

CROFTON COMMUNITY ADVISORY FORUM MEETING

Crofton Community Hall

Thursday, May 19, 2005

ATTENDANCE:

Consultants:

Jacques Whitford: Peter Reid, Dr. Chris Ollson

SENET: Dan Hrebenyk, Dr. Harriet Phillips

RWDI/Pioneer: Chris Waldron, Dr. Kathy Preston

Panel Members:

Ray Therrien

Don McKendrick

Michelle Vessey

Joe Allan

Sherman Power

Carol Donnelly

Elizabeth White

Kathleen Johnnie

Marion Johnston

Jon Lefebure

Gary Holman

Jenny Farkas

Douglas Tucker

Sharon Andersen

Michael Ableman

Patti Bauer

Kate Miller

Liz Skrzypczak

Donna Brooks

Julie Douglas

Meeting Called to Order 5:45 p.m.

John Lefebure, Chairman.

As you can see, we are 15 minutes late and we haven't forgotten our Salt Spring contingent. We were hoping they would show up, ...

They are stuck somewhere on the ferry or something. But, we will have to continue, because we are already behind in our agenda. So, I'd like to start if I could with just a short introduction about what we are doing tonight and we can request a new member... do this later when we get the agenda set.

First of all I'd like to welcome all members of the Forum, the Consultants that we have here today, and we will be introducing them later, media representatives, and members of the public.

OPENING REMARKS:

We are facing a significant challenge this evening, and that is to sift through a mass of technical data and opinion, in order to be able to come to some conclusions regarding the credibility of the Jacques Whitford Air Quality Modeling and Health Risk Assessment. We will hear from Peter Reid and Chris Ollson of Jacques Whitford, on how they reached their conclusions and that will be followed by critiques of their methodology by Dan Hrebenyk and Harriet Phillips of SENES, and Kathy Preston and Chris Waldron of RWDI/Pioneer.

It will be important to put aside any biases and evaluate very carefully the conflicting opinions we will hear. We face our own challenge to establish our credibility with the community and can only do so by applying our best and clearest thinking to the issue at hand.

In doing so, we will answer some of the criticisms raised by Michael Ableman at the release of the RWDI/Pioneer report. He called the Community Advisory Forum a creature of Norsk and questioned its value. He is right in that Norsk has initiated this Forum, provided us with this venue, and staffed it for us, and has paid for both the Jacques Whitford and SENES reports and for all the Consultants who will be here tonight.

Where he errs I believe, is in thinking that when we agreed to this Forum, we lost the ability to think for ourselves and fairly critique the information coming from all sources. We here do not have the luxury of making emotional or inflammatory remarks that are in my opinion tend to manipulate opinion. We can only be credible through a calm, reasoned approach that builds respect.

In his concluding remark, Mike Ableman said that all we want is the simple truth, and I am sure that is a desire that we all share. Unfortunately, in my opinion, we will find out tonight that the truth is rarely simple, and in this case, very complex.

Turning to the agenda, I need to preface our setting of it with an explanation. You have given me, as the chair, the responsibility of providing a proposed agenda after receiving input from members. That input happened by e-mail prior to sending out the proposed agenda. I discussed the agenda with Julie Douglas who acts as my staff observer, just as I would in the Municipality with the hundreds of agendas that I am responsible for there.

Contrary to some express concern, she does not act as the agent of Norske, and we work together to be fair and to try and have the agenda serve the Forums needs. If, as was suggested in one email, any member believes I have been duped by the company in this process, he or she should propose that we elect a new chair. The same advice applies if a member believes that the agenda as I propose it will be poorly thought out.

Once I ask Julie to send out the agenda, it is impractical to try to make judgemental changes through email. The Forum, when assembled at the meeting has the right and the duty to approve or amend and approve the agenda. That is the moment when the Forum takes ownership of the agenda and the subsequent meeting.

That being said, we have an agenda that has engendered some concern, and I would ask for a mover and a seconder to place the agenda on the floor for discussion.

Moved by Joe Allan. Seconded by Sharon Andersen. Thank you.

DISCUSSION.

You see the agenda before you, and for anyone who is uncomfortable with the agenda... Please, please come to the table...

Salt Spring contingent arriving... We are here and just walking up from the ferry.

The Forum has the ability to request that there be more time allowed for [unclear] as we go along. This is a framework which we would work to unless ...

Welcome to our members. We are sorry you were delayed on the ferry. We're glad you are here. You just missed the opening remarks but I will give you a copy of them. And, we had just introduced the agenda and it has been moved and seconded, and we are going into discussion of the agenda, so I have asked that if anybody is humped over the agenda as proposed, then now is your chance to come forward.

[I would like to]

I would move that an additional 10 minutes be granted to RDWI and Pioneer

There is a motion on the floor, so you are proposing an amendment. Now, an amendment can be considered. You are proposing an amendment to the agenda? Do I have a seconder?

Seconded by Elizabeth White.

Any comments on the proposed amendment?

The way the agenda is laid out, [slotting somebody]

Thank you. Any other, and I would ask, only please if you have something different opinion from what we have already heard because we are going to try and keep this, we want to keep our time for presentation of a different opinion from what we have heard.

Sherman Power.

I would be in favour of renewing as long as it's not at the expense of

Carol Donnelly.

I think many of us did not get to the RWDI presentation and would like to hear...

Terry ?.

[unclear: Just for ...] I do think because of the ... that I would in fact ... I am talking... 5 minutes...]

Jon Lefebure, Chairman.

There will be a [unclear]

(Can we please have everybody speak up so people at the back can hear.)

So, if I can now I'll call the question on the amendment to add 10 minutes to the RDWI/Pioneer time slot. All those in favour? And those opposed? The motion is CARRIED. So, we will add 10 minutes to that time slot.

Are there any other concerns people have? OK. Thank you.

I am sorry, we will call the... We had that amendment, adopted the agenda as amended. OK We will move on. Just a little quick business to the...

[Jon, do you want...]

OK. Just a little quick business. We have to make a decision regarding transcription and filming of this event. I have requests for both, and I feel this is a Forum decision whether you want transcription first, have the minutes, the entire conversation transcribed. We have that available, and the.. I think our friends from the Airshift group have volunteered to film it if that is also acceptable to the group. I will start with the transcription and make a comment if you have to, but lets reach a consensus. We have [unclear]

(Who is transcribing?)

I am sorry, let me introduce her. Her name is Linda Ramer, and she is sitting over in the corner in the red jacket. She is professional.

(Who is paying for the transcription?)

Norske is paying for everything. They are paying for the Consultants, they are paying for Linda.

They would be verbatim transcription. Yes.

OK. If there is anybody that has an objection to that?

Joe Allen or Sherman Power?

I don't mind if we are being tape recorded or anything, as long as they are just strictly for our own historical value and being used, not abused because we did have that at the start of the summit news [unclear] Taped conversations and that is used professionally [unclear]

Jon Lefebure, Chairman.

I think that is always our hope, but once the copies are made we'll have no way to limit their use. I would argue, so I think that if there is some concern, that we should have a vote on it, so I'll do [unclear] if I can I'll just ask all those in favour of having transcription... sorry...

I have a question before you have the vote, I just want to be sure that the meeting transcription be....

Well, it could be made available to everyone. I'm not sure how you would review it without having someone recording the entire thing and doing the same thing right beside.

Verbatim [unclear] pretty accurate...

I'm not even sure [unclear]

We could ask Norske or somebody else [unclear]

If we could start the transcription and start the filming rolling, that would be great thank you.

There is another little piece of business. We should welcome some substitute and alternates to members who couldn't make it. First I would like to introduce Kathleen Johnnie who has been sent here by the Hulqueam Treaty Group to replace Brian Oldren. Kathleen welcome. Thank you very much for coming tonight. We are very happy to have you here. And Raid Theirrien, you are representing [unclear]. We are very happy to have you here. And Liz, you are sitting in for the representative from [unclear]

OK, now we can go on. So, I am going to have to adjust the time because we are a little late in starting, and our first presentation will be Jacques Whitford with Peter Reid and Chris Ollson I believe. And we are going to start with them at 6:07 p.m. and give them a half an hour.

CONSULTANTS' PRESENTATION

Chris Ollson, Jacques Whitford.

Thank you very much Mr. Chairman.

Thank you very much Mr. Chair, members of the Community Advisory Forum, public, the Consultants. I realize that when I was putting it over to the mill today, it has actually been a year to the day exactly since the first time I met with everybody here in Crofton and we started the first round of public consultation to dialogue. So, we are quite happy to be back again. We are trying to keep this short in an attempt... as I know that many members of the community advisory Forum have seen this presentation in the past, although there are members of the public that may not have seen this, so I will go we'll try to go over it ... overview of the study that we conducted.

There are three site objectives overall. First is to review ambient air quality moderate results of three existing stations. So, the mill itself, through their permitting and the actual use of the mill to the Ministry is actually required to monitor certain substances on the ground and have been for a very long time. So, we have been reviewing that data to see whether or not there would be a health impact ground level monitoring data.

The second part of the objective was actually undertaken modelling exercise of potential substances that would be coming from the mill from the stack and from other sources of the mill and monitor or model what the ground level concentration would be, that people would be breathing in the local air shed.

And finally, the third one is to determine whether or not model concentrations, model parameters and ambient air on the ground in inhalation pathways would pose an actual risk. So let me just for perception. What we are going to do is quickly go over the conclusion so we are not waiting till the end to hear what it is that we found.

First point is that we believe that the model in the exercise did actually return a conservative estimate of what ground level concentration of these substances would be in your local ambient air shed. Of the compounds we looked at, 66 of the 70 compounds were actually modelled were actually below health phase criteria and warrant no further assessment. However, we did say there were 4 things that we would like to see the mill monitor and follow up on. This first ... bring you mill property itself for an independent. And those were H₂S, NO, SO₂ and HCl. And overall, at the time we concluded the study, I made the statement that I believe that it is safe to breathe the air in the local air shed. For I believe that even though we weren't wanted follow up and moderating of these 4 compounds.

I'm happy to say that once the study was complete in October, after Christmas, shortly after Christmas the mill did install some of these, and there has been an ongoing monitoring for these 4 parameters here. They include PM 2.5 that particulate matter, the fine dust in the air, and currently were implementing an HCl monitor at some of the stations. So, we are following ... up. We are going to show you those results tonight. We've got the preliminary results for the first 4 months and we believe they substantiate the claims that we've made in our report. Without an internal review reached it has been particularly... air modeling exercise.

Peter Reid, Jacques Whitford.

Thank you Chair. I think some of you have been here before, we're going to talk a little bit about the modeling, but I'm not going to do any ... in this session here because you are going to hear plenty of that in the panel discussion. So, I'll go over briefly what we talked about last October. Then we'll be getting to the technical details a little bit later.

The people at Jacques Whitford that participated in the study are myself as the project manager locally, Darrell Shartrand out of our office in Larcome, and Gregory Cooks out of our office in

Larcome. We had it internally reviewed by two of our senior people to make sure that we were shipping out a quality product, and it was externally reviewed by SENET and Pioneer, so everyone has had a run at this internally and externally. There are enough people here to staff a small community college. I think we have done a fairly reasonable job.

So, we were retained to carry out this study and really, what we were doing was, we were providing maximum predicted concentrations for the health risk assessment study. That was our goal, to provide what is the maximum concentration of all of these substances in and around the Crofton area for use... purposes. We used CALPUFF, which is one of the more sophisticated regulatory disbursement models out there for use. We looked at 70 contaminants and reviewed the results in person. What is a disbursement model? It can be described as a very large program with fairly extensive input because input ... meteorology are the weather patterns in the area. The local terrain is in the model.

We have a receptor grid so we'd lay over top of the terrain in this model. Little points which are actually like little ambient monitors in this virtual domain where we know what is happening at all of those points, so we have tens of thousands of those laid in the modeling domain. We represent all of the buildings and structures, so we know how the emissions behave when they move around these structures. We have the emission from the Norske emission inventory, and we know where our stacks are and what they behave like. What their temperature is, what their flow rates are, and where they are located. The model goes through, crunches all of these numbers, and we get our output, and the outputs are what we push to Chris. We summarize these outputs and give them to Chris.

The program that pre-processes all the meteorological data is called CALMET and it requires some input. Sometimes you can drive CALMET with upper air data and surface data. It is a good practice to use what we call prognostic meteorological model or prediction of what is happening at a number of the ... sites that are in the model and use this as input. CALMET takes this and turns it into something the model can process. In this case, we used the MC2 as our driver and this at behest of the Ministry.

We proposed another set of model bases to use and the Ministry suggested we use MC2 because it was a far denser grid, more resolution. That data was available from a HARMAC study, and that is what limited our time block that we modeled, and so we agreed to that. What we found after the fact, once we had gone down the MC2 road was that some critical data was missing. The meteorological instrument right in our Crofton had failed. That was right in the smack in the middle of our study. So we knew that right from the start and we felt that with that influence we really couldn't go back to MC [unclear]

So adjustment on that surface layer using the Crofton met data wasn't possible. Evertly discussing that in a technical session, what the ramifications of that is, but in essence it only affects the bottom-most layer of CALPUFF, the 20 meter depth of air, and the model deals with the rest of the layers as it normally does. We think that is a relatively minor issue. The emission inventory we used Norske emission inventory to drive the model. We discussed with the Ministry. One thing you want to do when you do a study like this. Is there another lead source nearby that we need to include? Like, is there some other kind of a sawmill or another big source right next to the pulp mill that should go into the modeling domain because it interacts with the model, I mean with the mill emission in a significant way. After looking through the emission inventory with the Ministry, we decided that no there was not a very large source some distance away or even a small source very near by that we should consider.

Following a first peer review, we looked at the vehicle, ships and railroad and ... feel was that these were small and that they were small relative to the mill emissions. They didn't need to be modeled. After the first peer review, we looked at those in detail and we came to the same conclusion that a few tons per year and really have no business in the model as a separate source. These potential effects were accounted for through consideration of the regional background and in our air quality measure. Air quality measurements will pick up any such vehicle and ships will pick up the mill, will pick up stuff that is brought in from long distances away, and will account for some other issues that we will discuss.

The building input that is your mill from the air that is what our model used. So we have accurately portrayed all of the buildings. We've accurately located all of the stacks. And the results? The maximum amount of concentration, generally occur at, or very near, the fence line. That is similar to what we found in our preliminary study and it is really not a big surprise. The [unclear] we don't get emissions further a field impacting on the land, but the maximum emission concentrations occur right near the fence line. These substances here are all less than the most stringent BC Ministry of Water, Land and Air Protection guidelines. These two we found were above, and the SO₂ concentrations are not in the model. The modeled SO₂ concentrations do not exceed tertian [??] or we would see tree foliar injury in plants. That is an example of the output. Anyone who has seen the study has seen a pile of these things.

The conclusion. We think the study produced conservative estimates of ground level concentrations in the Crofton air shed. It has given us a far greater understanding of how the mill emissions interact with the environment. The uncertainties associated with those, we think are consistent with best practices, and we will show you ambient monitoring data from February through to Monday, of this week that show that in fact true. We believe that the results of this study show that we really don't need to be doing any more modeling. We studied the ambient data collected to gain an understanding of what is happening in our ...

Chris Ollson, Jacques Whitford.

Thanks Peter. So, with that, once we have the...

Once the air model is determined, they believe they have actually got the data believed to be conservative data set that should be modeled. The concentrations that I am looking are conservative concentrations that I put into the risk assessment that my team takes back over. We also develop where we them to model and where the special grids are going to be. There reality is at this point the health team takes over. I oversaw the study of the medium health risk assessor. Two of my staff members Siobhan Sutherland and Erin Smith helped in the preparation. It was internally reviewed at Jacques Whitford by Dr. Courtney Sandau, formerly of the Centre for Disease Control in the USA in Atlanta, Georgia and Cecile Willert who has been practicing risk assessment for over 20 years.

The report has been externally reviewed by Dr. Harriet Phillips of SENET and Chris Waldron of Pioneer Technology. I will take you through what we came to the conclusions of in the study. These are the [unclear] remember in counsel... we said the mill had been actually monitoring things on the ground for the past number of years. The first (one/group) they monitor is what we call TRS, total reduced sulphur compound. That is the smell that you get from the pulp mill, and that is that odour that you get that comes from the mill. What we did, is we said that OK, all of the TRS is going to be in hydrogen sulphide. TRS is made up of a variety of different compounds. The most toxicologically significant of those compounds is H₂S. We said OK, all of it, for lack of better data is going to be H₂S. What we saw was, yes, there are exceedances of some of the BC ambient air quality criteria

for TRS. And what that is, those are odour-base guidelines. These are static odour base guidelines that the Ministry result and the mill is not going to go over for smell issues.

When we look at the actual health based toxicity levels, and those benchmarks that actually dictate health effects, we saw that over a two year period we only had seventh station which is located near town here, and the Duncan-Deykin Station which is located about 14 km away from the mill itself, there was never an exceedance over the 2-year period of the health-based effects. We did see some, and these are percentages, so less than .01% or .02% exceedances of the 1-hour values and about .13% which really means one day 24-hour period over and 2 hours at 18,000 where we had exceedances of the health based criteria. That is on the ground, monitored daily. That is not [unclear] such.

In terms of particulate matter, what we see if we look at all the years that we have the data for and then even for March 2002 to 2004, we see is whether we are at the sub-station, the South Station which is about 5 km away or when we get to the 14 km point, there is no difference in the particulate matter, that fine dust in the air, that could be inhaled, that potentially causes asthma. There are no differences whether you are right next to the mill or you are further away. And, in fact, during 1997-1998 when the mill was shut down on a strike for 9 months, the results were no different from the levels at the sub-station right down at the Duncan-Deykin.

That would suggest that although the mill, we know the mill puts out particulate matter, but it is not a significant source and we are really looking at background concentration from what we see anywhere else in the province. To move on to the long-term results. And unfortunately, we are cut off here.

But, basically the framework that we follow is one accepted by Health Canada, standard practice in Canada and we take substances that we know, specific 70 compounds and the first step that we do is we compare them again to health-based ambient air quality criteria, and if they have health-based ambient air quality criteria, and follow those criteria, we don't have to deal with those compounds any more because they are below what is considered to be safe in Canada. Of that, there were 41 that had health-based, sorry.

Out of the 70 compounds, 41 had health-based criteria, and out of those compounds 37 were below their ambient air quality criteria. We also looked at the World Health Organization standards for Europe as well, in addition to those standards in Canada. We also had compounds there that had no health-based criteria. There were 29 of those. Do we have toxicological data for those from which I can actually evaluate them? For the vast majority, the answer is yes. This was only for propionaldehyde, but no; there is no toxicological data.

We searched, there is nobody that has done toxicity testing on the few un [unclear] But we do have an odour based threshold in Ontario for that which is the only odour-based guideline which was below that the [unclear] say about that. But there are those 28 we basically retained all those for further evaluation. What is not shown here is the 4 that...

Can I interrupt? Is it possible to move that table closer?

I don't know if it's actually the table or the screen?

Jon Lefebure, Chairman.

It's the projector itself actually.

(Adjusting presentation image on screen)

Chris Ollson, Jacques Whitford.

...so basically, at the end of it all, there is 3 and we actually included an extra one. We don't believe the HCl really needed to be monitored, but we did add it to the list. So, what do I mean by this? These are the ones that we actually have an ambient air-quality criteria either in Canadian-based standards or the World Health Organization. The reality is the blue are the ones that are below the criteria, and again for those that have seen this presentation in the past, its those in yellow that exceed the extremely conservative air quality-based criteria that we carried forward in the assessment. They were hydrochloric acid, NO₂, SO₂.

You will see a pattern develop here special receptors are the schools, the churches. Those are the areas that may not have got captured by the air modules though we specifically asked for them. Out of those, only Hydrochloric Acid exceeded. Gridded receptors mean the little nodes where we had all the way through the entire channel of There is only HCl and SO₂ that exceed where we had standards and guidelines to carry forward. Everything else drops off and is seen below health-based criteria that we accept in Canada. For those that don't have toxicological data that we had to carry forward, sorry, that we don't have health-based standards that we had to carry forward, the only thing that came above those criteria, in our assessment, was Hydrogen Sulphide.

Now, to give you an idea as to the fact that when we looked at air pathway, it actually does include all life stages. The toxicity values of the air quality criteria is derived and do include all the life stages, and it does include the (subsequent) population. Here is an example of H₂S and why we take it through. If we look at the fact that we use in an acute exposures of those 1-hour time frames we use that's the number we use for the health assessment. The hundred micrograms being acute. You see it takes 1.4 million micrograms per cube to start causing death and work all the way down through and the lowest observed effect probable on the human population study is done on the sensitive receptors which included [unclear]. It was 2800 micrograms per metre cubed. Well, not only do we take that value, we don't use that as a safe benchmark. The fact is, another factor of 300 a staging factor that is added into it. Three, because in this case, where the numbers come from the study for here was [unclear] and human 10% of the population and 10 for some chronic exposures.

The studies conclusions overall... is that I trust the air modellers when they tell me that they returned conservative values. We are seeing that from what we saw from the initial ambient data that we were looking at, and overall to the assessment of all those compounds, those are the ones left over. We recommended to the mill they monitor on the ground. We didn't think there was an acute or long term health threat there necessarily, but we wanted to make sure those people living right next to the mill would be covered off. That is the statement I gave before. I still believe that to be true. I believe it is safe to live in Crofton, through the breathing of compounds in the air emitted from the mill.

To touch on some of the issues on exposure and cumulative we started hearing about. After we prepared the document Health Canada came out with new guidance on cumulative exposures. Basically taking all those things that did not screen out, that we had to carry forward and we add the risks together. The non-cancer risk from the [unclear] 434 of the hazard quotient.

So, we add those together. It's a [unclear] wanted starts to suggest we needed some further inputs. The key to this, and it's the same in the states as it is in Canada, is that it has to be the same target organs, the same end health effect. So, if you've got non-cancer risk for lets say getting asthma,

such as in the case of some of the compounds that we are dealing with, all the ones that cause asthma at the end point, we add those together, the risk together.

If it caused lets say, kidney disease, you wouldn't add that to the one that caused asthma. The ones that are carcinogenic or cause cancer, Health Canada guidance is the same for BC as it is overall in the country. You add all the cancer risks up, if they are less than 1 in 100,000 people, than it is essentially negligible risk.

Remember that we actually have a 40% chance, 40% of the people in this room, or almost half the room will get cancer in their lifetime. You want to make sure that we are not putting a benchmark that is just above that so we increase that level. We are saying that only 1 person in the entire Cowichan Valley if they were entirely impacted, and I believe that the population is around 80,000. We are saying that only 1 person in that 80,000 as opposed to 40% of that population.

So, if I say that what is presented in the Pioneer screening the ...assessment, which for the most part we agree to, and we actually did review; did not rate in the report, time Health Canada guidance was not such. We see for the self product for the 24-hour exposures at the highest measured model concentrations, that the air models turned over, 97% of the hazard was from Hydrogen Sulphide. This is using the numbers presented at the very back of the Pioneer report. So, this is what I have already told you. Hydrogen Sulphide is something that we have to look at further from this model. We go to the chronic exposures, we start seeing that there is more than just the Hydrogen Sulphide. All of these compounds screen out because they are below Canadian health-based criteria. So we didn't include them in the assessment. So now they are there, so we need to deal with them.

Well Chlorine and Chlorine dioxide, although they contribute to this overall hazard quotient, and its overall non-cancer risk, these 2 compounds were monitored by the mill at the sub station for over five years, and were below detection. For over five years, and had been stopped monitoring because they could not detect them. So we can drop these two off the list. We know that we've got real-time data for five years when the mill would have been

And again, we are left with the chronic, long-term health risks potentially from the model data and it is all the ones that we have suggested in the past. Will the incremental life-time cancer that the ILCR is simply, that if we take all the ones that could cause cancer whether we screen them in or screen them out, these are gain from the numbers that are in the document from Pioneer report that we agree with the exception of the trichlorethelene. The trichlorethelene amounts must have been an oversight. The toxicity and the cancer risk factor that was used was for drinking water and not the inhalation numbers. There is quite a difference between the two of them. Clearly we are going to want to use the inhalation number. So really, it is a very small cancer risk.

The overall number is 8.7point 10 to the -6, or 8.7 people in a million will potentially get cancer. That is below the Health Canada, essentially negligible and BC criteria of 1 in 100,000. So that suggests that there is an essentially negligible risk of getting cancer from being exposed to the model conservative compound concentration from the mill. Overall, we don't believe there is an undue cancer risk posed by residents in the area from inhalation exposure. The majority of the hazard index is comprised of H₂S or the hydrogen sulphide which we identified before. And we believe firmly that you need to monitor these compounds on the ground to really get a handle on whether or not there is potential risk and those will be identified the longer we carry forward.

Now, I'll turn it over to Peter, and he will take you through the new monitoring data that is actually been implemented by NorskeCanada.

Peter Reid, Jacques Whitford.

The mill installed, at two of their three stations they installed new equipment in early February. They added SO₂, NO_x, and H₂S at the Crofton substation. The Crofton substation already has TRS, total review sulphur and particulate matter less than 10 microns in diameter. They added So₂ and NO_x at the Crofton South Station plus PM_{2.5} very fine and available particulate. No new equipment at Duncan-Deykin and HCl monitors just within the last month. I got access through the Ministry to raw data, so we are going to show you some data that hasn't been put through the Ministry of QA&QC process and so what that means is that the air stations, you are not familiar with them. Crofton substation is right next to the mill, Crofton south is in between the two mills and then Duncan-Deykin is by the lake.

What the raw data is, is that it hasn't been put through their procedures to compensate for baseline group in the monitor. The monitor usually drifts around about 1 or 2 ppb above and below 0 ppb baseline, and also do some other checks to give extraneous values out that are clearly data needed that is sifting through. So, this is our 24-hour SO₂ concentration at the substations. That is the average of all of the 24 hour values. Sorry, that is the 24 hour rolling average through this interval. These things down here are individual days. So, February 5, 2005 up to last Monday, and this is in parts per billion, 0 to 110 parts per billion. This little bump you see here along the bottom, these are the 24-hour values right there. This is what we are seeing in the monitor. This green line is the SO₂ health base guideline, so we are not exceeding that value obviously. This is the 24-hour BC air quality objective, their most stringent objective. This purple line up here, that is the value that we predicted for this site.

So, we are well below the value that we predicted for this site, the model over-predicted in this case. And obviously we got some pretty low values. Now, this is what we see in the one-hour SO₂ data and in the NO₂ data as well, 1-hour and 24-hours. We are not going to put all those up as they are essentially a repeat of this one. That is the hourly NO₂ at Crofton Sub Station, and is the only one I'll show. This little green line below the bumps, this is the hourly data and focusing about 1 in 20 ppb. The health-based guideline a little over 100, we predicted a little under 125. The most stringent BC objective is 200. So, the model is performing very well, and when we showed this to our people in Markham, they were pretty pleased that the one thing we are all predicting, and two that it is within a fairly good factor.

Chris Ollson, Jacques Whitford.

Peter, why don't we just run through very quickly and show that when we come back to them later, so we are not taking up too much time.

Peter Reid, Jacques Whitford.

TRS, we are over a little from what we predicted on TRS, but below what the health-based guidelines were. Same thing for the Crofton Sub Station for H₂S, much the same pattern, H₂S is about 80% of TRS is H₂S. And that is the 24-hour pm 2.5 at the Crofton South Site. This is another thing we saw, some of the pm is that we are clearly getting the influence of background here. The mill has been the only source of pm so we are seeing other things happening here, and we took 2 events that I looked at in detail and that looks like recovery boiler emissions impacting on that site. So, we are above what we predicted there. This is the Canada-wide standard numeric value. We might get into a technical section explaining what that is. I imagine we'll have a discussion on what this all means.

We are below those health-based standards. Chris reiterated we think we're the ambient monitoring data which is really the gold standard. It is the proof so that we have a low likelihood of health-based effects and we are confident, we are much relieved to see this data that we are conservatively predicting what is happening on the ground. We will be reviewing the data on a quarterly basis and that should be very interesting for you.

Jon Lefebure, Chairman.

Thank you very much Peter and thank you Chris. We appreciate your presentation. We will go on now to the SENES Peer Review and invite Dan Hrebenyk and Harriet Phillips.

Dan Hrebenyk, SENET.

I'm Dan Hrebenyk and I'm going to be discussing the results of our Peer Review of the Jacques Whitford report from the point of view of the Air Quality Modeling side, and when I'm finished with that, I'm going to turn it over to my colleague Harriet Phillips and she will talk about the risk assessment portion of our review.

We reviewed both the baseline study by Jacques Whitford and also had a chance to read the RWDI review of the baseline study. We used two fundamental criteria to evaluate both reports. One, we looked up the information that was provided to see if it was complete, and if it was correctly stated. And if it wasn't correctly stated, we asked ourselves what was the significance of the information that they were providing if it was not correct. The conclusions of our review of the Jacques Whitford report were from the ... aspects of it. We agreed with the use of the state-of-the-art weather monitor (MC2) model. We thought they used an appropriate air quality disbursement model, the CALPUFF model. This ... the emission that they have here at Crofton, and we felt that they had run the model correctly from the point of view that it is a complex model. They could make many mistakes in filling it up and running it, and in our opinion they were [unclear]. Primary deficiencies that we identified here were that where they used average emission rates throughout their analysis, we felt that they should have taken into account the natural variability emissions for some [unclear] as well as taking into account peak emission rates that might come from process toxins. In any mechanical process you are likely to get some things that will evolve and we felt that they should have been included peak emission rates and in addition there were sources such as truck emissions, rail emissions, emissions from marine vessels that are associated with the operation of the pulp mill which we felt they should have also included in the analysis.

A major deficiency was lack of meteorological data at the Crofton mill. We felt they had a difficult decision to make. On the one hand, they had regional meteorological data from the MC2 model which we felt was the appropriate set of data to use. Ideally we would have liked them to have had surface meteorological data at Crofton as well. As it turned out, they didn't have core [unclear]. So, given the choices that they had to run either the whole surface data from another time period or run it for 2003, this would be shown to be the logical favourite. In our opinion, we felt that they made the right decision. It introduced some uncertainties into their analysis, so the analysis wasn't perfect, but it was as good as could be under the circumstances.

And lastly, we felt that they should include background air quality data. If the mill wasn't here, you would still be able to monitor the air pollutant concentrations. And that is what we mean by background air quality. What is the contribution from all the other sources?

So, our conclusions about the Jacques Whitford report were that we couldn't make any definitive conclusions about those pollutants which we could compare to ambient air quality objectives set by the province. We had more confidence in predicted concentrations further from the mill and those over longer averaging time periods than we have confidence in those close to the mill over shorter averaging time periods. When I think averaging time periods of short period, what I am talking about is really one-hour averages, 24-hour averages, that sort of thing. It is in fact we thought the analysis was incorrect it's just that we couldn't say for sure that we supported the conclusions about concentrations of copper dioxide.

The quiet pollutants that we felt we had the least confidence in were sulphur dioxide, [unclear] dioxide, hydrogen sulphide and two fractions of particulate matter in [unclear] form. In our opinion, it was worth looking at these pollutants more closely through a monitoring program to verify whether the modeling was being done accurately. Correcting all the deficiencies in the [unclear] analysis would not change the results of the modeling enough to affect the health risk assessment for long-term averaging periods, for example based on annual average concentrations.

Now in terms of the RWDI Peer review of the Jacques Whitford based study, we felt that the majority of the substantive issues, those with a high rank of significance to RWDI simply repeated a lot of the issues that we ourselves agreed to come up here. Among the higher-ranked issues that we disagree with RWDI is the one in which they stated that there were so many deficiencies on the modeling side that although individually, the deficiencies didn't amount to much, collectively they amounted to a severe undermining of the confidence in the modeling analysis. I don't have time to go through all of those deficiencies to try to respond to them, in this timeframe, but I am going to talk about just a few of them.

One of them is this issue of use of the kinematic effect in model. This is the routine and the model that was used to improve prediction of air flow in complex terrain situations. The problem with the routine in the model is that it doesn't work. We know this because the models developer has told us that it doesn't work. We know it from our own work in BC. We know it from published studies done by the US Forest Service in Washington State, and we informed RWDI about this a few months ago on a second project, so we are kind of surprised to see it listed here as a deficiency. It's not a deficiency. Jacques Whitford did it correctly.

In terms of the use of upper air measurement in their modeling analysis, in running the MC2 model to get the regional scales flow, upper air measurements are already used in developing those upper air flows. To use them a second time is somewhat redundant. It might have a little effect, but at worst it would actually disturb the analysis of MC2 to such an extent that you might actually degrade the prediction. So, we don't agree with using upper air data a second time.

RWDI made some quotes about statements that we made with respect to the IGT [??] project at Duke Point a few years ago, and in our opinion they have misconstrued what we were saying completely. Misunderstood the issue that we were raising, and the issue that they have raised here is not a serious issue as they might think.

And lastly, they projected that the MC2 model may not represent sea breeze effect. Well, this is an unverified claim of deficiency that they could have verified it easily enough, including a ... of the deficiency in our opinion is incorrect. So, in terms of our conclusion about the RWDI Peer Review, we feel that it reiterates all the significant deficiencies that we ourselves identified. For some of the new high level deficiencies they have identified, we feel that they are either wrong, they have either

misinterpreted it, they are unverified, or they are probably irrelevant in terms of the end result of the conclusions.

Some of the lower rank deficiencies 1, 2 and 3; they make some valid points which if corrected would make for a better report overall, but would not change the overall conclusions of the report. So, as far as we are concerned, we see no reason to change our conclusions with respect to the Jacques Whitford study. And now I am going to hand it over to my colleague Harriet to talk about the risk effect portion.

Dr. Harriet Phillips, SENET.

When I looked at the human health assessment, I looked at it within the regulatory framework that we have present here in Canada, and that is how I did my Peer review of the human health risk assessment. The risk assessment policy accepted framework that we use has as Health Canada has. There was a problem formulation, a hazardous substance, an exposure substance, risk characterization and description of uncertainties. So we certainly follow the framework that we use here in Canada in risk assessment.

The assessment stated that the inhalant, explicitly that they only looked at the inhalation pathway, and this has been done in other risk assessment in Canada, though I didn't have any issue with it and also a lot of the compounds that you were looking at that have been emitted from the facility, there are a lot of volatile organic compounds that actually don't end up being deposited on the soil, except for things like PH's and the level were very low so I didn't see any problem with looking at the inhalation pathway only.

One of the other things that I looked at is how we look at doing risk assessments in Canada, and Health Canada and other jurisdictions in Canada allow for screening out of compounds. So, what you do is you look at the whole emission inventory and you look at all the contaminants that are emitted, but you are allowed to screen out the contaminants that you don't think pose any health issues and then you end up with a small suite of compounds that you end up taking through a detailed health risk assessment. Certainly, that is what occurred in the Jacques Whitford report.

In doing screening, the regulatory framework here allows for using ambient air quality objectives. So, in Ontario, they use Ontario air quality objectives, and here in BC we use BC objectives. These are appropriate to use in your screening. If you don't have objectives for certain compounds, then you can go and look at federal objectives and that is certainly what Jacques Whitford did as well. In looking at then, the hazardous substances when they looked at how safe these compounds are, they used different toxicity references values that the TRV and we thought they were appropriate to use here. As Chris (Ollson) mentioned before, the TRVs that are developed have safety factors built into them to take account of sensitive individuals and children.

[In ? and Health Canada, a prolificer?] risk-level of 1 in 100,000 for the use of that in the risk assessment was appropriate. And Chris (Ollson) mentioned previously, and I reiterate it here, that I did not think it was appropriate to add non-cancer effects if they did not have the same toxicological endpoint. So certainly PH's were summed in the report, but other compounds which did not have the same toxicological endpoint were not summed and I did agree with that. I looked at that all within the framework, if all these conclusions are contingent on how good the air quality modeling analysis was. As my colleague Dan (Hrebenyk) mentioned, that he felt that the air quality analysis was appropriate and ok to use so my conclusion stays. Just to look at modifications that I had identified in the original draft report that I looked at, which there was quite a bit of discussion and validation of the modeling

and so on, and I thought that that was much more appropriate in the air quality section and not within the risk assessment.

I mentioned to look at the Ontario ambient air quality criteria because in the original assessment they used some of that when they were looking at the four compounds at the end and I felt that that was ok with the screening tools they should look at other TRV such as those that WHO, the World Health Organization has put out and the US EPA and they went back and looked at that and changed their assessment. In appendix B of the Jacques Whitford report, they have quite a detailed discussion of the different toxicity values that were selected and why they selected them. That is appropriate to do that in an appendix and to then just to use a summary in the main document. However, they had some issues with some of the numbers and they didn't quite match, and that had been corrected in the final report.

I caution the use of some of the Ontario Ministry of the Environment in current empirical practice because in some of the numbers, when they were scaled they did not show that they were really of scaled value and not in Ontario Ministry of the Environment criteria. So, I felt that that was something that should be looked at, and I felt the discussion on particulate matter wasn't well enough developed to show why they dropped it from the assessment. At the end, when they looked at the 4 different compounds in more detail, they didn't have a standard methodology for looking at all of them, and I suggested that it would be much easier to follow and read if they had a standard methodology for assessing the 4 different compounds.

Finally, I felt that in the uncertainty section, there was some clarification needed as to whether the toxicity reference values were conservative or not. Those were some of the that I identified certainly within the risk assessment, but if I looked at those modifications and I looked at the overall conclusions of the assessment, I certainly didn't think that using those modifications would change the overall outcome of the assessment. Certainly the monitoring program that was recommended at the end is key to confirming the risk assessment results because all those results were contingent on the modeling. Getting on the ground monitoring is really important in air quality assessment and in confirming the risk assessment. That was my part in doing the review.

Jon Lefebure, Chairman.

Thank you very much. We will move on to the Pioneer/RWDI presentation.

Dr. Kathy Preston, RWDI.

Good evening everyone, I'm Kathy Preston with RWDI.

Jon Lefebure, Chairman.

Calling for order.

Kathy Preston, RWDI.

We were commissioned by the Crofton Watershed Community Group and also R. Few? To do a peer review of the Jacques Whitford study. This is Chris Waldron from Pioneer, and so essentially I reviewed volume 1 of the Jacques Whitford Study or my group did which consists of the initial inventory, the dispersion modeling that has already been discussed to some extent, the ambient air quality data analysis, and also the conversion model results, and Chris reviewed the risk assessment so I am going to go first and Chris will follow on.

You probably gathered that, perhaps a little bit from Dan Hrebenyk's presentation that what we did just for the ease of the reader is that we ranked the various deficiencies in the reports on a scale from 1 to 5, 1 being a minor deficiency and 5 being a major deficiency. What I'm going to do right now is just to focus my presentation on anything that is 4 or 5. So is just really the more important of these issues that we found.

First of all, I want to discuss the emission inventory, and some of this you have already heard, and Dan Hrebenyk is quite right, we did end up repeating a fair bit of... we found the same things that he found in large part. One of the things was that the higher emission inventory is all based on annual averages including.. that is what is used for all the modeling and this is fine for predicting annual average ground level concentration, but when you are trying to predict peak concentrations for 1 hour or 24 hour averages, you need to use worst case peak emission rates, not just an average for the full year to be conservative, otherwise if you use an annual average emission rate, to calculate a 1 hour average ground level concentration that is not the most conservative thing you can do. You are not taking the worst case approach. So we did have some concern with that, and in fact, one of the tables that were provided when they put their report suggests that if they had used the maximum value, the ground level concentration could have been as much as 1.68 times as high.

Also, he didn't look at start up, shut down, low efficiency operation or upset operation, and those can cause higher peak emission rates and they have been looked to predict the maximum 1 hour and 24 hour averages. Furthermore, the emission rates were based on only the 2003 production data and there is quite a bit more information in if all of the available information had been looked at, again, you might have found higher peak values in other years.

Also, we found that there is a lot of talk about the number of contaminants that were included in the study. We were actually given access through a non-disclosure agreement, to look at more information than was just available in the report. We were provided with a spreadsheet for the emission inventory and some background information. And, so we did look closely at some of the emission calculations. We did find that 0 emission rates were assumed rather than using tacit detection limits which is recommended by NCASI, so as a result, there are a number of contaminants that were eliminated from the risk assessment. Now, that may well mean, in that when it comes to human health risk assessment they could have been screened out. But from a cumulative perspective, they could have become important. And so, just to truly be conservative, they should have been included.

And again, there were some of the contaminants that we found that even though they were in NCASI emission factor, they also weren't included in the emission inventory. No explanation was provided for not including the contaminant. So that also has led to an underestimation of the emissions. For the power boilers, when they are burning bunker C and natural gas the emission inventory didn't include criteria air contaminant emissions when the power boiler was running under those conditions. And again, idling and off-site emissions from trucks, rail and marine traffic that's associated with the plant, we do believe it is important there is some discussion in the Jacque Whitford report about some of the emissions that they don't speak to NO₂ and SO₂ emissions from the trucks and the ships and also they speak to when the ships are running only for 2 hours when they are berthing and un-berthing, but they don't speak to the other 14 hours when the other diesel power generators are running. To be truly conservative, all emissions from the facility should be included.

Now to get to the dispersion only approach, we feel that there really were some significant issues with the emission inventory, and then also for the dispersion modeling report. We do agree with the overall approach. We do agree with running CALMET and using CALPUFF, but there are some things that we disagree with.

And I think the statement has already been made that each deficiency on its own, perhaps not the lack of surface monitoring data, could be rationalized as being insufficient in significantly affecting, but, and this could be a difference in professional opinion. Our professional opinion is that the sum of the deficiencies is sufficient for both the emission inventory and the modeling that it does undermine our confidence in what's in the model prediction.

I think the most important issue, and it has been brought up before is that site specific meteorological observations were not used. We understand that during the period for the NC2 data that was available there wasn't good surface data, and we agree that that surface data wasn't good, but they could have rerun a new scale model. Right? There is no reason to say you can't rerun the [unclear] scale model. Possible we can do it. Or, alternatively, if they couldn't do that, another approach would be, and also Dan Hrebenyk suggested in his review, run both for a smaller area. Run just the small area using just the surface data to make sure you are being as conservative as possible.

So we did find that the wind rose, the observed data from 1995 to 1999 did appear to be good data, had been used in previous assessments that Norske had done, and could have been used in this case. Here we are just, the [unclear] wind rose is actually from the Jacques Whitford. I'm afraid it's unclear as we had to scan it in. And you can see that the NC2 derived CALUMET winds really are quite different from the winds from 1995 to 1999. Furthermore, there is some question. I was put forward that the maximum ground-level concentrations most likely occur under looping conditions or very unstable conditions. It was put forward that under these conditions they would occur, they would be most essentially independent of wind direction. So we took a look at that with the Crofton data that was available and this is the wind rose that we presented, and as you can see, it's not independent of wind direction, and these unstable conditions really do tend to occur. The winds come from the northeast sector which is onshore breezes, so what this wind rose shows is that it is important to use the site specific meteorological data. That would have been quite complex for us to derive the same figure for CALMET, so we didn't.

Another one of the concerns that we had is that surface observations when running CALMET, they were only used for the bottommost layer, and weren't used for any higher layers, and it does say for the CALMET manual, that especially in areas of complex terrain, or valley areas that you should allow surface observations to affect layers higher than the lowest level. That is because quite frequently the channelling of winds in the valley will occur above just 0 to 20 meter level. It will occur higher up. And what happens by causing MC2 to be the only thing that affects layers above 20 meters means that you do have a discontinuity in the wind above 20 meters. And that would certainly have an effect on the dispersion of the pollutant. We go into this in more detail in our report and show the wind rose.

Another concern that we had in CALMET you can use 9 different land uses. This is what Jacques Whitford used; they only used 3 different land uses, water, land and a few small urban areas. I want you to focus right around the mill they've used forest. This isn't showing up too well is it? The yellow is there and the rest is green. What they could have used, and very easily available, they could have just gotten data from Land Data BC and used that information, and in fact, with the information that they used, here you can see that some of the islands in fact aren't even included. What effect did this have on predicted ground level concentrations is not clear, but certainly they didn't use the best available data and information. This has an effect with the land use information used, if you calculate

with the mixing height is, to the level up to which a plume can go, or in cases of inversion, the height at which an inversion might occur. So, it does have quite an effect on the dispersion modeling.

And most importantly, the land use around the Crofton mill was set to forest. Others felt right close to the mill itself, the plume coefficient are incorrectly estimated. And that is where the maximum ground level concentrations were predicted. In addition it is common practice to use quite a fine spacing close to the facility and to let it then spread out, so Peter Reid mentioned this briefly, there was quite a number of receptor space interceptors. You have a grid. It looks like a piece of graph paper essentially, and you predict concentrations at each section of the graph paper. Usually, instead of normal graph paper, what happens is you use a much finer grid closer to the facility and you increase the spacing with distance from the facility.

What I have listed here in the bullets is what is usually used. At the centre line you use 20 meters, and I think in fact Jacques Whitford used less than that. And then within 500 meters of your facility you would use a 50 meter spacing, and then 250 meter and then bigger and bigger grid. So what Jacques Whitford uses, they just use 250 metre spacing everywhere. They actually used a finer spacing far away than is commonly used, but then closer in, where the maximum concentrations are, they used too coarse a grid spacing. What does that mean? They may have missed where the maximum concentrations actually occurred.

I also found this in the report itself. There was a very limited discussion of the model results. You couldn't tell from the map exactly where the maximum ground level concentration occurred and also there wasn't any sort of analysis under what met conditions occurred so you could attempt to determine which source at the plant may have caused the maximum concentration. This sort of analysis is important if you are then trying to pinpoint which sources at the mill are causing the maximum concentrations. You can then go back and look at perhaps altering the process or putting some control equipment there so that you can try and reduce the concentration.

Now there's been a fair bit of talk about the monitoring station locations and that it is all good, you don't need to worry about the modeling that we are going to be monitoring. But to my understanding, there hasn't been any site-specific modeling that has been done to determine the best location for the monitors and we would certainly suggest that it would make sense to review the modeling using appropriate meteorology to determine the ideal locations for these monitoring stations if you were going to hang your hat on that information. Otherwise, how do you know that you are going to be picking up maximum ground level concentration?

Overall, our recommendation are that the emission inventory should be revised to include all possible contaminants, and to provide maximum short-term emission rates if you are truly trying to be conservative, that the meteorological fields should be recalculated to incorporate site-specific meteorology and also that CALPUFF should then be rerun using the revised emission inventory and the meteorological fields. With that, I will turn it over to Chris.

Chris Waldron, Pioneer.

As Katherine said, my name is Chris Waldron. I'm with Pioneer Technology Corp. out of Olympia Washington who where tasked with reviewing the health risk assessment component of the Jacques Whitford report. What I'm going to talk about tonight is basically a subset of what I discussed at our meeting that we had on April 21, 2005. I've given some of the slides. Essentially in the discussion that I had, given that I had 3 items that I talked about in April.

The first item was kind of risk assessment 101. I gave an overview of the components used in risk assessment. Because of the time being brief, I had to kind of pare down the presentation for tonight and take that out. The slides are actually in my presentation. They are hidden so they don't show up.

Jon Lefebure, Chairman.

I should say you've got about at least 25 minutes.

Chris Waldron, Pioneer.

Well, I went for an hour, so.

Jon Lefebure, Chairman.

Just, if you have any time at the end there...

Chris Waldron, Pioneer.

Right exactly, now I'm not going to delve into a review of risk assessment and how risk assessment is done on some of the comparisons and contrasts with epidemiology. What I am going to focus on is to summarize the Norske's 2004 Human Health Risk Assessment and the findings of our Peer Review. This is part and parcel of what you see tonight so far. One thing is that the stated primary goal of the human health risk assessment was to evaluate the health risk associated with substances emitted from Crofton Mill, and I should back up a step. One thing I think that this maybe kind of lacking tonight is the context of the genesis of this whole preface. I got involved in kind of the latter part of last year, towards the fall of last year.

When I entered this process, the issue that was on the table was alternative fuels trials. OK, that is what precipitated or started the ball down the hill here in terms of burning tire-derived fuel, burning railroad ties, and the hog-fuel boiler, in addition to the current hog fuels that already burn, the oil and natural gas. So that is what started the process here. And that is a very important point to keep in mind in terms of the review that we performed in the context of this process. The reason for that is, there is a difference between an air quality evaluation and a risk assessment. And I think that is the distinction in our review comments that I've tried to make and I still haven't seen resolved here tonight. Hopefully I can clear that up. What I feel was done was an air quality evaluation not a risk assessment.

So, again, the stated primary goal is to evaluate the potential human health risk associated with the substances emitted from the mill. The idea was that you would do a pre-alternative fuel risk assessment and then you would do a post-alternative fuel risk assessment. The idea was that you would be able to characterize the human health risks associated with emission now from current day operations, take that put it aside, and there was going to be an alternative fuel trial whereupon which the emissions would be monitored again.

OK, so we actually have some data and that would go into a risk assessment and you could compare the risks from before and from after. That hasn't been discussed at all and that is a very important point in terms of what goes into the risk assessment. What I said in our conclusion was that this wasn't done, was an air quality evaluation. Risks were not calculated, air-borne concentrations were compared to air quality guidelines to determine whether or not individual substances exceeded those guidelines.

Again, the emphasis was on individual substances. There was no mention of cumulative risks or a discussion or report. The only cumulative discussion we had was tonight that Jacques Whitford did, and that was on the risk assessment screening evaluation that I did. So, it wasn't even in their report, it was in the evaluation that I did. Then again, cumulative cancer risks and hazards were not evaluated.

So, what did they do? This is a schematic that is directly out of the risk assessment. This has Jacques Whitford's schematic. It has the Crofton Division and it has particulates in outdoor air and vapours in outdoor air, and basically it had receptors down here and it said that emissions come out of the stack and people breath them, and that is the route of exposure pathing that was evaluated in the assessment. We will get back to that in terms of the importance of that later.

So again, we already talked about this. What did they do? They modeled the air-born concentrations of substances and we've heard discussions about that tonight. They compared these concentrations to air quality standards. These standards are based on inhalation only and identify substances with air-born concentrations that exceeded those standards.

Just quickly, they determined that only 4 of the 70 substances modeled required a detailed analysis, and we've heard the HCl, NO₂, SO₂, and H₂S. The report conclude that of these 4 substances, that only SO₂ and H₂S may be of concern and recommended an additional air quality monitoring for these substances at suitable locations outside the fence-line. Ok, so what did we do then? We reviewed the report for technical adequacy, risk assessment guide documents which clearly identified standard assessment practice and principles were reviewed and were the basis of the review that we performed.

We provided written comments on the report, and then we calculated in an appendix of our comments cancer and non-cancer hazards associated with emissions from the mill and these were using the emissions data and modeling that was in the Jacques Whitford report. We didn't remodelled the information, we just took it as is, the key uncertainty in all this, we just took that information and characterized the risks.

Some of the guiding principals of risk assessment, and this is a slide I moved, I had it in risk assessment 101 portion of my talk previously. These are very important points; transparency, one of the goals of risk assessment. Internationally it is that the assumptions that are views, the scientific information that is used; all of the components of the process should be transparent so that somebody who is reviewing that can view those on their merit and evaluate them. I didn't feel that the report that I reviewed was transparent. I thought it was difficult to get at information in some of the assumptions that were imbedded into the risk assessment.

Clarity and consistency, reasonableness and context. These are all additional points that are very important in terms of risk assessment.

One of the things that is confusing about risk assessment is that risk assessment is often thought out as if we are predicting actual numbers of cancer risks. You know, that we could somehow point out in the room today, that person over there is going to be cancer, and those four people are going to be cancer, those five people are going to have non-cancer health effects, central nervous system health effects or other health effects. That is really not the role of risk assessment.

Risk assessment is a management or a planning tool. It's a tool that has inherent uncertainties in the process however, it's used to help make educated decisions about the potential risks associated with hazardous waste sites, and as a buffer source, a variety of different outcomes. That is what risk assessment does, so that people can make what we call risk management decisions, weigh the pros and cons, weigh the risks versus the benefits.

So, in this case, we have a mill that employs a lot of people. There are a lot of socio-economic benefits from the mill for the town, and there is also a few health risks associated with the exposure to emissions from the stack. So, what you want to do in that process is be able to put all that information together so that in a Forum such as this you can make those types of decisions. I didn't see that in the risk assessment that you had the information that you needed to be able to make those kinds of decisions.

OK so, what do we do? We have 72 total comments on the human health risk assessment. The main thing on this as Kathy mentioned; we had deficiency categories, we had about 15 in deficiency category 5, another 10 or 11 in deficiency category 4, and then the remainder were in deficiency categories 3, 2 and 1.

These are just kind of professional judgements for trying to categorize these risks, to try to make it, or excuse me, to categorize the comments and try to make it a little easier to see which ones were significant or more significant than others. So, if you had a chance to review our comments, you would see those.

I'm going to jump into the significant comments. The first one is that the report does not constitute a baseline human health risk assessment because it does not evaluate all complete exposure pathways and sensitive subpopulation. I said I'd get back to this. The report only evaluates inhalation of air exposure pathway for adults. Indirect exposure pathways are pathways such as incidental soil ingestion, or you get hand to mouth contact, dermal contact with soil, ingestion of fruits and vegetables, ingestion of beef, ingestion of dairy. Product where you have deposition, when contaminants are emitted out of the stack, you have deposition, stuff that comes out and settles onto the ground.

A typical component of a combustor risk assessment is to evaluate indirect exposure paths and that wasn't done. This gets back to the premise here of what got this started, and that is alternative fuels trials. If this was just a typical, or it was a say a cement kiln, or other sources, depending on what they were burning, you might not be doing the full complete human health risk assessment that I am talking about here when other indirect exposure pathways. But, when you are trying to compare a before and an after, and I know that the alternative fuels trials are pulled, and I'm trying to put this in a context of what happened in terms of our Peer Review. When you are trying to compare a tree and a post in terms of burning hog fuel versus burning creosote railroad ties, or hard rock fuel versus other sources, these indirect pathways come into play. They become very important in terms of the risk assessment.

The report only considered a calculated risk having associated with individual substances. Again, what they did was they modeled air-borne concentrations, they went on the receptor grid, they went to special receptor locations and what they did was they said ok, what was the concentration predicted from the model, and we will compare that to air quality guidelines and we're done.

If individual chemicals exceeded those guidelines, then we did a special analysis on those. But again, the purpose of the risk assessment is to go beyond that, to take a look at the cumulative impacts. The impacts of cross chemicals. This is especially important for cancer risks. Those are things that weren't part of this evaluation.

This is a pretty strong statement, but I think it is an accurate statement. The report does not follow generally accepted risk assessment principles and guidelines. Again, this gets back because of principles and values presented earlier in terms of transparency. That is, all inputs, assumptions and uncertainties associated with the risks of processing should be clearly documented and presented in the report. And I think the most important part of that is the bottom part here. That is what I mentioned before. That allows stakeholders and risk managers to have full and frank discussions about the risks, the strengths and weaknesses of the report so that you guys can make informed decisions.

You are the ones that are impacted, and that is the key thing, and I recognize that. I am not impacted. I am an outside party. I am reviewing this so you can make decisions about what the strengths and weaknesses are. You can make decisions about the benefits and the risks. You need to have that information to be able to evaluate a risk assessment.

The following are some of the key omissions from the report. These have been touched on before. Again, Kathy mentioned accident and upsets that can be associated with start-up of the mill or boiler and shut-down, or when at the mill the boiler is not operating at its optimum. These are key things that are typically part of the combustor-type risk assessment because it doesn't always function at the optimum conditions. There is typically a component of risk assessment which discusses that in addition to the optimal conditions. Evaluations of the risk associated with fugitive emissions from the mill. I know there were some peer review comments on that. The fugitive emissions associated with staging materials, or other materials that are not necessarily coming out of the stack, but they are associated with other sources.

Particle size distribution used for the modeling is not discussed, partly because they did not do an indirect exposure pathway. Now, what that is, is that when you have emissions and combustion, you have things that come out of the stack. There are different particle sizes within that emission stream that comes out of the stack. These particle sizes, the distribution of particle sizes are important because in the stack, there is actually what we call product of combustion, and product of incomplete combustion called PIC's and POC's. We like our acronyms! That is another acronym that is out there. Certain pollutants when they are emitted will bind to particles to become what we call particle-bound. They don't remain in gas state.

So, the size of the particle distribution is important because it has to do with the deposition. The plume comes out of the stack, some of its plumes are in vapour or gaseous state, and others are bound to particles. How they are going to settle out is where you get deposition. It is a very important point when you talk about indirect exposure pathways. One of the things that was interesting is a figure that represents the facility and identifies each of the emission sources presented in chapter 5 of the inventory. There are a couple of figures, but they are encrypted. You know it's kind of like a skeleton figure that has a couple of x's on it, but it doesn't tie those to the emission sources. Usually, what we try to do is I clearly label each of the emission sources at the facility so in the end, as Kathy mentioned, you can go back to the individual sources and those end up become the key contributors to the risk at the back end.

Last thing was the ecological risk evaluation was not performed. That may or may not have been part of this. It is not always part of the combustion risk assessment. Usually it would be something that is mentioned that this wasn't performed for these reasons, and it can be the collective wisdom of the group that's involved that is trying to steer that document which is just one of those things.

I'm going to jump ahead to specific comments on chapter 3 on probable problem formulation. I know I'm probably going faster, but I'm trying to keep up with the time frame.

We get back to this emission's inventory emissions data. I think one of the key emissions from the previous two presentations was a discussion of this, and a discussion of this in our report. Both of the previous presenters basically said that this data was provided by Norske, and that was it.

One of the key comments that we had and that Kathy had at RWDI was this provides the foundation of the entire report. This is it, like building a house. This is what I said last month. If you don't have a good foundation, you don't have a solid foundation, it is very difficult a solid final structure to move into and live in. It's the same thing when you do an air quality evaluation or risk assessment. This is where most of the arguments happen, right here in the emissions inventory, and yet very little time was presented or spent on this.

The key thing of the emissions inventory is trying to develop representative emissions from concentrations from these chemicals are to be emitted from the stack, and that is what is coming out of the stack that is in the model. Is that representative of the long term production of the facility? Production cycles can go up and down, you can have pollution control equipment installed that reduces pollution emissions. All of these things need to come into place to develop the emissions inventory. Typically what we try to do is to again lay the framework with the risk assessment representative of those emissions.

When you do, you will look at stack test data. It's not just a single year of stack test data which was the case here. It is multiple years of stack test data so you can evaluate whether or not the stack test data is representative of that. One of the reasons for that is that a classic part of this is when somebody goes out and samples a stack to the general public it seems pretty simple. We just go out, sample the stack, the lab comes back with the data, tests the concentration. The issues are was the production during the days that they sampled, was that representative of a typical day of production.

Other things that can be done are when you are starting things you can increase the airflow to the stack to reduce the concentration that come out. Now, am I saying that happens? No, I'm not saying that that happens. I don't know. I don't have, one way or the other, I can't tell you whether or not that happens or not. But, that is why you typically look at multiple years of data, because you can compare it and track that with production, air flows and determine whether or not it is representative. It is a key part of this.

A big component of this is that there was non site-specific data used, and NCASI data used. That's a standard part of the process of doing this industrial risk assessment for mills. There is a discussion of the representativeness of the NCASI data for this mill. Is it appropriate to use those factors for this specific mill? I don't know that, there is no discussion of it. They don't identify which chemicals are from site-specific data and which chemicals are from NCASI data in the report. Typically you would have a table and you could comment on that and put it in there. That is an uncertainty. Ultimately these things are important, as they assist in determining the competence of the emission rates associated with modeling and the risk assessment.

So, I come along earlier and I say we aren't going to do any risk assessment 101, but I had to put in one little element here just because we are going to touch on this. Conceptual site model; getting back to other acronyms that we like to hide behind! CSM are conceptual site models. Essentially in risk assessment we have to try to define what happens in terms of exposure. How are people exposed to chemicals in the environment? Is it just via air, is it via soil, is it via what we eat? It depends on the risk assessment that we are performing. As part of the conceptual site model what we try to do is identify all our suspected sources of contamination. The type of substances; again, that is from our emissions inventory, potentially affected media. Here air, but then it can go on further from that which I'll show and potential exposure pathways for human receptors. Those are all known as conceptual site models. You've seen this before. This is the conceptual site model from the Jacques Whitford report. Essentially it has the stack as the source. Here is our transport routes, they happen. We've got outdoor vapours, outdoor air particulates and our pathway comes all the way down here where we have people breathing, inhalation of vapour and dust. That is the pathway, that's it.

For a typical combustor risk assessment, it's a lot more complicated than that. And I think I joked before, there wasn't going to be a test on this, because it's pretty hard to see, but there are a lot of different routes and pathways that are going on here. We've got our source, we've got emissions, they go to air, then we have deposition to soil, and we can also have deposition to water that impacts fish. We also have deposition to soil, we have soil erosion, where soil gets eroded, washed into the lake or the river or the stream. That can also impact fish. You can have soil where you ingest soil, contact with soil, so on and so forth. An easier way of looking at that is in this list in this particular case.

These are some of the exposure paths that should have been evaluated in a risk assessment, and I already mentioned a lot of them. Ingested soil, ingested home-grown produce, beef, milk from home-grown cows, chickens and eggs, pork, breast milk for infants, the fish. Sensitive subpopulation not discussed in the risk assessment, the Jacques Whitford risk assessment.

I am going quickly on this. Now, is everybody exposed to all those pathways? I'm a whacko standing up here saying you should do all those pathways for the risk assessment. That is not the case. The risk assessment needs to be reasonable, but you'd have groupings. This is what we call, in the risk assessment, our receptors ultimately for those. So we would have a subsistence farmer. A subsistence farmer would typically be exposed to almost all of those exposure factors, right? Because they ingest the soil, they are in contact with the soil, they raise their own cows, and you can go down the list.

You would also have a resident. He's got to breathe the air. A resident is going to have ingestion of soil from deposition, and hand and mouth contact, dermal contact with soil, they may also have their own garden. They may not be a subsistence gardener, but they may also grow their own fruits and vegetables and things like that. We have subsistence fishermen. Usually that is native populations, again, something that wasn't evaluated in the risk assessment; first nations. Recreational fishermen and first nations they had at the bottom. So what happens is, as part of the process is trying to put all those exposure pathways they had on a previous page into the appropriate categories, so it is reasonable that you get an estimate for these.

How am I doing on time? Do we have a few minutes left?

Ok so quickly, I know one of the things we talked about was that there are these health guidelines, so there was a comparison of emissions to health based criteria in that it is appropriate to use Health Canada Guidelines, or United States guidelines, or what not. In risk assessment, typically we stay away from comparison to strictly just the guidelines. In an air quality evaluation, we may step back and just use guidelines, and I'll try to touch on the importance of that. What health quality guidelines that are established, they may be health-based, but the issue with health quality guidelines is they don't keep up with the changing in the toxicity information. The toxicity information, the available science rapidly evolves, and for a lot of the constituents, gets more protective, and the criteria aren't in step with those.

So, while the criteria may be valid, to do a comparison on it, they aren't necessarily most reflective of the current state of the science with respect to the toxicity of the plume. There is a lot of discussion going on right now associated with dioxin, dioxin furans and one of the things that wasn't mentioned earlier. That is one of the key pollutants emitted from the stack. That is one of the key pollutants that is concerned with indirect exposure pathways because dioxins and furans bio-accumulate in the environment. That means they don't break down. They come out of the stack, they get deposited, they get taken up into plants, and they get transferred into beef and dairy. You ingest those and they get stored in the fatty tissues of your body, and you accumulate those.

So to get back to again, trying to establish ultimately what toxicity information should be used. What should have been done? What I tried to do is establish in our comments what should have been done, and the decision rule should have been applied to the toxicological data in order to select the most appropriate cancer or non-cancer toxicity values for use in the risk assessment. What happened was is that it is difficult but what they did was that they jockeyed with the report and set a comparison of model concentrations to air quality guidelines, and then if it didn't have an air quality guideline they went to the toxicity information and either derived a value or pulled a value out and then did another comparison there. Again you are looking at individual chemicals; you are not looking at the cumulative or additive effects of these chemicals. That was not done.

The risk characterization report is unclear, inadequate for human risk assessment. Again this gets back to the simple fact that there are a series of tables that are presented that are just add the concentration predicted by the model compared to the guidelines, and that is it. What both the, the section should be revised by including the revisions to the exposure assessment that is item number one. And that we should have more exposure pathways evaluated, more exposed populations evaluated such as fisherman, such as sustenance farmers, such as the residents.

And then secondly, is that both individuals, substances, hazards, and risks, and accumulate ones should be totalled for each exposed individual, for those pathways, and they should be presented and discussed. Again it gets back to being able to make an informed decision.

So, what did we end up doing? We had all these review comments. In appendix A, we took the emissions data out of the Jacques Whitford report as is, we plugged it in, and we calculated risks so we could get and discuss the cumulative risks associated with emissions. One of the key things that I want to talk about here right off the bat is assumptions. I talked about

Jon Lefebure, Chairman.

I will just stop you here. We have technically gone over the 40 minutes. Do you want to give Chris some more time? I see nodding around the table. Chris, how much longer do you want to finish?

Chris Waldron, Pioneer.

I think I can finish in two minutes. In a couple of minutes I'll be done.

The main point that I want to make is that if you look at Appendix A, we presented all the assumptions, the exposure parameters, that is how people were exposed, the toxicity information. The risks are presented for individual substances and their cumulative risks are presented, so I've tried to walk the walk and talk the talk here, and when we did Appendix A, I didn't just criticize the report and say it wasn't transparent, and we just rolled our efforts into a black box. If you look at the risk assessment, you will see that. We have a discussion of uncertainties in that section of the document. We talk about the emissions inventory being a key uncertainty. The fact that we did this evaluation using emissions data from Norske, those kind of things.

I'm going to leave with this; and that is typical human health decision makers. Usually the reason why you do these cumulative risks is because you can look at them in context of a risk range. Now, this is a risk range that is a lot of time used in the United States. One in ten thousand to risk of one in a million is your risk range. It is a benchmark. It doesn't mean that it is an absolute thing whether or not you are in the range. If your risk exceeds that, you definitely have to do something or not. But that gives you a kind of a framework to hold your hat on. Non-cancer hazard quotient or hazard indices, hazard quotient of one or greater, that's typically the threshold. And some of those were over that, uncertainties. I will leave it with that and discuss that during the textbook discussion later. Thank you for your time. Appreciate it. Thank you.

Jon Lefebure, Chairman.

I would like to thank all the Consultants for their presentations. We have now scheduled 45 minutes for inter-panellist questions and responses and I would ask if the Consultants can come to the front table and bring some commonality....

...can we get started again. Thank you.

We have now scheduled a 45 minute session for the Consultants to discuss their possibly differing views amongst each other. In brief discussion with them, they have I believe agreed to the scope of their studies, so I think that has been a very common concern here and with an understanding of committee,

I would ask them to address that issue first and I hope I am representing the Forum's opinion in saying that I'm hoping that we can reach a level of agreement amongst these experts on ways to improve the baseline studies to an extent that they can be used in the future. As Chris has said, to compare if there is ever a need with future data because I think that as a non-technical committee, it is far easier for us to take the advice from the experts than actually try and distinguish between the competing views. Is that a fair statement?

Michael Ableman, Community Advisory Panel Member.

What is it that you are asking me?

Jon Lefebure, Chairman.

Can you understand what I said?

Michael Ableman, Community Advisory Panel Member.

I don't understand a level agreement.

Jon Lefebure, Chairman.

A level agreement? Right now we have some dissenting agreements. I am hoping that they can come forward with some suggestions to improve the baseline study, and I hope you are in support of that.

Michael Ableman, Community Advisory Panel Member.

No, I think it is clear that it has to be redone. I don't feel that it is.

Jon Lefebure, Chairman.

OK, thank you for your opinion. OK, can we agree on of the scope then? Please, who would like to start off? Chris on the left would you like to start off?

INTER-PANELIST QUESTIONS AND DISCUSSION:

Chris Ollson, Jacques Whitford.

What I wanted to do was clarify, sorry...

Did you want us to address each other, or is this the panel review right now, and back and forth as well with the advisory?

Jon Lefebure, Chairman.

No, we are not going to interfere, unless it is allocation time.

Chris Ollson, Jacques Whitford.

Basically, what I wanted to do was start off with, if you're interested, we probably need to come to an understanding of what the scope of the assessment was we were asked to undertake. And, although there was a lot of discussion around the alternative fuel burn trials, and whether or not those would actually proceed ahead, that was not part of the scope of what we were asked to undertake. So, whether we call it an air quality assessment or an air quality risk assessment, it wasn't ever meant to be a baseline to predicate on, to do the actual ..., and if we look at any of the sections, it basically outlines, and I'll just read right from the first page, page 1-1 of Volume 2, The Risk Assessment. Jacques Whitford was retained by NorskeCanada, Crofton Division to conduct a Human Health Risk Assessment relating to its aerial emissions from Crofton Division operations in Crofton, BC.

Now, although the trial burn was going on in terms of the discussion around the table that was not what the scope was asked. What we were asked to do was look at current day emissions and the baseline. Maybe what the confusion is, is that and certainly, and I'm willing to clarify that. When it says baseline air quality modeling, and human health risk assessment, the baseline refers to the actual air quality modeling of current day emissions so it may be a warning issue. But, just to clarify it on our part.

The reason why I wanted to clarify that we weren't undertaking this in relation to the alternative fuel burn trials, we weren't asked to do that. Because where that becomes important in my mind is, I absolutely agree with you Chris (Waldron), on everything you say in terms of using the combustion, the HHRA, human health risk assessment and combustion waste facility, the EPA document that basically predicates all the things you were saying there is different exposure pathways. We were actually going to about this in terms of studying the baseline for what would be going on for an

alternative fuel burn. And only if the Ministry, and it still comes down to what the Ministry here in BC is going to want to acquire, but certainly we have used that guidance the past in other facilities to do baseline [unclear] in other facilities to apply for in other large facilities under Canadian Environmental Health Act.

So, if we were to undertake that directly in relation to the alternative fuel burn absolutely, we would be looking at that. What we were asked to do? Is it safe to breathe the air in the local air shed? Whether the baseline in the very first title is confusing, it doesn't say anywhere in the risk assessment that there is a baseline in the health risk assessment. That is, if you read the actual document, it doesn't actually refer to a baseline in the health risk assessment. Whether we call it an air quality assessment, the reason a risk assessment word was used was because there weren't always ambient air quality objectives so we did have to actually go and look at the toxicity reference values to make a best judgement selection there. But anyway, that is it. I need to clarify.

Chris Waldron, Pioneer.

Can I just respond to the other Chris (Ollson)?

Well, I guess you know that maybe I am at the wrong meeting. I am not, and I don't mean that in being facetious, I mean the second or third paragraph here says that in August 2003 NorskeCanada applied to the BC Ministry of Water, Land and Air Protection to conduct a 30 model trial burn of three alternative fuels at its number 4 wood waste tile boiler. The three proposed alternative fuels are coal, tire grade fuel, hog waste railroad ties. However, in January 2004 Norske applied to the government for a six month extension for public consultation on this proposal. I guess I'm getting mixed messages from what the purpose is.

I interpret that to mean that this public consultation is on the alternative fuels, and if that is the case, the risk assessment, that should have been one of the objectives of the risk assessment. It doesn't specifically say in the scope the before and after. But to me it is implied in the third paragraph there. Why go through this process? That would be the question if it were me as a Consultant.

I mean, typically, I am on the other side of the fence. I am where he sits. Most of the work we do is for industry in the states. And if I'm to prepare this for Norske, I'm not trying to open up the door for human health risk assessment unless I'm mandated by the government agency to specifically do a risk assessment. Air quality evaluation, I do that using the standards that are in place. I think that is the key. It just seems to me that I guess maybe I'm missing the boat here. I'm trying to understand why we are even talking about the risk assessment if the alternative fuels didn't really cause this whole thing to go down this path.

Jon Lefebure, Chairman.

Thank you. Can I just ask member of the panel if you would like to make a comment, could you just put your hand up so I can recognize you in turn.

Chris Ollson, Jacques Whitford.

I guess to respond to that, I mean, you know, it could be a wording confusion. I apologize in that case. That paragraph is there in context as to how the process began as to where we are today. If you read on from there, because of this alternative fuel burning, absolutely, it is where the whole process started. No question about it, that is why that paragraph is in there and it goes on to say that then we ... and NorskeCanada engaged in a community engagement process which eventually led to this Forum. And the question that had come up in the TWI survey, and was coming up time and

again was whether or not just the current day ambient air before the alternate fuel burn trial, before anything else, before we even want to talk about that or let you do that, what is going on with the air that we are breathing today. And that is the intention of the study. So, no they weren't mandated, and it says in here that by no means was NorskeCanada regulatory under any obligation. The Ministry did not ask them to do this study.

NorskeCanada decided that they wanted to engage in a community Forum they would like the study done on just a baseline health assessment of what the air people are breathing in the air shed, what in current day emission rates, whether or not it was safe to do so. So, we had a lot of back and forth. I mean, we certainly discussed with NorskeCanada, if you are going to do a fuel burn, you are going to follow, or you have to at least consider following the guidance documents such as put forward by the EPA. There was a lot of back and forth on that before we settled on the scope. I mean so, yes there was not, the context by which this was all started, but it certainly wasn't what was done in this assessment. I mean certainly, if we were going down that road, especially with the fuel burn itself, in a trial, we were doing that, we would be having a look at all pathways. No question about it. So, I completely agree with you on that point. If we are doing fuel burn trials, I completely agree with you 100%.

Chris Waldron, Pioneer.

So, I guess the question is, this assessment was done entirely to only evaluate the ambient air. You never had any intention to use it to do a comparison to the alternative fuels trial?

Chris Ollson, Jacques Whitford.

Not at this point.

Chris Waldron, Pioneer.

So you were going to have to go back and redo it for the alternative fuels trial?

Chris Ollson, Jacques Whitford.

Well, you don't have to redo it. I mean this forms the basis. If you go down the step of using and having to do depositional everything else patterns and you work through all that, and in fact in this case, if I was going to do a baseline in terms of before going to the alternative fuel burning trials, I wouldn't actually do the modeling exercise that we've done to go in the EPA. You've got a facility that's been here for 50 some odd years. I'd actually recommend and find that they would be out on the ground sampling. It's not a proposed facility, it's an existing facility. I would have actually told the client, and when we have this discussion, if they were going to go that route certainly on this side it forms the basis and even when you are doing pro-bono assessment with all pathways, we need to start with the air modeling in order to get the depositional range.

So I 100% agree with you. I am saying this was an assessment because the community had asked today, is the air I am breathing, forget about the alternative fuels, is the air I am breathing today, is this causing health risks to my family and to the children here. And that was the intention of the study. If the word baseline was misleading, in terms of the actual title, I apologize. It was not in the Volume 2 title, it just says Human Health Risk Assessment.

We could debate one way or another whether it should be called a risk assessment or whether it should be called a quality assessment. I mean, either way it is what it is, the question I guess is, if you go down the road of putting it in that context, the question is: do you feel that there is an actual health risk posed to the ambient air quality as modeled, looked at and monitored in this report?

Chris Waldron, Pioneer.

The first thing that I wanted to comment in response to that is that, I will try to put this in as nice a way as I can. To me, if I were to step back, it doesn't add up. The fact you went down the road to do a risk assessment. I have a hard time believing that Norske entered into the process without intention of comparing this to their alternative fuels trial. It makes no sense to do that.

Now you said to me in response to my comment before when I said that, you recommended that they go out and collect samples, and not do the modeling effort. The problem, the reason why people don't go out and collect samples, is the issue of background sources and deposition. Because typically the constituents, the chemicals that drive these are not, drive these type of risk assessments. The chemicals that are responsible for the majority of the risks are not the chemicals that we are talking about today.

We are talking about SO₂, we are talking about total reduced sulphur, and we are talking about other air born constituents. And as you know, indirect pathways, are typically the pathways that drive combustor risk assessments, and in those risk assessments it is the chemicals that bio-accumulate in the food chain, and those are chemicals that bio-accumulate and concentrate, so that when they get deposited, they get in the soil, and they get transferred into plants, they get transferred into beef and dairy. They don't get broken down. They get taken up, they get stored in the fat and they get concentrated so the higher you move up the food chain, to us at the top of the food chain, the more exposure you have to those.

So, if you go out, and you were to take a sample, or samples all throughout the area, and the advice to Norske was to take samples, you get the results back and dioxins are fairly high. Well the background levels of dioxins just in general in soil is high from all the combustor sources, and it is a very difficult way to try and separate how much of is, if we are trying to apportion it, comes from the mill and how much of it comes from other non-apportioned point sources that are in the area or in the air shed. That is why you do modeling. You can't do that assessment and come back and say well gee here is the risk, so here there is no risk because you can't apportion it. We need to talk about the confusion in trying to establish what the human health risk associated with the mill. I mean we'd all be swimming if we were trying to look at that data. It is difficult enough.

Now, to get back to the question about whether or not the ambient air poses risks? I think there are concerns and I think the concerns are articulated in the report associated with inhalation, and I think they are fairly accurate. Now I think there are concerns associated with particulates, and monitoring is a good idea. I think there are concerns associated with SO₂ and H₂S and all those are accurately identified in the report.

But I think where it falls short is, again, if you are going to cut off the scope and say that we are only evaluating inhalation, that is one thing because in almost any combustor you can go down the list of what is going to be the constituents of concern that come out of it from an inhalation perspective. And those are the ones. They show up in every single assessment that you do. That is why we have air quality standards. It makes sense, but once you step out beyond that, and say OK, who are we trying to characterize, and what the risks are that are associated with the emissions from the mill, you can't stop there.

So, if the issue is scope from a funding perspective, for Jacques Whitford in terms of doing their report, it is obviously more costly to evaluate these other pathways. No doubt about it, it's a lot more costly endeavour.

Jon Lefebure, Chairman.

I'm going to interrupt here, just to ask the panel for any other specific questions. I think we've got a very good debate from both sides on that, because I am going to suggest to the Forum that we might change the agenda now and move to questions from the floor from Forum members. Does that make sense for the group? Did you have more pressing question you would like to address to each other?

Peter Reid, Jacques Whitford.

Well, I just wanted to address one scoping issue that came up in both of the Peer Reviews actually, just to clarify a point, and perhaps to comment on. I think I can do that in a few minutes.

SENET and RWDI both brought up the issue of worst case emissions, of looking at the maximum concentrations that are possible to come out of the various stacks and what the effect might be on ground level concentrations. Certainly that is something you would do if you were very interested in establishing what the worst case of outward concentrations were. That is something that is typically done. Most of the work that we do is fed into the HHRA where we were looking at what is the annual concentration. What is the annual average concentration at ground level, because for this human health risk factor they are spread over an 80 year life-time? So, we are not interested in, for example, dioxins and furans, what the worst and what the concentrations.

We are interested in that only for SO₂ and H₂S the criteria air content. And we can see there is a factor of about 1.68 times product 20 to 30% in other areas and we think that falls within the conservative bounds of the dispersion modeling itself. That is our judgement call. The ambient monitoring data that we've got up here shows clearly that that is the case. So, we made that judgement call that we weren't going to go down that route, and this came up in both of the Peer Reviews and it is an issue of scoping. The study just wasn't scoped to look at that.

One other issue I have is...

Kate Preston, RWDI.

Can I make a comment on that?

Peter Reid, Jacques Whitford.

Maybe when I am finished. I'm on a roll here, you know.

The difference in the conclusion between the SENET and the RWDI Peer Review. There were a number of issues brought up both by SENET and RWDI, and they are largely the same issues and for ourselves. You don't go through a study of that magnitude (without making errors?).

One of these two professionals who I have known and worked with for a while would find a mistake. Something where we had clearly made a mistake, that's my nightmare. I was relieved when we finished the study because it was a big study, when Dan's Peer Review came up I was relieved to see there was no smoking guns, no big mistakes and the same thing with this one. Essentially there were no mistakes.

RWDI is suggesting that all of these issues, most of which we were really familiar with, all of these issues add up to make the study inconclusive or invalid. That is suggesting that all of these issues

had a compounded effect on making our predictions less conservative. That we are underestimating what the maximum ground level concentration is, and they didn't do a sensitivity analysis to actually do that. They had no lack of time and no lack of resources, but there is no analysis they did that actually demonstrates that. That would have been very easy to do. That is essentially what I have to say.

Jon Lefebure, Chairman.

Thank you very much.

Kate Preston, RWDI.

I guess to the first point with not having used peak emission rates, my concern there is the fact that throughout the report states, and in your presentation, that you are being very conservative. On a number of occasions, you did the most conservative this and the most conservative that. I would just suggest that because you didn't use the maximum emission rates, it wasn't the most conservative it could have been.

I don't think we ever said that you underestimated everything, and I don't think we did assume that throughout the every, in fact we say in the report, on a number of deficiencies that we comment on, we state that its not clear whether this would lead to an under-prediction or an over-prediction. What it does is the sum total undermines our confidence in the results.

With respect to the question of why we didn't do a sensitivity analysis, first of all you mentioned that there was no lack of resources. Well, that is not quite true. Our client actually had a concert. They raised a certain amount of money, but it was their decision as to how they wanted to spend that money, and in fact we gave them a number of options of what they could have done including redoing the whole assessment. My understanding is they had evaluated and weighed the pros and cons as to what they would like to do. So to say there is no lack of resources...

Chris Ollson, Jacques Whitford.

That was an unkind comment. Kathy, we retract that. I mean certainly you were within the same set of scoping issues that we had. I clearly we repeal that.

Kathy Preston, RWDI.

And also with respect to being able to do a sensitivity study, we could have done one. We would not have been able to report the results because of the non-disclosure agreement that we were under. In fact, we now no longer have any files because there was a clause in the non-disclosure agreement which stated that four weeks after completing our report we had to destroy all the files. And so we did debate a fair bit as to whether it made sense for us to do what would have been a fairly intensive sensitivity study if at the end of the day we couldn't have reported on it.

So, that is why we didn't do a sensitivity study.

Can I now move to asking a question?

Chris Ollson, Jacques Whitford.

Absolutely!

Kathy Preston, RWDI.

So just wondering, because I'm not clear on what was done. Did you re-assess, sorry this is a multiple part question. Did you re-assess the monitoring station locations so you've added everything? You are hanging your hat on the monitoring data. Did you re-assess the monitoring station locations? If not, how do you know that the ambient monitor are the best locations from the perspective of picking up the maximum concentrations taking into account the various factors such as being able to plug the things in? And my third question is: what is the likelihood of the current ambient monitoring station locations would catch, would actually observe the maximum concentrations of the region?

So, did we assess the station locations for sensitivity analysis? Second question was how do we know the maximum concentrations were captured by the stations? How do you know they are in the right positions?

Chris Ollson, Jacques Whitford.

OK, the answer to re-assessing the monitoring station locations, that wasn't in our scope to do that work. The monitoring station locations, those are a regulatory issue that is settled in discussions between NorskeCanada and Ministry people that are here and monitoring station location, they normally evolve over time. When you chose a monitoring station location, you will base it on dispersion modeling or your knowledge of the atmosphere discharges and how they have behaved. And I believe that is what has happened here is that there were a number of stations, one which moved, and that is really a judgement call on the Ministry's part that they are in the right location. I've never been in one of these where someone hasn't suggested that monitoring stations aren't in the right location, so our record is intact there.

Its really impossible to have a monitoring station at the correct location all the time because those maximum concentrations move and ask yourself what are you trying to measure. Are you trying to measure maximum concentration of substance x or substance y for one-hour or twenty-four hours, or for the annual average, because all of those are different locations? So you run into an issue and when I worked with the government for 12 years in a position that these people occupy where we are making these judgement calls. Where does the station go, and you would have to chose an optimal location that balances a number of different needs.

Just looking at the modeling data, looking at the ambient modeling data over time, they're in a reasonable location. I think they are in a reasonable location. We need a follow up on that, I mean it certainly is an excellent question because that is what we are now moving down the road with is that we have asked for, I have asked for the actual model data for those 4 compounds and we are going to put PF2.5 in there as well. I want to make sure that they are, we are over-estimating. So now, what we are getting back is the actual on the ground data and certainly I mean that is data that is going to be shared entirely with the Forum. I've just finished up looking at an assessment, and in reality, everything that I've seen is that either we are over-predicting or within a factor of 2 as the over-predictor, even in some cases almost 5 or 6 times that just from the initial data. Am I comfortable from an initial, you know, the sub station is right outside the endowment from the actual station. It is in very close proximity to both the fence line as well as the maximum grid receptor location of what we were implying as being the highest concentrations. So overall right now am I comfortable?

Do I think we need to look at those as the data is coming forward in the new monitoring data? Absolutely. The question becomes then, we are not always going to get the maximum necessarily today from that station. The question is, have we predicted reasonably, over-estimated in the

modeling we've done, that we have actually when we seen it at the monitoring stations. If that is the case, then where my maximum is, if it may not be necessarily be able to locate a station there, is that I still know that at that maximum gridded receptor, then I can be reasonably assured that I've got a number collecting something close by. I mean we can't, I mean certainly its got to be re-evaluated in terms of what the Ministry thinks, in terms of when they see the new data come out, because what it is going to do is lend a further weighted approach to the fact that they've got more and more substances they are monitoring on the ground. I mean initially there is the PM10 and there is the TRS. That is two, so now they are going to have more data that they can examine. Will we maybe have to re-evaluate after? Potentially.

Kathy Preston, RWDI.

Just to respond to that a little bit, just because the model may have over-predicted at one location, it doesn't mean it was over-predicted at all locations.

Chris Ollson, Jacques Whitford.

Oh, absolutely!

Kathy Preston, RWDI.

No, but you are inferring it.

Chris Ollson, Jacques Whitford.

No, what I am saying is that there are three stations, right there are three stations downwind of the predominant wind direction of the mill, and at all three of those stations so far from the preliminary review, the additional number of substances that are being monitored, we are seeing that we have over-predicted in the case of the SO₂, the NOC's and H₂S or as the TRS. Besides, it is looking like it is doing what it is supposed to do.

Now, I'm not saying that we may not have to go back after looking at all those months of data. Once the data has been validated, once we look at it as a whole in context, maybe the Ministry will decide, maybe through the monitoring of the model that's been done, maybe it would be ideal to relocate if that is what needs to be done. But at this point I am comfortable in looking at least at the three stations that we have. Comfortable with the fact the H₂S, which Peter didn't have a lot of time to get into, the H₂S is actually less than the TRS at the sub station. When we did that whole discussion, on the fact that we took the TRS, total reduced sulphur (that smell), and we said that we were going to model it all as being H₂S, the more toxic of the mixture of compounds; certainly the one we know more about.

If that had been over the TRS data at that time, we would have been going something is wrong here, but at least from a preliminary look at it, and certainly it has to be examined in further detail, the data has been QA'd by the Ministry and others to make sure that its doing what its supposed to be doing. But, in terms of am I comfortable with the fact that we've got a station that is right that is right outside the mill at the fence line, near by the trailer park which is where the primary receptors are located close by the mill? Yes. Am I comfortable with the general location of the other two? Yes. Do they need to be examined with the increased amount of data? Yes.

Chris Waldron, Pioneer.

I just wanted to follow up on that quickly, and this is a related topic, but I think one thing is to note there was a kind of a theme in the presentations and that was kind of hanging in the fact that we have

stations to monitor and are actually collecting this data. This data is/isn't necessarily more reliable than the modeling. I think a lot of times we want to believe that.

I think the point that Kathy is bringing up is that sometimes there is an inherent problems with the monitoring stations than we want. Number two, an important thing to keep in mind is that the monitoring stations only moderate for specific constituents. You are not running the monitoring station for necessarily again, if you got back to doing indirect exposure pathways. Are we running samples for dioxins, are we running samples for PAH's, other constituents that maybe primary risk factors. I bring that up just from the standpoint of trying to educate the Forum, than when we talk about these results, we are talking about a subset. They were the ones that we talked about in the presentations about being drivers in the sense that it was H2S, NOC's, TOC's, those kind of things.

It is important to keep that in mind that not every pollutant is being monitored at the stations. I know that it would be reasonable to do so, but I am just bringing up the fact that if you don't want to just say go home, put on the blanket to cover up and say, well fine, I've got a monitor sitting outside my house that tells me whether I'm safe or not. To give you an indication of these constituents, for these time frames and I think that the last point I would make on that is that again, the purpose for the modeling is to integrate a wide time frame of meteorological data in order to predict concentrations at specific locations. The monitors could be in a situation where the meteorological data or the wind direction for this particular time period wasn't necessarily consistent with the long term direction. It could have been, I'm not saying it wasn't, I'm saying in terms of looking at the data, and I am sure that they'll do that, that they will end up evaluating whether or not for the time frame that they've got data back was the wind consistent with like the 5-year average which is typical. If it were, that gives you an indication of how representative those are over emissions. I am sure that they've done that, but you can't just look at it and say its fine, its not.

Peter Reid, Jacques Whitford.

Yes, just a follow up point to that. Part of our analysis of the three months data we have, we have a quarter every year. We did do some of what are called pollution roses and wind roses. First of all, where the winds representative of the long-term wind average? They are fairly representative of the long-term average.

We are not missing an entire wind component. I guess the second point is that while it is true we are not monitoring every substance at the monitoring stations, the fact that the ones that we did monitor are behaving so well and so close to what the model predicted, it gives us confidence that the other substances are doing so in turn. It is called the similarity principle, and you quote that in boundary layer meteorology when you are talking about how things behave in the atmosphere. So, that's a very good indication that the predicted values that we have are in fact over-predictions and that they are conservative.

Chris Ollson, Jacques Whitford.

I guess what I was going to say, to follow up what Peter is saying, yes, absolutely, that is what needs to be done. Yes, remember it is 3-months of data, and I mean, I put it up there, and the reason I put it up there at the end of the presentation is because that is what Don MacKendrick had told me. I had recommended to NorskeCanada that every three months on a quarterly basis, a report be made available to this Forum because it as Chris (Waldron) read the points out, this is all meant to be for decision making and driving, not for alternative fuel burning trials, but just knowing what is going on in your local water shed and I think what we need to do is to move forward on this issue. On this one,

on specifically the new monitoring data, the new data on the ground is that we've got to wait to make sure that the Ministry's QAD and I've left the air guys to tell me when that is finally done.

When that gets done as I'm sure it will be done in a reasonable timeframe, as soon as that is done, my understanding is that then it becomes part of the process and just kind of follows on and just kind of continues on from there, is that the Forum can look forward to on a quarterly basis, receiving a very similar report. Its not going to be like this, and dear God, you don't want to read one of those every three months. But, what it would be is all of the data that is publicly available, you can go on the Ministry website right now, but it is all data unfortunately all of us could have talked for 4 hours tonight easily, but that is the stuff that we are not able to get through, so I'd say look forward to that data. Certainly it makes me more confident. No, it's not every compound.

But on the issue specifically of the dioxin and furons, on the issue of the PH's or others that are certainly more toxic than the substances that we are looking at monitoring, they are concentrations, model concentrations that we found that are well below, orders of magnitude below what we would consider an inhalation health threat.

And to follow up from the deposition on the ground, I guess there is two things on what we discussed before. One is absolutely, I would still recommend the mill if we were to do an alternative fuel burnt, actually go out and sample the ground, and I'm sorry, I did say that I wouldn't model. I'd actually do both, and the reason why is in Canada just because we have a baseline of dioxin and furan that may be unacceptable, if that was the case, if I was to locate a new mill in an area where we'd be pushing the dioxin and furan level in the ground or in the milk or the plants, or anything else, over and above an acceptable level, we would not be able to relocate the mill there.

So we would want to be on the ground testing real data. I think we are basically on the same page there, I'd do both and what we do with facilities, new facilities in Canada, if you are actually going to tip that balance or very have that balance for the same major pollutant criteria that has been coming out of the facility, you wouldn't be allowed to locate it. And I think the same or similar in the United States, but maybe I'm wrong about that. In Canada you wouldn't actually be allowed to locate a new facility there.

In terms of the concentrations of things that are in the air that we are actually seeing, that we're monitoring, that we're modeling, I don't believe that it's actually warranted that because when you say that well I wouldn't recommend to NorskeCanada just to go out and do a risk assessment because of what we've seen in the inhalation assessment.

The first stage of this I would not recommend NorskeCanada undertake an entire multi-pathway assessment because I don't think from the data that we are seeing from the substances that are potentially bio-accumulative are not in the air concentrations high enough to warrant a full blown multi-pathway exposure.

Perhaps we can get our folks at RWDI and Pioneer, I'm sorry who are sitting quietly and politely up here is there something that they want to add to any of the discussion? Maybe let Chris go...

Chris Waldron, Pioneer.

Well, I mean I'll respond to the last part of that first. You put up a slide that said in the recent guidelines of Environment Canada, you put up a cumulative risk number of 18 to the minus 5 per one hundred thousand as a threshold. I'll just point you to the Appendix A of the Human Health Risk

Assessment where, that I have performed as a screening level assessment of the inhalation pathway only for above 18 to the minus 5.

Chris Ollson, Jacques Whitford.

OK, just very quickly, I'm going to let you try....

[garbled, because they were both talking]

...number that you used for the cancer slope factor to track the pathway. The cancer slope factor that you used was for the oil ingestion of drinking water, the inhalation...

Chris Waldron, Pioneer.

They are actually the same number.

Chris Ollson, Jacques Whitford.

Nope, well its not on the US EPA website, its not. Unless you read the guidance...

Chris Waldron, Pioneer.

Let me, let's touch bases on this. I spent a lot of time, on the TC health assessment with USDA, I've seen a lot of sites in the states with this numbers out there. Trichloroethylene is a common industrial solvent that is used. The toxicity of trichloroethylene is being evaluated by the US EPA for a number of years now. They have published a draft document, a risk characterization document for trichloroethylene that just came out about a year and a half ago, thereabouts. It is what you call a provisional number. The US EPA likes to release numbers that say, do not require a quote and that do not use and yet basically it is incumbent on you to use those in risk assessments because the regulators will force you to use them. So, we are using this number in that document.

For cancer, there are a variety of different evaluations on pathway specific or route specific phases. You look at studies that have cancer via ingestion, you look at studies with cancer via for inhalation because there are different studies that are out there that will summarize and characterize the studies that are available in scientific literature. They basically put together a compendium or a synthesis of that information, and then the agency will come up with a recommendation of what they think this number should be.

Right now, what they have done in this risk assessment, this risk characterization document is that they do indeed have inhalation specific information, they do have oral specific information and in the final assessment of the document they recommend a single slope factor of .4 for both pathways. They don't specify, which is one of the criticisms of this particular document. However, their rationale for it has to do with, and this gets very technical, the metabolites associated with PCE as being one of the drivers of the carcinogenesis of the compound. So, they are saying it doesn't matter if it is inhalation or oral. We can argue that till the cows come home.

The document itself put forth the value, and that is the value, that no matter what the pathway you are using. And that is one of the drivers that put it up there. But you also look at dioxin and some of the other compounds that are coming out of the stack, that are up there in a similar vein. You are close, even if you take ET out. You are already close to that threshold just looking at inhalation. And again my point is, inhalation is just a small part of the equation here. Ultimately what drives these

combustor risk assessments, what chemicals are responsible for them during the risks in the pathways, they aren't the inhalation pathways, especially when it comes to cancer.

Jon Lefebure, Chairman.

Thank you Chris. Dan, did you want to have a chance?

Kathy Preston, RWDI.

Chris mentioned here that you are above 1.10 to the -5 . Certainly he has shown that the maximum grid receptor of 1.4×10 to the -5 . Now as I mentioned before, he has added all the cancer risks together. He has looked at the end points, and that is really important when you are subbing your risks, that your end points have to be the same. So, if it is oral, lung cancer, then you add all the lung cancers together. If there are kidney cancers or liver cancers, those cancers do not get added together. So, the other two risk levels for the other two gridded receptors are certainly below 10 to the -5 .

Chris Ollson, Jacques Whitford.

And also, maybe just to follow on, with the dioxin and furans, we are saying that it's the dioxin and furan number that you are showing, and you know it is no secret here. In terms of the special receptor that is fine, the gridded receptor in your appendix say the dioxin and furan number that you are quoting as 1.3 cancer risk is being the individual and is 1.3 times to the -7 . So, I mean, I don't think the dioxin and furan constitutes a major component of the overall hazard index or the cumulative cancer risk you are showing.

Chris Waldron, Pioneer.

Those are because of simulation O. Again, my point is dioxins, well no, that is not going to be the driver for cancer. It's always bio-accumulation by uptake. The second point is it may be the physicians in Canada separate cancer by end-point. It's a downbeat point. Typically cancer is cancer. There is a reason why the States think cancer is not separated by hit point is that again, by route of exposure, you can get chemicals in the body that can manifest cancer by a variety of different ways. There are some exceptions. Lung cancers are specific exceptions.

Other cancers in the body, it is difficult to say whether or not that cancer, because it was a pancreatic cancer versus liver cancer was necessarily from a different chemical. Dioxin may cause cancer of a variety of different organs. In order to segregate it is very difficult to do for cancers except for very specific types of cancers like lung cancers.

Peter Reid, Jacques Whitford.

When we looked at that though, I mean when the toxicities were advertised the cancer slope factors are derived. It is a most sensitive target organ. It's not cancer. Dioxin, sure dioxin causes more, arsenic is a perfect example. Arsenic causes cancer in just about everything you can dream of. If you've got it in your body, arsenic will cause cancer at an appropriate, high enough dose. Now, we don't just say that arsenic causes cancer of all of these things, and that is what I will use for your cancer slope factor. What we pick is the most sensitive target organ, the lowest dose that will cause cancer first, and that is what we come up with. So in Canada, and I think you are overstating it a bit, the cumulative risk document in the States is also drafted, certainly states in that that it is not a regulation by which one must follow in the EPA right now. Cumulative risk.

Chris Waldron, Pioneer.

That is not accurate. The way that the risks are managed in the States is obviously not germane in this context but to explain that, cancer is cancer in the States. There is no segregation of cancer for the reasons I've articulated.

Chris Ollson, Jacques Whitford.

When you look at the different, most sensitive organ cancer target and that is how we develop cancer slope factors. Whether it is in the States or not, in Canada, the guideline is that you add only those that are like-target organs. And the end of it all, that's being very conservative. The reality is that we don't actually know that these things are additive. Certainly most of the probably aren't. Some of them may even be synergistic. No question about it, but the certainty of the data is not there, we try to be conservative by doing that is fine, but I'll tell you right now that if we are going to go down the argument that we actually add in the trichloroethylene into the maximum grid and receptor 1.4×10^{-4} to the 10^{-5} , the maximum gridded receptor coming from a facility like that is not going to cause great concern amongst the regulator authorities in Canada. And it certainly falls within, as you politely point out, there is a 10^{-4} up to 10^{-6} range.

Jon Lefebure, Chairman.

I'm going to interrupt if I may now. I think it is time for the form members to ask questions of the panel. I would like to thank the panel for this discussion so far and open it to the floor.

COMMUNITY FORUM, OPEN TO THE FLOOR.

Joe Allen, Community Advisory Panel Member.

I feel a lot better now. I actually do. No, because you guys are arguing about details, I had a bunch of questions I don't have to ask now. I really felt, gee I don't what the word is to use, but felt really confused after the public thing that was held by yourselves. It was quite a lot less dramatic, your presentation tonight, that was at that public meeting, and I appreciate that because it was almost like war in that I almost... Go home and move my family over the next mountain range.

It seems that all three of you all agree after you understood what the terms of reference were. I think that's where the misunderstandings are made. I understand now that everybody is on the same page, for that study. Please don't assume details that don't make a [unclear] terms like don't follow the terms of reference, significant problems, and I feel that that study now is fairly representative.

I can say to my partners in the mill that that study met the baseline that the community asked for. That is what I heard the community say. That is why I was so confused after that last public meeting. Because I thought that it was followed, that the public wishes were followed, which was what you breathe, that is what I heard them say because I went to all the public meetings. So, that is why I was confused and actually now I don't have to ask these questions, because, to me I think you are all on the same page. But then, engineering details so, thank you.

I'm hoping we are going to have more questions.

Do you want us to debate or respond to that? How do you want us to proceed?

I think we should move on with questions because we are not going to have that much time.

Chris Ollson, Jacques Whitford.

I don't think we do agree so.

Jon Lefebure, Chairman.

OK, thank you.

Gary Holman, Community Advisory Panel Member.

Joes comment about the presentation today seems to be quite a bit different in terms of tone and conclusions from the one at the public meeting. I don't feel that way. I am looking at the words and as the presentations and slides. It is the same presentation, it's the same conclusions. Pretty complex stuff and I'm still up in the air around emission that I don't agree at all, but somehow the substance and the tenor of the emotions aren't any different than they were at RWDI's presentation. One of the fundamental concerns is around this,

I think I understand what Chris is saying, that the chemicals of most concern are ones that bio-accumulate. Even more so than the SO₂ and the H₂S and if you're really concerned about health risk over the long term, it's the chemicals the bio-accumulate. If I can just get a response on that, then I want to continue.

Chris Waldron, Pioneer.

That is a good question. I wouldn't characterize it that way in terms of most concern or not of most concern because you are dealing with two different elements. In one, we are talking about chemicals that are concerned to be via direct inhalation, and those are the NOCs, the TOCs, the sulphur compounds, particulates. But as you move out beyond that in terms of carcinogenic risks, those are not typically considered carcinogens in terms of the literature and science. Other chemicals that are of more concern are those that bio-accumulate, and that is why I brought up these other pathways. That is why the US EPA has a combustor guidance document about that thick and it basically focuses on indirect exposure pathways. It has a whole section on why you evaluate indirect exposure pathways from combustor sources.

Chris Ollson, Jacques Whitford.

Can I just ask a question on the document and the guidelines of the US EPA. You said earlier that you wouldn't have recommended to NorskeCanada unless they had to regulatory-wise take that type of assessment. The question I have I guess is that my understanding of the document that we are discussing, the EPA document, that if you are applying for a permit, if you are going to be permitted, that that is the basis on which the permit will rest. Is that true?

Chris Waldron, Pioneer.

That is true, but again, the issue thought is that you are kind of switching this around. You said the context of this document was that the alternative fuels trial was a part of this, but now you are bringing in the fact that from a risk assessment that I would have recommended that they do a risk assessment.

Chris Ollson, Jacques Whitford.

Well no, I'm sorry. I am looking for clarification. Maybe I misunderstood you.

Chris Waldron, Pioneer.

If you were to do an alternative fuels trial, if you have an existing facility, you are not mandated by the Ministry to do a risk assessment. Why are you doing a risk assessment?

Chris Ollson, Jacques Whitford.

So do you think it would actually be warranted? Everything you seen, forget about the alternative fuels trial for this preface. One way or another it's not what's on the table right now. Based on what you've seen, would you recommend today, a full multi-media risk assessment as that guidance? Is that what you feel that you need to do based on the results that you are finding?

Chris Waldron, Pioneer.

I feel that the... That is a good question. The issue with that is, if typically this was a source, you are going for a new permit from a new source you would do a risk assessment. So, the alternative fuels precipitated that. But, that is what kicked the whole process off. Now, to ask me now whether or not you should have done a risk assessment and it should have been a multi-facet risk assessment, if you are going to enter in to do a risk assessment of a combustor source, one of the concerns is oxydioxins levels. You should look at the indirect pathways if you are going to characterize the risks.

And that is the point I tried to make. I guess you want things over here. I didn't come to Crofton to do my presentation 2 weeks ago, a month ago with the intention to shut the mill down. Maybe that is what it comes off as. As I said earlier, I am usually on the other side of the table representing industry, not representing community groups. The issue I had with the risk assessment on a personal level was fundamentally that if you are going to try to make risk assessment, risk management type decisions, you need to have the information there in front of you. And I don't feel that the risk assessment that was done provides you with the information to do the pro bono risk assessment.

Now, had you started off 2 years ago and alternative fuels wasn't on the table, and now you are advising Norske what I said to do was a risk assessment. No.

Chris Ollson, Jacques Whitford.

OK, so at the table today my understanding is that the alternative fuels not trials, just the alternative fuels period has been shelved by NorskeCanada, right now. So, everything that you know right now, I'm not trying to get you to answer one way or another. Based on everything you have seen, do you believe yes or no that a full multi-media pathway risk assessment is warranted? Forget about what...

Chris Waldron, Pioneer.

Yes. I think it is warranted only from the standpoint that you have already let the horse out of the barn. I mean, that is the issue. You have already started down the pathway, you've already communicated to the public that it is safe, that there is no problems with your risk assessment. So if you are going to do it, you need to do it right. If you are not going to do it, you can step back from a permit standpoint. You are kind of asking me a question that really doesn't have an answer from the standpoint of the alternative fuels trial was on the table. That is what started the process. I can't help that the mill pulled that out in January or February of this year.

John Lefebure, Chairman.

I am going to stop you as this discussion could go on forever.

Carol Donnelly, Community Advisory Panel Member.

All these technical discussions are fine, but as a person who lives here in Crofton and who breathes the air and so on, I just want to know if Norske is prepared to go on monitoring and expand that monitoring to multi-pathway assessment because I am a cancer victim, I am at risk for cancer, I know that there are other people in town who at risk. Not only cancer, there are many other diseases that

can be caused by ingestion of dairy products, meat, fish, vegetables whatever. I grow vegetables in my garden, I buy locally quite often. I buy local eggs.

You know, I just want to know what kind of risk I am taking by living here, and I think that probably that's what most people in Crofton want to know. Are we ok? Are we not ok? Can we grow vegetables in our garden and eat them. Can we buy local produce and can we buy local meat and so on and be safe? You know, that is our concern. And I appreciate all the technical staff, but it comes down to that basis for me.

Jon Lefebure, Chairman.

Carol, do you want to direct your question at to one of the panel members?

Chris Ollson, Jacques Whitford.

I think your question is best directed at NorskeCanada. I mean I can't speak for the mill. If I understand you correctly, you are asking if NorskeCanada is going to undertake the assessment you just asked for.

Carol Donnelly, Community Advisory Panel Member.

... and expand it.

Chris Ollson, Jacques Whitford.

Yes, ok, I'm going to have to defer that to NorskeCanada. We certainly don't speak for them on those issues.

Don McKendrick, Community Advisory Panel Member.

A couple of things on this, and I'll take the opportunity to clarify here. You guys have quite a debate. The question on the table here always has been in my mind, and the reason we undertook this study, was so we could understand the impact of the air and how we can breathe it in the air shed at Crofton. At no time did I couple that with a precursor for an evaluation of alternative fuels. Sorry for that misunderstanding on your side, but it is important too, that as a representative of NorskeCanada I took the feedback from the community in many, many different Forums and focus sessions, and that was the overwhelming question that came across from all the those sessions, that went the distance in this Forum.

Your direct question is: 'What further studies will be undertaken?' The first part of that is we have committed and are going to continue to monitor and evaluate the data that monitoring that Chris and others have alluded to and mentioned and shown the data regarding additional compounds being analyzed and how we compare to existing modeling that we have and we heard from the experts here at the table as to some differences of opinion in the science and methodology.

I haven't heard overwhelmingly at the end of the day from an air born point of view of inhalation that there were any further concerns on health from the concentrations that are predicted, albeit with some concern with the conservative nature of it. And at the end, all of the data that has since gone measuring is better than modeling. The third question that I am going to put it off in abeyance for consideration is what further studies would be considered being done, and I haven't heard enough to really give you a quick and dirty response to that.

Donna Brooks, Community Advisory Panel Member.

Yes, throughout the presentation and talking the very start with the alternative fuel, I think at the second meeting we had here, before there was a lot of people at these meetings, was that the idea had been pulled and shelved immediately at that time. And then we spoke, gathered in this hall that we wanted to know that the air that we breathe is safe.

We have the air monitoring system here on the hall, and Michelle you sent me the data on that, and I didn't understand it when I read it, but I read it anyway. We have been monitoring the air, so we thought it was important that it be by the school where there are children. So, that is where it is. I have lived here 30 years on Arthur Street. The air from the mill, the prevailing winds, they do go this way. When there was, for want of a better word, fallout I was in the direct path of it. And, I must say over the past 30 years it has improved immensely. The air quality was what we wanted to know at the very start of this, before there was anything else. And that is what we asked you for, and that is what you said that you would give to us. So, all this study has come about because of the questions we asked at that time. And that was before anything. So I think that we have had some of it answered.

I don't understand a lot of the technical stuff, I wish I did but I just don't. The base of everything is just: Can we breathe this and be safe? That is what we want to know. And I have heard both of you say there is so much, the dioxins and the can... we can get it anywhere, but is it more prevalent here. Can you answer that? Just with the little studies you have done. Chris.

Chris Ollson, Jacques Whitford.

I think you think you've got overall, would I rather live here versus Toronto? Absolutely. Would I rather live here versus Vancouver? Absolutely. Would I rather live here than Ottawa from an air quality standpoint? I can't tell you because I haven't looked at the data yet. We have pretty good air in Ottawa as well.

The reality is that it comes down to, you were maybe at the first meetings back initially in May when we had the focus groups. At the time my wife was 8 months pregnant. We now have Chanel 11 months old. Would I move her here tomorrow? I can say to you beyond a question of a doubt, absolutely. And I think that, and I know that is my opinion. That is the opinion I believe is supported in here. Would I move her to the mill right on the fence line, where we had seen some of those higher levels that I have asked the company to go back and monitor. No, I wouldn't have. Not right away, because the model data at the time suggested that it would do things like impact asthma, right next door to the mill. It would do things like inflame asthma, do things like, without going into the crazy terminology we use, it would make your nose hairs stand up, on what we've seen on the model side.

So we've asked the mill, I'd like you to put at the very least lets start somewhere, whether or not they are going to be in the exact location we want them six months from now. I can't tell you that, but they have started on that. From seeing the preliminary, and I've only seen that data starting like, in the last two days. Would I be more comfortable moving there? Yes, and what we need to do is look at over the next, can I tell you that it's going to be the same thing, the next 2 years, 4 years, no. And that is why I think its important that the community and certainly its advisory Forum continues to get that data. That is my opinion and the opinion that I believe is supported here. I think you should hear from both of the other health experts sitting at the table because they may have differing views.

Chris Waldron, Pioneer.

Yes, I guess this is going to be a fundamental difference in philosophy. I don't think its appropriate for me to comment on whether I would move here or move my family. Typically for risk communication

standpoint, it is not relevant to the conversation. You are the ones who have lived here your whole lives. For me to move here now, I don't have all the exposures that you've had over the time frame. To back up a step in that in terms of overall risks and comparisons, the whole point of doing the risk assessment is for you to be able to take the information in the risk assessment and be able to evaluate the benefits of the mill from a social economic standpoint; jobs, community; you've got a town versus the risks.

Then, what you can do to work with the mill to improve reduction of risks? What maybe acceptable to me really doesn't make any difference because I may have a higher risk threshold. I may not care. 18 to the -4, 18 to the -3 doesn't make any difference to me. I could move there, I could move my family there, but for you as the town folk, as stakeholders, that is what's important. And that is where in this process of trying to have information and provide information,

I've tried to focus on transparency and clarity in terms of what goes into this and what the assumptions are. I didn't feel that those were met in this process and if the alternative fuels trial is something that is totally out the window, then I guess I missed the boat on that. That is something that is, from our perspective, part and parcel to this whole thing in terms of a before and after. Otherwise, we probably wouldn't have started down this risk assessment in the first place.

Donna Brooks, Community Advisory Panel Member.

That is why I asked the question about the, cause we knew about the alternative fuel burning, I mean once the community said no, it was pulled and was announced at that time. So, what Donna said is what we asked for.

Jenny Farkas, Community Advisory Panel Member.

I would just like to start by thanking Norske for allowing us to have the Forum. I have found this to be fascinating. I appreciate having all of you here and hearing your debates and so on. I was not involved in the early discussions on this issue. I was not involved in any way in the terms of reference for the Jacques Whitford sitting, and to me that is in the past. I am trying to think about the present and the future.

Now that I've heard this whole discussion, I know with certainty that what I would want is the kind of study that Chris from Pioneer is putting on the table. For all the citizens of the valley, why wouldn't we want that? That would be an incredible tool for many levels, and local government. It would help us in the decision making, zoning etcetera, many layers. So this can be a very exciting, and this advisory body did not exist at the time that the terms of reference were set for the initial study. But it is exciting because this body does exist now as we are deciding what we want to look at and study in the future.

So I appreciate hearing about that model because I must say that people that were here at the last meeting will know that the kind of question that I was asking about the Jacques Whitford study were because it didn't feel like a complete enough story. But that doesn't mean that the terms of reference were right or wrong, (missed some)

The Jacques Whitford study said we need to pay attention to, so that is one step that to me is clear, but really the next big step is that we undertake a much larger air shed study. It doesn't necessarily have to solely fall on Norske's shoulders. The Crofton air shed group presumably has money too and that is exciting. The Ministry of Environment presumably has money for air shed planning. I'm sorry, this isn't a question yet, it may become a question. But that is the value that I see of this process

here and the value of having this advisory Forum which is very much in its early stages. It's to figure out what else do we want to know. So now we know something and for some it is sufficient, and for others it isn't and for me who is involved in higher level decision making it isn't enough information.

I don't live in Crofton but you know we are an air shed. It is not simply the Crofton area that concerns me. So, I guess actually it is a comment. I just really want to say thank you, and if there is any comment based on my comment, please I would like to hear it.

Michael Ableman, Community Advisory Panel Member.

There is a fairly fundamental theme that we seem to be forgetting. There was no terms of reference as far as I'm concerned. The study was set up, managed, controlled, the Consultants hired, the data generated by the company themselves, the polluters themselves all behind closed doors.

This is unprecedented for any civilized society anywhere to have the polluters themselves provide the data for the study, manage the study, manage initially this Forum and how it is set up, is unheard of. So, it is hard work that we are talking about is based on data that we have no idea how it was generated, who came up with it, where it came from. That is a major, major assumption here and from my perspective, from what I've heard tonight, the 122-page review that our Consultants did goes into incredible amount of detail.

The Jacques Whitford study is incredibly flawed on very fundamental levels. If everything else was thrown out, the lack of transparency alone is a really critical issue, and I think that if the denial is so strong that we can't hear that, that we can't hear that we should be operating under the same community principles that would take place elsewhere which is the community is consulted before a study like this is generated.

The stakeholders are asked what do they want. The data is not generated by the polluter themselves. An example, we tried to hire Canadian Consultants. Nobody would do it. Why? Why wouldn't any of these Consultants, Dan was one of them. He said he didn't have time. Weeks later he was hired on by this company. They work for the industry. Look at their records. You can access who they work for. We had to go to do risk assessment across the boarder. And I think the fundamental thing is where did the data come from? Where did the data come from Mr. Reid that you use for your study?

Dan Hrebenyk, SENES

May I please respond? You have made an accusation. You have made an accusation, please let me respond. You approached me, and I was quite willing to work for you, however, you gave me a timeframe in which you wanted to work completed, which I could not meet. And so, I quite honestly told you I couldn't do it. I then referred you to 2 other Consultants, one of whom was Kathy Preston. Several months later, when my workload was lower, I was asked to review the Jacques Whitford report. At that time I could do it. It had nothing to do with who I work for Sir.

Michael Ableman, Community Advisory Panel Member.

Well that is a very different story.

I am asking who provided the data for your study Mr. Reid? The emissions inventory, I have to know because we were asked. Rick Steton [unclear] was called by members of your company, for information, so who provided it?

John Lefebure, Chairman.

I would like to end this discussion because we are trying to deal with real issues. I think think you ought to question directly to Chris.

Peter Reid, Jacques Whitford.

I will answer that question quite simply. The data comes from the NorskeCanada emission inventory, and that emission inventory is conducted consistent with industry best practice. I know that because when I worked in the oil and gas industry, and I did so for six years, I had the exact same job of maintaining a large, complex emission inventory and that emission inventory is required for regulatory reporting purposes, required for the national pollutant release inventory and for corporate due diligence. I had that responsibility, and I know what that responsibility is like. If those numbers are wrong, I lose my job. If those numbers are wrong, my company gets taken to court by those guys, so

Chris Ollson, Jacques Whitford.

All those guys he is referring to are Ministry, I am sure of it.

it is my job to make sure those numbers are right. We looked at that emission inventory, and it was out of our scope to go in and tear the thing completely to pieces, but we did look it over just to make sure that it was complete and there were no errors. We looked at that and we were reasonably satisfied there. We took those numbers into our dispersion model and the study. Now actually at one point there is a suggestion in the RWDI review that we had taken those numbers and incorrectly applied them. That we had omitted 2 sources, and these are reasonably important sources that the power boiler, the natural gas emissions, and the bunker C from power boiler number 5.

I spent about half an hour the other day going through the spreadsheets and they are in fact in there, in that emission inventory. I think they are treated appropriately. If we just had a question about that when this was being done, we could have pointed out that in fact these are dealt with in column DK and DL in the emission inventory. We weren't asked any of these questions.

Kathy Preston, RWDI.

We didn't say the facts were completely omitted, we just said that from what we could tell from the spreadsheet, criteria air contaminant emissions when bunker C and natural gas were being fired, which admittedly isn't very often, were not included.

Peter Reid, Jacques Whitford.

They are. And actually if you check columns DK and DL you'll find that they are there.

Kathy Preston, RWDI.

Well I can't check anymore because we had to delete files.

The reality is that, we are getting down into something where I think we are going the scope of what we have been asked to do here. We used data that's publicly released. It's publicly released to Environment Canada through the National Pollutant Release Inventory. If we weren't comfortable with what the data set, regardless of who provided it, we would not have undertaken the full study. We have debates as to whether this compound should have been in or that, but overall, we are satisfied with that. Will there be changes later on? Potentially, as the years go by, and the NPR requirements change, but I can comfortably say it doesn't matter who gives the data. Clearly it is the mill that gave us the data, there is no secret there.

Machael Ableman, Community Advisory Panel Member.

So the mill did give you the data?

Chris Ollson, Jacques Whitford.

Absolutely!

Sherman Power, Community Advisory Panel Member.

I had one question now I guess two, probably because an issue that Michael (Ableman) was just bringing; the statement that the two companies SENET and Jacques Whitford were employed by industry. Maybe that raises a question of integrity. We have also heard Chris Waldron say that normally he is employed by industry, so [interruption by many members] the question that I had, and a little bit of a statement [unclear] is that I came here tonight hoping from all of these people that I'd have a little bit of comfort in some of this information that I have been able to interpret and some that I can't. Instead, I wind up with one thing sticking in the mind and that is the question around the idea that there was a statement made by Chris as the use of government, either regulatory numbers or indicators not being derived by health requirement or health fact. But at the stage same time his assessment; his health risk assessment is based on basically the same type of information.

He himself stated that as time goes by and we learn more about the toxicity of some of these things, that all of that changes. So I have no comfort in what this Chris has really said, because if you change as toxicity levels. I also have no comfort from his health assessment, risk assessment because he ... now that could also change. I find no comfort from either side.

Patti Bauer, Community Advisory Panel Member.

I would just like to ask, Michelle (), you are the person that prepares the emissions inventory for NorskeCanada?

Michelle Vessey, Community Advisory Panel Member.

Yes.

Patti Bauer, Community Advisory Panel Member.

I would just like to make the comment that earlier, or previously this year, I asked you for an emissions factor and an inventory letter and you had given it to me and I relay person and a week later we look at it again. You had responded, "I'm sorry, I've made a mistake in providing that emission factor." And I also read that information to the Forum at a later date through e-mail. The point that I was trying to make is that you are the person of the most [unclear], that prepares the emission inventory, and collects the data.

Once the Forum had passed, I asked you for some information on a particular question. You had given it to us, and then, upon review of that, we realized that it did not ... actually correct, and when we responded back to you, you had said, "I'm sorry, I've made an error." The question therefore, goes to the fact that if the mill is the one that supplied the data to Jacques Whitford in preparing this report, then we would hopefully assume that the scientists would do a very detailed analysis of the emissions inventory and factors that were applied in this study. And you had suggested that you had used data that was given by the mill in presenting, in doing your modeling. That is one point and comment that I would like to have from you.

Jon Lefebure, Chairman.

You are looking for clarification from Peter (Reid) on how they analyze or the extent to which they analyze emissions inventory?

Patti Bauer, Community Advisory Panel Member.

Yes.

Peter Reid, Jacques Whitford.

We weren't asked to completely review the report. In my work, in my preparation of emission inventories, there are other internal checks and balances to make sure those numbers are right. Like my emission inventory where I worked, I had Consultants externally review these, and I was confident in the results. I provided emission numbers to Consultants to do work for the company I worked for. That is a common practice. I had to assume that they have the exact same confidence in those numbers and they didn't contract us to review those numbers.

I guess that if you understand the regulatory regime and there are consequences for filing incorrect data, and there are mechanisms for if you have made an error, to go back and restate those. We do that, so I don't understand where this lack of trust in the numbers comes from because [unclear]

Patti Bauer, Community Advisory Panel Member.

Well actually, as I understand it, there are no consequences for reporting errors in your emission factors for the NCASI data. And also, 80% of all the emission factors that are presented to NCASI are based on other industrial companies. They are not actually numbers that Norske is studying. Only 20% of the numbers that they use for the emissions inventory are actual numbers; 80% of the rest of them are based on other standards within the industry.

Peter Reid, Jacques Whitford.

And that is common. That is just the way it is. We have imperfect knowledge of all of our emissions, and as an air quality professional, this is what we are left with. We don't have unlimited resources to study every single source of the data and get perfect numbers. What we do, is we take a reasonable approach and we look at some of the things that are more important, and we spend extra time on making sure that those numbers are right. If you are saying that the numbers aren't perfect, you are absolutely correct.

Patti Bauer, Community Advisory Panel Member.

So, that is one point. The next, I assume that if the scientists were to redo another modeling for various other reasons, then they would do a proper review of the emission factors that were used, and not just used one near. They would use several years to make a relative comparison.

Dan Hrebenyk, SENET.

Well first of all, if you wanted to go and verify the NCASI data, it would cost you a fortune and normally it is done by regulatory agencies such as the US EPA, for example. It costs a lot of money to verify all those numbers and you wouldn't expect a Consultant working for Norske, for example, to go back and check to see if they were doing the right thing.

Patti Bauer, Community Advisory Panel Member.

I wouldn't talk about the NCASI factors; I would actually verify the numbers that the mill was to use.

Dan Hrebenyk, SENET.

The mill was applying NCASI factors to their operations, their scale emissions to their own operations. But whether the NCASI factors themselves [unclear]

Patti Bauer, Community Advisory Panel Member.

I am a layperson, and I noticed that the mill has provided errors in their reports.

Dan Hrebenyk, SENET.

They may have made an error once, that doesn't mean that all the numbers are false.

Chris Ollson, Jacques Whitford.

Maybe I can follow up in terms of who. I want to clarify, first point is why was the 2003 data site used. We are doing an inhalation risk assessment or an inhalation pathway exposure assessment, whichever you would like to call it, is we don't look back in time when we are dealing with these things. We look at the most current, where are we going. Can we use a couple of years, multiple years? We could have, we were asked to use the 2003 data set, we did, and we were reasonably comfortable with that. At the same time, what is that?

Patti Bauer, Community Advisory Panel Member.

You were asked to use 2003?

Chris Ollson, Jacques Whitford.

I guess it was an interpretation on our part, we were asked for, "What are the current day conditions that I am breathing." And the most current day conditions that we have are 2003. Now the question from that is that going to be representative of all of the users moving forward. In response to that, what I've actually suggested to the mill is that when the 2004 data is complete, because what the reporting deadline on that, it's soon right? [June 1, 2005] I would like to know as the human health risk assessor, the human health person that evaluated the study, is I do want to know is, am I looking at data from 2004 that is much beyond what I predicted or what I used from 2003. If that is the case, then obviously I've got concerns. I want to know what that data is, and I've also suggested, and NorskeCanada has agreed, that they provide that back to the Community Advisory Forum. You don't have to go to NPRI web-site you don't have to go through all the hassle, that NorskeCanada bring that forward as part of the commitment to the Community Advisory Forum. I think that is something that should continue to happen as long as the Community Advisory Forum is there. It's similar to what I have suggested for the quarterly, and that an annual report on the things that we are monitoring on the ground. I believe that the company should make it easy for you to see that data and you shouldn't have to go looking for it. That is where I fall on that.

Jon Lefebure, Chairman.

I would like to give Don [McKendrick] and Michelle [Vessey] to respond. There was some concern about comments.

Don McKendrick, NorskeCanada, Community Advisory Panel Member.

Yes, I think it is appropriate that you allow Michelle [Vessey] to respond to this. I refer to the inference from your questioning, and even comments Patti [Bauer], but really even going to the heart of the integrity, and the openness, and the honesty one of my staff, she should have the right to respond. Those were pretty strong words.

Patti Bauer, Community Advisory Panel Member.

She very clearly said to me that she had made a mistake. I am not concerned about her integrity in any way, shape or form. I was referring to the fact that if an employee who is making emission factors available to the Consultants, and also having that information reported publicly, on the NCASI website and there is actual errors, then I think that needs to be known to the public.

Jon Lefebure, Chairman.

OK, I would like to give Michelle [Vessey] a chance.

Michelle Vessey, NorskeCanada, Community Advisory Panel Member.

My response to that is I have to go back and look at that email, and remember, there was a question on one particular compound. I'm fair and open trying to build trust, I supplied the information there. If memory serves me correctly, there was a typo on one line which I revised and gave to you. As far as, there are probably on an emission spreadsheet to give you some context, there is probably over 1500 emission factors. There is a lot, and you know, am I a human being not making typos? I'm sure, occasionally.

As far as quality control from what Peter [Reid] was saying, we compare that with NorskeCanada to see if our numbers make sense. We do a check there. We also check annually with Vancouver Island and BC mills. We have a Forum, actually NorskeCanada has initiated to review NPRI quality reporting and requirements. Whether there was a inference or not, it feels like an attack on my integrity, and I definitely do my best job. It's not considering the typo, but there are quality control and assurance procedures in place to find those. It is a very comprehensive database the industry had, and I would hope really, that the any of that data that I shared with you, again would be in the spirit of trust and cooperation.

The comment from you, it doesn't help build trust, to be in my opinion, to be my integrity to be attacked. I don't appreciate it.

Patti Bauer, Community Advisory Panel Member.

I have to say that I am sorry because my intention was not to attack your integrity. The intention was to show that there are times there are problems with the emissions, with the data that is provided by the mill. There are questions on that data and...

Michelle Vessey, NorskeCanada, Community Advisory Panel Member.

I don't think that implying typo infers that the entire report is...

Jon Lefebure, Chairman.

OK. Thank you. I'd like to move on...

Kathleen Johnnie, Community Advisory Panel Member.

I'm trying to be calm right here because I am upset. Dan [Hrebenyk] probably knows why. SENET reports [unclear] and we get to review [unclear].

I do have some questions, and I want to have an understanding of this from Kathy [Preston] of RWDI. You keep referring back to Jacques Whitford's conservative terms. If this is conservative and this is liberal, where are they? I don't understand that. I don't understand the quantification that you are applying to that. Are they here, or are they here, or are they out in left field. Where are they? They

are not, if you are not able to say that they are clarified in their report [unclear] where are they on the scale of conservative to liberal?

Kathy Preston, RWDI.

I wouldn't be able to tell you that without reassessing, even at least one point towards it because there are so many variables in there that differ. There is some issues with the emission inventory and there are some issues with the modeling and how they all combine, some would result in lower concentrations and some would result in higher concentrations. Without redoing the emission inventory, and without redoing the meteorological modeling the CALMET modeling and the conversion modeling, there is not a simple answer to that. All I can say is there is certainly some assumptions that were made that were not conservative.

Kathleen Johnnie, Community Advisory Panel Member.

If you can't respond to that, and I understand that there were some questions about the terms of reference and the difference between Jacque Whitford's terms of reference and whatever terms of reference you understood from your client, did you inform your client that the parameters in the terms of reference and the scope have to be the same so that you could be comparing apples to apples and oranges to oranges? I don't understand. I heard you talk about the scope and terms of reference.

I have a really good understanding of when the scope isn't directly characterized from one Consultant to another. I need to have an understanding of what that relationship was with your client to be able to properly assess why you went to with the review and comparison that Jacques Whitford sent. I would like to say I would like to thank this lady who [unclear] on the internet with Donna [Brooks], for providing the information background. That is what I saw as reporting in front of me.

I had nothing to do with this review early on in the process, but what I saw in the prep here was that area residents wanted to know if they air they breathed was safe. That is what I saw. That is what I saw when I saw the concert being requested, that I am seeing now here in this Forum is a discussion about something that came from 20/20 hindsight. Which is very lovely, but how do we assess all of this information based on the fact that the citizens themselves asked if the air that we breathe safe. I am feeling like there is a lot of unnecessary confrontation happening between the Consultants and it is confusing me.

It is upsetting me and I think its upsetting this Forum. Did you explain to your client that properly to do a peer review of Jacque Whitford analysis, that you needed to know what their terms of reference were?

Kathy Preston, RWDI.

It's my turn to respond. Yes, I did. In fact I was initially, to give you a bit of history with this, I was initially contacted by the CHC and then later I was also contact by someone from Jacques Whitford who was acting for NorskeCanada. They were initially trying to determine who would be doing the peer review and they were looking at RDWI and SENET responded and I believe they asked that some information from some other Consultants as well. It was the CAF and in fact initially we were going to be coming here to make presentations.

We were asked to prepare a proposal of how we would do a peer review. My recommendation was, first of all, that we be involved at the outset in determining the terms of reference. And at that point that we would be involved in the project; that we wouldn't be involved just at the end of it to review the

whole thing. But that we would be involved right from the get-go. We would be discussing the terms of reference so you wouldn't end up at this point where you've got a finished study and now we are all arguing about whether they did it the right way.

I've been involved in processes that have worked really well, that have involved the community and have involved a number of Consultants...I am getting to your point...where you start right at the outset before all the expense goes into the place of doing all the dispersion modeling, and this must have cost well over \$100,000 to do the whole thing. I requested to have input at the terms of reference stage, and I certainly would have like to see the terms of reference. Never did I reference a terms of reference. I didn't hear anything more other than I wasn't selected for that, to be the one to do the review for, NorskeCanada was going to pay for.

In the end, my understanding was a decision at the CAF that two peer reviewers would be selected. One was SENET and that one was RWDI and we would be working not for NorskeCanada but for the Crofton Airshed Committee. It wasn't my decision as to who ended up paying our bill.

Kathleen Johnnie, Community Advisory Panel Member.

I'm not asking that.

Kathy Preston, RWDI.

I did request to have input and to know what the terms of reference were, and I never received it. All I received was permission to go forward when I had a report in front of me and the report itself does not clearly state what the terms of reference are.

Chris Ollson, Jacques Whitford.

Can I just add something to that? I agree with Kathy [Preston], everything she has basically said is, as far as I know you weren't provided with our terms of reference. That is a failing on our part. We are not going to sit here, and the reason I asked for the scope clarification...

Kathleen Johnnie, Community Advisory Panel Member.

I don't need clarification on that, I honestly don't. If I sound like I'm upset with Kathy, it's not that. That is not where my anger is sitting, [unclear]

Don McKendrick, NorskeCanada, Community Advisory Panel Member.

May I please interrupt because there are 2 terms of reference here. Jacques Whitford was given a very simple challenge to take on the study of how safe the air we breathe is. This Forum, and I have to remind you folks with all due respect, developed the terms of reference, a one-page document that was to be given to both RWDI and SENET.

It was the responsibility of NorskeCanada to deal with their sub-contractor being SENET. It was the responsibility of the CACG to give that same terms of reference to RWDI. You are telling me quite categorically you never received those terms of reference?

Kathy Preston, RWDI.

I received that terms of reference. I did not receive a terms of reference for the Jacques Whitford study.

Don McKendrick, NorskeCanada, Community Advisory Panel Member.

OK I apologize.

Kathleen Johnnie, Community Advisory Panel Member.

That wasn't my concern in regards to that. I was just wondering why there is not the [unclear]. I do understand that when you are doing terms of reference up, it is really good to, a really good idea if you to have a peer review to have that term of reference set up. I would recommend, and I say this to all of the components involved in this region, and all industry, and all business; always involve the first nations, always involve community if you are going to use the stakeholder process and develop your terms of reference. That way it isn't an interim process. And that isn't a criticism of Norske again, but something that I see across the board right now.

What ends up happening is we end up at this point where Consultants are arguing and it's not beneficial to the community. It's not beneficial in any way that I feel, to the process. In terms of, I did have a question for Dan [Hrebenyk]. I see him standing up, so to make sure I ask him before he leaves. Are you satisfied with the location of the monitoring locations? I know there is a lot of discussion with that at the ITP. Are you satisfied with the location of the monitoring stations?

Dan Hrebenyk, SENES.

You know, I haven't been involved at all in the selection of those stations, and I haven't visited the stations which is what I would do before I would comment on them. I haven't seen them. I am going to refrain from commenting on that.

Kathleen Johnnie, Community Advisory Panel Member.

[unclear]

Jon Lefebure, Chairman.

I have to interrupt here Kathleen, because I understand that Dan and Harriet have to go to catch a ferry.

Dan Hrebenyk, SENES.

And I apologize for that. I'd like to stay but...

Jon Lefebure, Chairman.

Well, 9:30 is when we requested you to be here, so I just want to thank you both very much for being here.

Kathleen Johnnie, Community Advisory Panel Member.

I've just got a couple of more questions that I didn't understand a couple of the terms that were in the sensitivity analysis. I didn't understand what that term was, what that represented. Sensitivity analysis, either Cathy, you or Peter, I think you were both talking about it earlier.

Kathy Preston, RWDI.

I can give you my understanding of sensitivity analysis. It would be when you have done a study, you would take one parameter and you would change it. Say there was a lot of discussion over one of the emission rates that were used, and if you'd used the maximum value, it would have been 1.68 times than the average value. An example of a sensitivity study would be to rerun the model changing that one parameter to see what effect that has on the predictogram of a concentration.

Peter Reid, Jacques Whitford.

Yes, and that is consistent with my use of that term. You just change one of the inputs and you look at what it does to the output.

Kathleen Johnnie, Community Advisory Panel Member.

And why do you, and I would have liked to ask Dan (Hrebenyk) this, but you think you agree with RWDI in regards to emission inventory and data processing. Marine pathways and things like this, why do you think it should have been included in? Why does Jacques Whitford feel its not?

Kathy Preston, RWDI.

Statements were made that they were being conservative. To my mind, emissions from trains that are coming to and from the mill, trucks that are coming to and from the mill and ships coming; the only reason that they are happening is because of the mill. And therefore, to truly take into consideration all of the emissions from the mill, you would also include those forces.

Peter Reid, Jacques Whitford.

Just to follow up on that, there is two points. One is certainly there was consideration given to it, not in the model itself, I mean there is in the report a discussion of what those would be. Our scientists position that they didn't need to be included, but the guy that deals with the risk side, not the air modeling side. What's reassuring to me is if you've got, and I guess this a question for you guys, not really because you haven't seen the data but, if you've got an NO₂ and an SO₂, those are the 2 primary emissions that were worded out from the vehicle traffic, the trains, and the ships right? When I looked at this I said OK its not in the model guys, and it's a fact if we monitor these things at the substations at the very least for NO₂ and SO₂.

In my mind what the monitoring does is, it does a couple of things. One is it captures all sources. You are not going to get all the stuff that is coming from the boats, from the trains or anything else into the mill. We can argue about whether or not they are in the right spot, but it certainly captures that data. We will understand what that will be on the graph for SO₂ and NO₂ and PM. By having a monitoring station located in...

Kathleen Johnnie, Community Advisory Panel Member.

If they are located in a fashion that would pick them up...

Chris Ollson, Jacques Whitford.

Right, so if they were located in a fashion that would pick them up. That is one of the things that I was looking at, and it refers to my other point. Yes I mean, I guess that is where it comes down for me, is that...

Oh, the other one is offset conditions. The question with offset conditions and all that, I certainly understand your concerns on that. It certainly was a concern of ours, of mine, OK, my team and the health side team. The reality is, what we said was that is, and I made it very clear to our client NorskeCanada at the time, that if we are not going to do that because we said do you want offset conditions. We think offset conditions may be warranted. No, what we are going to do first is undertake this. And again, but putting the monitoring stations where they are, we will see offset conditions in that monitoring data if they are located in...

Kathy Preston, RWDI.

That is what I was just saying.

Chris Ollson, Jacques Whitford.

So you will see, you will see spikes if there is an upset condition that happens at ground level, acute 1-hour, 24-hour upset and that's what I will be interested in over the course of the next couple of months to see what the...

Jon Lefebure, Chairman.

I'm going to interrupt here. We've reached a point where we have to make some decisions regarding time. We've gone past because we've started late. Largely we've gone past the time we promised the public they would have a chance to ask questions, and we are going past our meeting time. We need to make some decisions here about; we still have 3 persons more who would like to be on the list. We have to make a decision about how we are going to...[time concern from the floor] so there is another limitation there. Do I have agreement that we should allow the public to have some questions now, because they have waited patiently? I have seen nods, so we will open the questions from the floor.

PUBLIC QUESTIONS FROM THE FLOOR;

Wayne MacDonald:

Some of you probably don't know who I am, but I was very intimately involved in the [unclear] and supervisor at the mill for a number of years. I can take this right back, first of all to the location of the stations. I was the one responsible to the Ministry for the [unclear – Rock Wellington?] site. The stations were put; substation up in Escarpment Way was easy. We knew that was where the smell went, and that was where the prevailing winds went. Second station was out at Resthome. We'd had a number of smell complaints. It was never proven. The third one was very politically motivated. We put that station where it is now; we call it the station at substation. It was put there because that was the nearest place that we could put it to the trailer park. We didn't want to put it there because it didn't follow wind patterns. Wind patterns very rarely flow from the mill to that station, and you can check the wind rose. It is in a very poor position. We wanted to put it over at the south of the mill. That being said, it was all in the trees, and we couldn't find a suitable site close to the mill on private property, so we settled for that site. That's the first point.

The second point I have to make is, there is an outside source that I mentioned to Don (McKendrick) today that is not recognized. There is a landfill immediately next to the mill. Past the mill, and go between the mill and the Timberwest Road, there is a large gully on the downside of the road. There used to be a large gully on the upside of the road. There is about 15,000 units of hog fuel put in that circa 1962, somewhere in that era that was buried. Because it's on private property, we couldn't go over there and test it and report the results to MODLP. So, we had to take channels and talk to them privately, and nothing has ever done about it. But, if you drive by there and check the winds blowing towards the mill and you will smell it. It's not the treatment plant, its been know for a long time that there are emissions of H₂S from there. There are also emissions of methane. That is the second one.

The wind station on top of number three newsprint is never been satisfactory, right from when I put it in. Anyone that has worked at the mill a long time will tell you the wind up there is blowing in one direction. If you go over by the substation, it can be blowing in a totally different direction. It will give you the general weather patterns. We couldn't put a station where we wanted to, which is down towards [Willy's Island] where the prevailing southeast winds take the smell. There's nobody lives

there. We could put in; we had the money for three stations, so we put the stations where we thought they would do the most good, and give the most information.

The 250 meter grid that you used, I would take exception as a professional to. If you take that over the length of the mill, you have about 3 points on one side of the mill and I think you should go back and do that job again with a 50 meter minimum grid.

And finally, I take exception with the data being considered from the mill as not being accurate. Professionally that is as accurate as we can make it. We follow all, I am going back to the "we" here and I apologize, but I would fire anybody tampering with the data. It's collected as per the directions of the government, and it is correct. Thank you.

Ron Hawkins.

I just wanted to make a comment. I am very grateful for this evening and I've found it very informative. I think basically we are all seeking the truth. There is no reason not to want it. I would like to suggest that if toxic components like dioxins and metals have been screened out, or ignore, or given lower priority in this work, that perhaps that's a mistake even though the core emissions that are of concern are a very legitimate health risk, they are not necessarily fatal. So I think that is something that again, can't really be dismissed if that is the correct word. In fact, I'd make it more positive. I think it should be looked at. Thank you.

Darren Dempsey.

I just wanted to share with this committee faulty path access [unclear]. There are some very specific limitations that the Ministry would Norseke [unclear]

Jon Lefebure, Chairman.

I'm going to ask Chris or Don to respond to that.

Chris Ollson, Jacques Whitford.

I just need to refer to Don (McKendrick). I don't see...

Don McKendrick, Norske Canada, Community Advisory Panel Member.

When you get into a multi-path assessment like this you are getting into a whole lot of other sources, a whole other part, stakeholders are involved with this. With me, as Norske initiated solely; I don't think it would be incumbent on looking at other industries, at the municipality, looking at Provincial Government and other stakeholders. I think these folks here will tell you that that very kind of study is years in the making. Correct me if I'm wrong, it is a challenge. We are talking to them....

Chris Waldron, Pioneer.

No, I don't think that is accurate at all.

Chris Ollson, Jacques Whitford.

Don (McKendrick), I mean here you are certainly, I mean, I think you are overstating it. What it would involve? It certainly isn't going to be done tomorrow. Could we technically do it tomorrow, and get it done in the coming months? Absolutely, but the reality is that as Cathy pointed out. If you are going to go to the extent of doing that study, and I'm not suggesting that it's warranted, I think, I believe that this is something, this is a question for you folks to wrestle with. You've heard everything that has gone on at the table tonight. You've got all the paperwork in front of you. And really it's a decision that needs to be made. And this is why I think you have this Forum. Now that being said, why would

it take longer than just a couple of days, and me running back and forth to Tim Horton's to stay up all night? It's because you would want to make sure that the terms are agreed to.

You would want to bring all stakeholders, if they are not at the table, to the table; at least invite them to the table. There would be discussions clearly with the Ministry and as well as everybody else undertaking this. Could it be done technically? The answer is yes. Have we done these studies in the past before, and we are doing the permit of a new facility? Yes. It is not a matter of technically can it be done, it's a matter of should it be done. I think you've all heard my way on that. I think you've heard everybody else's. I think that is a matter for you now as a community advisory Forum to weigh through that.

Bernard Bintner.

[] public came in [] and are now getting a report back as we know. It's more than the air, it's the water, and it's the soil. So, I guess the public is coming back and saying ok, now we're smart. Now we know more information. Give us another, better report. Who's going to initiate it? Should that come from the Ministry? Don...

Don McKendrick, Norske Canada, Community Advisory Panel Member.

I think it goes beyond the scope and the authority that I have to initiate it. We would certainly have to engage members of those parties. Ultimately it probably would have to come from the Ministry.

Bernard Bintner.

Well, would [in the past?] When was the last one done?

Don McKendrick, Norske Canada, Community Advisory Panel Member.

The last one was in the 1970's.

?? from Ministry of Environment.

I guess I can, I'll talk to that for a bit since I represented the Ministry. I'm a regulator that deals with this mill. We are a regulatory agency number 1, and we sit enforce the guidelines and standards which are health based and environment based. This is our primary function. Could we do, could we work beyond that? We work beyond that in a couple of ways. We do support these kinds of studies, but we feel that it's up to the... We would gladly participate in setting the guideline or setting the terms of reference, working in the community, working with first nations to set the guidelines and terms of reference for study. We would also have particularly participated in the past and supported these financially with manpower and data. This isn't primarily what we normally do all the time, but we would [] have them doing without. Another point, there is another whole way of looking at this. I think the studies are fine. We never really have enough information. Having said that, I think it's really important to focus on precaution, precautionary principle, prevention, and prevention planning. I think this is the way to go; this is the way of the future. Planning, planning partnerships, stakeholder partnerships, industry and government partnerships [unclear] we look at what are the possibilities for seeing it. We don't know all the toxicological information. We don't really know all the health risks. We spent the better part of a quarter million dollars on here probably tonight, and over the course of these events. We are talking staff time, industry time, Consultant expenses. That money could also be directed at prevention efforts. That money can probably be... we probably got enough information to make some really good choices. We are about encouraging the major players to make those choices, including ourselves. So, that is where I would stand on, "Where do we go from here?" One of the great opportunities we have right about now is the Ministry wholeheartedly supports increased monitoring efforts. We will put our money where our mouth is on that. We also support air shed

management planning. This something we think has got a lot of future, and a lot of potential. This Forum, there is a lot of other Forums; we could look at that. This could involve first nations' people. This could involve stakeholders, industry, other industries, government, non-point sources, and point sources; there is no limit to what we could do with this. Even involve the whole consultative community. We've got a lot of power, a lot of ripe and experienced people there.

Let's involve them from the ground up, from the bottom up, till the end product. That is what I have to say. That is what we, as the Ministry, are refocusing our attention on. In the past, we were focusing on the end of pipe. This is the history; you have something coming out of a pipe. It is really destroying fish. You have to look there. However, over the years we've gone up and up and up. Where do we end up with? We end up with people. Ninety percent of what we do involves people; ten percent of what we do involves technical data, hard numbers. We are a small group now compared to what we were even ten or fifteen years ago. But we are actually potentially, can probably achieve more. Certainly we are told to do more with less, but I believe we actually can. It's a question of thinking smarter, working together and that is basically all I have to say.

Lindsay Hill.

I was wondering if I could ask the experts, and I am really looking forward to future efforts. What advice would you give to the mill as to where it should stand with relationship to budget, and help the people of Crofton, what do you think the people of Crofton can do to look out for their health?

Chris Ollson, Jacques Whitford

We are all sitting here looking at each other. It's obviously a difficult question, but I'll give my best go at it at this point. I have recommended to the mill, and I have recommended to you tonight, that I think initially it would take three months. That we look at the monitoring data, the additional monitoring data that has come out that we have got the mill doing, and I think that data needs to be very closely examined. I think the Ministry plays a role. From my understanding, not as being an air modeler, but that the Ministry has a role in Q.A.(ing) before I can rely on the house side. I think that there is work to make sure that we are in the right spots. I mean certainly having a sub-station by the trailer park, for me that's the densest population of people right near the mill, so from a health perspective, I actually would like to know what the 'on the ground' data is. Regardless of whether it is going to be the highest, that is the densest population and there are things that could be done. Where I think the money is best in the short-term for the mill is on the monitoring, and then re-evaluation from there – that is my opinion.

Jon Lefebure, Chairman

Would anyone else like to comment?

Kathy Preston, RWDI

I would. I think you could get some additional value from the modeling that has already been done, just to dig into the data if you did want to try and reduce some of the emissions, because some exceedences were predicted. You could dig into the data to get a sense of which sources are causing the emissions and that is a good way to focus efforts - you focus your efforts on the sources that are causing exceedences.

Chris Waldron, Pioneer

Specific locations or specific sources at the mill - what we're talking about looking at. Whether it is an improvement on solutions and (colour??) technology on a specific boiler – whatever - but that is one of the real values added. Continuing to evaluate the modeling because you can connect it back to a specific source, which you can't do from the modern perspective. I guess the thing that I would add in terms of recommendations is the terms of investment - the biggest return that I have seen on investments and forms such as this. Quite frankly, that's the truth, and although we have been arguing over process and different things tonight, the question was if you were to start over, where would you begin and who would initiate that? All these issues would have to come to the fore within this form or another form of some sort, and you have to iron those out, starting from the emissions inventory all the way through to get to a document. Does that take you two years – no. I mean you can set a time frame of nine months and you could do it. You have to agree to work within the constructs, and I have done it before and I am sure that Chris has done it before.....

Jon Lefebure, Chairman

I am sorry Chris, I am just going to interrupt because I sense that our colleagues from Salt Spring have to leave to catch a ferry so I just want to thank you very much for coming tonight and I think we are going to wrap up soon – I have another question from the public however.

Gary Holman

Jon, I want to really thank the community for delaying the meeting so that we could participate in the agenda. For everyone who attended, I know there has been some difficult moments here, but this has been really useful as far as I am concerned, and just the last discussion we had - the last five or ten minutes about where to direct your investments - that is what we have to think about, and I wanted to suggest if the consultants perhaps, with the approval of their respective clients, could make some joint recommendations. I sense that there is consensus about how to move forward; about some things to do in the short-to-medium term that would help us move forward. I would like to see some of the suggestions you've come up with just in the last couple of minutes, down on a sheet of paper.

Jon Lefebure

Thanks Gary, and thank you all.

Kathy Preston, RWDI

Chris Waldron, Pioneer

Jon Lefebure, Chairman

Gary Holman

Wayne Warwara

Jon Lefebure, Chairman

Don McKendrick, NorskeCanada, Community Advisory Panel Member

Jon Lefebure, Chairman

Sharon Andersen, Community Advisory Panel Member

PANEL ASSESSMENT: (assessment of the evening by Community Advisory Panel Members)

Jenny Farkas
Douglas Tucker
Sharon Tucker
Kate Miller
Donna Brooks
Ray Therrien
Don McKendrick
Michelle Vessey
Joe Allan
Sherman Power
Carol Donnelly
Kathleen Johnnie
Marion Johnston
Jon Lefebure, Chairman
Donna Brooks
Jon Lefebure, Chairman

The meeting was adjourned at 10:10 p.m.

The next meeting of the Community Advisory Forum will be on June 14, 2005 from 7-9:30 p.m.

Recorded by Linda S. Ramer