered as  
17           exhibition related to reclamation and Crested  
18           Wheatgrass and so on.

19          Q.    Okay, so let me ask each of you in turn --

20           Dr. Whidden, perhaps I'll start with you, and then  
21           turn to you, Mr. Woosaree.

22          A.    Sure.

23          Q.    Based upon the information that you've heard, since  
24           you prepared your reports, do you still stand by and  
25           support the reports that you have filed?   Are the

1 statements in those reports still accurate?

2 A. DR. WHIDDEN: They were accurate at the  
3 time of their preparation.

4 Q. And are they still accurate today having regard to  
5 what you've heard?

6 A. The majority would be. But I'd have to go through  
7 them in, in detail.

8 Q. M'mm-hmm. And Mr. Woosaree?

9 A. MR. WOOSAREE: Yes, they, they are accurate.

10 Q. So you would adopt and support the statements in your  
11 report?

12 A. Yes.

13 Q. Yes. Okay. Mr. Whidden, perhaps I might ask you some  
14 general questions about the PDA process, if I might,  
15 and then turn to a review of your report.

16 Would it have helped you in the work that you  
17 were asked to do by the Panel to have the PDA work  
18 done at this moment?

19 A. DR. WHIDDEN: At this moment, as in right  
20 now. You're saying?

21 Q. Yes, in other words, if the environmental assessment  
22 provided to the Joint Review Panel had included the  
23 work that was proposed to be done in the PDA process,  
24 so that would be the -- there would be surveys for  
25 wildlife and plants. There would be preliminary well

1 and trail sitings, and there would be proposals for  
2 how to place the wells within the various constraints  
3 that might exist, would that have helped you in your  
4 work if that PDA work were done now instead of in  
5 future?

6 A. Short answer, yes, but the examples also helped with  
7 gauging what they were going to do.

8 Q. Mr. Woosaree, what do you say about that? Would the  
9 PDAs have assisted you if they were completed now?

10 A. MR. WOOSAREE: Yes, it would.

11 Q. All right. Mr. Whidden, can I ask you to pull up your  
12 report. Let's start --

13 A. DR. WHIDDEN: Give me one minute. Oh,  
14 sorry, which report was that?

15 Q. Let's start with the report of February 2008, which is  
16 009-002.

17 A. Okay, I've got my own copy in front of me, sorry.

18 Q. All right. Can I ask you to turn to page 10. And  
19 under heading number 1, the -- you make the following  
20 comment:

21 "The GOC..."

22 I understand that to be Government of Canada.

23 "... request, to provide the  
24 scientifically sound baselines, see  
25 comment number 2 below, is

1                   appropriate."

2                   Do you still stand by that position, sir?

3     A.    Yes.

4     Q.    Thank you, sir.  Just one moment.  I'm going to speak  
5           to the registry staff about whether the exhibits that  
6           I might refer to will be visible on the screen.

7                   If we might just take a moment, Mr. Chairman,  
8           to make the necessary technical connections.  I think  
9           this be -- this will facilitate the tempo of the  
10          examination.

11    THE CHAIRMAN:                   Right.

12    MR. LAMBRECHT:                 And we'll save time in the  
13          long run.  And I think it will be a short run, but  
14          we'll save time.

15    THE CHAIRMAN:                   Yes.

16    MR. LAMBRECHT:                 I was at Exhibit No. 009-002,  
17          sir.  At page 10.

18                   Can I ask you to look, sir, Mr. Whidden, a  
19          little further under item number 2 on page 10?

20    Q.    The following statement appears here, and I'd like to  
21          ask you about it.  It says:

22                   "EnCana should be expected to  
23                   provide a good understanding  
24                   including validated habitat models  
25                   of the potential for any SAR to be



1                   disturbed by the proposed Project.

2                   It appears that the information  
3                   provided lacks basic scientific  
4                   principles."

5                   Do you see that?

6       A.    Yes.

7       Q.    Do you still stand by that statement, sir?

8       A.    DR. WHIDDEN:                    In part.  Additional  
9                   information was provided by EnCana.

10      Q.    Could we maybe address some of the surveys that EnCana  
11                   may have done?

12      A.    Sure.

13      Q.    I'd like, in particular, if I could, to talk about the  
14                   breeding bird survey.  Now, my understanding is that  
15                   there was no survey done for the Burrowing Owls, is  
16                   that your understanding?

17      A.    That's my understanding, yes.

18      Q.    All right.  So you would still stand by this statement  
19                   with respect to that species?

20      A.    Yes.

21      Q.    All right.  Can I ask you to turn to Appendix 5J, the  
22                   breeding bird survey.

23                   I'm sorry, sir, I don't happen to have an  
24                   exhibit number for this one.  If you'll just give me  
25                   a moment, we'll be able to pull it up on the screen.

1 Exhibit 002-110. And it's Appendix 5J. Exhibit 014,  
2 perhaps, 002-014. Did you examine the methodology  
3 for the breeding bird survey, Dr. Whidden?

4 A. Yes.

5 Q. All right. I just want to make sure that I understand  
6 what is presented in this material. Now, do you  
7 understand this to be, under 5J(1), a general  
8 description of what EnCana did in terms of a breeding  
9 bird survey to prepare its EIS?

10 A. Yes, but I believe this was -- this particular  
11 approach might have been mandated in the guidelines.

12 Q. Just so that I am clear, two field surveys were done  
13 in the period 1 to 13th June, 2006. So two field  
14 surveys in a period of two weeks in 2006?

15 A. Yes.

16 Q. Plus a point count survey and a second point count  
17 survey?

18 A. Yes. I don't have the details in front of me that  
19 you're reading from.

20 Q. Do you have any reason to think that this is  
21 inaccurate?

22 A. No. No.

23 Q. All right. Now, you've heard some of the -- I take it  
24 you would have heard some of the criticism of the  
25 survey methodology adopted by EnCana in respect of

1 wildlife during your review of the materials?

2 A. Yes.

3 Q. All right. Let me take you back to your report of  
4 February 2008, Exhibit 009-002, at page 12 this time.  
5 And I'd like to go to this second-last paragraph  
6 under heading number 4. I'd like to read you the  
7 following statement and ask if you still stand by it:

8 "EnCana's apparent reluctance to  
9 conduct adequate statistical  
10 analyses, including the power  
11 analyses, and consideration of  
12 sample sizes requested by GOC, is  
13 disappointing and disenchanting.  
14 If the lack of proper power  
15 analyses is typical for Canadian  
16 Environmental Assessments as EnCana  
17 argues, then the typical assessment  
18 is inadequate indeed."

19 So do you still stand by that statement.

20 A. Yes, with the caveat they did provide additional  
21 analysis regarding the power of some of the data  
22 collected.

23 Q. Yes, and I don't want to engage with you on that --

24 A. Neither do I.

25 Q. Yes. What I understand you're saying is that while

1 EnCana attempted to bring forward some analysis on  
2 some data, otherwise your opinion here, you stand by  
3 that opinion today?

4 A. Yes.

5 Q. Let me ask you to turn to page 15, at the second  
6 paragraph, and I'm going to read you the following  
7 statement. It says:

8 "This is why the benchmark of  
9 natural range of variation is not a  
10 good parameter for predicting  
11 impact significance. We provide  
12 the suggestion quite aside of fact  
13 that natural variation has not been  
14 quantified by EnCana. Therefore  
15 their claim that a given effect is  
16 within the natural range of  
17 variation is flawed."

18 Do you still stand by that statement still today,  
19 sir?

20 A. Yes.

21 Q. Can I ask you to turn to page 21. Under the heading  
22 "Fragmentation", and I would like to read you the  
23 first phrase:

24 "Habitat fragmentation was not  
25 assessed."

1           Now, when I read this in your report, sir -- have  
2           you had a chance to read that paragraph, sir.

3           A.    Yes.

4           Q.    What I understood you to be saying in the phrase that  
5           I read out to you is that habitat fragmentation was  
6           not assessed in the EIS. Did I understand that  
7           correctly? Am I interpreting that correctly?

8           A.    I believe it was considered but then they -- there was  
9           some discussions around the actual widths of the  
10          linear disturbance.

11          Q.    Considered and assessed; are you using those terms in  
12          the same sense?

13          A.    I'll say yes.

14          Q.    Now, I'll come back to this, then, in the, a moment.  
15          But the final sentence, you go on in that, in that to  
16          say -- let me just read this out to you:

17                   "Habitat fragmentation was not  
18                   assessed because it was not  
19                   considered to be a key issue for  
20                   the Project ..."

21          I'm sorry:

22                   "... because it was not considered  
23                   to be a key issue for the Project  
24                   as disturbance from pipelining  
25                   would be less than two metres for

1 well tie ins and less than four  
2 metres for loop-lines these widths  
3 were considered insufficient to  
4 result in habitat fragmentation  
5 effects however these claims remain  
6 unsubstantiated and lack any  
7 provision of rationale related to  
8 the potential impacts to all VECs,  
9 large and small, from linear  
10 disturbances less than four metres  
11 in width on the ecological  
12 integrity of the NTA."

13 Do you stand by your statement, sir, that the EIS  
14 conclusion that these widths were insufficient to  
15 result in habitat fragmentation effect remain  
16 unsubstantiated and lack any provision of rationale  
17 related to the potential impact to all VECs from such  
18 disturbances?

19 A. At the time the report was written, yes.

20 Q. Yes, and today, sir?

21 A. Yes.

22 Q. May I ask you to turn to page 29, and the last  
23 paragraph?

24 A. Okay.

25 Q. I'd like to -- I will read to you a sentence and I'm

1 going to invite you to comment on the verb that  
2 you've chosen; I think it's a verb:

3 "In addition, it is imperative that  
4 all environmental reporting during  
5 construction, operation,  
6 decommissioning and abandonment  
7 phases be transparent."

8 Now, the word you used was "imperative" here, And  
9 that's a very strong and powerful word. I'm wondering  
10 what you envision as a transparent output from all of  
11 this environmental reporting? If your recommendation  
12 were adopted by the Panel, and I'm a member of the  
13 public, what would I be able to see and how would I  
14 see it?

15 A. I believe this sentence was made in reference to the  
16 policing of activities in the NWA. We have heard some  
17 evidence where not necessarily everything is coming  
18 forward that happens in the NWA with respect to trail  
19 access, what have you.

20 I believe that's where I was going with --  
21 given the context of the area and the sensitivity of  
22 some of the habitats, and wildlife species, the idea  
23 of everything coming forward to whoever or whomever is  
24 policing the activities, the public needs to be  
25 assured that everything is coming forward.

1 Q. All right. And let me, let me take you to, then,  
2 page 33 of your report. And this goes to the  
3 question of setting the bar for environmental  
4 assessment in a National Wildlife Area. I'd like to  
5 read the final sentence of your report under  
6 Section 5.1:

7 "Heightened attention to and effort  
8 in designing mitigation measures  
9 and alleviating project effects  
10 should be expected in light of the  
11 proposed Project occurring in a  
12 globally recognized National  
13 Wildlife Area."

14 Do you stand by that statement today, sir?

15 A. Yes.

16 Q. And above, in that paragraph, the following statement  
17 appears:

18 "The overarching question, 'Is  
19 there enough quality information to  
20 gauge the potential impacts to  
21 wildlife from EnCana's proposed  
22 Project in the EIS?' guided this  
23 review report. Additional  
24 information is required in several  
25 instances."



1           Do you stand by those two sentences today --  
2           those two sentences today, sir?

3       A.    Yes.

4       Q.    May I ask you to turn to your second report, August of  
5           2008.  It is Exhibit 009-006.  And I'd like to turn  
6           to page 6, under Recommendation No. 2.  Now, this is  
7           the August 2008 report.  When you prepared this, sir,  
8           did you have an opportunity to see EnCana's reply of  
9           August 13th, I believe it is?

10      A.    No.  That was reviewed post this report.

11      Q.    All right.  That's helpful to me.  Under  
12           Recommendation No. 2, you state the following:

13                    "We concur that evidence supporting  
14                    impact redistributions was not  
15                    provided in many instances.  See  
16                    Wildlife Report No. 1 for specific  
17                    details.  There is a heavy reliance  
18                    on unproven or questionable  
19                    mitigation strategies and several  
20                    species at risk were not assessed  
21                    for systematic surveys."

22                    Do you still stand by that view today, sir?

23      A.    Yes.

24      Q.    And can I ask you to turn to page 14, under  
25           Recommendation No. 38.  You're responding to a DND

1 recommendation, and I'm just going to -- I'm, I'm  
2 going to read out your response:

3 "We agree with this recommendation.  
4 Several conclusions relating to  
5 wildlife in the EIS appear to be  
6 based more on subjective  
7 professional judgment than actual  
8 filed data or model results."

9 A. That should say "field data", I'm sorry.

10 Q. No problem. So with that modification, do you stand  
11 by that statement today?

12 A. Yes.

13 Q. There's a similar comment with respect to cumulative  
14 effects at page 15 under recommendation 32. I'm  
15 going to read out, again, your response to the  
16 recommendation:

17 "We agree that the Cumulative  
18 Effects Assessment for the wildlife  
19 VECs was inadequate. The Proponent  
20 did not undertake a Cumulative  
21 Effects Assessment for all  
22 terrestrial wildlife species listed  
23 on Schedule 1 of SARA as all  
24 environmental effects on all  
25 species at risk VECs were predicted

1 as not significant or negligible.  
2 These projections were generally  
3 not based on quantitative data or  
4 were based on insufficient data and  
5 subjective professional judgment."

6 Do you stand by that statement today, sir?

7 A. Yes.

8 Q. So perhaps I can take you to your recommendations,  
9 which were set out in the slide that you provided  
10 today at 009-011. Under Wildlife Report No. 1,  
11 Recommendation No. 3.

12 A. Yes.

13 Q. I'm just going to wait for this to be projected up on  
14 the screen, if it's -- it won't be on the screen?

15 Oh. I'm sorry.

16 One moment, Mr. Chairman, we'll deal with  
17 some technical issues here.

18 THE CHAIRMAN: Yes.

19 MR. LAMBRECHT:

20 Q. All right, Mr. Chairman, this particular document is  
21 the slide presentation that Dr. Whidden used in the  
22 course of his presentation. It's not available to be  
23 projected?

24 THE CHAIRMAN: No, it has not been entered  
25 into the registry because it's just been received at

1           this point.

2       MR. LAMBRECHT:                               Right.  And I do intend to  
3           ask just a very brief series of questions respecting  
4           this and I'm afraid it just won't be able to be  
5           projected.

6       Q.  But I think Dr. Whidden, you've got it and the parties  
7           have it?  So can I ask you to turn to No. 3, Wildlife  
8           Report No. 1.  I'm afraid I didn't understand what  
9           you were trying to say here.  So I need to ask for  
10          clarification.

11                        There's a question mark behind the phrase,  
12           "Timing of EnCana fieldwork", and I, I just don't  
13           know what you're referring to here.

14       A.  Oh, sorry.  I'm not looking at the correct ...  Okay.  
15           Number 3 was a request to explain the process behind  
16           finalizing the EIS guidelines.  My understanding, and  
17           I may be incorrect in this, was that the guidelines  
18           would be finished before fieldwork was engaged.

19       Q.  All right.  Now, just let me be clear about this if I  
20           could, when you talk about EIS guidelines, you're  
21           talking about the guidelines prepared by the Joint  
22           Review Panel for the preparation of EnCana's EIS for  
23           the purposes of this proceeding?

24       A.  Yes.

25       Q.  All right.  Do you know when those guidelines were

1 finalized?

2 A. Not the exact date, no.

3 Q. All right. And then the Question: Timing of EnCana's  
4 fieldwork, am I to -- let's take the fieldwork with  
5 respect to the bird surveys, those two weeks in 2006.  
6 Am I to understand that that fieldwork was done  
7 before the EIS guidelines were issued?

8 A. As I just said, I can't recall the exact date off the  
9 top of my head when those were issued.

10 Q. So what do you mean by this phrase, "Timing of EnCana  
11 fieldwork" question mark?

12 A. As you just described, I was questioning at the time I  
13 prepared this of -- not just, not just that survey in  
14 particular, but all of the wildlife field components,  
15 were, were they done before the EIS guidelines were  
16 finalized?

17 Q. All right. And why in your mind is that material?

18 A. To me, the construction of the guidelines should have  
19 in part guided what was done in the field.

20 Q. All right. That's helpful. Thank you, sir. May I  
21 ask you to turn to Recommendation No. 11 under Report  
22 No. 1. It says:

23 "Consider anthropod species and  
24 assemblages as key indicators of  
25 environmental impacts to wildlife."

1           Would you agree with me that that has not been  
2           done in the EIS?

3           A.    That has not been done.

4           MR. LAMBRECHT:                    Mr. Chairman, I think that if  
5           we could, it's 25 after 10:00 and this would be an  
6           appropriate moment to take a break.  I would like to  
7           consult with some of the experts I have here.  And  
8           that will inform the progress of my cross-examination  
9           in the morning.  I'm sure I won't take long.  But I'd  
10          like to take the coffee break to be able to consult  
11          and come back informed and finish off.

12          THE CHAIRMAN:                    That would be fine,  
13          Mr. Lambrecht.  We'll break now and return in  
14          15 minutes, so at 20 to 11:00.  Thank you.

15    **(MORNING BREAK)**

16    **(PROCEEDINGS ADJOURNED AT 10:25 A.M.)**

17    **(PROCEEDINGS RECONVENED AT 10:39 A.M.)**

18          MR. LAMBRECHT:                    Sorry, Mr. Chairman, I didn't  
19          see your return.  I was speaking to one of my experts  
20          in the back and I apologize for the delay.

21          THE CHAIRMAN:                    We're back a minute or two  
22          early, I think, Mr. Lambrecht, so no problem.  I, my  
23          question is do you wish to proceed with further  
24          questions of Dr. Whidden?

25          MR. LAMBRECHT:                    No, sir.  I have two

1           questions of Mr. Woosaree and then I'm done.

2   THE CHAIRMAN:                           Okay.   Please proceed.

3   MR. LAMBRECHT:

4   Q.   Mr. Woosaree, I wanted to ask you first about the  
5       comment you made with respect to harvesting of seed  
6       of species listed in SARA in order to re-propagate  
7       those species as an element of the Reclamation Plan.

8   A.   MR. WOOSAREE:                    No, not as an element of the  
9       Reclamation Plan.  I said there's no harm, once you  
10      develop the recovery strategy, looking at the biology  
11      of the plants, there is no harm if you want to look at  
12      harvesting and propagating them as a means to enhance  
13      their population and that practice is done worldwide.

14   Q.   Right.  And so in Canada, would you agree with me that  
15      that -- the practice of harvesting the seed of a  
16      plant species listed in Schedule 1 of SARA would  
17      require a permit under the *Species At Risk Act* and  
18      that that permit would be to harvest the seed for the  
19      purposes of scientific research in order to prepare a  
20      report which would demonstrate the efficacy of the  
21      use of that seed in the population?

22   A.   Yes.  Yes.

23   Q.   All right.  And then I have a second question for you.

24   A.   Can I add more information?

25   Q.   Yes.  Of course.  Yes.

1 A. Yes, you do need a permit to meet the requirement of  
2 SARA. That's not an issue. It is, yes. But in 2002,  
3 I did have discussion with Dave Duncan on a personal  
4 note, we met in Calgary, and I was discussing that  
5 issue with him. And at that time he told me that  
6 Environment Canada is looking into propagation of rare  
7 species and they were working with Dinnerberg  
8 (phonetic) and Shawn Greenhouses as based out of  
9 Saskatchewan.

10 But it was on a personal note. But given  
11 that you raise the question, it was considered by  
12 Environment Canada at that time, and SARA wasn't an  
13 issue at that time.

14 Q. You would agree with me that this technique is not  
15 discussed at all in the Environmental Impact  
16 Statement prepared by EnCana for this Project?

17 A. No, it's not, because you need a permit now with SARA.  
18 But what I'm suggesting as an option to look at  
19 propagating rare species. I don't see anything wrong  
20 with it. And in fact, I, I can pull so many papers to  
21 justify that.

22 If you look at the website for the  
23 consultative group in agricultural research, which is  
24 based in Netherlands, you will have data set on  
25 genetic resources and propagation and harvesting



1 protocols, is well demonstrated. Only in Canada are  
2 we behind.

3 Q. So, if I understand you correctly, you're saying that  
4 this is a well-accepted principle worldwide?

5 A. It is.

6 Q. And you are accepting my proposition that it's not  
7 referenced in any way in the Environmental Impact  
8 Statement filed by EnCana for this Project?

9 A. No, I don't think it's there, if I can recall  
10 correctly, it's not there.

11 Q. It's not there, is what you're saying?

12 A. No. But what, what I'm saying as a strategy for the  
13 future, if you have a management plan for the NWA,  
14 maybe it's worth looking at.

15 Q. I appreciate your point, sir, and I'm not arguing with  
16 it.

17 A. I'm not arguing. I'm just pointing the facts.

18 Q. May I ask you to turn to your slide presentation.

19 A. Sure.

20 Q. And it's a slide headed, "Reclamation Plan", and it  
21 has a photograph of roughened soils surface on it.

22 A. Yeah, m'mm-hmm.

23 MR. LAMBRECHT: Mr. Chairman, I think it's  
24 the 11th slide in my materials, sir.

25 THE CHAIRMAN: Yes.

1 MR. LAMBRECHT: And it has a picture on --  
2 two pictures; one on the left of roughened soil  
3 surface and one on the right of Provenance testing.

4 Q. Now, Mr. Woosaree --

5 A. Yes.

6 Q. -- from my review of EnCana's EIS --

7 A. M'mm-hmm.

8 Q. -- documentation, in total, and from what I understand  
9 of the evidence that was tendered throughout these  
10 proceedings, no one has ever suggested, in any way,  
11 that a roughened soil surface should be incorporated  
12 into the Reclamation Plan for this Project. Have you  
13 seen any discussion in any of the materials anywhere,  
14 either filed or in the public record in this  
15 proceeding that discusses the use of roughened soil  
16 surface as an alternative measure in a Reclamation  
17 Plan?

18 A. No, but when I saw that picture on my site visit, it  
19 looks rough. And I was trying to point out the  
20 advantages of preparing a site for seeding.  
21 Conventional methodology, if you have to seed a site,  
22 it's to prepare a site, cultivate it, pack it, make it  
23 smooth.

24 And what had happened in the past, you have a  
25 more tendency for weeds to get established this way.

1           So when I saw this site, I thought this could be an  
2           advantage for native species to establish easier and  
3           it is a disadvantage for non-native species and from  
4           experience, it's -- we have made several observations  
5           from experience, but a roughened surface is an  
6           advantage to establishment facilitate native species.  
7           And if you read about Crested Wheatgrass they like a  
8           fine surface to get established. Maybe this is a  
9           means to discourage it.

10                         And also a surface like, that it traps snow,  
11           so it can prevent erosion. So those observations upon  
12           my visit I made.

13         Q.   I understand. But what I'm trying to say is that this  
14           alternate means was never discussed by EnCana in its  
15           Environmental Impact Statement or in the evidence  
16           before this Panel. Do you agree with that  
17           observation, sir?

18         A.   Yes, I agree with that.

19         Q.   Okay. Thank you, Mr. Woosaree. I don't have any  
20           other questions?

21         MR. LAMBRECHT:                         Mr. Chairman, thank you very  
22           much.

23         THE CHAIRMAN:                         Thank you, Mr. Lambrecht.

24                         I'll now call on EnCana, Mr. Denstedt,  
25           please.

1 **CROSS-EXAMINATION BY ENCANA, BY MR. DENSTEDT:**

2 MR. DENSTEDT: Sorry, Mr. Chairman. I'm  
3 moving a little slower today than I usually do.

4 Good morning, Gentlemen, Dr. Whidden and  
5 Mr. Woosaree, thanks for coming out today and, and  
6 helping us out. I expect, Dr. Whidden, you and I  
7 spent some time in Fort McMurray together. I see it's  
8 on your resume; there were a bunch of projects that  
9 may have overlapped.

10 A. DR. WHIDDEN: A brief amount of time.

11 Q. Yes. A couple questions just to start. And my friend  
12 took you to Appendix 5J of the EIS. And if Mr. James  
13 could bring that up.

14 And he asked you about the surveys that were  
15 done. And again, I was a little confused by his  
16 question, so I'll, I'll see if we can sort it out  
17 here.

18 I thought he indicated that there were -- to  
19 you, that there were only surveys and from 1 to 13 of  
20 June of 2006, but in fact, if you go to the second  
21 page of 5J, to page 4, it refers to another set of  
22 surveys that were done 17th to 28th of June. You  
23 were aware of that, right, Dr. Whidden?

24 A. Aware that we missed the last page or aware that --

25 Q. No, that there were additional surveys done, contrary

1 to what my friend suggested.

2 A. Off the top of my head, no, but I would have to look  
3 at the documents and cross check my reports. It's  
4 been a while since I looked at that particular  
5 passage.

6 Q. Yes, I understand that and there, there's a lot of  
7 material filed on the record so I don't expect you to  
8 have a detailed memory.

9 A. Okay. Thank you.

10 Q. But on page 5-4, if you could bring it up,  
11 Mr. James -- it indicates that there was a second set  
12 of surveys done on 17 to 28th of June. You had no  
13 reason to doubt that that's true?

14 A. No.

15 Q. All right. Thanks. And Dr. Whidden, my friend also  
16 asked you about fragmentation. And I think you'd  
17 agree with me that when EnCana submitted their reply  
18 evidence, they actually contained a section on  
19 fragmentation and its impacts, didn't they?

20 A. There was, yes.

21 Q. Thank you. And while we're in the reply evidence, I  
22 think you'd agree with me that when EnCana filed its  
23 reply evidence, that it also included a section on  
24 Arthropods?

25 A. Yes, there was a section.

1 Q. And, Dr. Whidden, is it fair to say that if you'd had  
2 a chance to review in detail all the transcripts and  
3 I think the 30-odd additional exhibits that have been  
4 filed, that that may in fact have influenced your  
5 recommendations?

6 If you knew back in February what you know  
7 today, it might have influenced your recommendations,  
8 is that fair?

9 A. The ones made in the first Wildlife Report and the  
10 second Wildlife Report?

11 Q. That's correct.

12 A. To a certain degree, yes.

13 Q. All right. Thanks. And Mr. Woosaree, one question  
14 for you.

15 A. MR. WOOSAREE: Yes.

16 Q. My friend suggested to you that a rough and messy  
17 ground surface doesn't appear anywhere in the  
18 evidence. But that's not correct. Dr. Walker  
19 actually said in the Opening Statement:

20 "A rough and messy looking ground  
21 surface worked better than one  
22 which was smooth and neat looking."

23 And that's page 98, line 10, of the transcript.  
24 And you may not have been aware of it. Again, there's  
25 been a lot of information and a lot of evidence filed.

1 A. Yeah.

2 Q. But subject to check, I think we'd both agree that if  
3 it's in the transcript, that it is in front of the  
4 Panel; is that fair?

5 A. That's fair. Yeah.

6 MR. DENSTEDT: That's all I have, sir.

7 THE CHAIRMAN: Thank you, Mr. Denstedt. I  
8 don't believe there's any other of the -- or no other  
9 parties that wish to cross-examine this time. Then  
10 I'll turn to the Secretariat. Ms. LaCasse, please?

11 MS. LACASSE: Mr. Chairman, I was just  
12 wondering if I could have one minute with the staff  
13 just to discuss where we could go from here. It may  
14 shorten things significantly.

15 THE CHAIRMAN: Sure. Sure. Please do.

16 MS. LaCASSE: Thank you.

17 **CROSS-EXAMINATION BY THE SECRETARIAT, BY MS. LACASSE:**

18 MS. LaCASSE: I'm not sure we are going to  
19 shorten things quite as much as some of us would have  
20 liked but I will try and keep things moving.

21 Q. I'm going to start with you, Mr. Whidden, if I may.  
22 In your first report, you commented on the lack of an  
23 integrated management plan for the NWA. Is it your  
24 recommendation that this plan should be obtained  
25 before any construction starts on this Project?

1 A. DR. WHIDDEN: That was not one of my  
2 specific recommendations.

3 Q. Okay. But is it your recommendation now? Has that  
4 changed?

5 A. Ideally, it would be beneficial to have the plan  
6 before anything had happened, not just this Project.

7 Q. Okay. And do you have any recommendations for the  
8 Panel about what the key elements or content of such  
9 a plan would be?

10 A. With respect to wildlife and wildlife habitat,  
11 specific detailed conservation goals.

12 Q. Okay.

13 A. Sorry, those targets or goals could be used to assess  
14 the results of monitoring programs and mitigation  
15 measures.

16 Q. Okay. And I'm not sure if this is an appropriate  
17 thing for you to answer, but do you have any comments  
18 about the use of -- experimental use of fire for  
19 ecosystem management in the NWA?

20 A. That might be more along my colleague's expertise.

21 Q. Okay. All right. Thank you. In your first report,  
22 recommendations 8 and 9 deal with monitoring  
23 follow-up activities to validate the success of  
24 impact mitigations. And that was I think  
25 recommendations 8 and 9.



1 A. Okay, yes.

2 Q. And you note the importance of statistical  
3 significance when testing mitigations.

4 A. Sorry, remind me where that was again?

5 Q. I think it was recommendations 8 and 9 on page 34 and  
6 then you note on page 12 of that report the  
7 importance of statistical significance when testing  
8 mitigations?

9 A. It talks about using quantifiable approaches, yes.

10 Q. Okay. In its Environmental Effects Monitoring Plan,  
11 EnCana's proposed a future process with a small  
12 number of candidate programs. Does this  
13 information -- are you familiar with that document?

14 A. I did have an opportunity to review that, yes.

15 Q. Okay. Does that information in the EEMP address your  
16 concerns regarding follow-up monitoring?

17 A. Well, the details would need to be worked out,  
18 specifically what they are looking at and what, what  
19 the objectives are.

20 Q. But you agree with that process, that would satisfy  
21 you?

22 A. The general process, yes, but, again, the details are  
23 required to make any kind of judgment.

24 Q. Okay. And Mr. Whidden, or Dr. Whidden, rather, pardon  
25 me, do you see a need for the EnCana habitat

1           suitability or resource selection function models to  
2           be validated for NWA use?

3       A.    I'd prefer to use a term "evaluated" as opposed to  
4           "validated".  Ground-truthing, yes.

5       Q.    Do you have any experience or knowledge of successful  
6           environmental management plans for protected areas  
7           that include industrial activity?

8       A.    Personal experience?  No.

9       Q.    Okay.  Are you aware of any?

10      A.    Not off the top of my head, sorry.

11      Q.    In your first report on page 17 under the heading  
12           "Wildlife Seasonal Sensitivity", you identified a  
13           concern about the number of different seasonal  
14           mitigations for wildlife species and what mechanism  
15           of field coordination would be used.

16      A.    Yes.

17      Q.    Okay.  Are you satisfied this concern has been  
18           addressed in EnCana's EPP?

19      A.    I'd have to pull the EPP out again and take a look at  
20           it again, but I know it was an issue when I brought it  
21           up here, and I know others brought it up.  If they  
22           are, and I'm assuming they are outlined in the  
23           different seasonal constraints that are outlined in  
24           the EPP, the implementation of it is the important  
25           part, not so much having it on paper.

1 Q. Okay. How could complex scheduling of time sensitive  
2 mitigations be addressed to ensure compliance? Are  
3 you able to comment on that?

4 A. It's a complicated matter. I mean, you've said it  
5 yourself. There's a lot of things going on out there,  
6 and there's a lot of critters out there and -- that  
7 are sensitive at a wide variety of times. There are  
8 -- there is some overlap, but it's a bit of a planning  
9 nightmare.

10 Q. Okay. In, I think it's actually both of your reports,  
11 you talk about ungulates and pellet group surveys.

12 A. Yes.

13 Q. And EnCana's provided additional wildlife information  
14 relating to pellet groups surveys. And I believe  
15 there was a survey and analysis conducted on behalf  
16 of EnCana and set out in its Reply Submission.

17 A. There was.

18 Q. Okay. Are these sufficient to support their  
19 conclusions in their EIS of insignificant impacts?

20 A. I'd have to look at the actual context of that  
21 conclusion of insignificant impacts to what, in  
22 particular? Are we just going to stick in a species  
23 name, it's a little too generalized.

24 Q. Okay.

25 A. I'd have to revisit the details again.

1 Q. Would it be helpful if we considered one species, like  
2 the antelope? Does that assist you in giving the  
3 Panel some information?

4 A. Feedback on, on his reply?

5 Q. Yes.

6 A. Essentially? Sure.

7 Q. Okay.

8 A. Again, I'd have to get it in front of me to remind  
9 myself, because it wasn't part of either of my  
10 reports, but I did review it.

11 Q. Okay. Maybe we can do that. Do you need five  
12 minutes? Or perhaps we could carry on. I could talk  
13 to Mr. Woosaree and then come back to that question.

14 A. Sure, I mean, I don't have the document in front of  
15 me.

16 Q. Okay. We'll get that for you. In terms of mitigation  
17 of snake mortality, EnCana's proposed scheduling of  
18 construction in winter and having reduced travel  
19 speeds. Do you think these are going to be effective  
20 ways to mitigate that problem?

21 A. Could you repeat that again?

22 Q. Okay. In relation to snake mortality and mitigation  
23 of that, EnCana has proposed scheduling construction  
24 in winter and having reduced travel speeds for  
25 vehicles. Do you feel these two things will be

1 effective ways to mitigate snake mortality?

2 A. In part. It depends -- there's a lot of details to  
3 that overarching statement.

4 Q. Okay. Are there any other mitigations that you can  
5 suggest that EnCana should employ?

6 A. Well, I think we heard some of them in terms of  
7 avoiding areas near hibernacula and high crossing  
8 areas, high movement area.

9 Q. EnCana hasn't recognized high suitability habitat for  
10 its wildlife VEC to be equivalent to critical  
11 habitat.

12 A. Okay.

13 Q. Okay? And what I'm wondering is, how, in your view  
14 the preliminary critical habitats mapped by  
15 Environment Canada should be considered by the Joint  
16 Panel in reviewing this project? How should they be  
17 treated?

18 A. How should the preliminary assessment?

19 Q. Yes, the preliminary critical habitats mapped by  
20 Environment Canada, how should this Panel treat  
21 those?

22 A. Well, they should be considered. In my opinion, it  
23 would have been nice to have the critical habitat  
24 designations and delineations done a while ago, but  
25 this is the pathway forward, I think. It's gotten a

1 lot of people -- the process we're in today, it's got  
2 a lot of people's attention and we're finally moving  
3 -- or some people are finally forward on finalizing  
4 those things.

5 So in terms of how the Panel should consider  
6 them, they should value their input to date. And, but  
7 also the final ones, the devil's in the details and  
8 you need the final ones.

9 Q. Okay. I think Mr. Lambrecht talked to you a little  
10 bit about this, but the indirect effects of the  
11 project, such as fragmentation and loss of habitat  
12 effectiveness have been concerns for intervenors  
13 relative to the EIS. So should there be additional  
14 assessments of these impacts within the NWA?

15 A. It wouldn't hurt.

16 Q. Okay.

17 A. But there's always a chance of more information not --  
18 meaning nothing more, but there's also a shedding --  
19 the possibility of more information shedding new light  
20 on things.

21 Q. Okay. I have a feeling you're not going to want to  
22 answer this, but what species or methods might you  
23 propose for this further assessment?

24 A. Well, you've got a list of 48 plus VECs you could  
25 choose from.

1 Q. Okay.

2 A. And there's been recommendations or some intervenors  
3 have suggested the possibility of looking at some  
4 other ones.

5 Q. Okay.

6 A. So --

7 Q. And methods?

8 A. For the linear disturbance? Again, there's a wide  
9 variety you could choose from, I mean, EnCana's  
10 presented some. We've heard some from other  
11 intervenors as well.

12 Q. Are there any that you would recommend? No?

13 A. I -- I can't. I'd have to sit down and look at the  
14 details and all the different recommendations that are  
15 put forward.

16 Q. Okay. Are there any -- in your view, are there any  
17 key wildlife species that merit more consideration  
18 when you talk about the 48 VECs?

19 A. That aren't listed as VECs?

20 Q. Well, even within the ones that are listed?

21 A. Well, I think I made some of those points in my  
22 reports regarding the Burrowing Owl and potential  
23 selection of Arthropods or assemblages for  
24 consideration.

25 Q. Can you provide any information to help the Panel

1 understand the likelihood or the extent of habitat  
2 avoidance for species at risk such as, say, the  
3 Sprague's Pipit?

4 A. The likelihood of habitat avoidance?

5 Q. M'mm-hmm.

6 A. Of what?

7 Q. As a result of the Project.

8 A. I'm not a Sprague's Pipit expert. I think we heard  
9 from one of the ladies yesterday about the perceptions  
10 and how they perceive habitat. I'm not in a position  
11 to judge every single specific species.

12 Q. Okay. Are there any specific ones you could help us  
13 with on that?

14 A. In the case in point -- in the case that we're looking  
15 at here with linear disturbance, maybe some of the  
16 smaller bodied ones. Ord's Kangaroo Rat, for example,  
17 smaller ranges.

18 Q. Okay. When you recommended the use of Arthropods as  
19 indicators in this process, how do you see this being  
20 accomplished? How would you follow through on that  
21 recommendation? Are you able to help us?

22 A. Well, there are some species that I know the  
23 Government of Canada was looking at, but there's also  
24 other ones that -- there is a candidate list that's  
25 been presented and there's things that you could look



1 at in terms of the viability of actually doing it.

2 It's not always done. And it hasn't been  
3 done that commonly in environmental assessments in  
4 terms of looking at non-vertebral species. It's, it's  
5 a detailed process. You have to sit down and weigh  
6 the options, number one, if you do want to do it or  
7 not.

8 Q. Okay.

9 A. It's, it's complicated.

10 Q. All right. Mr. Whidden, I'm told that that's enough  
11 for you. So I'm going to move on to Mr. Woosaree and  
12 I'll be back to you on that one question.

13 A. Thank you.

14 Q. Mr. Woosaree, in your first report, you commented that  
15 native range integrity measures could be improved by  
16 the use of a reference condition.

17 A. MR. WOOSAREE: Yes.

18 Q. Okay. Now, in its reply to intervenors, EnCana  
19 outlined a protocol of rangeland functionality. Are  
20 you familiar with that?

21 A. Yes.

22 Q. Okay. Are you able to comment on this protocol of  
23 rangeland functionality as a proposed reclamation  
24 standard?

25 A. For rangeland functionality, it's based on site

1 stability and function, like in terms of erosion  
2 control and what's the intended use of that site. So,  
3 in terms of rangeland control, like, if you're  
4 monitoring, you have know what are you monitoring for.  
5 I mean, monitoring is a good exercise, unless you have  
6 some clear direction in terms of what your objectives  
7 are and what you want to monitor.

8 So if you want to monitor for vegetation  
9 success, when you have to pick what species are you  
10 after, what, what was your climac species, or you want  
11 to look, look at early species and then look at  
12 trajectories.

13 You could look at your productivity of a  
14 site, how useful it is for grazing, for example, or  
15 how frequently it's used by wildlife. So these have  
16 to be defined in addition to site stability and  
17 function.

18 Q. So do you think that's lacking in the protocol?

19 A. I can't remember all the details of the protocol.

20 Q. Okay.

21 A. But one thing which clicked to mind was the site  
22 stability and function. I mean, when the site is  
23 disturbed, if you look at the picture I showed, by  
24 seeding it -- by not seeding it, when -- you are  
25 exposing the site to erosion. By seeding it to a

1 particular plant, you do provide function and that  
2 function is site stability, you are providing cover.

3 And like I said, for deer or elk, that  
4 particular weed crop will not make a difference. But  
5 if you're looking at arthropods or particular birds,  
6 it does make a difference, because we are saturated  
7 with certain type of habitat.

8 So that's why you want to have clear  
9 directions, like what do you want to monitor for? And  
10 that has to be determine, determined by the  
11 stakeholders, who are -- whether it's DND or it's  
12 EnCana, I'm hoping that it wasn't be specified in a  
13 particular management plan, but everybody's said this  
14 is how we do business, so we'll be targeting and this  
15 is our goal.

16 Q. Okay. So do you think there's any way to tell whether  
17 this protocol of rangeland functionality will achieve  
18 ecological restoration?

19 A. Yes, there is.

20 Q. Okay.

21 A. Like I said, you could look at your vegetation  
22 composition, you can look at the amount of litter,  
23 what does -- what litter tell us, where is  
24 decomposition happening, decomposition supposed to  
25 be in a cycle, where different bacteria, microbiology,

1 microrise associated with this, so you could look at  
2 your amount of weedy species present. So there's a  
3 number of ways you could access.

4 Q. Okay. Would you recommend that the reference or  
5 control sites be undisturbed native prairie or  
6 successfully reclaimed sites or could they be both?

7 A. It has been to be undisturbed. And in that particular  
8 example I showed from Alberta Sustainable Resources,  
9 you, you see two slides, one in the ungrazed  
10 condition, which are exclosures, just to, to show you  
11 what it is. And then one in the grazed condition  
12 because we have to accept the fact that cattle grazing  
13 and livestock grazing is occurring. So if you want to  
14 make then the range, to what condition do you maintain  
15 it? So this gives us a guideline as to where we want  
16 to measure our success.

17 Q. Okay. In your first report, you talked about your  
18 review of the EIS and intervenor materials and the  
19 poor management of operational and post-construction  
20 impacts.

21 And you mentioned specifically rutted ground,  
22 weeds, waste disposal and reclamation. You suggested  
23 that if mitigation proposed by EnCana was  
24 implemented, many of these concerns would be  
25 addressed.

1 I'm just wondering, given the inspection  
2 process outlined in the EPP, is anything further  
3 required to ensure that the measures will be  
4 effectively implemented? Like, would you need a  
5 third party audit, or anything like that?

6 A. CEAA does a good job, but anything, it's not frequent  
7 enough. Like, I, I gather that it's about once a year  
8 they do inspection. It's not enough.

9 Despite the best intention of providing  
10 training to the people, but at the end of the day, we  
11 are human beings, we tend to take short cut. And by  
12 having debris on the landscape and taking different  
13 trails and so on, it's just human nature which should  
14 not -- never have happened because we're dealing with  
15 an NWA.

16 Can these be prevented? Yes. Maybe like an  
17 environmental police type, you know, like will be make  
18 them more compliant. What's reliability if we don't  
19 obey? So -- and the third party audit, you know, will  
20 be more -- will be -- will help, too.

21 Q. Okay. EnCana has spoken to the use of low disturbance  
22 construction methods and project scheduling as major  
23 mitigations for impacts to native prairie. And they  
24 have talked about using SpiderPlowing, chain ditching  
25 and construction during dormant periods. They have

1 also stated that pipeline construction using  
2 trenching and chain ditching could extend into April.

3 What I'm wondering is whether you consider  
4 that the impacts from this kind of construction, the  
5 trenching and chain ditching, would be low  
6 disturbance in nature?

7 A. I think they will, because I, I have seen the  
8 Spider-Plowing in Ramzi Ecological Reserve. I have  
9 seen it in some public lands, what's native, and after  
10 a couple of years you could hardly tell that a plough  
11 has been there. But the only concern when you have  
12 that, it's invasion by non-native species.

13 Q. Okay. What about the lateness of the season,  
14 constructing into April, how do you feel about that?

15 A. The lateness, like for vegetation like by beginning of  
16 April, middle of April, vegetation is start to green  
17 up already, so I mean, this is -- if it's going to  
18 happen up to end of April. But during the winter it's  
19 dormant, so I don't see an issue when they are  
20 dormant, because once you put the vegetation back  
21 where the soil has some root materials and so on, and  
22 with a mulch they are supposed to sprout.

23 When it comes to April, like that's the time  
24 they are greening up, so if you disturb them at that  
25 time, you might lose some, you might, you know, maybe

1           some survival, some loss.

2       Q.   I just want to clarify, the comments you've just made,  
3           are those in regard to SpiderPlowing or are you  
4           talking about trenching and chain ditching as well?

5       A.   Trenching, if you talk about the narrow trench, even  
6           that in about three, four years you have a short  
7           recovery. And you can hardly tell that we have been  
8           there. Like I said, your only threat will be invasive  
9           weeds.

10                       SpiderPlow, after couple of, of years, you  
11           cannot tell that it has been there. I've seen two  
12           examples and then when I saw the picture again, like,  
13           and I have also talked to some landowners from my  
14           experience, who have various industries where they  
15           have done SpiderPlowing on their land, because we have  
16           pastures and nothing had happened.

17       Q.   What about a 2-metre width for a ditch, trench?

18       A.   Well, you are scraping your topsoil, and when you take  
19           your surface topsoil, you pile it there, there's  
20           nothing wrong where -- like, as you said, later when  
21           you bring it back to the surface again, all your plant  
22           materials and so on are still there, your seed and  
23           seed banks, everything are still there. They are not  
24           going anywhere.

25                       So taking advantage of the environmental

1 condition, some will germinate, some won't germinate  
2 as usual. But given the threat that weeds like,  
3 again, and your species of concern, which is Canada  
4 Crested Wheatgrass, it will be advantageous to seed to  
5 reduce that, to give them some competition so that you  
6 won't have to face that weeds issue again.

7 Q. Okay. Are there any mitigations or specific things  
8 that you can recommend for the Panel for lessening  
9 impacts with that kind of 2-metre ditch with a  
10 trenching and chain ditch method, is there anything  
11 in particular that you would recommend with regard to  
12 that method of construction?

13 A. I don't know much about construction. But I have seen  
14 some examples where vegetation success has been quite  
15 dramatic in a short timeframe. But only concern when  
16 you -- with SpiderFlow (sic), like if you do it in  
17 winter, it's the frost. It depends how, how much  
18 frost you have in the soil. And I think if it's more  
19 than 6 inch, you may get a situation where it will  
20 sheer the soil, where you will have greater  
21 disturbance in normal straight line.

22 But that, the construction in general has to  
23 work that out with the condition of the soils at that  
24 time. That's my only concern.

25 Q. In your first report, you recommended that alternate



1 analysis of EnCana's vegetation triangle sampling  
2 should include ordination analysis?

3 A. Yes.

4 Q. And you identify concerns about the small sample size  
5 and recommended power analysis?

6 A. Yes.

7 Q. Since then, EnCana's responded by doing ordination  
8 analysis and discussing a power, power analysis in  
9 its intervenor submissions.

10 A. Yes.

11 Q. Are you familiar with those?

12 A. Yes.

13 Q. Okay. Given this information from EnCana, do you have  
14 more confidence in its conclusions that increasing  
15 well density to 16 wells per section has negligible  
16 effects on native prairie?

17 A. After -- with ordination analysis I was hoping to see  
18 some kind of correlation between well density and  
19 native prairie integrity. And with ordination  
20 analysis, we haven't seen that. It is a power  
21 analysis, but we haven't seen it because when you look  
22 at the graphs, it's all so many dotted -- it's  
23 scattered all over the graph, and you cannot make a  
24 clear conclusion.

25 But given that, even if you don't see any

1 clear differences, nevertheless we should continue to  
2 make a very efforts to mitigate or to reduce the  
3 impacts from well density. And if the sites are  
4 adequately vegetated, I don't see it should be an  
5 issue.

6 Q. Okay. In your first report, you commented on the  
7 limited baseline environmental data for non-impacted  
8 areas and the need to establish thresholds for  
9 existing activity and proposed activity.

10 And EnCana's approach has been to assess  
11 disturbed areas of 16- and 8-well density for  
12 differences. Can you suggest what environmental  
13 thresholds might be developed for the proposed  
14 Project?

15 A. I was concerned about rare species, especially  
16 wildlife, like -- although that was not my area  
17 because many of critical wildlife or wildlife on a  
18 species of SARA list, it will be nice to know what are  
19 the critical population level. And that's where I was  
20 getting. Because with these species, once we are  
21 gone, we are gone, we don't tell us what -- we are  
22 leaving. You know, like you and I will are leaving we  
23 don't say that to us, they just disappeared because  
24 there's a lag period between -- for a species to  
25 respond.

1                   Like I said, most of the species like would  
2                   have take refuge on adjacent sites in the short  
3                   season. But if the site is not adequately vegetated  
4                   within a short timeframe, those species might be gone.  
5                   So I was concerned about that.

6       Q.    Okay. So I think in your second submission or report  
7            you stated that you support the concept that research  
8            is needed to determine how birds and other small  
9            wildlife populations are affected and rare plants  
10           adjacent to pipelines. Do you think this kind of  
11           research needs to be conducted prior to any further  
12           development in the NWA?

13     A.    Again, we'll go back to the -- a management plan  
14            again. And the reasons when we evaluate success of  
15            reclamation, we have to know what metrics are we  
16            looking at.

17                   And one of the intended use will have  
18            Arthropod association or bird association with the  
19            reclaimed sites. So if a site is adequately reclaimed  
20            to its vegetative components, the next step to be sure  
21            what of wildlife birds or bird nests or what, whatever  
22            is making the reclaimed site way home.

23                   And if you see signs of these, then you know  
24            you're on the right track. And if nothing is  
25            happening, yeah, you can say you have habitat, but

1 guess what, nobody's home.

2 Q. Okay, thank you. New information has been provided by  
3 EnCana and that was in its Reply Submission,  
4 Appendix J, as a model for its PDA process. During  
5 its evidence, EnCana stated that it would utilize  
6 existing soil survey mapping data for desktop  
7 analysis and field siting of wells and pipelines.

8 A. Yes.

9 Q. So it appears there will be no ground-truthing of soil  
10 information at the PDA stage. In your opinion,  
11 Mr. Woosaree, is the soil information based on the  
12 1 to 50,000 level survey adequate, or is site level  
13 soil sampling also advisable before finalization of  
14 construction plans?

15 A. I think in addition to their desktop data when they  
16 are doing the PDA, we can look at adverse sensitivity  
17 of the soils. Like I said, soils can be easily  
18 assessed in the field based on texture and percentage  
19 of sand, silt and clay and based on the slope.

20 A slope, you know, like we consider greater  
21 than 15 percent to be highly risky, in this case. So  
22 I think it can be done at the PDA to be incorporated  
23 into the soil data.

24 Q. In your August report, you recommend that setback  
25 distances proposed for conservation of species at

1 risk be adhered to by EnCana.

2 A. That's right.

3 Q. Okay. Are these setbacks for wetlands and temporary  
4 wetlands, both?

5 A. Yes. But the reason I brought setback distances,  
6 because we don't want a situation where we still find  
7 wellsites to be, to be found in wetlands given the  
8 importance of wetland.

9 Wetlands, like I said, serve critical habitat  
10 for grazing, livestock, and insects, birds, and so on  
11 and so on. And given the conventions regarding  
12 preservation of wetlands, or protection of wetlands,  
13 it will be advisable to stay away from them as much.  
14 How far is the setback? It's a guideline. I do have  
15 a paper with me talking about the scientific  
16 literature review of all setbacks done in, in the  
17 U.S., what it should be, and it could vary anything  
18 from 4 metre to 250 metres. It depends on scenarios  
19 from scenarios.

20 And in, in Canada, all we have is guidelines.  
21 800 metre enough? I don't know, we have to decide  
22 which species inhabit the particular wetland.

23 Q. All right.

24 A. And based on that, we have to make our decision.

25 Q. Okay. The PDA submitted in support of the EIS aren't

1 complete because the timing of some surveys, such as  
2 rare plants.

3 A. Yes.

4 Q. So what I'm wondering, you can -- hoping you can tell  
5 us is what the frequency and surveys intensity of  
6 surveys should be for the identification of rare  
7 plant species within the PDA process?

8 A. The rare plants we are dealing here, I think a good  
9 time would be around July to do a survey, because  
10 that's the time when flower. And usually the flower  
11 help to, to identify them better. But when EnCana  
12 pretested the PDA, I think there and then, if I can  
13 remember well, they did that around October 21st,  
14 22nd, something like that.

15 And they, they may have missed some of the  
16 plants because identifying plants in the field you  
17 have to be good and it could have been missed. But  
18 the best time to look for plants would be during the  
19 flowering time and I think would be around June or  
20 July.

21 Q. Do you think a single growing season is sufficient?

22 A. We should have an indication whether their plants are  
23 found. And one growing season may not be sufficient,  
24 but at least will give us an indication.

25 My question to you or this Panel, the NWA was

1 in 2003. I mean, we hear from the SEAC minutes how  
2 the Base Commander was concerned about cumulative  
3 effects, about impacts, but nothing has been done. I  
4 think we should have an idea at that time whatever  
5 critical habitat, whatever constraint, whatever, where  
6 rare plants are found. I, I don't think even to this  
7 day, as we seen yesterday, we have an idea what we are  
8 doing.

9 Q. Okay. In your report, you talked about some revision  
10 to the seed mixes?

11 A. Yes.

12 Q. This was in your first report. EnCana then provided  
13 some amended seed mixes in its supplemental  
14 information. Are you familiar with those?

15 A. Yes.

16 Q. Does this information address your concerns about the  
17 seed mixes?

18 A. It's okay, but there are more species which could have  
19 been used.

20 Q. Okay.

21 A. I mean, that will depend upon availability. And  
22 again, once we detect -- we define what we are  
23 measuring -- once we define our seed -- sorry, my seat  
24 went down telling me to shut up but ...

25 THE CHAIRMAN: I, I don't think that was a

1 signal, sir.

2 A. But we can always re-define our seed mix at the time  
3 we do our seeding based on what's available, what's  
4 not. But I would prefer to see some, some species  
5 that establish really fast to give us the site  
6 stability, but I would also like to see some other  
7 more species like a Needle-and-Thread. Like, like  
8 making a seed mix about 40 to 60 percent Slender  
9 Wheatgrass I don't think is appropriate.

10 But if we get some of a more climac species,  
11 it might help to reduce the timeframe for, for what  
12 the vegetation to achieve a level we want.

13 MS. LaCASSE:

14 Q. In your first report, you stated that successful  
15 reclamation was, was observed within three to seven  
16 years at Ribstone Creek natural area.

17 A. Yeah.

18 Q. But this was without influence from invasive species.

19 A. That's right, yes.

20 Q. Is Ribstone Creek a reasonable analogue for Suffield,  
21 given its geographic location?

22 A. You are dealing with ecological features, ecological  
23 site features, so I think it's appropriate because  
24 you're working with sand, sand dunes.

25 Q. Okay. What standard did you use to determine



1           reclamation success in that case? Was it equivalent  
2           land capability or a comparison to pre-disturbance  
3           conditions?

4           A. Comparison to pre-disturbance condition.

5           Q. Okay. Based on EnCana's proposed reclamation, and, of  
6           course, your information about the NWA, what's your  
7           time estimate for ecosystem health and function to  
8           recover, after this Project?

9           A. It will vary from sites to sites because the landscape  
10          is quite unulating, like it's quite dynamic and  
11          varied. And some sites will need more attention than  
12          others. And in view what we face the threat from  
13          non-native species, it could be anything from 8 to  
14          15 years or more. It depends from site to site.

15          Q. Okay.

16          A. And some sites, if you incorporate amendments such as  
17          crimping of straw, it may enhance establishment. So  
18          it depends the level of input you want to put and what  
19          management strategy you use after that to control  
20          undesirable species.

21          Q. Okay. Mr. Woosaree, what frequency of monitoring do  
22          you consider is needed for judging whether a  
23          reclamation site is on the right trajectory in terms  
24          of matters such as native species and recovery time?

25          A. A couple of times a year.

1 Q. Okay. Now, I realize you may have addressed this  
2 somewhat in your reports with regard to low flat  
3 areas, but where are the highest risk, most difficult  
4 areas for reclamation in the NWA? Wetlands, alkali  
5 flats, sandy dunes?

6 A. We can pretty well reclaim all.

7 Q. All of them? Okay.

8 A. Yes.

9 Q. Would you adopt these or other range site categories  
10 as constraint areas to, to avoid locating wells and  
11 pipelines?

12 A. I would prefer to have a -- close to wetlands. And we  
13 hear from EnCana before but we will stay away as much  
14 as we can. And the reason for that, because in case  
15 you have an accident, spill, or pipeline break or  
16 wellhead -- spill at well -- from wellhead. And you,  
17 you may have a disaster because these wetlands serve  
18 as critical habitat and especially if you're species  
19 at risk involved and no matter how good your  
20 reclamation is, it might take longer eight years, or  
21 20 or 30 years to claim and species won't stay.

22 So stay away from, from these areas and areas  
23 of slopes like high slopes, like greater than  
24 15 percent, as we had identified as risky will be more  
25 appropriate to stay away, riverbanks. So stay away as

1           much -- I mean, in this case, avoidance is the best  
2           measure so.

3       Q.    Okay.  Do you consider that the reintroduction of fire  
4           to the NWA would benefit plant communities or  
5           specific vegetation species at risk?

6       A.   I thought we have too much fires in the NWA.  I  
7           thought the major concern was amount of bare ground.

8                        But it depends.  If we want to control  
9           invasive species, Grassland National Park is doing a  
10          burn, followed by the fallow grazing to control  
11          Crested Wheatgrass.  Maybe we can learn from them.  
12          Crested Wheatgrass can be controlled with appropriate  
13          measures and spraying of round up is a good one, late  
14          in the season, towards the end of October, worked  
15          pretty good.  We did that in the Ramzi Ecological  
16          Reserve.  But something we have to look at.

17       Q.    Okay.  Just since you mentioned Crested Wheatgrass,  
18           can you provide any information on the persistence of  
19           it and other invasive species in NWA or in  
20           mixed-grass prairie, or do you feel you've already  
21           covered that?

22       A.    Well, we did -- Crested Wheatgrass is only one of your  
23           nightmare.  You have many more to deal with.

24       Q.    Okay.

25       A.    I mean, if you look at all the weed species, I mean,

1 in the low flat one, you have lots of Smooth Brome  
2 Grass, you got Canada Thistle, Tumbleweed, Stink Weed,  
3 Dandelions, you name it, there's a lot.

4 So Crested Wheatgrass is only one of a major  
5 concern because it's pretty well aggressive. And you  
6 need all parties to be involved in fighting it.

7 Q. Okay. Well, then do you think it's feasible to try  
8 and eradicate it from the NWA or these other invasive  
9 species?

10 A. We are doing a project right now in Ramzi, where we  
11 are trying to eradicate it at wellsites. It is  
12 possible by, well, using mowing in the summer, you  
13 have to get it before the seeds. And in the summer,  
14 it's not practical because of the wildlife in the  
15 area. So your options will be most likely in the fall  
16 when most of the vegetation are dormant and at that --  
17 because Crested Wheatgrass green up early in the  
18 spring and stay green for a long time. So if you  
19 spray towards, like, the middle and last week of  
20 October when we are actively putting resources down  
21 the roads, that's the time to get them.

22 And then you repeat it again early in the  
23 spring because they green up in the spring. But you  
24 have to do it when other plants are dormant and try it  
25 this way.

1                   But again, it will always be a battle because  
2                   it was used on the prairies in the '30s to save the  
3                   prairies. It is all over. I mean, we can watch for  
4                   vehicles, control the vehicle entry, and things like  
5                   that. But we don't control the cattle, we don't  
6                   control the wildlife, we don't control the birds, so  
7                   there's always a threat there which we have to stay  
8                   upon.

9           Q.    So, so would you say it's not feasible to try and  
10           eradicate it?

11          A.    If not doing anything, which is what you're  
12           suggesting, I don't think it's wise. We should do  
13           something.

14          Q.    Okay.

15          A.    Because of the critical habitat, because it will keep  
16           on spreading and spreading, but it should be done as a  
17           joint effort, but we should -- when you talk about  
18           monitoring, looking for weeds, we have -- this is one  
19           point to survey, like how far it's spreading, how we  
20           can control it?

21                   And if we talk about the new weeds, I heard  
22           there's a new one on the base. There is I think  
23           Baby's Breath occurring on the east side of the Base.  
24           So what will be (indiscernible) of this.

25          Q.    Mr. Woosaree, I think those are all of my questions.

1 Thank you very much.

2 A. You're welcome.

3 Q. Now, Mr. Whidden, I suppose I've got something I'm  
4 supposed to be addressing with you?

5 A. DR. WHIDDEN: Yes, could you repeat your  
6 question, please?

7 Q. I knew you were going to ask me that.

8 A. I think I have an answer for you.

9 Q. Okay. Can you provide any information that would help  
10 the Panel understand the likelihood or extent of  
11 habitat avoidance for species at risk and, in  
12 particular, I guess we were talking about --

13 A. The Appendix.

14 Q. Oh, the pellets. I'm sorry, I really did lose my  
15 place. Okay. The ungulates.

16 THE CHAIRMAN: Ms. LaCasse, I believe it was  
17 to do, had to do with the update, updated information  
18 on the pellet survey for pronghorns, if I recall.

19 MS. LaCASSE: Thank you, Mr. Chairman.

20 Q. So, in your first report, you talk about ungulates and  
21 pellet surveys, and then EnCana conducted surveys in  
22 that regard, and analysis.

23 In your view, is the information contained in  
24 EnCana's EIS conclusions of insignificant impacts  
25 supported? And I think we're -- we were talking

1 specifically about antelopes, by the work that we've  
2 done?

3 A. Okay. I had a chance to cross check it again. It's a  
4 step in the right direction in terms of what they have  
5 done. It would have been, and maybe some of the  
6 intervenors and myself weren't clear enough looking  
7 at -- it would have been nicer to see information on  
8 traffic levels or loads of different roads and trails  
9 compared to pellet group distribution.

10 And I think they have the data, the pellet  
11 group data available. They could probably look into  
12 that, maybe not with this information they have at  
13 hand.

14 So, in addition to what they've done, getting  
15 an idea about what responses to traffic levels on  
16 roads and trails, and I won't get into trying to  
17 delineate the difference. We've done that enough.

18 Q. So you don't --

19 A. It would have been beneficial.

20 Q. Okay.

21 A. It would have added to this.

22 Q. All right. Pardon me for interrupting you. So you  
23 don't consider that what's been be done to date  
24 supports that conclusion of insignificant impacts?

25 A. Sorry.

1 Q. You don't consider that the information they've  
2 provided so far is sufficient to support their  
3 conclusion?

4 A. In part only.

5 Q. Okay.

6 A. I'm sorry, that's --

7 Q. No, no, that's fair enough. Thank you.

8 MS. LaCASSE: Those are my questions.  
9 Thank you, Gentlemen.

10 THE CHAIRMAN: Thank you, Ms. LaCasse. Then  
11 I'll turn to my colleagues on the Panel, first of all,  
12 to see if they have any questions. Mr. DeSorcy.

13 **QUESTIONS BY THE JOINT REVIEW PANEL, BY MR. DESORCY:**

14 MR. DeSORCY:

15 Q. Good morning, Gentlemen. I have only one question  
16 left here, and it's for you, Dr. Whidden and it  
17 relates to one of your recommendations that you  
18 mentioned this morning. And I want to make sure I  
19 understand it, sir. Wildlife Report 2,  
20 Recommendation 7, your suggestion that SIRC work with  
21 SEAC in monitoring oil and gas activities. Do you  
22 have that, sir?

23 A. Yes, and.

24 Q. And I just want to make sure I understand that. As  
25 you're aware, SIRC has a particular role, SEAC has a



1 particular role, they are related but it seems to me  
2 fundamentally different. And what I'm wondering,  
3 sir, is are you suggesting that in discharging their  
4 roles, they should communicate and coordinate their  
5 work better, or are you suggesting a change in roles  
6 that would have them working together?

7 A. I'm not suggesting a change in roles. I'm suggesting  
8 the former in terms of more communication between the  
9 two and judging from what I've heard during the  
10 hearing process and the transcripts, it's required.

11 MR DeSORCY: I think you've answered my  
12 second question, too. Thank you.

13 THE CHAIRMAN: Thank you, Mr. DeSorcy.  
14 Dr. Ross, please.

15 **QUESTIONS BY THE JOINT REVIEW PANEL, BY DR. ROSS:**

16 DR. ROSS:

17 Q. Thank you, Mr. Chair. And thank you, Mr. DeSorcy, for  
18 asking my first question. So I will delete that one?  
19 The -- Dr. Whidden, you indicated just a few minutes  
20 ago in, in response to a question about the  
21 Environmental Effects Monitoring Plan, or monitoring  
22 program that more details would be required to flesh  
23 out such a program.

24 I -- it's probably fair to say that these  
25 programs never jump from nothing to the perfect

1 monitoring program immediately. What sort -- and yet  
2 in this, for this Project, it may be necessary to get  
3 it right pretty well the first time if the issues at  
4 hand are construction, because the construction  
5 period is fairly short. What sort of a timeframe, in  
6 your opinion, would be necessary to get a good  
7 monitoring program in place?

8 A. Well, it ultimately depends on people's availability  
9 to sit down and cooperate and generate something like  
10 that. You'll never make everybody happy with whatever  
11 you put in there. But -- and you also have to  
12 consider and make sure that all the people involved  
13 are aware that it should be a dynamic document,  
14 whatever you produce.

15 Like you said, it's not going to -- you won't  
16 get it right the first time.

17 Q. Okay. I have an arbitrary and capricious set of  
18 orders here, so I'm going to jump back and forth.

19 Mr. Woosaree, I think the Government of  
20 Canada indicated that the long-term goal of  
21 reclamation ought to be restoration of native grass  
22 prairie. If that's the case, do you have any advice  
23 to offer on what would be a good early indicator of  
24 success for such a monitoring program?

25 Is there -- do you have to wait until the

1 native grass prairie has been restored before issuing  
2 a Reclamation Certificate, or are there indicators  
3 early on that the reclamation has been successful?

4 A. MR. WOOSAREE: That's going under review  
5 right now by Alberta Environment as to what success  
6 should be. In, in the past, it used to be at the  
7 plant, the species composition and vegetation cover.  
8 At this -- after so many years when it's -- a company  
9 wants to have a site certified.

10 But lately, we'll revision in front of the  
11 Department of Alberta Environment, but it's too long a  
12 process to wait for 10 years or 15 years.

13 So what we are looking is there a shorter way  
14 to assure success and a shorter way -- I mean, I  
15 suppose, five years. So what we are doing is we're  
16 looking at trajectories of success. And that, do  
17 you -- and by that, do you have your desired plant  
18 species what you want to see?

19 And by that, if you are looking the dry  
20 mixed-grass prairie, you are looking at your  
21 June Grass, your Blue Grama, your Needle and Thread.  
22 So, if you seek enough -- in sufficient amount of  
23 these species based on cover, then you know you're on  
24 the right track.

25 And then you look at your amount of litter,

1 amount of litter basically will tell you about  
2 nutrient cycling. And then if -- for the community to  
3 be sustainable in the future, you have to look at the  
4 erodibility of that site. Like, is -- and if you have  
5 good vegetation cover, erosions chance will be less.

6 And also what are the threat from invasive  
7 species? Do you see, like, more and more weedy  
8 species start to occur, then you need an action plan  
9 to start to counter that.

10 So these are some of the early, call it  
11 matrix, you want to look at to be sure you're on the  
12 right path. And, of course, with continued  
13 monitoring, you, you will ensure that the site is not  
14 reversing to go opposite direction?

15 Q. I guess the concern, or a concern might be that if you  
16 identify after five years that, that the reclaimed  
17 area is moving on the right trajectory, and then  
18 discover at eight years that it's not, it's sort of  
19 too late because the Reclamation Certificate will  
20 have already been provided. So is it clear that for  
21 this mixed-grass prairie, there are such early  
22 indicators of success?

23 A. This is what, like I said, Alberta Environment is  
24 looking at. But the Reclamation Certificates, if it  
25 is issued at five years, this is the condition of this

1 time. Our environment is changing. With, with  
2 climate change, like the International Panel, Panel on  
3 Climate Change predicts about point -- 6.8 degrees  
4 Celsius warming up.

5 So, if the climate is changing, you will see  
6 more and more occurrence of species. But what  
7 happened at that time will -- would -- we need to have  
8 a plan to deal with it at that time. And if at that  
9 time we have to go out and do more spring herbicide  
10 application, so be it. Or do we accept it as part of  
11 the natural processes? We have to figure out at  
12 year 8. But at year 5, it is assessed on what it is.

13 Q. Thank you, Mr. Woosaree.

14 A. You're welcome.

15 Q. I'm sorry, were you finished?

16 A. I'm done. I mean, I can answer some questions but ...

17 Q. Dr. Whidden, I'm, I'm going to revisit the  
18 fragmentation effects question again. And I, I  
19 will -- I guess I'll deal first with antelope.

20 I think EnCana has argued that for species  
21 such as antelope, the very late use of trails will  
22 mean that there's really very little or no  
23 fragmentation effect. For that particular species,  
24 is that a credible claim or not?

25 A. DR. WHIDDEN: Sorry, what do you mean by

1 the late use of trails again?

2 Q. Of light.

3 A. Oh, light.

4 Q. Very infrequent use of these trails.

5 A. Intuitively I would say, yes, the less -- the lower  
6 the frequency of traffic loads on, whether it's a  
7 trail or a road, would be less disturbing to wildlife  
8 that are nearby.

9 Q. But that does not extend to Arthropods and Kangaroo  
10 Rats, necessarily at least?

11 A. Well, if -- not necessarily.

12 Q. Let me move on to a species you've declined to pursue  
13 before, that is Sprague's Pipits. And the reason I  
14 pick on Sprague's Pipits is that the preliminarily  
15 assessed critical habitat for Sprague's Pipit looks a  
16 lot like the National Wildlife Area.

17 A. Yes.

18 Q. And so that has some significant consequence in terms  
19 of the advice we've received from some people to  
20 consider that very seriously. And, and so I, I guess  
21 my real question is, have you any advice to offer us  
22 on, on those effects of -- for Sprague's Pipits?

23 A. Other than advising you to facilitate the expedition  
24 of that to be finalized. You know, when you look at  
25 that map, you've got something like 94, 95 percent

1 covered. How do you use, how do you use that? I --  
2 it would have a lot of implications outside of this  
3 process, in particular, too, if it was -- if that was  
4 in fact true.

5 Q. Let me move on, then. Different question, again  
6 directed to you. You alluded to winter effects on  
7 ungulates, elk, deer, and antelope. What's the big  
8 issue here?

9 A. Well, I think the, the big issue is under -- getting  
10 -- grasping an understanding of how increased traffic  
11 through drilling or winter activities which -- when  
12 most of it is supposed to happen, you've got a lot --  
13 and based upon what Jay and I saw when we were down  
14 there in February, you've got a lot of things herding  
15 up down there, whether it's elk, antelope, mule deer  
16 as well.

17 And when you have bunches of them together  
18 like you do, the chances of interacting with them by  
19 driving whatever truck you have around the corner,  
20 increases, I think. So in terms of -- you know, you  
21 can get into complicated analyses of energy  
22 expenditure because of snow depth, things like --  
23 along that nature so, I think, in my opinion, that's  
24 what the issue is.

25 It's terms of -- you've got a lot of these

1           critters during the winter in a condensed sort of  
2           fashion, if you will. And we may have a lot more  
3           traffic happening.

4                         Now, granted that is during a short period of  
5           time, but the implications ...

6       Q.   Is that covered adequately in the material presented  
7           to date?

8       A.   As I indicated to -- sorry, I can't remember your  
9           name. To Meighan.

10      Q.   Oh, Ms. LaCasse?

11      A.   Yes. It would have been interesting to see some  
12           information on traffic volumes in relation to ungulate  
13           distribution.

14      Q.   Okay. Lastly, I -- let me start with Mr. Woosaree,  
15           although you can guess from the nature of the  
16           question that I will come back and ask you the same  
17           question for a different species.

18                         Mr. Woosaree, the critical, preliminarily  
19           assessed critical habitat has been presented to the  
20           Panel and to others for three listed plant species.  
21           Can you comment on the, on, on the critical habitat  
22           presented and/or the consequences, that is did you  
23           look at the process for determining the critical  
24           habitat for those three plant species and can you  
25           offer any advice to us that would supplement what we



1 have already received?

2 A. MR. WOOSAREE: If I can remember well, some  
3 of the planted species are -- well, most rare plants  
4 are situated with disturbances and one -- for one of  
5 the plant, like there's too much blowout, like where  
6 the sand just got blown away so you don't see enough  
7 of those plants.

8 So that will be an issue associated with  
9 erosion. How can we preserve that? And I think some  
10 of the plants were mapped -- were located about around  
11 the banks of Saskatchewan River and a few other  
12 locations.

13 So it will be not appropriate to, to know the  
14 exact locations where these plants are. And to -- we  
15 know -- we have an idea like in terms of habitat like  
16 trying to determine why they are rare.

17 But at some point, when we are -- for  
18 disturbance through moving soil, these are another  
19 species, so the seeds are in the soil bank, so we put,  
20 we put the soil back so you assume the seeds are in  
21 the sand bank again and they will come up.

22 The issue with many of the rare plants, they  
23 have low germination. Either we have to go through  
24 some natural processes for them to emerge so that you  
25 can see them in the following year. And as it

1 appears, sometimes you see them, sometimes you don't  
2 because you don't know what happened between now and  
3 then.

4 And the plant seeds got moved, like they may  
5 not show up in one year, and you found out that in the  
6 following year there's more plants than, than you at  
7 first estimated there were.

8 So it's important to do a repeated, repeated  
9 surveys to look at the plants again to be sure you,  
10 you can comfortable -- comfortably describe the range  
11 of location you find these plants.

12 And like, like I said before, if I, if I --  
13 if memory serves, serves me right, in, in the Recovery  
14 Strategy for Native Plants, even in Canada, they, they  
15 discuss about propagating plants. I'm pretty sure  
16 about that as one of the means we can look into. But  
17 to reintroduce plants in a particular species, I mean,  
18 to reintroduce plants into their natural habitat is  
19 not unusual event. It's done throughout the world.  
20 There are protocol out there. But we have to be sure  
21 before we do that what are the viable populations out  
22 there. So we'll get an idea and then what can we do  
23 to enhance this habitat, enhance the plant population.

24 Does that answer your question?

25 Q. Close enough.

1 A. Okay.

2 Q. Dr. Whidden, we've already talked about Sprague's  
3 Pipit and the other species for which preliminarily  
4 assessed critical habitat was provided was the Ord's  
5 Kangaroo Rat. Any advice on, on that or any comment  
6 on, on that, that critical habitat?

7 A. DR. WHIDDEN: Well, maybe not that one in  
8 particular, but going back to the both of them, I  
9 think, keeping in mind that they are preliminary  
10 assessments, Jay and I have conferred on this a bit.  
11 And it seems to be more of -- you know, it's, it's  
12 great that the work is moving forward in terms of  
13 identifying that. However it does seem to be reactive  
14 to this process.

15 And keeping that in mind, you know, shutting  
16 down 95 -- 94 percent of the NWA, I'm not sure if  
17 that's in anybody's mandate right now. Maybe it is,  
18 maybe it isn't.

19 Other options include offsets with respect to  
20 giving and taking of particular habitats, or areas of  
21 habitat, I should say. If you've got 94 percent of it  
22 is critical habitat, how much of it do you want to  
23 maintain? Ultimately.

24 DR. ROSS: Thank you very much  
25 gentlemen, those are my questions.

1 A. MR. WOOSAREE: You're welcome.

2 A. DR. WHIDDEN: Thank you.

3 THE CHAIRMAN: Thank you, Dr. Ross.

4 **QUESTIONS BY THE CHAIRMAN:**

5 THE CHAIRMAN:

6 Q. Actually, I think you've just led into a question I  
7 have as well that is just a follow-up from, from  
8 Dr. Ross's questions and your responses. And I think  
9 this is probably directed to both of you.

10 Environment Canada indicated that, yesterday,  
11 I believe, that a loss of preliminary critical  
12 habitat would be a lost opportunity, I think was the  
13 term nay used, if I recall. And I wonder if you  
14 share that in, in, in the context of a National  
15 Wildlife Area, if you consider that a lost  
16 opportunity. How important is that, in your view?

17 A. DR. WHIDDEN: I can start. To me it's  
18 important because we are, like, I mentioned a couple  
19 of times, you know, we can talk about percentages  
20 lost, whether it's a half of a percent of a percent,  
21 or 1.0 percent. But the ecological context in this  
22 particular case is quite important.

23 Now, preliminary assessments, we still have  
24 to get to the final nuts and bolts of things.

25 So to me, yeah, it's quite important. But

1           then again, we get back to how much, if any, do we  
2           give up?

3       Q.   Mr. Woosaree, any comment on the same question?

4       A.   MR. WOOSAREE:                I, I agree with him, too,  
5           because critical habitat, whether it's a breeding  
6           ground or things like that it's very important. So  
7           it's good to have an idea like where we are located  
8           and how we can protect them. Until we are sure  
9           whatever disturbances we have are adequately reclaimed  
10          and we are being used by the particular species of  
11          concern.

12                 But right now, since we don't know many of  
13                 the thresholds for some of the wildlife species and so  
14                 on, so we have to be very careful because once it's  
15                 gone, it's gone.

16                 So, like, again, like we talk about whether  
17                 1.0 percent is significant enough, to me, in human  
18                 terms, if we have a car going away, got into an  
19                 accident, out of six, one died, is it okay? To me,  
20                 it's not okay because it was a loss of life. You  
21                 cannot bring that back. I mean, just to try to do an  
22                 analogy.

23                 So I think we have to do our most diligence  
24                 trying to protect it.

25       Q.   Thank you. This I guess leads into another question.

1           You mentioned thresholds and the absence of them. I  
2           guess the first question is, in, in your view, and,  
3           of course, in the absence of threshold, it makes it  
4           difficult to contemplate the the trade-offs that you  
5           suggested also, Dr. Whidden. In the absence of  
6           thresholds, is it your view that one should still  
7           proceed with a project such as this? In your view  
8           which comes first here, I guess?

9    A.   DR. WHIDDEN:                    Ideally we would have had the  
10           thresholds to work with. It would make your job a lot  
11           easier.

12   Q.   I suppose it would.

13   Q.   But just on that, again do you have other examples of  
14           similar areas where such thresholds exist?

15   A.   Do I have examples where similar thresholds?

16   Q.   Yes.

17   A.   Understanding and generating thresholds for wildlife  
18           populations is a can of worms that's been open for a  
19           very long time in many areas of this Province.

20   Q.   That's why I asked the question.

21   A.   And other places. It's difficult.

22   Q.   That's why I -- yes, that's why I asked question.

23           It's difficult to develop those thresholds, I  
24           presume.

25   A.   Yes, and as I indicated before, you won't make

1           everybody happy regardless of the threshold selected  
2           or used. But they should be -- you know, if and when  
3           they come up, they have to be considered as dynamic to  
4           a certain degree, but at least you'll have a target or  
5           something to compare what's out there against.

6       Q. Now, I know again from testimony from the Department  
7           of National Defence that they are planning to develop  
8           those, or at least thresholds of some sort, they are  
9           clearly not in place at this point. Who should be  
10          involved, in your view, in developing such  
11          thresholds?

12       A. Who should be involved?

13       Q. Yes.

14       A. Any -- well, given the nature of this particular site,  
15          you know, interveners at hand, other stakeholders. I  
16          know we've had some Aboriginal First Nation  
17          involvement, but not today, or not lately.

18                    It, it's fairly complicated. You've got a  
19          lot of biologists in that area that are here and that  
20          are not here, or haven't been here or chosen not to be  
21          here, that could give you a lot of information on  
22          that.

23                    Now, I think the idea of using the thresholds  
24          for wildlife has to be part of the greater formalized  
25          plan for managing the NWA, which we're still looking

1 for.

2 A. MR. WOOSAREE: To, to -- like, I know  
3 thresholds, it's, it's difficult to do, I mean, I  
4 never have to do it. But I think to look at viable  
5 population, what is the minimal number of, of units of  
6 a particular species, but you need to breed to produce  
7 successfully to the next generation to ensure  
8 survival.

9 So if we know that it might help us a little  
10 bit. Do you need, for example, like one male, two  
11 females or vice versa, what is the viable population?  
12 And if you don't have continuity of population  
13 survival, then it won't be sustainable. So maybe  
14 that's another way to look at it.

15 A. DR. WHIDDEN: Just to add to that, there's  
16 also the considerations of the amount of habitat  
17 available in terms of there's been some theory  
18 bantered around, once a certain percentage is lost,  
19 depending upon the species, then it basically goes to  
20 hell in a hand basket after that. So there's sort of  
21 a, the cut off in terms of habitat loss as well. Not  
22 just animal numbers.

23 THE CHAIRMAN: Thank you gentlemen, that  
24 concludes my questions as well. And it concludes all  
25 of the questions for you today. I would like to thank



1           you for both your work in examining and preparing your  
2           reports and also assisting us here in these  
3           proceedings as well. Thank you very much.

4                           **(JOINT REVIEW PANEL EXPERT WITNESSES EXCUSED)**

5   THE CHAIRMAN:                   Looking at the clock, it's  
6           now about lunchtime. The one matter that we still  
7           have to deal with is the rebuttal panel with EnCana.  
8           And I might ask Mr. Denstedt if you could give us a  
9           sense of your plans just to assist in, in our plans in  
10          terms of setting the schedule for today.

11   MR. DENSTEDT:                   You bet, sir. The plan is to  
12          sit the five witnesses I indicated yesterday. We will  
13          be under an hour in the presentation. There's only  
14          one table and a handful of pictures that we're going  
15          to be submitting so there's -- and I've circulated  
16          that to the other lawyers and I'll provide that to the  
17          Panel here right now.

18   THE CHAIRMAN:                   Right.

19   MR. DENSTEDT:                   So we're in your hands.

20   THE CHAIRMAN:                   Excellent. Well, thank you,  
21          Mr. Denstedt. I think -- let me ask one more  
22          question. I know that food service is perhaps not as  
23          accessible today as it is during the week, but would  
24          one-hour be sufficient for lunch? I see nodding, so  
25          let's take a break and we'll return at 1 o'clock,

1 then, to hear the EnCana Panel. Thank you.

2 (NOON BREAK)

3 (PROCEEDINGS ADJOURNED AT 12:06 P.M.)

4 (PROCEEDINGS RECONVENED AT 1:02 P.M.)

5 THE CHAIRMAN: Ladies and Gentlemen, welcome  
6 back after lunch.

7 Mr. Lambrecht, I see you wish to speak. Go  
8 ahead, please.

9 **UNDERTAKING MATTER SPOKEN TO**

10 MR. LAMBRECHT: Thank you, Mr. Chairman. And  
11 with the consent of my friends, an undertaking was  
12 requested during cross-examination by Ms. Klimek. It  
13 appears at page 3548 of the transcript. And it  
14 relates to a photograph which is in the Crown's  
15 Opening Statement, Exhibit 003-031, at page 35.

16 And the question was:

17 "Q. And my next question was and  
18 maybe that will answer it, is when  
19 did it occur and is there some --  
20 and where? Is it close to -- if  
21 you could give us that  
22 information."

23 And the answer was:

24 "A. Yeah, we'll take that on,  
25 thanks."

1 MR. DENSTEDT: Was good that you clarified  
2 that.

3 THE CHAIRMAN: Yeah. I was going to say,  
4 you took it up with clarity.

5 MR. LAMBRECHT: It's, it's a picture, it's  
6 the -- it's -- on page 35 of the Opening Statement,  
7 there are four pictures. This relates to an area that  
8 is in the lower left-hand corner of those four. And  
9 my understanding is that this was reported on  
10 August 10th of 2008 and it is believed that the  
11 incident occurred sometime between July 26th and 28th,  
12 2008. And that I think completes the understandings  
13 that are requested.

14 THE CHAIRMAN: Thank you, Mr. Lambrecht.

15 MR. LAMBRECHT: Thank you, sir.

16 THE CHAIRMAN: We will now turn to EnCana's  
17 panel. And welcome, gentlemen. I would remind you  
18 that you are still under oath. And I am pleased to  
19 see that you are all sitting in the same order, so  
20 that will assist our court reporter. Welcome back.

21 **ENCANA REBUTTAL WITNESS PANEL, (Recalled)**

22 Joel Heese (on Former Affirmation)

23 Francis L'Henaff (on Former Oath)

24 Stephen Fudge (on Former Oath)

25 Douglas Collister (on Former Oath)

1 Dr. David Walker (on Former Oath)

2 MR. DENSTEDT: Mr. Chairman, I don't propose  
3 to walk the panel through any specific questions. I'm  
4 just going to let them -- turn them loose and let them  
5 have their say. They have been instructed to keep it  
6 under one hour so, after one hour, feel free to cut  
7 them off.

8 THE CHAIRMAN: I appreciate that authority  
9 you've given me, Mr. Denstedt.

10 I'll turn to the panel to proceed.

11 **EVIDENCE BY DR. WALKER**

12 A. DR. WALKER: Do we have visuals? David  
13 Walker. I believe we've looked at this picture a  
14 number of times over the last several days. I would  
15 like to clarify a few things.

16 I haven't looked at this particular site on  
17 the ground or from the air, but I've certainly looked  
18 at a lot of sites that resemble that. And I can tell  
19 you, from my experience, that what we're probably  
20 looking at here is what it looked like soon after it  
21 was reclaimed and it has remained looking like that  
22 pretty much for the duration.

23 One of the things we've learned over the last  
24 30 years in revegetation is that, when it comes to  
25 succession on reclaimed sites, it follows what they

1 call an initial floristics model, and in layman's  
2 terms, that's: "What you seed is what you get".  
3 "What you seed is what you get." And that means when  
4 you do it for the first time, you better get it right,  
5 because sometimes there's not a lot of opportunity to  
6 change things.

7 So the next picture, I would like to take a  
8 shot at the assumptions being made on some of the  
9 Crested Wheatgrass spread testimony that's been given.  
10 This is a document, 003, I believe, dash 031, Tab B.  
11 Brent Smith. This is an "Assessment of Agronomic  
12 Species Invasion. And if we could look at the top of  
13 that picture, I would like to read you out the  
14 assumptions that were made in doing this study (as  
15 read):

16 "Would the area seeded along a  
17 pipeline was consistent at  
18 2.44 metres -- any agronomic plants  
19 detected further from 1.5 metres  
20 perpendicular to the centre of the  
21 pipeline were considered to have  
22 invaded native prairie."

23 So if we could go back and look at the bottom  
24 part of the picture. The pipeline in this photo is  
25 just to the right of the truck. And I'm going to show

1           you what 2.44 metres looks like. [Stretching out tape  
2           measure]. There it is right there. It's not possible  
3           to put a pipeline in, either trenching or ripping, in  
4           that kind of a distance without disturbing outside  
5           that area. It would be far more typical to go way  
6           outside that area. In fact, in that era, there were  
7           no guidelines for the edge of a pipeline right-of-way.  
8           They could go wherever they wanted. And generally  
9           they did. It wasn't until about 1990 when I worked on  
10          the TransCanada pipeline in the Great Sand Hills that  
11          we actually assigned a boundary for construction and  
12          edge of right-of-way. And so they would have spread  
13          out all over the place.

14                 And so what we're looking at really is, is  
15          old plants that have persisted over the duration of  
16          time and probably we're looking at native encroachment  
17          in to the sides. I mean, this is purported to be  
18          Crested Wheatgrass being -- invading outwards from  
19          picture right to picture left. It's probably just as  
20          likely that this is native species encroaching into  
21          the Crested Wheatgrass from the right, so it is an  
22          overstatement to say that that is evidence of Crested  
23          Wheatgrass invasion.

24                 Now, I believe probably that, that  
25          Dr. Henderson and I, and Brent Smith, are probably no

1 more than a few beers away from being in complete  
2 agreement on, on the issue of Crested Wheatgrass and  
3 its invasability (sic). I certainly agree that it, it  
4 does invade. The evidence that was presented is that  
5 it invades at an average of 0.1 metres, 10  
6 centimetres, that's 4 inches, (indicating), on  
7 coarse-textured soil, more on finer textured soil. It  
8 does invade, but I would ask the Panel to keep in mind  
9 the evidence as to what the rate of expansion is. And  
10 that's certainly not to say we don't want to try to do  
11 our best to control it.

12 Another one of the conclusions from this  
13 study was that:

14 "Native vegetation is  
15 re-established to a higher degree  
16 than expected...

17 It says in the "Conclusions":

18 "... which were deliberately seeded  
19 to agronomic species. The native  
20 value was 27."

21 So here we have old pipeline right-of-ways,  
22 seeded to agronomics, and the natives now outnumber  
23 the cover of the non-native species. Nevertheless,  
24 it, it is something that we would like to control.

25 I would suggest that if we were successful in

1 replacing the Crested Wheatgrass here, it would  
2 probably look much the same. It wouldn't be green  
3 from Crested Wheatgrass, it would be blue from  
4 probably Western Wheatgrass because it will take a  
5 highly aggressive and persistent species to replace  
6 Crested Wheatgrass and outlast it. So it will pretty  
7 much look the same, I guess.

8 And I would also suggest, if Crested  
9 Wheatgrass were ever to be used as a green strip to  
10 control fire, that that's what it would look like.  
11 That would be what a green strip would look like. And  
12 that has been used in other places to check wildfires  
13 across the prairie.

14 There was another note about pipelines that  
15 were seeded more recently and had non-native species  
16 in them, agronomics. And I can certainly appreciate  
17 the concern over that. It's not necessarily a matter  
18 of negligence on the part necessarily. Well, I'll,  
19 I'll reserve that.

20 I found it interesting the comments about  
21 Alberta Energy not following the instructions of SEAC  
22 in seeding native species in the '80s. I can tell you  
23 from that era, it was very difficult getting seed lots  
24 that were clean, that it had to be imported from the  
25 States, and very often they were contain -- they



1 contained species that we certainly don't want up  
2 here. Downy Brome, Knapweed, and other noxious  
3 species. And I say good for those guys for not using  
4 that seed, otherwise we would have a real problem  
5 there. Right now we just have Crested Wheatgrass.  
6 But, in general, they did not seed if it was dirty  
7 seed. And good for those guys.

8 And we still seem to have a problem getting  
9 seed lots that don't have undesirable species in them.  
10 I know this in my own experience in purchasing seed.  
11 And for Express, we had the client, Alberta Energy,  
12 purchase the seed directly and do it. I don't know  
13 where the problem is coming from, whether it's the  
14 seed supplier, dirty seed drills, or whatever, but it  
15 seems that it's difficult to seed and not have some  
16 Crested Wheatgrass come out. But we have plans for  
17 that.

18 If we could have the next slide, please,  
19 Ryan. One after that. In the EEMP, the Environmental  
20 Effects Monitoring Plan, there are instructions for  
21 acquiring plant materials. And the first on the list  
22 is to maintain the chain of custody so that you  
23 protect the -- and avoid substitution, use only seed  
24 products that can be identified as to source, and  
25 ensure all the equipment is pre -- free of previously

1 used materials.

2 The next one, please.

3 The next page.

4 We do have a step-wise set of criteria that  
5 will carry us through the life of the Project;  
6 benchmarks, if you will, to get us on the right  
7 trajectory towards the desired criteria for success.  
8 The first one is plant establishment. This is a year  
9 after. We're looking for a specific seedling density  
10 to make sure we have the plants there. The next stage  
11 is plant cover. After two to four growing seasons, we  
12 are looking for enough cover for erosion control. And  
13 we are asking for both stability and ground cover  
14 standards after three to seven years. And I have that  
15 range there because drought is a part of the natural  
16 cycle and it may take that long to get there.

17 The next one, please. Well, we've gone past  
18 one of them. One back, please. Site stability.  
19 There was a lot of talk about soil loss tolerance, and  
20 I won't subject you to my demonstration again, but  
21 there is a number that we are using that is well  
22 defended. There's a citation in the submission,  
23 Wall et al., which is document produced by Ag Canada  
24 and all of the agriculture departments throughout  
25 Canada, all contributed to this document on soil loss

1 and they set a soil loss standard. And it is 4 tonnes  
2 per hectare per year. And that is what we're  
3 recommending. And that is what the City of Calgary  
4 has adopted, and others. And it has been reviewed and  
5 approved by Dr. George Foster who is one of the  
6 developers of the Universal Soil Loss Equation.

7 There was some discussion as to how it would  
8 be implemented or enforced. I'll point you to the  
9 text where it says that the T-value is used for  
10 modelling and designing erosion control plans. And so  
11 the management and the enforcement in compliance would  
12 be based on the development of a plan prepared by a  
13 qualified individual and its proper implementation.  
14 So that's where the pinch comes. And that standard  
15 applies throughout the life of the Project, including  
16 the operations phase.

17 The next page, please, Ryan.

18 There's an indicator, at the top there, of a,  
19 of a chart, of what you might use for a field  
20 assessment of, of erosion control or site stability.  
21 It's relating cover to soil loss. It is not the only  
22 parameter for controlling erosion, so it would depend  
23 on soil roughness, for example.

24 The next at the bottom there is community  
25 plant structure. And there was discussion about what

1 would constitute a reclaimed site. I have downplayed,  
2 I guess, the composition because that depends on land  
3 use. This approach, it depends very much on what the  
4 stakeholders decide is the ultimate land use, whether  
5 it's grazing, habitat, and so there's flexibility in  
6 the composition, but in terms of the structure, I'm,  
7 I'm, quite hard about having layers, ground layers,  
8 tall, and mid-sized plants, and so this is the way the  
9 horizontal plant cover, a way of assessing that and  
10 measuring whether we've got there or not.

11 The next one please, Ryan.

12 Here's an example of two sites that have been  
13 reclaimed around a wellsite. The one on the left,  
14 Crested Wheatgrass, doesn't have structure. It's all  
15 the height of the Crested Wheatgrass. All one layer.  
16 The site beside in 1985, which I'm calling restored  
17 prairie, are all native species on-site. And there  
18 are tall and short and ground level plants there, so  
19 that has structure, it has layers, and that would meet  
20 the criteria.

21 The next one, please. The next page.

22 There was discussion as to whether soil  
23 compaction was dealt with. And it is referenced in a  
24 number of places in the Reclamation Plan, in the  
25 Environmental Protection Plan, and then again in the

1 EPP. There are standards for rutting deeper than  
2 100 millimetres on tracks, wheel tracks, and there's  
3 also a chart here that relates bulk density with route  
4 restriction density that varies with the soil texture.  
5 So that's covered as well.

6 Okay, well, the next one, please.

7 Here are some examples of applying the  
8 rangeland reclamation success protocol to a number of  
9 wellsites. This first example, drilled in 1985, was a  
10 natural recovery site. It's well sited, as you can  
11 see, protected by hills on the other side. Picture  
12 upper right. We couldn't find it looking for the  
13 access trail. We had to put our -- put it into our  
14 GPS. Once we got there, we could find a vague trail.  
15 The operator had been in there for the annual  
16 inspection and we were able to follow it out, but we  
17 couldn't find it going in.

18 The middle row, the left, native vegetation  
19 is completely grown around. There are no non-native  
20 species there. This was our best site. I was  
21 reluctant to give it 100 percent mark. We found a  
22 little wheel rut which allowed me to dock a few points  
23 there. But it had a very diverse and interesting  
24 establishment of native species around it. And there  
25 were no non-native species on this site anywhere to be

1           seen, anywhere close.

2                       So if it were a case of looking for targets  
3           or reference sites, things like this could be used.  
4           It could be characterized and compared and then this  
5           could be one of the targets. It doesn't necessarily  
6           have to be a historic plant community, or one. It  
7           could be a successful and reclaimed one.

8                       Let's have a look at a couple of sites that  
9           weren't quite so good. The next one, this is 2001 and  
10          this is from the Infill Drilling Program. Again,  
11          natural recovery, native species around the wellhead,  
12          Pasture Sage had re-established along the pipeline  
13          right-of-way. This is a native forb, which is an  
14          early colonizer, lots of native species around there.  
15          Let's look at the last row.

16                      I docked this site because of the amount of  
17          runoff that was still on the area. It was a slope.  
18          And it -- and there was a long flow path there, so the  
19          site stability attribute was not as good as it could  
20          have been. And that probably would have required some  
21          surface modification, some roughness. We heard a bit  
22          about that this morning about leaving it rough. That  
23          would have possibly created a bit more disturbance,  
24          but this was on the right-of-way, it was ploughed in,  
25          and it could have been left rougher than it was.

1                   The next one.

2                   This is one that is an example of a wellsite  
3                   that's giving everybody a lot of grief, a wellsite  
4                   that is put into a Crested Wheatgrass field, and the  
5                   seed bank is full of seed, and, of course, it has come  
6                   back. This is, again, drilled recently in the  
7                   Infill 2003 and there is a lot of Crested Wheatgrass  
8                   around the wellhead. And, and I think that the  
9                   program they are looking at, perhaps of looking at  
10                  ways of replacing that, the Crested Wheatgrass, with  
11                  more seed of other species might be a good approach,  
12                  but I would encourage EnCana to put their wellsites in  
13                  sites like this rather than on to native prairie, just  
14                  to reduce the amount of disturbance and then perhaps  
15                  tackle the problem of that.

16                  You can't really deduct points from a site  
17                  that's been seeded years ago or a pasture like this  
18                  just because of Crested Wheatgrass. But I certainly  
19                  deduct points because of hydrologic function because  
20                  of the runoff because of the amount of bare ground  
21                  that you would get from Crested Wheatgrass.

22                  So to bring this up to a reclamation standard  
23                  from my point of view would require a bit of work,  
24                  some roughness, to improve that.

25                  And that's me. Thank you.

1 THE CHAIRMAN: Thank you, Dr. Walker.

2 A. DR. WALKER: I'll take my tape measure  
3 down.

4 THE CHAIRMAN: I don't think we need to put  
5 that tape measure on as an exhibit, Dr. Walker. You  
6 weren't suggesting that, were you.

7 **EVIDENCE BY MR. COLLISTER**

8 A. MR. COLLISTER: Thanks, Mr. Chairman. I'm  
9 going to speak a little bit to snakes and then to  
10 critical or preliminarily assessed critical habitat, a  
11 little bit to PDA, and then a little bit to  
12 fragmentation. And I think I can stay within  
13 10 minutes or so.

14 On pages 2962 to 2966 of the hearing  
15 transcript for October 22nd, Mr. Didiuk introduced  
16 some new evidence on snake mortality. The material,  
17 which is Exhibit 003-050, is a PowerPoint presentation  
18 to CWS, DND, and SIRC. I don't think we need to call  
19 it up, unless later if somebody wants to talk about  
20 it. But I have some comments on it.

21 Mr. Didiuk indicated that this material  
22 provided incite on the efficacy on a 50 kilometre per  
23 hour speed limit in reducing snake mortality.  
24 However, the objectives of the work listed on the  
25 second slide of that presentation do not include an



1 evaluation of the relationship of vehicle speed to  
2 snake mortality.

3 In addition, the second-last slide, which  
4 appears to be Mr. Didiuk's summary and conclusions,  
5 includes the statement, and I quote:

6 "Low sample sizes of snake  
7 observations and highly variable  
8 traffic patterns did not allow  
9 assessment of snake mortality in  
10 relation to traffic. Nevertheless  
11 there were good things that  
12 resulted from this work in this  
13 presentation. I'm informed by  
14 EnCana that the snake mitigation  
15 area was created as a result of  
16 this. South Buffalo Gate was  
17 closed."

18 That's the gate in the southeast corner of the  
19 NWA.

20 "Both South Buffalo Road and Sapper  
21 Trail were closed to thru-traffic  
22 during snake migration. And  
23 Bingville Road was established as  
24 the main south access and  
25 north/south route into CFB

1 Suffield. And these considerations  
2 are still in effect and are  
3 included in EnCana's mitigation to  
4 minimize snake mortality from this  
5 Project."

6 With respect to the question of vehicle speed and  
7 snake mortality, it turns out that the paper entitled  
8 "Demographic Effects of Road Mortality in Black Rat  
9 Snakes" which was referenced by Mr. Didiuk yesterday  
10 when he was talking about population viability, does  
11 provide some help. The authors state the following on  
12 page 122 near the end of the second-last paragraph:

13 "Vehicles on Pinnacon Road..."

14 And this study was situated in southern Ontario  
15 in cottage country:

16 "... travel at relatively slow  
17 speeds, approximately 60 kilometres  
18 per hour. Therefore, in most  
19 cases, drivers probably see snakes  
20 well in advance and the driver's  
21 behaviour could drastically  
22 influence the number of snakes  
23 killed."

24 So those authors clearly thought that 60  
25 kilometres an hour was -- would be helpful in terms of

1 mitigating snake mortality.

2 I would like to continue on snakes for just a  
3 bit longer and comment and respond to Mr. Didiuk's  
4 evidence yesterday morning. I believe he  
5 characterized his evidence on snake population  
6 viability as a demonstration exercise. And I believe  
7 that this is a fair characterization considering the  
8 many assumptions he had to make. Mr. Didiuk used a  
9 number of 575 adult female rattlesnakes, which I  
10 believe is low. I don't know what the right number  
11 is, but as I testified earlier in the proceedings,  
12 there were undoubtedly thousands of rattlesnakes in  
13 the NWA, perhaps more than 10,000.

14 Mr. Didiuk's mortality assumptions are based  
15 on activity quite different than the proposed Project.  
16 In 2006, construction, as we've gone over a number of  
17 times before, occurred during the spring/early summer  
18 snake migration period, which is not a very good time  
19 if you want to avoid snake mortality.

20 On page 47 of Exhibit 003-051, and we might  
21 want to turn that up, Ryan, if we have that. Let's  
22 see if... Is that page 47. Yeah, on the first  
23 paragraph is what I'm, is what I'm -- or the, pardon  
24 me, the second-last paragraph -- no, the first  
25 paragraph under "Mitigation and Mortality of Snakes

1 from Traffic."

2 I just want to make the point that, in this  
3 document, which is authored by Mr. Didiuk, he commends  
4 EnCana for its snake mitigation in the last line of  
5 that first paragraph, which is, which is good.

6 And if we, if we turn the page, can we go  
7 down to the next page, at the bottom of 48, I believe.  
8 And from here, from page 48 through to page 50, there  
9 are a number of mitigation recommendations that  
10 Mr. Didiuk makes. And they are good recommends. And  
11 EnCana has embraced those recommendations. And they  
12 are included in the mitigations for this Project.  
13 And, in fact, they form much of the basis for the  
14 mitigation for the Project.

15 EnCana recognized very early that snake  
16 mortality was an important issue, very early outside  
17 of this Project process, and also very early in the  
18 planning for the EIS and this Project. And, in fact,  
19 EnCana had already recognized and acted on that  
20 understanding. And we saw that by Mr. Didiuk's  
21 comments on page 47:

22 "A large percentage of the  
23 mitigations in the wildlife section  
24 of the EIS, Volume 3, Section 5.8.2  
25 relate to reducing snake mortality,

1 including confining construction to  
2 winter."

3 In fact it was probably the -- of all of the, of  
4 all of the VECs, it, it -- snakes were the VECs that  
5 were -- probably got undue attention in terms of  
6 mitigation considerations.

7 With the mitigation proposed by EnCana,  
8 mortality due to the Project will be lower than the  
9 already low mortality experienced in 2006,  
10 notwithstanding that was a pretty bad time to, to be  
11 out there, when construction occurred during spring  
12 and early summer. And it's highly unlikely, in my  
13 opinion, to affect population viability or cause a  
14 decline.

15 So I'd like to move on to Sprague's Pipit and  
16 Preliminarily Assessed Critical Habitat. On  
17 page 3104, October 22nd, and pages 3226 to 3227,  
18 October 23, Ms. Dale fostered the impression, I  
19 believe, that Sprague's Pipit is limited in its  
20 occurrence on the MTA. If I may, I would like to  
21 provide some information in this regard that will help  
22 the Panel in evaluating the appropriateness of  
23 terminating preliminarily assessed critical habitat  
24 for this species at the boundary of the NWA. I offer  
25 this information, however, with the caveat that I do

1 not agree with Environment Canada's preliminarily  
2 assessed critical habitat for Sprague's Pipit.

3 Could we turn up -- so we're going to turn up  
4 Volume 3 of the EIS, Appendix 5J, which is  
5 Exhibit 002-014. And this is Figure J3. And what I  
6 wanted to show on this Figure, can I use your pointer,  
7 Steve, this figure illustrates survey points for  
8 birds, point count survey sites, that were surveyed in  
9 1996 and 2004.

10 Now, the red points, which you can see are  
11 pretty widespread across the MTA, were surveyed, were  
12 established in 1996 and then replicated in 2004 as  
13 part of the Formation Level Impact Assessment for DND.

14 The yellow dots, which are not so easy to  
15 see, they are sort of scattered around. That was the  
16 Disturbance Assessment. Those were surveyed only in  
17 2004. It's not important that we can't see those  
18 because I would just like to focus on the red dots  
19 which were surveyed in 1996, as I mentioned, one year  
20 after the CWS inventory of 1994 to '95.

21 And maybe we can turn back, Ryan, to  
22 Table 5J1, which has already been up once, I think.  
23 So I just bring this up to -- so, so this Table  
24 represents a subset of the 700 and -- oh, I don't have  
25 the number here. Anyway, it's a subset of the CWS

1 point count survey sites that were surveyed in 1994 to  
2 1995. And the subset, as you can see, is 317.

3 And if we look down at Sprague's Pipit, we  
4 can see that in 1994/'95, there were 99 Sprague's  
5 Pipits detected on those, on those 317 sites. The  
6 number of Sprague's Pipits that were detected during  
7 survey of the 223 Dillon sites, so that's those red  
8 sites that I pointed out on Figure 5J3, in 1996 was  
9 210. And this information is available in  
10 Exhibit 003A-002, Table 7, Annex V.

11 So just to recap that, there were  
12 99 Sprague's Pipits that were detected at 317 sites in  
13 the NWA in 1994 to 1995; while there were 210  
14 Sprague's Pipits from 223 sites in the MTA in 1996.

15 Now, the data is one year apart, but  
16 notwithstanding that, it's clear that Sprague's Pipit  
17 is not discriminating between the NWA and the MTA.  
18 And I guess this implies that most of CFB Suffield is  
19 preliminarily assessed critical habitat for this  
20 species.

21 I'd like to move on now and just speak  
22 briefly to EnCana's PDA process on a couple of what  
23 appear to be misunderstandings with regard to it. And  
24 if we can pull up, Ryan, Appendix E of EnCana's reply,  
25 Exhibit 002-110, page E5. And if we can, yes, go down

1 to E-251 and 253.

2 Okay, the first thing I just want to make  
3 clear because I detected there was some  
4 misunderstanding about it, it is clear that the  
5 Burrowing Owl survey is proposed as a comprehensive  
6 NWA-wide survey. And that's in E-2.5.1. So it's not  
7 associated with pipelines, it's not associated with  
8 wellsites; it's a comprehensive survey across the  
9 entire NWA.

10 As well as supporting infrastructure  
11 location, it will provide a good estimate of the NWA  
12 population of Burrowing Owls and will be useful to  
13 many interested parties, including DND and Environment  
14 Canada. And this is true for many of the PDA surveys,  
15 particularly the ones that will be NWA wide.

16 If we move down to 2.5.3, I'd also like to  
17 correct another misunderstanding, I believe. And as  
18 you can see in 2.5.3, contrary to the assertion by  
19 Dr. Roland, the Burrowing Owl survey is consistent  
20 with the ASRD Protocol, which is referenced in that  
21 section, in the third line.

22 The surveys carried out in 2008 and  
23 documented in Appendix J of EnCana's Reply, which is  
24 Exhibit 002-117, and I don't think we need to turn  
25 that up, allowed EnCana to refine its estimate of the



1 time required and that was because EnCana also was  
2 concerned about the do-ability of these surveys. When  
3 we proposed these surveys to them in this approach for  
4 a PDA assessment, they had, they had some of the  
5 similar concerns to what we've heard during the  
6 proceedings.

7 But having done -- having gone out and done  
8 the trial for many of the surveys, we're confident in  
9 our estimate of the time required. And I'd like to  
10 add that constraints due to weather and templating can  
11 be overcome using larger crews for less days.

12 In addition, and this is something that  
13 really hasn't come up yet, Military templating can be  
14 flexible if there is a will. And I have an example of  
15 that, because I, as I mentioned, I surveyed all of  
16 those sites in both '96 and 2004 on the MTA. And in  
17 2004 I ran into a problem because there was a major  
18 training exercise going on during the month of June in  
19 the area that I had to get into in order to get the  
20 data to help with the assessment for formation-level  
21 training.

22 So the Military found itself in, you know, a  
23 bit of an awkward spot; they wanted the assessment  
24 done, but, of course, it was difficult for them to,  
25 you know, to see a way to let me in there.

1           To make a long story short, they did. They  
2           did find a way. The Military made it work. And I was  
3           able to survey right in the middle of that training  
4           exercise. So there are ways to do these things as  
5           long as there's an interest in getting them done.

6           The last thing I'd like to touch on is what  
7           has been a subject for a fair bit of today, and that's  
8           fragmentation and effective habitat loss, and it's  
9           been a focus of much of this hearing. And I'd like to  
10          respond a bit to the evidence by Environment Canada  
11          yesterday.

12          We, too, conducted a comprehensive survey of  
13          the literature on this subject and, additionally, we  
14          reviewed the references provided by Environment  
15          Canada, although most of them we were already familiar  
16          with. Very few were relevant as can be seen by  
17          Environment Canada's reliance on the Linnen 2006 Paper  
18          from the Grey Literature, even though it did not  
19          demonstrate significant effects.

20          Most of the references that were provided by  
21          Environment Canada dealt with study areas quite  
22          different than EnCana's shallow gas infill proposal,  
23          and papers reported on a myriad of things, in some  
24          cases, hundreds or thousands of vehicles per day  
25          compared to what we're looking at in the Project,

1 high-grade roads, not trails, major pipelines,  
2 non-native habitat, recreational activities, species  
3 that don't occur in the NWA, et cetera.

4           However, one study that is relevant and  
5 hasn't been discussed as much as I would have thought  
6 in these proceedings is the Great Sand Hills Study.  
7 And that is Exhibit 003A-009. I don't think we need  
8 to turn it up.

9           In that study, the effect of shallow gas  
10 wells and trails and roads -- I'll back up a second.  
11 In that study, the effect of shallow gas wells, and  
12 then trails and roads, so two separate entities, was  
13 investigated with respect to grassland birds. On  
14 page 96, the Study states:

15           "There were 14 birds that were  
16 looked at. Seven of 14 bird  
17 species responded positively to the  
18 presence of natural gas wells.  
19 Only Clay Coloured Sparrow,  
20 however, responded negatively, with  
21 the remaining species having mostly  
22 marginal increases in occurrence  
23 within one kilometre of a well.  
24 That category remaining species  
25 includes Sprague's Pipit."

1           So there was no effect. A little later on, on  
2           the same page, the authors even suggest that the  
3           negative effect on Clay-coloured Sparrow was spurious.  
4           And they give reasons for that.

5           On page 81, the Study states, and this is in  
6           relation to road and trail impacts, that:

7           "Road and trail impacts were  
8           significant for five species.

9           Baird's Sparrow, Chestnut-collared  
10          Longspur and Savannah Sparrow were  
11          negatively associated..."

12          So there was a negative effect..

13          "... while Clay Coloured Sparrow  
14          and Common Nighthawk were  
15          positively associated."

16          However, it needs to be noted that roads and  
17          trails in the Great Sand Hills study included five  
18          categories that increased in intensity from grass,  
19          which they defined as "vegetated road", and I would  
20          submit would be similar to the access trails that are  
21          envisaged for this Project, to grid roads, all of  
22          which were grouped for analysis. So that was too bad.  
23          But they grouped everything for analysis.

24          So the access trails proposed by EnCana would  
25          correlate with the lowest intensive -- intensity

1 category. And it's interesting to point out that,  
2 even with these higher intensity roads included in the  
3 analysis, Sprague's Pipit did not exhibit a response  
4 to this road and trail grouping.

5 In summary, I have to say it's disappointing  
6 that Environment Canada takes the position that the  
7 low impact shallow gas infill development proposed by  
8 EnCana will result in fragmentation and effective  
9 habitat loss for grassland birds when the body of  
10 literature suggests otherwise.

11 THE CHAIRMAN: Thank you, Mr. Collister.  
12 Mr. Fudge.

13 **EVIDENCE BY MR. FUDGE**

14 A. MR. FUDGE: Yes. Good afternoon,  
15 Mr. Chairman.

16 Ryan, could we turn up -- from the  
17 Environmental Assessment, I'd like to take you to the  
18 infamous page, 226, in the Volume 4 of the  
19 Environmental Assessment, which Mr. Chairman is the,  
20 part of the groundwater assessment. And at the top of  
21 the page, the third paragraph down, under "Mitigation"  
22 is an error. And, unfortunately, this led the NRCan  
23 folks, Dr. Nastev, down the wrong road. And we  
24 apologize for that. But if you look in that second  
25 sentence under the word, under the heading

1 "mitigation", you see the number 129,187.5, which is  
2 referred to as "groundwater". And that's incorrect.  
3 It's not groundwater. The number is correct, but it  
4 refers to the -- it should -- it does refer to the  
5 total amount of water which was predicted at that time  
6 two years ago when the study was done. It's just a  
7 typo.

8 So let's, let's flip the page over. By the  
9 way, do you need an example number? I'm sorry, I  
10 should have said that. Are we okay? It's  
11 Exhibit 002-015.

12 So we're flipping the page back to page 226.  
13 And if you look at the total on the right-hand side of  
14 Table 2-9, you see where the 129 came from, which is  
15 the total amount of water used. It's not, it's not,  
16 it's not indicating how much groundwater is used, it's  
17 just the total amount of water used. So that's,  
18 that's the error. And it's unfortunate that that  
19 error was on the other page with using that, because  
20 it obviously led Dr. Nastev down the wrong road.

21 We did try to correct that, Mr. Chairman. I  
22 tried to correct it. Mr. Denstedt tried to correct it  
23 for the record. That it's -- 35,000 cubic metres of  
24 water per annum is the predicted use of water, of  
25 groundwater for the NWA for the wells to be drilled in

1 the NWA for this proposed Project.

2 So I just wanted to make sure that was  
3 correct.

4 So let's -- could we go back to page 226,  
5 Ryan, please. If you look under "Residual Effects  
6 Rating", you will see the groundwater amount referred  
7 to several times in that section, the 35,125 cubic  
8 metres per annum. So I just wanted to make sure that  
9 we're all right about what EnCana's prediction is on  
10 groundwater use.

11 So let's now -- you know, the other thing is,  
12 I just wanted to make a point that the use of water,  
13 and in the case of the 129,000, 35,000 is predicted to  
14 come from groundwater supply, the remainder of the  
15 water would come from multiple sources, including the  
16 South Saskatchewan River, which we spoke of before,  
17 and also from the City of Medicine Hat where the vehi  
18 -- where tanker trucks, when they are on their way  
19 into the Suffield area, would fill up with water and  
20 arrive at the block with a full tank. So there's, so  
21 there's a multiple of potential sources.

22 Now I'd like to go to, turn to the LandWise  
23 2008 Groundwater Report, Table 22 on page 61,  
24 Exhibit 003A-031, Tab (g). And this was, this was  
25 referenced by Dr. Nastev as well. And I just wanted

1 to go over this Table, because it's an interesting  
2 report and it's an interesting Table. So, you know,  
3 looking at this Table, Mr. Chairman, you can see that  
4 the -- McNeil and McNeil have, have here that the  
5 available groundwater is 421,500 cubic metres per year  
6 and the total estimated water requirements at the  
7 right, at the far right-hand side exceed that. And  
8 that was pointed out yesterday.

9 But let's look at this Figure, the third  
10 figure, the 131,380, because this was very interesting  
11 to me to try to determine where these numbers came  
12 from.

13 I want to point out that the available  
14 groundwater in the main pre-glacial tributary channel,  
15 the Lethbridge aquifer, as it's been called, that is,  
16 that is, and is stated in the report to be their  
17 estimate. It's not a measured quantified number; it's  
18 an estimate. And there have been -- this report is  
19 preceded by several, which are referred to as well.  
20 Their estimates have gone as high as 1.2 million cubic  
21 metres per annum. So, you know, they are being very  
22 conservative here. And I think that's a reasonable  
23 thing to do given that this is an extremely dry area  
24 and you have to be careful with groundwater use. And,  
25 particularly, with a view to protecting associated



1 wetlands. So that's -- they have chosen -- and I  
2 believe, if you read -- my reading of it is it's a  
3 conservative value of 421,000, but I want to focus on  
4 the 131,000, which is -- as you note, is the average  
5 existing groundwater use at six wells. So let's go  
6 and find out where that came from. And let's  
7 investigate, just briefly, is that a good number and  
8 does that, does that reflect recent use and does it  
9 reflect predictions of use in the future.

10 So if we could turn now, Ryan, please, to  
11 Table, or to page 31, Table 6 in the same report. And  
12 that's, again, Exhibit 003A-3. That doesn't sound  
13 right. 031, I guess, Tab (g), because it's the same  
14 reference, exhibit reference.

15 Okay. Now, Mr. Chairman, if you look at the  
16 very bottom, you'll see the 131,378, right, which is  
17 the average. If you look at the totals along the  
18 right-hand side, you see the totals there? If you  
19 look at those totals, those are the totals for the  
20 years 2002 through to 2006, inclusive, for the six,  
21 six wells that are noted above. So if you take those  
22 total numbers on the right-hand side and average them,  
23 you come up with an average of 131,378 cubic metres.

24 Now, if you -- what is really interesting if  
25 you look at those totals on the right-hand side is you

1 note that they are decreasing over time. From 2002 to  
2 2006, we've gone from two thousand -- in the 200,000s  
3 to 43,000. So there's been a big decrease, as  
4 measured, in this LandWise Report from these wells  
5 used mainly by EnCana of groundwater use.

6 And so "Why is that?" is, was my question to  
7 myself. Well, less wells are being drilled now than  
8 they were then. And there's been reuse and recycling  
9 of water.

10 But -- so for the purposes -- and as I  
11 suggested, the -- as I stated, the prediction is  
12 35,000 cubic metres of groundwater for the NWA  
13 portion.

14 Now, this, by the way, this water would be  
15 used -- it wasn't used in the NWA, it was used over  
16 the whole block, correct, so I just want to make sure  
17 that we're aware of that.

18 So what I looked at is, and talking with the  
19 EnCana operational people, they felt that the last two  
20 years here, 2005/2006 averaged would be a better go  
21 forward number looking at predicted water use in the  
22 future. And if you average 66,000 the total for 2005,  
23 and 45,900 for 2006, you come up with a number of  
24 55,000 cubic metres as an average for those two years.  
25 And the operational people at EnCana say that's

1 probably a better number to go, to use, than the  
2 131,000, which is the average, which is weighted  
3 towards the years 2002/2003, so.

4 Are you with me on that, Mister -- good,  
5 okay.

6 So let's go back to table 22, again, on  
7 page 61 where we started this process. Now, if you  
8 are looking -- these are all estimates. This is the  
9 average use, the 131,000. Now, if you substitute  
10 55,000, which the operational people feel is more, a  
11 more useful number to look at in terms of predicted  
12 water use, if you substitute the 55,000 for the  
13 131,000 number, we have now a water surplus; we do not  
14 exceed the available groundwater in our total  
15 estimated water requirements.

16 So it just depends on your look and where you  
17 look at the numbers, sir. I just wanted to point that  
18 out because I thought it would be an interesting  
19 exercise, because -- in terms of water use on a  
20 go-forward basis, what's predicted.

21 Okay. Yes, so anyway, we have a -- now we  
22 have a 40-thousand-dollar -- a 40,000 cubic metre  
23 surplus, quote unquote. But these are all very big  
24 estimates with very low levels of confidence, I would  
25 say, in this groundwater world. So there we are.

1                   Now, I'd also like to speak to groundwater  
2                   overallocation. And this seemed to be an issue for,  
3                   for the NRCan people when they reviewed the report.  
4                   And in fact they, in their presentation, used a  
5                   summary table -- a table summarized from data that we  
6                   had in the Environmental Assessment in Volume 4.

7                   So I've taken the licence to create a table  
8                   using the data which we just looked at and using the  
9                   licences which EnCana has for these wells. I have --  
10                  we have those on file, by the way, those licences.  
11                  But here's the difference.

12                  Now, by the way, Mr. Chairman, the 45,000  
13                  differs from the 55,000 average because there's no  
14                  licence for the Bayonette well. It's not proposed to  
15                  be used in the future. And that's EnCana's position.  
16                  And there's no licence for it. So what we've taken  
17                  out of that table that we've just looked at, we've  
18                  taken Bayonette well out. Now we have -- and this is  
19                  the average of the last two years in the LandWise  
20                  Report of 45,000, but they are holding, EnCana is  
21                  holding allocations of 128,000 based on their 2008  
22                  licences for those wells.

23                  So we just have to -- all I'm -- my point is  
24                  allocation is not use; allocation is allocation. And,  
25                  typically, wells are allocated at a higher level than

1           what they are used. I just -- that's just a point.  
2           So it's not always bad news if you have a high  
3           allocation in terms of these wells.

4                        So a few more issues. I'd like to go -- I'd  
5           like to just look at groundwater use. Groundwater use  
6           in this area and what is -- what's currently -- what  
7           has happened in the past. And in our EIS evidence in  
8           Appendix 2-6, and also in LandWise, this same document  
9           that we've just looked at, they show monitoring  
10          results for a number of wells that are close to the,  
11          close to or just in the NWA.

12                       And I'd like to point out, Mr. Chairman, and  
13          I can -- there, if you can just -- those two wells up  
14          there. "Big Bob" and, can you just control up a  
15          little bit, and Dugway. In particular, because these  
16          two wells are -- they are the two closest wells to the  
17          NWA. They are in the Lethbridge aquifer. And they  
18          have -- they show over a period of three to five years  
19          good recovery after use and there's no evidence of  
20          declining watertable there. And that's pointed out in  
21          the LandWise Report as well.

22                       I'd now like to go to, in the LandWise  
23          Report, the page 65, if you would, please. At the top  
24          of the page. And they are looking -- they were  
25          looking at the monitoring results here from Dugway

1 well, up here, Dugway well, and the PFR Windmill well,  
2 which is in the, in the proximity of the Dugway well.

3 And in the -- and looking at these -- anyway,  
4 the basic line here is that it suggests water levels  
5 may not have changed significantly with time in  
6 surficial sands in the easy coulee system. That's one  
7 point there. And also in paragraph three, one, two,  
8 three:

9 "Water source wells installed in  
10 the main pre-glacial channel south  
11 of Dishpan Lake, Dugway and "Big  
12 Bob"..."

13 Which, by the way, don't have temporary licences,  
14 they have part -- whatever the, whatever the right  
15 term is here in Alberta, they have full licences for  
16 water:

17 "... are the most suitable for  
18 groundwater withdrawal."

19 And I've spoken to the authors of this report,  
20 and confirmed that with them. They feel that these  
21 are very good wells, they produce very well, so to  
22 speak, and they don't believe there'll be, there has  
23 been a problem with them or there would be a problem  
24 in the future at the 35,000 usage that has been  
25 discussed.

1                   Once again, I'd like to -- and one more  
2                   thing, and I'm finished, and that is page -- sorry, in  
3                   terms of monitoring, Mr. Chairman. EnCana has  
4                   proposed in the Environmental Effects Monitoring Plan,  
5                   as we have discussed previously, candidate monitoring  
6                   studies for groundwater quality and quantity and also  
7                   for adjacent wetlands looking at the effect of  
8                   withdrawals of groundwater on adjacent wetlands. And  
9                   so they certainly have -- they have volunteered those  
10                  as candidate studies.

11                  But, in addition, and speaking to the EnCana  
12                  people and their operational people, they agree in  
13                  principle with the overall recommendations regarding  
14                  monitoring groundwater as described on pages 111 to  
15                  113 in the LandWise 2008 Report, which includes  
16                  groundwater quality and quantity, and also, and --  
17                  well, there they are, look:

- 18                         -         Monitoring groundwater within
- 19                                    five well locations.
- 20                         -         Monitoring well levels at
- 21                                    five well locations.

22                  If you could scroll down, please.

- 23                         -         Conduct aquifer tests on each
- 24                                    well.

25                  Next one, please.

1                   -       Install and monitor  
2                                observation wells.

3           Next one, please.

4                   -       Control groundwater  
5                                withdrawal rates.

6           Next one, please.

7                   -       Control and monitor  
8                                withdrawal from all sources.

9                   -       Periodically assess each  
10                               water source, wetland and  
11                               well.

12                   And I think that's the last one.  Yes, that's the  
13                   last one of the groundwater recommendations.

14                   And so they agree with these recommendations  
15                   in principle.  And they certainly have put forward in  
16                   their evidence in the draft Environmental Protection  
17                   Plan that they would, they would -- they plan to  
18                   undertake these kinds of studies as part of monitoring  
19                   for this project in order to ensure protection of the  
20                   valuable groundwater resource in the area.

21                   Thank you, Mr. Chairman.

22   THE CHAIRMAN:                   Thank you, Mr. Fudge.

23   **EVIDENCE BY MR. L'HENAFF**

24   A.   MR. L'HENAFF:                So Mr. Chairman, just one  
25                   final point kind of related to groundwater and that's



1 in relation to I guess our seal rock integrity. So --  
2 and it's kind of referenced in the NRCan presentation.  
3 No need to turn it up, but lower slide on page 25.

4 So our seal rock is basically the Lea  
5 Park/Park Pakowky shale. And it ranges in between 60  
6 to 120 metres thick. And I guess -- and I can say  
7 that it's been an effective trap holding gas in place  
8 for, you know, 65 million years. So we believe it is  
9 a very effective shale. And knowing that the  
10 viscosities between the gas and the water, water would  
11 have a more difficult time flowing through that, so.  
12 So just kind of a subtle point around our cap rock.

13 THE CHAIRMAN: Thank you.

14 Mr. Heese.

15 **EVIDENCE BY MR. HEESE**

16 A. MR. HEESE: Mr. Chairman, I guess being  
17 the last, I feel that my legs are most at risk from  
18 being cut out, so I would request restraint as I might  
19 not be five minutes.

20 THE CHAIRMAN: Well, it's Mr. Denstedt you  
21 have to worry about, I think, more than me, so.

22 A. MR. HEESE: Thank you. I do, however,  
23 want to finish with discussing our track record. I've  
24 got three items to go over.

25 And the first one I'd like to begin with is

1 actually in relation to a question that you asked with  
2 NRCan. And if they were aware of any gas developments  
3 in the National Wildlife Area that had triggered or  
4 reactivated any slumping.

5 And Mr. Martins offered a description of a  
6 well where SEAC had noted significant erosion. That  
7 well was 11-11-17-4.

8 My understanding of SEAC's primary concern  
9 was that a future access to the well and that comments  
10 about erosion were addressed as potential future  
11 considerations.

12 I have two photos of this well that I'm  
13 willing to provide as evidence if you would like.  
14 However, I'm not aware of any significant erosion on  
15 this location and I can confirm that it is 100 metres  
16 away from the coulee break.

17 I would also like to take the opportunity to  
18 describe the situation where -- the actual undertaking  
19 addressed. It was a question that Ms. Klimek had of  
20 DND in association with the slide on page 35 of the  
21 Government of Canada Opening Presentation,  
22 Exhibit 003-031. Scroll up, please. Specifically the  
23 image in the lower left of this composite.

24 I feel this is a good situation to describe  
25 in a little bit more detail what happened because it's

1 an example of how we are responding to DND concerns  
2 and general concerns with the fact that this is now an  
3 area in the National Wildlife Area.

4 On August 14th, a general query did come to  
5 me about this location. It offered few specifics, but  
6 given that it was in the NWA, I assumed that there was  
7 a problem associated with this location.

8 I called SIRC and immediately went out in the  
9 field to conduct an investigation. I confirmed that  
10 there was an impact where some vehicles had driven off  
11 of Dugway to access a new well where some vehicles had  
12 gotten stuck in the sand on the side of the road.

13 I provided this information back to DND,  
14 included in that information, this was an e-mail to  
15 them, I included my recommendations for bringing back  
16 the area to a pre-disturbance contour using hand rakes  
17 and to also come in with a water truck to water the  
18 area to provide a slight crusting to give additional  
19 level of protection but then to allow natural recovery  
20 to take place.

21 At the same time as this, we immediately  
22 suspended the contractor who was responsible for this  
23 job and escorting the crews around in the area for two  
24 weeks without pay.

25 Once DND had reviewed the situation, they

1 gave me the opportunity to proceed and we cleaned up  
2 the location.

3 Finally, I would like to disagree with the  
4 general inference made in the Government of Canada's  
5 Opening Presentation that the frequency of compliance  
6 issues and our ability to manage environmental  
7 concerns is of great concern.

8 We stated early on in this hearing that we  
9 are not perfect, but we are committed to get better  
10 every day and to work hard to make sure that our  
11 operations are environmentally sustainable.

12 While the comments of SEAC describe a strong  
13 history of dealing with environmental concerns, I  
14 would like to describe again some of our existing  
15 programs:

16 - We have modified our  
17 procedure to hand over wells from  
18 our construction group to our  
19 operations group to ensure there  
20 are no deficiencies.

21 - We conduct post construction  
22 check-ups one year after  
23 construction.

24 - We conduct operational lease  
25 inspections on all wells yearly.

1                   -       We are building a range  
2                   health program to track reclamation  
3                   trajectories.

4                   -       And we are continuously  
5                   monitoring various species at risk.

6                   Two days ago, you heard Mr. Denstedt query  
7                   Ms. Gunther about the appropriate time to inspect our  
8                   developments. I want to ensure you that DND, as the  
9                   landowner, is welcome to conduct inspections of our  
10                  operations. What gives me greatest concern, however,  
11                  are the conclusions that are generated based on a  
12                  snapshot in time generally without regard to the  
13                  systems and processes EnCana has to deal with  
14                  deficiencies.

15                  As you are most likely aware, in EnCana's  
16                  reply evidence, EnCana describes some of our concerns  
17                  with the DND inspections of Koomati. In DND's  
18                  inspections, trail proliferation was raised as a  
19                  concern and EnCana recognized the deficiency in our  
20                  reply.

21                  However, it is important to see the progress  
22                  made only one year later as can be seen in the lower  
23                  slide of page 21 of the GOC Opening Statement in  
24                  Exhibit 003-031.

25                  This photograph of the D5 and D7 batteries

1 outside the NWA were some of the first drilling  
2 programs to use EnCana's redesigned access maps. One  
3 can see the drilling programs no longer have the  
4 randomness of access like the Koomati program.

5 Given that the Koomati program has received  
6 so much attention in spite of improvements on future  
7 programs like the one I just mentioned, I feel it is  
8 necessary to take a closer look at the DND Koomati  
9 inspection as I feel parts of it were a little unfair.  
10 This can be found in Exhibit 003-008.

11 The first item I would like to explore is in  
12 the statement found in 2B on page 1 of 499, which is:

13 "Vehicles accessing wells must do  
14 so in ways which minimize impact.  
15 In order to accomplish this, only  
16 one route should be used to access  
17 each well."

18 If we could now turn to PDF page 85 of 499, I  
19 would like to take a closer look at how the well of  
20 7-18-17-4 is affected by this statement. Roughly  
21 halfway down the page, one can see that the number of  
22 access trails used to access the wellsite is recorded  
23 as three. Given the above statement, one would  
24 consider this location to be a failure. But when you  
25 take a closer look at the sketch on the bottom, and

1 understand the field, you understand why this well is  
2 the way it is.

3 Both the east/west and north/south access  
4 trails were existing trails serving existing wells.  
5 In order to minimize disturbance and new access  
6 trails, this wellsite was sited at the intersection of  
7 these existing trails. The third access is merely the  
8 path off the existing trail to reach the well. So  
9 while this location would fail if their criteria was  
10 that only one trail could be used, this is a perfectly  
11 legitimate situation where the well was located in an  
12 area to maximize the use of existing trails.

13 While we're on this inspection sheet, I'd  
14 like to point out the criteria used to identify  
15 rutting. You'll see, again, roughly halfway down the  
16 page, that the first rut category is zero to one  
17 centimetres.

18 DND is free to create whatever criteria they  
19 want to assess rutting. But in the 2006 inspection,  
20 on page 13 of 499, the expectation is laid out in  
21 discussion point 4 where it says:

22 "Two locations were recorded to  
23 have no ruts on site in 2005 or  
24 2006. This type of minimum  
25 disturbance construction and

1 servicing procedures at CFB  
2 Suffield expects to see oil and gas  
3 companies following."

4 While we will continue to steward towards this  
5 expectation by maximizing the use of dry and frozen  
6 ground, I feel failing a location for a single  
7 depression less than one centimetre in depth is an  
8 unfair expectation given the size of equipment  
9 necessary for drilling and completing our wells.

10 While I do appreciate the overall tone or  
11 change in tone of the 2006 DND inspections, as it  
12 begins to recognize the temporary nature of  
13 construction impacts, I would like to comment on the  
14 last sentence of discussion point 6 on page 14 of 499  
15 where it states:

16 "Noxious weed species accounted for  
17 some of the bare soil regrowth."

18 This was a surprising statement for me given that  
19 my own monitoring had failed to reveal a single  
20 noxious weed on our right-of-ways. DND's field  
21 sheets, however, failed to mention any noxious weeds,  
22 so I'm uncertain what the basis for this statement  
23 was.

24 Our operational lease inspections are  
25 continuously improving. One recent addition to the



1 inspections was to take photographs of all wells to  
2 show the state of the well year by year. In order to  
3 balance the photos supplied by the Government of  
4 Canada and to allow the Panel to come to their own  
5 conclusions about the state of our developments, I  
6 have extracted some of the lease inspection photos for  
7 wells that have already been shown in evidence.  
8 However, some of these photographs are from different  
9 angles than what was originally presented. There are  
10 many more wells like these in the National Wildlife  
11 Area. I believe these were some of the wells  
12 Dr. Walker was referring to when he said it looks like  
13 someone just stuck a straw in the ground.

14 You'll note one of the locations does have a  
15 date of 2009 and I did not travel to the future to  
16 predict what it might look like.

17 These operational lease inspection photos  
18 help me focus my time on locations that need a little  
19 help and analyze what practices led to some of these  
20 amazing results.

21 I'm showing the Panel these photos, not only  
22 because they represent what EnCana has already done in  
23 the National Wildlife Area, but what we will be  
24 stewarding towards with every new well we hope to  
25 drill.

1 Thank you.

2 THE CHAIRMAN: Thank you, Mr. Heese.

3 Mr. Denstedt.

4 MR. DENSTEDT: We were very close to the  
5 hour. So this Panel is available to be cross-examined  
6 in respect of the evidence they have filed this  
7 afternoon.

8 THE CHAIRMAN: Yes. Thank you.

9 Mr. Denstedt. I believe Ms. Klimek would like to have  
10 a few minutes to prepare.

11 Is that correct, Ms. Klimek?

12 MS. KLIMEK: Yes, I would like a few  
13 minutes to talk with my client and try to organize it  
14 to make it the most efficient possible.

15 THE CHAIRMAN: Sure, would 10 minutes,  
16 15 minutes be sufficient?

17 MS. KLIMEK: I think we could do it in  
18 about 15 minutes. And I think Mr. Lambrecht would  
19 appreciate some time, too, so. Does that work for  
20 you?

21 THE CHAIRMAN: Well, this is probably a good  
22 time to take a short break and then come back. Thank  
23 you.

24 (BRIEF BREAK)

25 (PROCEEDINGS ADJOURNED AT 2:05 P.M.)

(PROCEEDINGS RECONVENED AT 2:19 P.M.)

1  
2 THE CHAIRMAN: I believe we're ready to  
3 proceed, Ms. Klimek. You are quicker to the podium  
4 than I even thought here, so.  
5 MS. KLIMEK: Is it like I see the barn.  
6 And after listening to my last undertaking, I want to  
7 keep these real short. But I notice, Mr. Lambrecht  
8 isn't here. Do we --  
9 THE CHAIRMAN: Ah, yes, we can wait just a  
10 moment.  
11 MS. KLIMEK: Do you want us to go stick  
12 our nose out and see --  
13 THE CHAIRMAN: I'm sure he'll be here.  
14 Let's just take a moment until he returns. And it may  
15 assist as well. He may have similar questions to your  
16 own. So we'll just hang on for a second.  
17 MS. KLIMEK: Okay.  
18 MR. DENSTEDT: Mr. Chairman, I'll take this  
19 opportunity, I don't think we marked these as an  
20 exhibit, so that's probably a useful use of the time.  
21 THE CHAIRMAN: Indeed. I meant to do that.  
22 The photographs you're speaking about?  
23 MR. DENSTEDT: The photographs and the  
24 table.  
25 THE CHAIRMAN: Yes.

1 MR. DENSTEDT: I think it's 137 and 138,  
2 sir.

3 THE CHAIRMAN: Yes. That would be the order  
4 from there down. Yes. Thank you for reminding me,  
5 Mr. Denstedt.

6 MR. DENSTEDT: The pictures are Exhibit 137  
7 and the Table at 138.

8 **EXHIBIT 137: Photographs submitted by EnCana**  
9 **during Rebuttal**

10 **EXHIBIT 138: Table regarding groundwater use**

11 MR. DENSTEDT: Thank you.

12 THE CHAIRMAN: Thank you.

13 MR. LAMBRECHT: Thank you, I'm sorry.

14 THE CHAIRMAN: No problem. Please proceed,  
15 Ms. Klimek.

16 **CROSS-EXAMINATION BY THE COALITION, BY MS. KLIMEK:**

17 MS. KLIMEK: Good afternoon, Mr. Chair,  
18 Panel Members. Good afternoon, EnCana panel.

19 Q. I, I have just a few questions for you. And I have  
20 one for you, Mr. Collister, or a couple. How many  
21 snake surveys have you done in the NWA?

22 A. MR. COLLISTER: I've done one very  
23 low-intensity reconnaissance-type survey.

24 Q. And how long would it have taken you to do that?

25 A. It was just a couple of days.

1 Q. Now, Mr. Fudge, if we could go to the LandWise Report.  
2 And you were referring to pages, I think it was 111  
3 to 113 as recommendations that EnCana is prepared to  
4 accept. Can we get that up?

5 Now, if we were to go to page 115, there's a  
6 recommendation to ensure adherence to site access  
7 recommendations. I notice that was --

8 A. MR. FUDGE: Excuse me, but I said with  
9 respect to groundwater and I said they accept in  
10 principle. And I did not say page 115; I said 111 to  
11 113 as they apply to groundwater.

12 Q. And my question is, is this one that EnCana would be  
13 prepared to adhere to, this "ensure adherence to site  
14 access recommendations"?

15 A. As I said, I looked at this report for the -- on the  
16 groundwater aspects and I discussed the groundwater  
17 aspects of the report with EnCana staff. And their  
18 hydrogeologist, in-house hydrogeologist. We did not  
19 look -- I did not look specifically at that and that  
20 was not my task.

21 Q. Okay. Now, Mr. Heese, I'd like to talk a little bit  
22 about the incident that was referred to with the  
23 picture at page 35. And what were the crews doing on  
24 that site? What were they out there doing?

25 A. MR. HEESE: They were conducting a

1 production casing integrity log.

2 Q. And does the Base require EnCanada -- EnCana to get a  
3 permit for that activity?

4 A. We had been in discussions with DND about the  
5 requirements for permits for various types of  
6 activities.

7 Q. Has -- did the Base at that time require EnCana to get  
8 permits for those activities?

9 A. This was not an activity we understood was a require  
10 -- the permit was required at that time.

11 Q. And do you know if you required an NWA permit to do  
12 that activity?

13 A. As, as a result of our discussions, and the DND did  
14 provide a routine activity permit already as an  
15 example, of course with the cover letter that was  
16 attached, once we signed that permit, we effectively  
17 agreed, again, subject to the contents of the cover  
18 letter, to abide by those conditions for those  
19 activities. The activities that were not covered by  
20 that permit are still under discussion with the  
21 Military.

22 Q. And was this activity covered by that permit?

23 A. By the one that was signed?

24 Q. Yes.

25 A. As the Military explained, that was essentially light

1 vehicle traffic, and the vehicles that are required  
2 for this particular activity I think would be outside  
3 of what the intent was in the original permit that  
4 they supplied us with.

5 Q. Now was it your understanding, in spite of your  
6 discussions, that DND did want EnCana to get permits  
7 for those activities?

8 A. Again, I think the cover letter that was supplied with  
9 the permit outlines EnCana's situations. We had been  
10 in discussions for quite some time with the various  
11 equipment and various things that we might need to do  
12 to our wells out there. And upon signing of that  
13 condition, again, subject to the contents of the cover  
14 letter, we agreed to have those conditions apply to  
15 essentially light vehicle traffic. Heavier vehicle  
16 traffic is still under discussion.

17 Q. Okay, but while it's under discussion, do you  
18 understand that DND's position is that you should be  
19 getting permits until this is resolved?

20 A. And I believe that cover letter makes it clear --

21 Q. Well --

22 A. -- that there is currently before the courts whether  
23 or not permits are required on any of our existing  
24 facilities and whether or not those are grandfathered.  
25 So discussions are continuing in regards to the

1 heavier vehicles.

2 MS. KLIMEK: Those are all my questions.

3 Thank you.

4 THE CHAIRMAN: Thank you, Ms. Klimek.

5 Mr. Lambrecht?

6 **CROSS-EXAMINATION BY THE GOVERNMENT OF CANADA, BY**

7 **MR. LAMBRECHT**

8 MR. LAMBRECHT: Thank you, Mr. Chairman. I  
9 do have a few and they are going to be reasonably  
10 straightforward, I would think.

11 Q. I would like to start with Dr. Walker. And  
12 Dr. Walker, it's just simply to clarify one of the,  
13 one or more of the pictures that you were using in  
14 your presentation. As I understand it, those  
15 pictures showed a caisson installed in the NWA; is  
16 that correct? And if it is, could you pull that up  
17 just so as we can see.

18 A. DR. WALKER: Yes, that looks like a  
19 caisson.

20 Q. And, and that's in the NWA?

21 A. Well, I'd have to check the -- but you do make a  
22 point. It shouldn't have a caisson if it was 2001.

23 Q. I think my point is there are caissons in the NWA, and  
24 if we were to have a picture of one, they would look  
25 like, something like that?



1 A. Yes, that is, that is in the NWA. That's just off of  
2 Dugway Road to the east, the top of the hill.

3 Q. All right. Thank you. And Mr. Heese and  
4 Mr. L'Henaff, a question for you. And it's really  
5 just one of terminology. Many times throughout the  
6 evidence the term "lease" has been used. But my  
7 understanding is there are no leases as those terms  
8 are understood on private land in Alberta, so that  
9 entry onto the Base is through the Surface Access  
10 Agreement and it's not then overlaid or reinforced by  
11 any other instrument called a "lease". Is that  
12 correct?

13 A. MR. HEESE: Well, it's correct that our  
14 activities are covered under the Surface Access  
15 Agreements. We have effectively been using a deemed  
16 lease of 100 by 100 metres for all shallow gas  
17 locations.

18 Q. But the term "lease" is just a term used to refer to  
19 that area?

20 A. Generally the word "lease" is referred outside the  
21 block to a specific well area and access trail, that's  
22 correct.

23 Q. But outside the block there will be leases, actual  
24 leases, instruments, legal instruments, and there's  
25 no such thing here inside the block?

1 A. Our access is governed by the Surface Access  
2 Agreements.

3 Q. Yes, yes, thank you. Okay. Mr. Collister, your  
4 suggestion -- did I understand you to suggest that  
5 the critical habitat for Sprague's Pipit should  
6 extend into the National Training Area part of the  
7 block?

8 A. MR. COLLISTER: From my understanding of the  
9 evidence that has been -- that was submitted by  
10 Environment Canada and, and the process and the  
11 methodology that was used to calculate preliminarily  
12 assessed critical habitat for Sprague's Pipit, with  
13 the caveat that RSFs to me are a bit of a black box,  
14 but, nevertheless, and with -- and having been out on  
15 both the MTA, doing surveys on both the MTA and the  
16 NWA, seeing habitat on both, there certainly is  
17 higher, higher disturbance occurring on the MTA side,  
18 but it's hard for me to see a difference between those  
19 two in terms of how, of how that model would predict  
20 preliminarily assessed critical habitat if it was  
21 applied to the MTA.

22 Q. And you understand that an extension of critical  
23 habitat into the MTA would have quite significant  
24 implication for your client, EnCana?

25 A. I think, I think what I would understand from, from my

1 suggestion is, in fact, it's likely that if that model  
2 was applied to almost any piece of prairie in Western  
3 Canada, it would come out as preliminarily assessed  
4 critical habitat for Sprague's Pipit and would not be  
5 very useful.

6 Q. All right. But would you dispute the proposal that  
7 it's important to start somewhere to designate  
8 critical habitat for the Sprague's Pipit?

9 A. I think if it was done in an objective way, without  
10 being brought to bear in a particular situation with  
11 potentially a particular purpose, that it would be,  
12 yes.

13 Q. All right. And so you're thinking that the use of a  
14 National Wildlife Area to start for the purposes of  
15 designation of critical habitat isn't objective; is  
16 that what you're saying?

17 A. No, that's not what I'm saying.

18 Q. Okay. Can I ask you a question about your two  
19 two-week studies in 2006.

20 A. Yes.

21 Q. You were referring to Table 5J1.

22 A. Yes.

23 Q. My understanding is that the precipitation was very  
24 good in that year; is that correct?

25 A. I think it was, yes.

1 Q. And that would naturally affect the number of birds  
2 that would appear in that study period?

3 A. I'm not, I'm not sure about that, Mr. Lambrecht. You  
4 could consult with your own experts there who have put  
5 forward, I think, that it's, for some species at  
6 least, it's, it's more important to consider the  
7 previous year's levels of precipitation. So it's a  
8 complicate, it's a complicated issue just what  
9 climatic variables are affecting these species and  
10 how.

11 Q. All right. Now, I just wanted to get some clarity  
12 around the bird surveys of the NWA. My note may not  
13 be accurate, so I just want to get some sort of final  
14 opportunity to get clarity around the scope of the  
15 proposed bird surveys for the NWA. Is the entire NWA  
16 to be surveyed for all birds or some birds?

17 A. Are you speaking about the PDA or the monitoring  
18 program?

19 Q. The PDA process, as I understand it. You were talking  
20 about the PDA process. And you were saying that the  
21 Burrowing Owl survey would cover the entire NWA. Did  
22 I understand that --

23 MR. DENSTEDT: Sorry, if the question is  
24 specifically about the Burrowing Owl, which was the  
25 point that Mr. Collister was trying to clear up, I'm

1 fine with that. But if my friend has remembered a few  
2 questions he should have asked earlier, that's his  
3 problem.

4 MR. LAMBRECHT: Well, I just -- I would be  
5 happy to leave the uncertainty around and just get to  
6 the Burrowing Owl.

7 Q. Is the Burrowing Owl survey going to be done for the  
8 entire NWA?

9 A. Yes. But it will be phased over three years, so there  
10 would -- so a third of -- the third of the NWA that is  
11 going to be constructed or subject to shallow gas  
12 infill development in the following winter, the  
13 preceding summer, that area of the NWA would be  
14 surveyed so that it would be right up to date and  
15 relevant to the construction period.

16 Q. All right. Thank you. And, Mr. Fudge, I have a  
17 couple questions for you, then. I was struck by --  
18 you were going through the numbers, but I understood  
19 you to say that they were all very vague with and you  
20 had very low levels of confidence in them. Did that  
21 phrase "very low levels of confidence" apply to the  
22 estimates of groundwater use because the  
23 recordkeeping with respect to groundwater extraction  
24 in the recent years isn't very thorough or robust?

25 A. MR. FUDGE: I was speaking not to the

1 prediction of use, because it's pretty  
2 well-established that it takes 165, or thereabouts,  
3 cubic metres of water to drill and complete a well,  
4 that sort of thing. So EnCana, after drilling 10,000  
5 wells have a pretty good idea of what their usage is.

6 I was referring to the estimates made by  
7 various firms, including LandWise and their  
8 predecessors, on what is the availability of  
9 groundwater in the NWA. And when you really look at  
10 it, they don't really have a great handle on it. And  
11 everybody's got a different number. And when I see  
12 100 percent difference, or greater, in different  
13 reports, I'm thinking, yeah, its, its, a bit -- this  
14 is not nailed down and this is not based on empirical  
15 data that's strong. They have a few data points.  
16 They are extrapolating a lot. They are doing some arm  
17 waving. And I think LandWise admits, and I don't take  
18 them to task for it, that there's a very conservative  
19 estimate of groundwater availability in the major  
20 Lethbridge aquifer in, within CFB Suffield, and  
21 adjacent areas. That's what I meant.

22 Q. All right, but I heard numbers of 35, 45, 55, and 139.  
23 But I think LandWise does say at page 30 of its  
24 report that groundwater withdrawal records from 2005  
25 to 2007 are much less detailed than the previous.

1 A. Could we bring them up? I'd have to look at that.

2 Q. Yes, please. That's page 30 of the LandWise Report,  
3 which is exhibit, as I understand it, 003A.

4 A. Would you like me to go through my presentation again  
5 for your benefit so you could understand the 55, the  
6 35, and the other numbers that I quoted, because I  
7 thought I was fairly clear, and I actually asked a  
8 number of people "Did you actually understand that?"  
9 Because the 35 and the 55, let's not try to, you know,  
10 jumble the numbers together. They are different  
11 numbers. They mean different things. And the sources  
12 of that information are different.

13 Q. I'd be quite happy just to look at page 30 and -- of  
14 the LandWise Report. And it's under the heading  
15 "Withdrawal and Water Level Records at Water Source  
16 Wells." And then the second paragraph there, first  
17 sentence (as read):

18 "Groundwater withdrawal records  
19 from 2005 to 2007 are much less  
20 detailed. Water amounts are  
21 generally only recorded as total  
22 withdrawal per quarter rather than  
23 withdrawal at each pumping  
24 interval. Where meter readings  
25 were recorded for certain pumping

1 intervals, the meter was reset to  
2 zero after each pumping episode so  
3 cumulative water withdrawal amounts  
4 cannot be checked with recorded  
5 withdrawal amounts per quarter."

6 The point I just wanted to make is that the  
7 recordkeeping isn't robust in the recent years with  
8 respect to groundwater withdrawal. And I'm asking if  
9 you would agree with that.

10 A. I don't know if "robust" is the, is the proper word,  
11 but certainly there can be improvement made. And I  
12 believe in the acceptance of the groundwater  
13 monitoring or recommendations in the LandWise Report,  
14 EnCana's hydrogeologist has recognized -- recognizes  
15 that better recordkeeping should be, should be kept  
16 in -- as in an ongoing basis, as we go forward,  
17 regardless of the Project.

18 And in fact, a number of investigations and  
19 studies are underway by EnCana in-house, quite  
20 divorced from these proceedings, to get a better  
21 understanding of, of the whole area. And, and, in  
22 particular, the different layers of, of groundwater,  
23 the pre-glacial aquifer, so-called Lethbridge aquifer,  
24 and the glacial sands and gravels above that, and the  
25 conduct -- the connectivity of those, of those upper



1           aquifers to actually wetlands and the separation,  
2           which, by the way, in the LandWise Report, speaking of  
3           the connection between groundwater and wetlands, they  
4           do suggest in their report that the deeper groundwater  
5           in the pre-glacial sediments is not connected strongly  
6           to the wetlands. In fact, it's the upper aquifer, a  
7           much smaller aquifer, that is not typically drawn by  
8           these wells. Like the Dugway, "Big Bob", et cetera,  
9           they draw from the deeper aquifer. They suggest in  
10          the LandWise Report they are not strongly connected to  
11          the, the, glacial sediments and the wetlands above, so  
12          -- which is, which is a good thing. And I was pleased  
13          to read that.

14                        And EnCana's investigating that right now in  
15          terms of doing isotope studies on water from these  
16          different zones. Thank you.

17          Q.    Would you agree that a water budget is a good idea?

18          A.    Yes, a water budget is a good idea. And EnCana's  
19          hydrogeologist has said he's undertaking one. And the  
20          problem I think really lies in the overall  
21          understanding of the regional groundwater itself.  
22          And, as I say, when you look at these results, they  
23          are varied.

24                        What we do know is that the, the wells that  
25          are proposed to be used mainly by EnCana are in a very

1 good water supply area, they have not been drawn down,  
2 their levels are not decreasing, they recover very  
3 well. And Mr. McNeil suggests that those are the  
4 kind -- those are the wells that can be taken from.

5 Also you have to remember that EnCana is not  
6 proposing to use only groundwater. They are -- they  
7 have a licence to take 70,000 cubic metres of water  
8 out of the, out of the, out of the South Saskatchewan  
9 River during the, that winter period.

10 They typically in the past have taken  
11 something in the order of 10,000, with the 70,000  
12 licence. And the City of Medicine Hat supplies water  
13 for the water trucks on their way in. They arrive at  
14 the, at CFB Suffield full of water from, from the  
15 city.

16 So there's a variety of sources both ground  
17 and surface that can be used. And a rigorous  
18 monitoring program and recordkeeping will ensure that  
19 if there's any, any kinds of problems, any problems  
20 can be anticipated, in a go-forward basis.

21 Q. Mr. Collister, I just have a few fine questions with  
22 you, sir, and it's with respect to the question of  
23 snake mortality.

24 A. MR. COLLISTER: M'mm-hmm.

25 Q. With respect to the evidence given by Mr. Didiuk

1           regarding the 575 females and then his extrapolation  
2           on that in sort of a mortality example, my  
3           understanding is that number of females was taken  
4           from the study which was much smaller than the entire  
5           National Wildlife Area.  Would you agree with that?

6   A.  Yes.

7   Q.  All right.  And you agree that his recommendations  
8           which are at page 48 to 50 of Exhibit 003-051 are  
9           good recommendations?

10  A.  48 to 50, the ones I referred to?

11  Q.  Yes, sir.

12  A.  Yes.

13  Q.  And is it fair to say that there's a disagreement  
14           between yourself and Mr. Didiuk over the likeliness  
15           of population decline in rattlesnake populations?

16  A.  As a result of this Project?

17  Q.  Yes, sir.

18  A.  Yes.

19  Q.  And would you agree with me that with respect to speed  
20           limits, generally, regardless of the speed of the  
21           vehicle, driver attentiveness is still an important  
22           factor in snake mortality.  I mean, you can go as  
23           slow a you like, but if you're not looking for the  
24           snakes, you won't avoid them even if you have time to  
25           do so?

1 A. I think that's true. And, you know, of course,  
2 there's an intention here for EnCana to -- and their  
3 operators already are aware of and know that that's an  
4 issue and they are looking for snakes.

5 But another, another thing that hasn't been  
6 touched on in that regard, Mr. Lambrecht, is that, is  
7 that people develop search images for things that  
8 people are interested in and trying to see. And I  
9 know I have experience, you know, a lot of experience  
10 with, with taking folks out to watch birds or do  
11 natural history things and it's amazing how people  
12 can't see things the first time they are exposed to  
13 looking at things. But if they are trying to and  
14 after a little -- with a little bit of experience,  
15 they can get very, very good at it. And even things  
16 that are very cryptic can be seen quite, quite quickly  
17 and quite easily, so.

18 I think with, with the emphasis on, on  
19 looking for snakes and at the kind of speed we're  
20 talking about, 50 kilometres per hour, we've already  
21 stated that, undoubtedly, there will be a small amount  
22 of mortality but that it will be small. And the  
23 50 kilometre per hour speed limit will, will make a  
24 big difference.

25 Q. And then, finally, the recommendations of Mr. Didiuk

1           that you said were good, my ear heard that you said  
2           they had formed the basis of EnCana's proposed  
3           mitigation measures. When you say that they formed  
4           the basis of them, do you mean that EnCana adopted  
5           those recommendations or that they looked at those  
6           recommendations and then took some to  
7           form mitigation --

8           A. EnCana didn't look at those recommendations. I did.  
9           And I made the recommendation to, then to EnCana, as  
10          to the package of recommendations that are included in  
11          the EIS.

12         Q. Right, so some but not all of Mr. Didiuk's  
13          recommendations are in the EIS?

14         A. Yeah, I'd have done. Yeah, that was quite a while ago  
15          now, and I -- year, and I'm sure that it's not -- that  
16          I couldn't line everything up, that's right. I looked  
17          through and looked for the most significant ones. And  
18          I didn't leave any out for any particular reason,  
19          other than that maybe --

20         Q. Right, and so if we look in the EIS and compare that  
21          with the Didiuk recommendations, we can see what the  
22          differences are?

23         A. Yeah, you'll see the similarities, right.

24         Q. And differences as well?

25         A. Yes. Yes.

1 MR. LAMBRECHT: All right, well, listen,  
2 thank you, gentlemen. You've been very good and I  
3 appreciate your time.

4 A. Thank you.

5 THE CHAIRMAN: Thank you, Mr. Lambrecht.  
6 Mr. Mousseau.

7 **CROSS-EXAMINATION BY THE JOINT PANEL SECRETARIAT, BY**

8 **MR. MOUSSEAU:**

9 MR. MOUSSEAU:

10 Q. Just one question, and I think it's for Mr. Fudge, and  
11 I'm not certain what falls out of it, but if I look  
12 at the average, average use for the South Jenner and  
13 the Beverage (phonetic), I assume they are wells,  
14 it's greater than the allocation and I'm just  
15 wondering if you can comment on that.

16 A. MR. FUDGE: Excuse me, Mr. Mousseau,  
17 which, which -- what are you looking at exactly?

18 Q. I'm looking at the table.

19 A. Oh, the table I did up --

20 Q. Yeah, you passed out today and it just sort of caught  
21 my eye, so.

22 A. Yes. Well, okay, so the South Jenner is an  
23 interesting case in itself. It's far in the  
24 northwest, yeah, northwest corner of the Suffield  
25 Base. As far away from the NWA as you can possibly

1 get. It's way up there. It has not recovered as well  
2 as some of the other wells. And, of course, this is  
3 an average based on past use, right. The -- this is  
4 2004/2005 years averaged.

5 And I think the Province, in granting their  
6 licence for this well, want to make sure that the  
7 allocation is kept under 5,000 because of past  
8 performance. If you go back to those tables that we  
9 looked at earlier, I don't suggest you do, but if  
10 you've got any spare time or anything, you can. You  
11 can see that the South Jenner well does not bounce  
12 back as, say, Dugway and "Big Bob" have.

13 So that's the reason there.

14 This is a 2008 allocation. This is use in  
15 the past, right, so, yeah, it -- the Province, I  
16 believe, has brought that down looking at the well  
17 records that are part of the licensing and the  
18 reporting on that right and they have said, "Yeah, we  
19 better..." so I don't actually -- I'm not aware of  
20 what the allocation was in the past. I guess it was  
21 higher, I assume. And, anyway, that's -- that well,  
22 for whatever reason, up in the northwest part of the  
23 block, and it's right in the very corner of the  
24 northwest corner of the block, it's, for whatever,  
25 reason seems to have not responded quite as well.

1 Perhaps the aquifer -- the aquifer is not the same one  
2 as the Dugway/"Big Bob", the Lethbridge aquifer, so.  
3 That's, that's all I can tell you.

4 Q. And is it the same for the Beverage, because that one  
5 looks like the average use is considerably above the  
6 allocation?

7 A. Yeah, again, those are the allocations of the past.  
8 And the Province has granted that temporary licence at  
9 that level.

10 Q. Oh, so these are, these are temporary?

11 A. But I think the Beverage, actually, is a pretty good,  
12 pretty good well. Looks like a good performer and it  
13 doesn't show decline. But I can't, I can't really  
14 tell you what Alberta Environment's got in mind there.

15 Q. Okay, so, that just gives -- I think you just said  
16 these were temporary, but I think in your earlier  
17 evidence you said that these -- I think what you told  
18 me that these were temporary permits but in your  
19 earlier evidence you said that these were licences,  
20 so --

21 A. Okay, sorry.

22 Q. -- is there a disconnect there?

23 A. Yeah, I'm sorry about that. I apologize. I have them  
24 here, by the way, if you'd like copies. I have  
25 copies. But Dugway and "Big Bob" are licences.



1 Q. Okay.

2 A. Telfor, Beverage, South Jenner are temporary licences.

3 Q. Okay. That's helpful, sir. Thank you.

4 MR. MOUSSEAU: Mr. Chairman, those are my  
5 questions.

6 THE CHAIRMAN: Thank you, Mr. Mousseau.

7 I'll check with the Panel. Mr. DeSorcy, no.

8 Dr. Ross?

9 **QUESTIONS BY THE CHAIRMAN:**

10 THE CHAIRMAN:

11 Q. I just have one question for you, Mr. Fudge, and thank  
12 you for the efforts to try and clear the issue of  
13 groundwater. Yesterday, in the testimony from  
14 National Defence we received some information that  
15 indicates they are likely to go back to the use of  
16 groundwater for the Base at Suffield. And I'm not  
17 sure if, if they are drawing from the same aquifer or  
18 not, but my question to you is, is, based on your  
19 knowledge of the groundwater, is the renewed use of  
20 groundwater by the Base likely to have an effect on,  
21 on the aquifer and potentially these wells?

22 A. MR. FUDGE: That was -- it was a bit  
23 unclear to me, sir, when I listened to that, because I  
24 can find it, if you give me a moment, but there's  
25 actually a quote from one of the witnesses from --

1 that was on the DND panel in the LandWise Report. I  
2 don't have it right in front of me, here, but I could  
3 find it. It's in this report. And it states, I  
4 forget the person's name, it's one of the, one of the  
5 DND civilian personnel. Anyway, she quotes the usage  
6 was about half a million cubic metres of water in 19  
7 -- in 2007, but they shut it down in 2007. And she  
8 gives the dates even, of, of the use and when it was  
9 shut down, and now they are on, on river water.

10 And that's, that's all. It's stated in  
11 there, this report. And it seemed to be a lot  
12 fuzzier in terms of the, "No, well, I heard that they  
13 were -- they had used groundwater in the past, they  
14 are using river water now, there's issues." But in  
15 this report, which is pretty recent, it's pretty  
16 specific, they were on groundwater, now they're on  
17 river water, I couldn't speak for what their plans are  
18 in the future. Obviously with groundwater they have a  
19 problem with sand and with dissolved solids I guess in  
20 there.

21 Q. Yes, that was my understanding.

22 A. Yeah, and so -- but it is interesting that, just to  
23 make it even a little fuzzier, in the LandWise Report,  
24 if we were to go back to that, the table that shows  
25 the allocation of water of, what was it, around

1           400,000, or whatever the number is, 450,000, you know,  
2           what they estimate is the available groundwater, they  
3           don't take into consideration the half a million that  
4           the Base was taking. Like it's not in those numbers.  
5           That's why I didn't want to bring it up because it  
6           just makes things more complex, but that's why I try  
7           and say, this whole groundwater thing, like, what  
8           supply is available. It just seems to me like nobody  
9           has a really good handle on it. They don't have that  
10          good a handle on it. So they didn't even -- they,  
11          they found out, apparently, just as this was already  
12          in draft or just about finished, they found out that  
13          the Base was taking half a million a year out of the  
14          aquifer and we're not seeing any, we're not seeing any  
15          decline in other areas of that aquifer.

16                    And there's some questions: What are the  
17                    connections and are there a lot of lateral flow, say,  
18                    coming in from the Bow River, that kind of thing.

19                    But I thought that was a very positive thing  
20                    for groundwater in the region if they stop taking half  
21                    a million a day.

22    Q. I recall you said that in your earlier testimony --

23    A. Yes, that's right. Yeah, I thought it was a positive  
24          thing. But I can't really speak to what the effects  
25          are because during the time they are taking half a

1 million out, say there has not been any significant,  
2 or there hasn't been any changes to ground,  
3 groundwater levels that I'm aware of, except at a well  
4 close to the Base itself, if you look at it, and in  
5 the Medicine Hat area. And, again, that's noted in  
6 the LandWise study. It's noted that there's a bit of  
7 groundwater level decline in the area of Medicine Hat,  
8 but they are pulling out 6,000 cubic metres a day in  
9 Medicine Hat. They are using a lot of groundwater  
10 there, so. And that's agricultural use, et cetera,  
11 multiple uses there.

12 So with the exception of those two wells  
13 which are near municipal areas, in municipal areas  
14 that have high levels of groundwater water use, the  
15 rest of the broad area seems to be in pretty good  
16 shape. And, in fact, in some cases it seems to be  
17 increasing levels, so.

18 Q. Okay, if I understand you, what you're saying is that  
19 the recharge rate for the other wells has really not  
20 changed through that same period?

21 A. That's correct. And there is a suggestion, too, that  
22 it's not -- there's got -- there's obviously  
23 recharge -- and, again, this is talking to McNeil and  
24 others -- there's some lateral recharge coming in  
25 either from the South Saskatchewan or Bow into this

1 aquifer or perhaps even from the north, from the Red  
2 Deer River. It's not just precipitation that's  
3 recharging. This is a deep pre-glacial aquifer which  
4 is a solid aquifer to draw on, it seems.

5 THE CHAIRMAN: Okay. Thank you, Mr. Fudge.  
6 Mr. Denstedt, did you wish to re-direct?

7 MR. DENSTEDT: I have one question and it's  
8 for Mr. Collister.

9 **RE-EXAMINATION BY DENSTEDT:**

10 MR. DENSTEDT:

11 Q. Mr. Lambrecht asked you a couple questions about  
12 preliminary assessed critical habitat. And if it  
13 would be useful to start somewhere. And I guess my  
14 question to you, Mr. Collister, is what do you think  
15 of the, what do you think of the approach taken by  
16 Environment Canada to their preliminary assessment of  
17 critical habitat?

18 A. MR. COLLISTER: Well, I guess to add to, to  
19 my comments, it, it seems to me that if -- that in  
20 terms of critical habitat, it needs to be applied, it  
21 needs to be applied broadly. And, in this case, I  
22 think it was mentioned this morning, it seemed to have  
23 been a reaction to the, to this Project and the NWA.  
24 And I guess that just doesn't seem like an objective  
25 approach to assessing or, or to assessing critical

1 habitat; in this case preliminarily assessed critical  
2 habitat.

3 Q. I was actually thinking about the actual approach  
4 taken as opposed to the more nebulous --

5 A. Oh, the methodology, sir?

6 Q. Well, the approach taken by them.

7 A. Well, I, I -- you know, as I mentioned, I'm somewhat  
8 familiar with the methodology that was used. And to a  
9 certain extent. I got lost in the RSF a little bit.  
10 But it seems to me that, for that particular species,  
11 having such a broad application isn't really helpful  
12 in terms of, in terms of conserving the species.

13 MR. DENSTEDT: I'm not going to ask any more  
14 questions. Thanks.

15 THE CHAIRMAN: Thank you, Mr. Denstedt.

16 This brings us to a conclusion. And I would  
17 like to, first of all, thank the panel for returning  
18 to present rebuttal evidence.

19 **(ENCANA REBUTTAL PANEL EXCUSED)**

20 THE CHAIRMAN: And I'd like to thank  
21 everyone at this point for the evidence that they have  
22 brought forward to us during these proceedings, for  
23 all of the questions that have been posed and the  
24 answers received. This has been of great assistance  
25 to us in having a better understanding of the proposed

1 Project and its potential implications. So I thank  
2 all of you for your contribution here in these  
3 proceedings.

4 Our next meeting for final argument will be  
5 next Thursday, October 30th, and we will meet at the  
6 same time at 8:30 in the morning. We also have Friday  
7 reserved if, if needed, as well the next day.

8 So I look forward to seeing you again next  
9 Thursday. Thank you for your attendance. And I wish  
10 you a good weekend and a good few days off from this  
11 hearing. Bye for now.

12 (PROCEEDINGS ADJOURNED AT 3:00 P.M.)

13 (PROCEEDINGS TO RECONVENE AT 8:30 A.M. ON

14 THURSDAY, OCTOBER 30TH, 2008)

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