NUNAVUT WATER BOARD HEARING

RE: CAPE DORSET TYPE B WATER LICENSE

HEARING HELD AT THE
COMMUNITY CENTRE
CAPE DORSET, NUNAVUT
JANUARY 23, 2008

APPEARANCES:

NUNAVUT WATER BOARD:

Mr. T. Kabloona (by phone)	Chair
Mr. R. Hanson	Acting Chair
Mr. G. Kusugak (by phone)	Vice Chair
Mr. L. Toomasie	Member
Mr. T. Tatatuapik	Member
Mr. G. Porter	Member
Mr. G. Kakkiarniun	Member

NUNAVUT WATER BOARD (NWB) STAFF:

Mr. W. A. Tilleman, Q.C. (by phone)	Legal Counsel
Ms. C. Emrick, Esq.	Legal Counsel
Ms. D. Filiatrault	Executive Director
Mr. D. Hohnstein	Acting Director Technical Services
Mr. B. Kogvik	Secretary/Interpreter/ Translator
Mr. D. Bhandari	Technical Advisor
Mr. D. Carr	Licensing Administrator
Mr. R. Dwyer	Licensing Administrator

NUNAVUT WATER BOARD CONSULTANTS:

Mr. H. Hartmaier	BGC Engineering Inc.

LICENSEE:

HAMLET OF CAPE DORSET

-Mr. A. Stewart	Senior Administrative Officer (SAO)
-Mr. B. Roy	Community and Government Services (CGS)
-Mr. F. Schell	Mayor of Cape Dorset
-Mr. J. Palluq	CGS Assistant Regional Director
-Mr. M. Aulakh	CGS
-Mr. P. Fuentes	Project Officer CGS
-Mr. T. McDonald	Project Officer CGS

HAMLET OF CAPE DORSET CONSULTANTS

-Mr. P. Cavanagh	Geotechnical Consultant, AMEC Earth & Environmental
-Mr. C. Joyal	Dillon Consulting Ltd.

INTERVENERS:

GOVERNMENT OF NUNAVUT-DEPARTMENT OF ENVIRONMENT (GN-DOE)

-Mr. M. Atkinson — Manager of Environmental Assessment and Land Use

ENVIRONMENT CANADA (EC)

-Ms. C. Spagnuolo

INDIAN AND NORTHERN AFFAIRS CANADA (INAC)

-Mr. J. Rogers — Manager of Water Resources
-Mr. A. Keim — Water Resource Officer
-Mr. D. Abernethy — Water Resources Coordinator

INTERPRETERS/TRANSLATORS:

Mary Hunt — Inuktitut Language
Ben Kogvik

Trevor Bourque — Sound Technician

Karoline Schumann, CSR(A) — Court Reporter

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(PROCEEDINGS COMMENCED AT 10:59 A.M.)

THE CHAIR: Good morning, everyone. My name is Thomas Kabloona, and I'm the Acting Chairman of the Nunavut Water Board. As Chair of the Board, I regret that I am unable to attend this public hearing in person. Unfortunately, the weather does not allow me to be with you in Cape Dorset today, and the Board will also have the full transcript of the hearing available for review.

To ensure that the hearing is run efficiently and effectively, I have delegated the Chair for this hearing to Mr. Robert Hanson, a past Chair of the Board. I ask the parties advise the Board now if there are any concerns with proceeding in this fashion.

ACTING CHAIR: Nobody has shown any concerns, Thomas.

THE CHAIR: Are there any concerns?

ACTING CHAIR: No.

THE CHAIR: Mr. Hanson, please proceed.

ACTING CHAIR: Thank you, Mr. Chairman. Before we proceed with the hearing, let us begin with a prayer, and I'll call on Tommy Tatatuapik to say a prayer for us. Please stand.

(OPENING PRAYER)

ACTING CHAIR: The Nunavut Water Board is an institution of the Public Government, created under Article 13 of the Nunavut Land Claims Agreement and is responsible for the use, management, and regulations of fresh water in the Nunavut settlement area. On behalf of the Water Board, I welcome everyone to Kingait.

The purpose for this public hearing is to review the application filed by the Hamlet of Cape Dorset for an amendment to their Type B water license in accordance with the Nunavut Waters and Nunavut Surface Rights Tribunal Act.

With me today are the Members -- some of the Members of our Board. To my far right is Guy Kakkiarniun from Kugaaruk, Lootie Toomasie from Qikiqtarjuaq. To my left is George Porter from Gjoa Haven. Tommy Tatatuapik from Arctic Bay. And, of course, I'm the Acting Chair, Bob Hanson from Iqaluit since '65, Cape Dorset '69, '70.

The people who are not here is Thomas Kabloona, of course, our Chair from Baker Lake, he's on the phone; Geoff Kusugak, the Vice Chair from Rankin Inlet. I don't think he's on yet, but he will be coming on board from Rankin Inlet, of course. They are both weathered-out.

Several staff members and Nunavut Water Board

consultants who have aided in a technical review of the Hamlet's application are present, and I will highlight key individuals: Dionne Filiatrault, the Executive Director; David Hohnstein, the Acting Director of Technical Services; Richard Dwyer, the licensing administrator trainee; Ben Kogvik, interpreter/translator and secretary to the Board, and several other support staff. As I mentioned before, Bill Tilleman, our legal counsel of the Nunavut Water Board will be participating via teleconference. Good morning, Bill.

MR. TILLEMAN: Morning.

ACTING CHAIR: Also assisting us here in Kingait is Catherine Emrick, who is also a lawyer who does work with Bill from Calgary; she's also one of our people who works with us. In addition, we have interpreters available for simultaneous translation. As I mentioned, Ben Kogvik is our Board secretary/translator. And for some of you in this room, Mary Hunt from Yellowknife, also born from Cape Dorset; welcome home, Mary.

The Board has contracted with BGC Engineering and Associated Engineering to independently review the application, provide submissions, and give evidence at this public hearing on geotechnical matters.

To ensure an accurate record of the proceedings, we have with us a court stenographer, Karoline Schumann. To assist Karoline, I ask that all parties please state their name before speaking.

In the past, parties in other proceedings have approached the media prior to the release of the Board's decision suggesting comments about what the Board is going to do either procedurally or in terms of the final result. Since the Board cannot comment on pending matters either by confirming or denying the accuracy of other statements to the media, the Board would appreciate it if all parties would refrain from any such comments that may imply a certain action or decision by our Board. Board Members will not discuss the hearing or the matters before the Board with any of the parties of the media.

If you have any questions about the Board and its practice or procedures, please speak to the Executive Director, and she will assist you. There was a note that CBC possibly will be here, and they're not, so we haven't got to worry about them.

APPLICATION HISTORY:

I will now give a brief history of the

application. The Hamlet has held a valid water license for water use and waste disposal associated with its municipal infrastructure from -- it says from start license term. From when?

MS. FILIATRAULT: My apologies, Mr. Chairman. The license only recently expired in August of 2007.

ACTING CHAIR: '7? Okay, so 2007. It says, "from", but it's okay.

The Board would like to advise parties that in addition to the application for amendment, there is a second application for amendment currently underway to extend the term of this license.

In 2005, an initial application was filed by the Hamlet of Cape Dorset. The Applicant submitted an updated application in February 2006. A technical meeting was held in September 2006. Following the technical meeting, the Nunavut Water Board requested re-submission of the application to include final design report. A revised water license application was submitted to the Nunavut Water Board from January to March of 2007.

Following consultation and review by interested parties and direction by the Board, following receipt of the requested documents, the Nunavut Water Board -- the Board decided in June 2007 to

proceed to a public hearing on the application.

A technical meeting teleconference was held on July 3rd, 2007. The Board encouraged the technical experts to once again meet to resolve issues. Additional supplemental information was to be provided by the Applicant prior to this public hearing. In July 2007, Community and Government Services informed the Board that construction of the new sewage lagoon was ongoing and requested additional time to file required supplemental information.

A subsequent pre-hearing/technical meeting was held in Iqaluit on September 27th with the Nunavut Water Board staff participating via teleconference. Once again due to bad weather, we couldn't be there.

The pre-hearing discussion of October 10th, 2007, was issued setting out the issues before the Board today and require the Applicant to submit final supplemental information no later than November 15th, 2007. Written submissions for this hearing have been received from the Government of Nunavut-Department of the Environment, Environment Canada, BGC Engineering, and INAC.

ROLL CALL:

If there are no concerns, I would like to move

forward to a roll call. I will begin the roll call with the Hamlet and then go to the other intervening parties.

I see the Hamlet is well-represented. Welcome. GN-DOE?

MR. ATKINSON: Yes, Mike Atkinson representing GN-Department of Environment.

ACTING CHAIR: Thank you. My mistake, if I could just come back to the Hamlet, and maybe, Art, have you introduce yourself along with your members, who will be assisting you at this hearing.

MR. STEWART: Art Stewart, SAO, Cape Dorset. We also have to my left, Bhabesh Roy representing CGS; Fred Schell, Mayor of Cape Dorset; Johnathan Palluq, CGS; and Malli Aulakh, also representing CGS.

ACTING CHAIR: Thank you, Art. Environment Canada?

MS. SPAGNUOLO: Thank you, Mr. Chair. Collette Spagnuolo representing Environment Canada.

ACTING CHAIR: INAC? Jim?

MR. ROGERS: Thank you, Mr. Chair. It's Jim Rogers, Manager of Water Resources, representing INAC. Also, I would like to point out Andrew Keim, who is the Water Resource Officer for the Qikiqtani region is also here, and David

Abernethy is the Regional Coordinator. Thank you.
ACTING CHAIR: BGC Engineering?
MR. HARTMAIER: Holger Hartmaier with BGC Engineering from Calgary.
ACTING CHAIR: If any other interveners would like to speak, please identify yourself.

Are there any members of the general public who would like to identify themselves and perhaps address this hearing?

It is also our tradition to give respect to our Elders. At any time an Elder may speak to this application on file. As the hearing goes on, you may see somebody come in, we'll find out who they are, and we'll stop, and we'll recognize them immediately, and if they wish to address either the Board or the hearing, they will do so without any hesitation.

Before we -- before proceeding, I would like to request that all parties register with Richard Dwyer, the Licensing Administrator, at the side table, and I'm sure you all already have. And anybody who does come in, Richard, you'll get them to sign, I'm sure.

That kind of brings us to Item 7 on the agenda, and it is the identification of any motions or any objections to the application that is before the

Board.

Then with none, we will now proceed with the Item 8 of the agenda, the presentation by the Applicant. The Hamlet is requested to make a brief -- is requested to make a brief presentation on the current status of the project by Art Stewart, SAO of Cape Dorset. And just a question, Art, basically how long will you need? And, again, state your name.

PRESENTATION BY HAMLET:

MR. STEWART: Art Stewart. I personally will only need about 2 minutes. Our -- the group will probably need about an hour-and-a-half. And, Mr. Chairman, I failed to introduce two people. Colin Joyal from Dillon Consulting, and Paul Cavanagh is our geotechnical consultant.

May I proceed?

ACTING CHAIR: Thank you. Before you proceed, I will now swear in the witnesses, and I will remind participants to state your name prior to speaking to assist the stenographer in keeping an accurate record. Thank you.

ART STEWART, BHABESH ROY, FRED SCHELL, JOHNATHAN PALLUQ, MALLI AULAKH, COLIN JOYAL, PAUL CAVANAGH, sworn:

ACTING CHAIR: Normally, the lawyer would do this on our behalf, Mr. Tilleman, who is on the phone. He's not in attendance. Catherine is our lawyer, but she's not registered yet for Nunavut, but it is the power of the Canada Evidence Act that gives us the power to do the swearing in of any member that needs to speak before this hearing, and that's why I have been asked to do it. I should have been a commissioner of oaths, and I'm not, after all these years.

So anyway, yes, Mr. Stewart, would you please go ahead with your presentation, and we'll now go to the agenda.

MR. STEWART: Art, Stewart, SAO, Cape Dorset. We will have four speakers on our behalf, one of which is Fred Schell, and Fred would like to make some opening remarks to this committee. Fred?

MR. SCHELL: Yes, as Mayor of Cape Dorset, I'd like to welcome --

ACTING CHAIR: Sorry, Fred, always state your name before you speak.

MR. SCHELL: Oh, yes, Fred Schell, Mayor of Cape Dorset.

I'd like to welcome everybody to the public hearing of the Water Board for our new sewage lagoon license, and definitely would, number one,

like to welcome the Water Board for choosing Cape Dorset to come here and actually look at it, and also for CG & S and all the engineers and consultants that showed up here for this meeting. I'd just like to welcome everybody. Thanks.

ACTING CHAIR: Thank you, Fred. Carry on, Art.

MR. STEWART: Next, I'd like to introduce Johnathan Palluq, and Johnathan has some remarks on behalf of CGS.

MR. PALLUQ: Johnathan Palluq, Assistant Regional Director for CGS. I'll be talking in Inuktitut, so you want to put your ear piece on.

My name is Johnathan Palluq. I'm Assistant for the Regional Office and for the Services. I will mention Timoon Toonoo's name was not mentioned. He's our Regional Director. And behind us back here, Patricio Fuentes and Tom McDonald, Project Officer. My name is Johnathan. I'm originally from Clyde River, and I speak a dialect, a high Arctic Ponlictin. I have no doubt of the fact that everybody understands my dialect by most people here.

And I have worked for MACA prior to Nunavut creation before year 2000, and I've been SAO in

Clyde River for six-and-a-half years, and I was a member of Clyde River too, as well, and that time I work for DPW before CGS became a department. And I been -- since Nunavut creation, I was Regional Director of DPW, and also after Nunavut creation, I became Assistant. I just thought I give you an introduction, a little bit about myself.

In regards to these people from -- Colin as well from Dillon, Paul Cavanagh is from AMEC, Melody Aulak, Senior Manager of the Infrastructure from CGS.

I like to -- in regards to this public hearing regarding P Lake lagoon, this application was arise in the year 2000 -- or after 2005, and the application was given to Pond Inlet. It had to be documented in regards to sewage lagoon in Cape Dorset.

This is an old application; it's not just recently that it arised. When I lived in Clyde River, I have heard about it, about the application, and apparently there was some problems, issues related to this lagoon. Then in 2008, what we see here before us that it was approved like it was indicated earlier, the application for the Nunavut Water Board.

We're requesting for mechanical -- the

infrastructure has to be renewed. This is an old file, an old application. This has been ongoing project for some time, and it has been amended by Hamlet of Cape Dorset, and they get funding from our department, and it has been a concern for some time, and it does not -- it always breaks down, and the sewage tends to spread onto the land or to clean environment. It's a result from the problem where the lagoon is in Cape Dorset. In February 2006, in February 8, the application was approved by Hamlet, by their Council.

In regards to that, it's called regional submission, the document. It's for renewal of a license in 2005 in July up to today. It has been three years since then, since it was proposed. We had a technical hearing, and it was reviewed in September 2006 in Cape Dorset. We visited the site, the description of the system.

And as of July 2007, there was some meeting in Calgary, and our research people from our Nunavut Government and your -- they had another meeting in regards to that. Then in 2007, we had another meeting in regards to the same issue in Iqaluit. During our meeting at that time, 12 issues arised. There was 12 issues that had to be addressed, and we had to go back to them. The application has

been -- gone through interveners, and it was given to interveners so they can assess them for a few days. This is the case as up to today.

What we see or hear before us with our staff and our -- the interveners here, we have not addressed some of the issues as we haven't had time. This past Monday, some of the Board submitted to our office from BGC, it's called Final Report. We have not looked through them. Whether we are -- we have to -- some answers to some of the issues related to this project. We've been communicating through e-mail prior to this hearing today, and some of them were submitted less than ten days. And if that should be the case, I'm not sure if we're going to go ahead because some of the documents were submitted less than ten days. I don't know what is the legality issues related to those for the number of days because they're less than ten days.

My final comment, like I said before, this has been an issue for the last nine years, since the time when we heard about it, and it has been very, very slow, and it's taking too long. I think it shouldn't take that long. It should just take four years at most. It has been going on for almost nine years now, and it has not -- the problems with

the lagoon has not been solved. And it's costly, and it took many, many years, days -- or months and days, and it has been -- it's taken too long. And some of the -- it's been just ongoing project, and there's always a problem with this, related to this application or to the project. I'm sure today we'll probably be elaborating on the same topics today, but I think we should resolve this related to this project.

We know that what the project is about it's called a sewage lagoon, and it's one of the best lagoons on Baffin Island actually, and most of the sewage lagoons in all the communities, they're all faulty. Like this here one in Dorset, Pond Inlet, this past September 2007, when we reviewed it, the sewage lagoon when we visited the site, we were reviewing the license. It was under the criteria, it's a little bit below that, and it can be easily fixed.

We feel that -- and it's always going to be -- it was same thing in Pond Inlet when we review -- when we visited the site in Pond Inlet. Like there is some old lagoons; they're a lot better than this one -- I mean, this one's a lot better than the other lagoons in other communities, and the berm is stable. Where it flows, it's stable. You will

hear this from other interveners, and it has been documented, and you will hear from their point of view, and I thought I bring this up. Like I said before, this is one of the best sewage lagoons on Baffin Island.

When we work, as an Inuk myself, I grew up in Nunavut in Inuit Nunavut, and I've also grew up outside of our community out on the land. I'm survivor, and I survive from the land, our environment. And we used to be out of staple foods such as flour, sugar, tea, coffee. In those days, that's how I grew up. We did not depend on what was store-bought food, such as groceries. We had to use our dog team for -- as part of our lifestyle for surviving.

This is still very, very important to us, and the sewage -- such as the sewage lagoons are a big problem. They tend to spread and damage the waters and the land. This is what we're protecting, and us Government employees of Nunavut, we're striving for those projects to be resolved. We don't want to build another that is badly designed.

Regarding to this project, I'm very optimistic it can be easily fixed. We know that it's anywhere, like globally, in our land, anything can be damaged that is man-made, it can be fixed, and

it can be -- it has to be maintained. Nothing can last forever. I don't think that there's anything that's -- lagoons anywhere in the world and up here that's fixed for permanently. We all have the same expectations in order to maintain, such as this lagoon. It's like anything else, like your skidoos, your equipment, the garbage dump; they always have to be looked after and maintained. It's like anything else.

We like to see this to be completed, and we like to be -- it's costing us. We're always -- there's always question of funding in Nunavut, and especially in Baffin. I think all the lagoons in all the communities has to be fixed. This just one of the examples, and it's cost -- it's very, very costly. I think we have to go towards maintaining the lagoons in the communities, not just reviewing such as this one all the time because that can be very expensive. As a people in Nunavut or on Baffin Island, like I said, we're only hurting ourself with the -- dealing with the same project over and over again.

Please review this application or the project carefully, and I'm trying to come up with are there some issues that still has to be fixed or looked into, or if there's any better ideas that will come

up in order to develop a new sewage treatment, and we have other things to do, other projects to maintain. This is just one of the projects that we have to resolve.

This is all I have to say for now. Thank you.

ACTING CHAIR: Art?

MR. STEWART: Thank you, Johnathan. Our next speaker will be Colin Joyal from Dillon Consulting, and just before Colin takes the floor, I'd just like to mention that Gary Strong, who was the lead from Dillon, unfortunately Gary can't be here. He had some family problems, so Colin is filling in for him.

ACTING CHAIR: Just before you start, Bill, are you still with us? Mr. Tilleman, are you there? Thomas, are you there?

THE CHAIR: Yes, I'm here.

ACTING CHAIR: Geoffrey, are you there? One last time, Bill Tilleman, are you there? I'll check again in a few minutes; maybe he just walked away for a bit. Sorry, Art, go ahead.

MR. STEWART: I'd like to now introduce Colin Joyal.

MR. JOYAL: Thank you, Mr. Chairman. My name is Colin Joyal with Dillon Consulting. As mentioned, Gary Strong, the project engineer, could

not attend unfortunately. I'm an associate with Dillon Consulting out of our Yellowknife office, so in Gary's absence, I'll be presenting the technical information on behalf of Dillon Consulting. So I guess this means I drew the short straw.

As an outline of the presentation, I'll be discussing the project description and purpose, site selection and selection process, design considerations, system description. There will be a geotechnical presentation from Paul Cavanagh from AMEC, and then we'll have some comments on looking forward, and questions, which I'll leave to Mr. Chairman to manage.

The project description and purpose: The objective -- essentially the purpose of the project is to develop a new licensed sewage treatment system at the selected site, which is P Lake. The reasons leading to the identified need for a new site include the documented failure of the existing lagoon, the fact that it was not feasible to expand the existing system, and an order that was issued by Environment Canada 2003.

A number of potential sites were considered. The site at Q Lake was considered, but in the winter of 2001/2002, the community's water supply pipeline froze, and Q Lake was used as an emergency

backup water supply source, which wanted to be maintained; mechanical plant, the capital and operating costs were deemed to be prohibitive; and the Site R lagoon option, however, this site is currently used as granular stockpile and is located at the end of the runway.

Through consultation, the proposed site was selected. Water license application was submitted. The paper there that you probably can't read comes from the Community authorizing to proceed with the design of the lagoon at that site.

The owner of the facility is the Municipality of Cape Dorset. The Applicant is the Senior Administrative Officer. The operating authority is the Senior Administrative Officer.

The terms of reference issued by Community and Government Services and Dillon's proposal dated November 12th, 2004, briefly includes the following: Develop the 5-, 10-, and 20-year sewage generation values, sizing of the lagoon based on community requirements, identify potential for expansion beyond the 20-year design window, develop the conceptual layout of P Lake lagoon including the site access road, site layout for lagoon cells, and location of lagoon outfall, along with the completion of an assessment of the expected lagoon

treatment.

And again as part of the process, various treatment methods were considered as demonstrated in the table. A long retention lagoon with a fall decant was selected as a preferred option. The system includes year-long treatment, the sewage freezing over the winter and treatment during the ice-free days with discharge in the fall. In comparison to the other options, such as the mechanical plant option, lagoons are easier to operate and are more cost effective.

The lagoon was designed to achieve the following discharge criteria: Five-day BOD of 45 milligrams per litre; total suspended solids, 45 milligrams per litre; and fecal coliform counts of 1.5 X 104 fecal coliform units per 100 millilitres.

In addition, some of the design parameters were the lagoon volume designed for 20-year community demand based on annual retention, which had a capacity of 96,100 cubic metres, a free board in the lagoon per INAC design requirement of 1 metre, berm slope stability greater than 1.25.

Some of the operating parameters included a decant, annual decant in the fall, in September, each year over a two-week period; a filling rate, a monthly filling rate of 1/12th of the annual volume

each month with the first fill after one period of overwintering of the constructed lagoon.

The off-site drainage and runoff would be directed away from the lagoon, resulting in precipitation equal to evaporation.

The water retention system was a freeze-back of a lined berm and an impermeable liner. The liner is keyed into foundation soils or bedrock.

Environment Canada temperature data was used for the modelling, and the acceptable berm permeability was 10-8. Berm height, maximum berm height based on the site geometry is 6 metres with a minimum 4 metre crest constructability.

I'm not sure how well you can see that on the screen there. You've probably seen it before. I'm not sure how well you can see my pointer either, but along the left side here is the community of Cape Dorset. You've got the existing site, existing lagoon site over here with the discharge. There's the site access road that you can see up here, and the proposed location for the lagoon in this area.

I think they're going to dim the lights a bit here, might help us out. I'll proceed, we'll try our best. There we go; now we can't see each other, but we can see the screen.

So again, we've got the community located over here, the existing site over here. This is the site access road going up to the proposed lagoon site in this area with a discharge through P Lake and then down through the wetlands to Telik Inlet. That's to give you some context of the site location.

This slide shows the facility that we're discussing, the sewage lagoon. Just briefly, some of the features at the top here is the truck discharge flume with a truck turnaround. The lagoon utilized the natural configuration of the land upstream of P Lake, berms, around the perimeter of the berm, which is shown here on the figure, at the bottom side of the west side of the lagoon with the discharge to P Lake.

The next few slides show construction photos of the facilities. The pictures do most of the talking, but I'll walk through a little bit of what we see. Road to the site is shown on the left. It's an 8-metre wide access road with a guardrail designed to TAC standards. Some of the drainage works shown on the photo on the right, the intercept runoff and distributed through the culverts across the road.

The road and guardrail shown on the left with

the main access to the new road facility from the photo on the right. These two photos are of the lagoon berm construction, showing the key trench and the placement of the geosynthetic clay liner. The photo on the left shows the berm on the west side of the lagoon; it's one of the larger sections. The 4-metre wide top, side slope, and placement of the riprap control erosion, along with the photo on the right of the deflection berm.

The trench was compacted, the material on site, as shown on the photo. We've got the discharge vault being constructed and discharge pipe as it's being backfilled in place. The discharge pipe went through the -- penetrated through the berm and liner. This shows the ceiling of the liner at the pipe with the geosynthetic clay liner and placement of bentonite powder. On the right is the truck discharge flume where the sewage is discharged into the lagoon.

ACTING CHAIR: Thank you. Just before we get into the effluent quality estimates, I think it's getting very close to lunchtime, and I know the SAO has to pick up some staff and take them home for lunch, so what we'll do is we'll break now, we'll adjourn for now and come back in at 1:30, and we'll start the hearing again at 1:30.

Just before we go, Thomas, are you still there?
THE CHAIR: Yes, I'm still here.
ACTING CHAIR: Okay, if you want to call back in at, let's say, 25 after 1; we're going to re-start again at 25 after 1.
And, Bill, are you there?
THE CHAIR: Okay.
ACTING CHAIR: Yes. Bill, are you there?
MR. TILLEMAN: Yes, I am.
ACTING CHAIR: Okay, we lost you for a bit. We weren't sure; you didn't answer us. We just wanted to double-check. If you could just check back in, Bill, at 1:30, I'd appreciate it.
MR. TILLEMAN: Okay, will do.
ACTING CHAIR: Okay. Geoffrey, are you there or still not? Okay.
Just I guess for point of information or point of order here, Bill, Geoff is not here for the morning, for the first hour session; I'm just wondering are we going to bring him on, and he can read the transcripts, or is he now out?
MR. TILLEMAN: Well, that's what I would propose, and the sooner he comes on, the easier that is to do, but you know, he can always catch up that way. You just want to make sure the parties

have no objections.
ACTING CHAIR: I'll ask that at the end of the day if he's still not there. Thank you, Bill, so we'll say good-bye for now, and we'll be talking to you people at 1:30. So we will adjourn for now and come back here at 1:30.
MR. TILLEMAN: Okay.
(PROCEEDINGS ADJOURNED AT 11:56 A.M.)
(PROCEEDINGS RESUMED AT 1:32 P.M.)
MS. FILIATRAULT: Mr. Chairman, we do have quorum, and with the Chair himself on the teleconference, we are fine as far as proceeding with the hearing.
ACTING CHAIR: I appreciate that, no, that wasn't my problem; I knew we already had that.
Anyway, gentlemen, if you want to carry on with your presentation, and again, just please state your name when you start.
MR. JOYAL: Thank you, Mr. Chairman. My name is Colin Joyal with Dillon Consulting.
I'm just going to resume from where we were, moving on from system description to effluent quality estimates. This slide shows some of the results of the modelling that was done and estimates of the effluent quality after the lagoon and after the wetlands. The best- and worst-case

scenario is presented based on adjustment of some of the variables, such as residence in the lagoon, temperature, and the time of discharge, just to show that anticipated effluent quality limits to be set by the Board in the license will be met at the point of compliance.

This slide shows there's eight locations presented as part of the monitoring program. This slide doesn't show the lagoon itself, but its location is right here. We've got the control site, lagoon inflow, lagoon effluent, P Lake effluent, wetlands effluent, and three sites along the wetlands between P Lake discharge and the wetlands outlet as well in this slide. The lagoon location is in this area, the effluent here, this is P Lake, and the discharge route through the wetlands.

Next, I'll call on Paul Cavanagh from AMEC to present a geotechnical presentation.

MR. CAVANAGH: It's Paul Cavanagh speaking. Thank you, Mr. Chairman, and thank you, Colin.

This presentation that I'm going to give is a follow-up to a previous presentation given in this very room in Cape Dorset in the late summer of 2006 and includes information from various technical

meetings during 2007. The presentation summarizes information that has already been provided to the Water Board in written submissions or meetings since 2005.

This first slide is an aerial photograph that shows the location of the proposed sewage lagoon site. It's in a natural drainage remote from and elevated above Cape Dorset, and the area drains away from Cape Dorset, as shown on the slide.

Based on 2007 Dam Safety Guidelines, the classification of this facility for consequences of failure is designated low, and this classification is based on there's no population at risk downstream, minimal potential short-term losses to the environment and cultural values, and low potential for economic loss.

The suggested frequency of dam safety reviews for this class of structure is as follows, and this is a quote from the Dam Safety Guidelines: (As Read)

> A dam safety review is not required for low-consequence dams. However, the consequences of failure should be reviewed periodically, since they may change with downstream development. If the classification increases, a dam safety

review is required at that time.
In a nutshell, what this means is that the selected site is a good, safe location, with low operational costs and low potential for downstream consequences. It also means that formal dam safety reviews and a schedule for future dam safety reviews are not required at this time; however, a periodic review of the classification should be established.

This slide shows in a very short form what AMEC has completed in terms of general work for the project. The first five sub-bullets were undertaken in advance of construction. The results of that work suggest that a frozen core dam design was feasible for this site.

During construction, AMEC and Dillon were on site to witness the construction of the berm and related facilities, which included excavation and backfilling of the cutoff trench and the installation of the secondary liner system. The observations during construction confirmed original assumptions used in the preliminary design.

Since construction, AMEC have conducted more detailed analysis to confirm the original design assumptions and to satisfy the regulatory requests for different, additional information and analysis.

All work done to date suggests that the structure has been designed and constructed in such a manner that it will perform its intended purpose, to retain sewage, for up to one year before annual discharge or decanting of the contents to the environment. All of this information has been provided to the Board.

There has been a significant amount of work to get us to where we are today. The next step is to monitor performance during operations and use those observations and data to, one, periodically confirm that the design assumptions and the dam safety class are still appropriate, and two, to develop and review ongoing maintenance and repair requirements as they are required.

This slide is a quick layout showing the location of the berm, right here, upstream of P Lake, which is here. The roads, the access roads, they're coming in from the top here in the truck turnaround area, and it also shows locations where bore hole drilling was conducted. Actually, this bore hole drilling was done during construction. And just to give you an idea, Cape Dorset is off the top of the chart, out of the chart picture.

This next slide provides a summary of the

geothermal analysis that was done and includes the next four slides following to try to illustrate and summarize the analyses that were undertaken to develop and confirm the design approach. The results suggest that the design is sound, and the structure would function satisfactorily as a frozen core dam.

Generally speaking, conservative parameters and assumptions were used throughout the process of designing and analyzing the structure. On this basis, the structure is expected to perform as good as or better than projected from the analysis. The analyses indicate that the berm will freeze in the first one to two years of operation, and then an active layer or an unfrozen layer about 1 to 1-and-a-half metres thick should occur on the surface during summer thaw, annual summer thaw.

Confirmatory monitoring of berm temperatures using thermistors in support of these predictions and design analyses was recommended early on in the design process. The other thing that we learned was early predictions from the analyses show that the lagoon base should remain frozen -- would remain frozen using conservative assumptions. More rigorous analysis conducted after construction still supports this early conclusion.

This chart is a reproduction of some geothermal analyses that were submitted in a report dated August 21st, 2007. So this is a pretty recent review of the thermal analyses after construction and has been submitted to the Board.

Conservative values for air temperatures and material parameters were used in this and all of the simulations that follow, along with conservative assumptions regarding the timing for the start of filling with sewage. This results in a conservative estimate of berm temperatures, the amount of thawed area within the ground and berm, and the active layer depths estimated in the simulations.

This particular figure shows that at the end of the first winter, the lower portion of the active layer beneath the lagoon could be around zero degrees, and that's over on this part of the chart. It essentially -- in language that's easier to understand, it will be unfrozen for the first little while.

The active layer under the berm crest will be unfrozen, and that's the original -- that's this unfrozen part here in the center of the -- beneath the center of the dam, and that the berm and the active layer downstream are frozen, and that's all

this portion over here because it's exposed to freezing temperatures.

The simulation was based on an assumption that the lagoon would be starting to be filled immediately after construction, and it would be roughly half full by the end of this current winter. Now you can see there's a water level on this side of the drawing. This is more conservative than what has actually occurred, in that filling with sewage has not started, and the amount of fluid retained behind the berm is likely much less than assumed in the simulation.

It was reported in the meeting October 1st we had in Iqaluit that seepage of water from the upstream side of the structure to the downstream side had occurred shortly after construction was completed in the fall of 2007. This possibility was expected because the core of the berm had not yet frozen and the secondary liner had not yet fully hydrated to form a seal beneath the structure. The backfill material within the core trench was porous, and seepage likely followed the original active layer that existed between the structure immediately after construction and around the bottom edge of the clay liner. So again, last fall, it was reported that seepage from upstream

went to downstream, and that's entirely possible because this active layer would have been unfrozen at the time.

From the same report, I now put up a figure that shows the berm immediately prior to the first decanting at the end of the first summer. The original active layer beneath the lagoon is shown to be about 1.8 metres thick; that's over here. Due to penetration of winter freezing into the berm, the majority of the berm body is now below zero and frozen, and that's shown by this zero isotherm here, so there's a frozen core developing. And the upper unfrozen portion of the active layer is about 1 to 2 metres thick, and that's this surface on the top.

This scenario is now likely conservative because fluid levels would not typically be to full berm height during this first year and, in particular, for this year, since sewage filling has not yet commenced. And it is interesting to note that the clay liner is almost completely encased in the frozen core of the berm; in here.

This next slide shows a simulation for the berm temperatures at the end of the third winter of operation, sometime in the future. The berm temperature will decrease considerably during the

first years of lagoon operation. This figure shows that at the end of the third winter, only a localized portion of the active layer -- again, it's the portion underneath the lagoon -- will remain near zero degrees and possibly unfrozen, while the majority of the active layer is frozen. This is at the end of winter, so the entire berm would be frozen.

It is important to note that due to the gradual lagoon filling, a talik will not form under the lagoon, and the base of the underlying soils are expected to be in the range of minus 3 to minus 4 degrees, and that's just these temperatures under here.

By the end of the third summer, now this is 36 months after construction, the berm base temperature is frozen, and we've estimated between minus 2 to minus 3 degrees, somewhere -- and that's in this area here. The thickness of the active layer under the lagoon is about 1.5 metres thick, slightly less than the earlier charts I showed. And the active layer on the surface of the berm shell is about 1 to 1-and-a-half metres thick on the upstream and downstream surfaces.

During years following and with lagoon operation, the berm temperature will be

quasi-stable in winter and summer. It is not expected for a talik to exist under the lagoon portion, and the thickness of the active layer under the lagoon could be in the range of a metre or less.

The analyses in these slides did not include a component of climate warming over the expected life of the lagoon. When typical climate warming values in the range of .05 degrees C -- sorry, .5 degrees C per decade are applied to the simulations, the results after several decades show berm temperatures to be about 1 to 1-and-a-half degrees warmer than what is shown on these drawings. And that represents a small but not really significant increase -- sorry, and there will be a small but not significant increase of the active layer beneath the lagoon. And it is expected, as well, that the secondary liner will be encased in frozen material for most of it.

This slide and the next two slides try to illustrate and summarize seepage and slope stability analyses that were undertaken to develop and confirm the design approach -- oh, I'm sorry, all these things I have to keep track of; okay, I apologize for that, there we go -- the results suggest that the design approach is sound and the

structure would remain stable with minimal seepage. Generally again, conservative parameters and assumptions were used throughout the design process and the analysis of the structure. On this basis, the structure is expected to perform as good as or better than projected from the analysis.

The analyses indicate that the berm will remain stable under a variety of possible conditions and operating scenarios and confirmatory monitoring in support of these predictions was recommended early on in the design process.

One case that was presented to the Board implies what we considered a worst-case scenario, where the berm has completely thawed and the liner was completely removed under full reservoir conditions. The calculations suggest that seepage through the berm would likely occur, but the dike would remain stable under these worst-case conditions. This would allow time to implement contingency seepage control and/or stabilization measures as appropriate. This particular scenario, one of many that we described in our report, is considered to be extremely low potential for occurrence.

Another condition that was modelled was slope stability under what's called rapid draw-down

conditions and was presented in our report from August 2007. The occurrence of this event is where fluid in the reservoir is suddenly drained, leaving a saturated upstream shell of the berm that is no longer submerged. It should be noted that the rate of annual decanting of the lagoon would be managed over several weeks, such that annual lowering of the reservoir each year is not considered rapid draw-down. The scenario presented here is nontypical -- is a nontypical temporary operating condition with a factor -- with a factor of safety above 1.3, which is considered appropriate.

The cross-section shown used a conservative depth for the frozen core. This portion here is much deeper than we had predicted in our geothermal analyses, and the water level in the upstream shell of the berm is almost right at the top, which would be much higher than would typically be expected for this type of material in the berm. In other words, as the rapid draw-down occurs, the material in the upstream shell should follow drainage; there should be drainage out of the shell. We've assumed in this simulation that drainage is not occurring, and the water level is still at full height in the berm.

Much of the clay liner is still expected to be

within the frozen core, and the failure circle, the critical failure circle under these circumstances does not come in contact with the liner. The factors of safety against failure under normal operating conditions were also evaluated during the design and found to be greater than 1.5, which is considered acceptable for this type of structure.

Early on in the design process, it was recommended by AMEC that thermistor monitoring sites be installed at several locations along the berm center line to various depths to monitor the progress of freezing within the berm and the foundation soils. This data could be used in conjunction with condition surveys and performance operations during -- sorry, performance observations during operations to assess the need for further study, analyses, or implementation of contingency or remedial measures. The frequency of the surveys or data collection should be monitored and adjusted on the basis of observed performance under operating conditions. If performance is acceptable, then frequency can gradually be reduced as the structure approaches a geothermal steady state.

The application of contingency plans or remedial measures depends on the observations made

during condition surveys or the data collected from the thermistor monitoring. The rate of change of the structure, condition, and parameters is expected to be relatively slow and would allow for the development of alternative operating parameters, designs, remedial measures, et cetera, as is required.

So today, it is considered that the structure has been designed and constructed to generally accepted design and construction standards and guidelines under rigorous scrutiny and would perform its intended use. It is considered that suggested contingency concepts are available in the event that the structure does not perform according to expectations and could be implemented in a timely fashion to restore the structure to a satisfactory and safe operating condition.

So I guess the only other comment I would add to that is that the monitoring is recommended. It should be used in conjunction with contingency measures. The details of these contingency measures have not been fully fleshed-out because they don't need to be, and we have conceptual contingency measures that will work for a variety of situations. Thank you.

ACTING CHAIR: Thank you very much.

Just before we go any further, I would like to recognize one of the Elders from Cape Dorset: Makituk Pingwartuk. Makituk, welcome.

Okay, I'll do it again. I'd like to welcome Makituk Pingwartuk, one of the Elders from Kingait. Welcome to our hearing, and Makituk is also Mary Hunt's sister.

MS. PINGWARTUK: Thank you, I feel very much welcome.

ACTING CHAIR: Please carry on, gentlemen.

MR. JOYAL: Thank you, Mr. Chairman. Colin Joyal with Dillon Consulting.

Looking forward, the items to be addressed by the Proponent include responses to any outstanding issues from today, response to any draft license conditions, if issued by the Nunavut Water Board, and compliance to license requirements if issued by the Nunavut Water Board.

License requirements may include things such as monitoring, issuance and update of an operations and maintenance manual, issuance and update of a spill contingency plan, response to issues that arise from monitoring, and annual reporting to the Nunavut Water Board.

That completes our presentation. If there are

questions, I'll leave it to the Chairman to manage that. Thank you.

ACTING CHAIR: Thank you. I would probably imagine once the whole presentation is done, then we'll call on the other interveners that may have questions for your whole presentation. Is that how it's normally done?

MS. FILIATRAULT: Yes.

ACTING CHAIR: This is my first hearing, by the way. I've been to many of them, but I've never ran them, so I just want to make sure I do it right. But normally after the whole presentation is done, then we'll call on the individual interveners who have questions for anybody.

Okay, Mr. Stewart, do you have other presenters?

MR. STEWART: Art Stewart. No, we don't have any further presentation.

I would like to make a comment that our current sewage situation is not good. It consists of a three-cell lagoon and a small sewage lagoon, and it is just not what this Hamlet needs. The new sewage lagoon has been well thought out. We believe it's a safe design, and we would request that the Water Board consider our application very carefully. Thank you.

PROCEDURAL MATTERS:

ACTING CHAIR: Okay, thank you very much, Art. I will call on Catherine. I know there have been quite a few exhibits that have been presented to us by the interveners. Perhaps you want to start a registry.

And before you start, Bill, are you still there?

MR. TILLEMAN: Yes, I am.

ACTING CHAIR: Thank you. Thomas, still there?

THE CHAIR: Yes, I am.

ACTING CHAIR: Okay, thank you, gentlemen.

So, Catherine, if I could ask you to deal with the exhibits, I'd appreciate it. Thank you.

MS. EMRICK: I think there's four exhibits to be added to the exhibit list. The first would be the Dillon Cape Dorset Sewage P Lagoon Public Hearing Presentation, the hard copy submitted by Colin Joyal.

EXHIBIT NO. 1:
HARD COPY OF THE DILLON CAPE DORSET SEWAGE P LAGOON PUBLIC HEARING PRESENTATION, SUBMITTED BY COLIN JOYAL.

MS. EMRICK: And the second would be

the Dillon Cape Dorset Sewage P Lagoon Public Hearing Presentation, the electronic copy submitted by Colin Joyal.

EXHIBIT NO. 2:
ELECTRONIC COPY OF THE DILLON CAPE DORSET SEWAGE P LAGOON PUBLIC HEARING PRESENTATION, SUBMITTED BY COLIN JOYAL.

MS. EMRICK: The third exhibit would be the AMEC Geotechnical Design and Construction Cape Dorset Sewage Lagoon, January 23rd and 24th, 2008, hard copy, and that was submitted by Paul Cavanagh.

EXHIBIT NO. 3:
HARD COPY OF THE AMEC PRESENTATION, GEOTECHNICAL DESIGN AND CONSTRUCTION CAPE DORSET SEWAGE LAGOON, JANUARY 23 AND 24, 2008, SUBMITTED BY PAUL CAVANAGH.

MS. EMRICK: And the fourth exhibit would be AMEC Geotechnical Design and Construction Cape Dorset Sewage Lagoon, January 23rd and 24th, 2008, electronic copy, submitted by Paul Cavanagh.

EXHIBIT NO. 4:
ELECTRONIC COPY OF THE AMEC PRESENTATION, GEOTECHNICAL DESIGN AND CONSTRUCTION CAPE DORSET SEWAGE LAGOON, JANUARY 23 AND 24, 2008, SUBMITTED BY PAUL CAVANAGH.

ACTING CHAIR: Thank you, Catherine. Bill, is there anything you'd like to add at this time?

MR. TILLEMAN: No. With exhibits, if any of these people have any questions or comments, they can make them, otherwise, you mark them and you go ahead with the hearing.

ACTING CHAIR: Thank you. Catherine?

MS. EMRICK: I think it might be useful for Colin Joyal just to indicate that Exhibits 1 and 2 are his submissions because I do note that it states "Gary Strong" on the presentation.

ACTING CHAIR: Would you please come back and state that?

MR. JOYAL: Colin Joyal, Dillon Consulting. Yes, I confirm that the two exhibits are my submissions.

ACTING CHAIR: Thank you very much. I guess we'll carry on. We will start with GN-Department of Environment. Do you have any questions?

GN-DOE QUESTIONS HAMLET:

MR. ATKINSON: Thank you, Mr. Chair. Mike Atkinson, Government of Nunavut-Department of Environment.

Slide 19 of the Dillon presentation was a slide showing effluent quality limits. I believe the limits were 120, 180 for BOD in suspended solids, and I believe that's just a direct copying of the limits on the existing license. My question is whether considering the change in location of the sewage lagoon from a marine discharge to a freshwater discharge, whether Dillon thinks those limits are still appropriate.

ACTING CHAIR: Thank you. You can stay right there. Could I have someone from Dillon come forward and answer the questions, please?

MR. JOYAL: Colin Joyal, Dillon Consulting.

In reference to that slide, the effluent quality limits would be set by the Board. If presented with the limits in Slide 19, we do believe those would be appropriate for use at the facility.

ACTING CHAIR: Thank you. GN-DOE?

MR. ATKINSON: Mike Atkinson, Government of Nunavut-Department of Environment.

It's my belief that the limits previously set in the license were derived using the guidelines for discharge of treated municipal waste water in the Northwest Territories, commonly known as "The

Blue Book". And using those guidelines, I would suggest that the appropriate limits are 80, 100, as opposed to 120, 180.

ACTING CHAIR: Okay, Dillon, questions or comments? I know he gave a comment. It's not a question to you; it's a comment. Do you want to respond or not?

MR. JOYAL: Colin Joyal, Dillon Consulting.

We would accept that comment from the Department of Environment and would be willing to be in compliance with that guideline.

ACTING CHAIR: DOE?

MR. ATKINSON: Mike Atkinson, Government of Nunavut-Department of Environment. I have no further questions.

ACTING CHAIR: Thank you, Mike, thank you. Okay, Environment Canada, any questions for the Licensee?

EC QUESTIONS HAMLET:

MS. SPAGNUOLO: Thank you, Mr. Chair. Collette Spagnuolo with Environment Canada.

I just have two quick questions actually. The first is given that the design report states that due to some difficulties with the terrain, the construction of diversion ditches won't be possible

in the area surrounding the lagoon, I was just wondering how drainage around the lagoon will be managed, especially during spring freshet.

ACTING CHAIR: Dillon? Most of the questions are going to be for you two gentlemen, so if you could please come to the Licensee table, both of you, because you are presenting on behalf of the Hamlet. That way, you haven't got to keep going back and forth; they can just turn to you, and you can answer it. Everybody else can stay. Don't get up, Fred. There's enough room. One at one end and one at the other and just come, and if you're asked a question, please do your presentation.

If you ever need time to confer, just let me know, and I'll take a 5-minute break or whatever until you're ready for it. Don't think you have to answer immediately. If you need a break to compile information, please let me know, and I'll make sure you have enough adequate time. Thank you.

MR. JOYAL: If we could take a short break to confer, and we'll address the question.

ACTING CHAIR: Okay, thank you. We'll take a 5-minute break, and then we'll come back.

(BRIEF ADJOURNMENT)

ACTING CHAIR: Bill and Tom, are you

still there?
MR. TILLEMAN: Yes, sir, thank you.
ACTING CHAIR: Thomas?
THE CHAIR: Yes.
ACTING CHAIR: Okay.
MR. JOYAL: Thank you, Mr. Chairman, for the opportunity to consult project documents. Colin Joyal with Dillon Consulting.

In response to the question, the issue of difficulties in constructing that berm were localized on the north berm on the north side of the site that was constructed for the majority of the site, but site features, being rock outcrop, do not permit that to be constructed in that small area, which then would be that portion of the site where that ditch was not constructed.

ACTING CHAIR: Thank you. Environment Canada?
MS. SPAGNUOLO: Thank you, Mr. Chair. It's Collette Spagnuolo.

So just to clarify then, the only portion of the lagoon that doesn't have a diversion component, I guess, is the north side; is that correct?
MR. JOYAL: A portion of the north side.
ACTING CHAIR: Excuse me, just before

I -- even though you're looking at -- Dillon, come through the Chair always. I'm good-looking, look at me. Don't...

MR. JOYAL: Thank you. Colin Joyal, Dillon Consulting.

Yes, that is accurate, is a portion of the north side.

ACTING CHAIR: Environment Canada?

MS. SPAGNUOLO: Thank you, Mr. Chair.

I do have one additional question. I was just wondering if the Hamlet or Dillon on their behalf could provide a bit of explanation on how they think spring flooding during the freshet will affect the performance of the wetlands and the P Lake lagoon as part of polishing of the lagoon.

ACTING CHAIR: Okay. I don't know if I should -- I should go over to Art or not. Do you want to pass it down, or do you just --

MR. STEWART: I think pass it down.

ACTING CHAIR: Okay. Dillon?

MR. JOYAL: Thank you. Colin Joyal, Dillon Consulting.

The lagoon effluent, the point of control is at the discharge point of the lagoon. There's recognition of P Lake and the wetlands, but the intent is to meet the discharge criteria at the

discharge of the lagoon.
ACTING CHAIR: Thank you. Any further questions?
MS. SPAGNUOLO: No, thank you, Mr. Chair.
ACTING CHAIR: Thank you very much. INAC, do you have any questions? Jim?
INAC QUESTIONS HAMLET:
MR. ROGERS: Jim Rogers, INAC.
I have a question actually for the Hamlet or their representative. A number of the consultants working for you have indicated that installation of thermistors for monitoring should be installed and included in the design and the operation of the dike. However, I have not seen anything from the Hamlet or its agencies that's working on its behalf to say that they will monitor ground temperatures in the berm. Would it be appropriate to ask what the decision of the Hamlet is, Mr. Chair?
ACTING CHAIR: Thank you. Art?
MR. STEWART: I'd like to refer that to Mr. Cavanagh or --
ACTING CHAIR: Or Colin? Colin, we'll put you on the hot seat all the time, I guess. You're too far down. Go for it.
MR. JOYAL: Thank you, Mr. Chairman. If you can give me a few short moments. We won't

need a break, but a few moments.
ACTING CHAIR: Go ahead, please.
MR. JOYAL: Thank you, Mr. Chairman. Colin Joyal, Dillon Consulting.
If it is a requirement of the Board, the thermistors would be installed, and in accordance with the operation and maintenance manual, there is quarterly monitoring and recording of thermistor measurements from each location, which includes a minimum recording of depth and temperature readings.
ACTING CHAIR: INAC?
MR. ROGERS: Could I ask a supplemental to that, Mr. Chair? Jim Rogers.
Would the Hamlet confirm that the consultant is making this decision to do the monitoring, or is it because they're the Licensee? I could add to that because the INAC inspector will be enforcing the terms and conditions of the license on the Licensee, and we would just like some confirmation that the -- that they are speaking on behalf of.
ACTING CHAIR: Thank you. Hamlet? Art?
MR. STEWART: Yes, Dillon will be speaking on our behalf, and if it is a requirement, most certainly we will be meeting that request.
ACTING CHAIR: Thank you. INAC?

MR. ROGERS: Thank you, Mr. Chairman. Jim Rogers.

The second question is related somewhat to Environment Canada's question is was the maximum flow, overland flow from upstream of the lagoon calculated not on a monthly basis but on an instantaneous or short-term basis to determine if the water, the channel on the south side, was sufficient to route water around the lagoon, or will some of that water pile up behind the east berm and perhaps overflow? It's unclear at this time.

ACTING CHAIR: Thank you. Hamlet?

MR. JOYAL: Thank you, Mr. Chairman.

Just for clarification, your request is for modelling or assessment of runoff conditions at the east side of the lagoon; is that correct?

ACTING CHAIR: INAC?

MR. ROGERS: The -- there's a channel designed to run water -- Mr. Chair, Jim Rogers -- there's a channel designed to run water around the lagoon from the east to the west side. However, within the documentation and during the presentation, I didn't see any explanation of how -- what the capacity of the channel was and how that estimate was made except for a monthly mean

flow, but of course, channels never handle monthly mean flows, they handle instantaneous or short-term flow. So that's more or less the question. It wasn't part of your presentation either.

ACTING CHAIR: Thank you. Hamlet? Colin or Dillon?

MR. JOYAL: Colin Joyal, Dillon Consulting. Thank you, Mr. Chairman.

I'd request a moment to consult documentation for the specifics of those conditions.

ACTING CHAIR: Go ahead. If I can, Colin, I will -- I've just conferred with the Executive Director, and basically I understand that you were thrown into this at the last moment because your counterpart had a death in his family, and I appreciate that. I don't want to put you on the spot, so basically what I'm looking at now is just moving on, and if you're ready to go, fine; if you're not, just let me know, and I can defer that question. And then I think Jim has a few more, and then he can carry on with his additional questions. And then at the end of the time, if you need more time, we'll just take a break of 15 minutes or something. Just don't like putting you every 5 minutes and have to stop and give you time to confer. If you're not ready, just let me know.

Are you ready to answer or not?
MR. JOYAL: Thank you. I appreciate that. For the moment, looking at addressing the question based on the information here. Thank you.
ACTING CHAIR: Then, please, state your name and go ahead.
MR. JOYAL: Okay, Colin Joyal, Dillon Consulting.
In the area that you're referencing, the drainage patterns for the site are away from the lagoon. They're down the rock face and down where the site road access is, rather than towards the lagoon itself.
ACTING CHAIR: Okay. INAC?
MR. ROGERS: I'll defer that question until later on and after the INAC presentation. We can, if it would be okay with the Board -- it's Jim Rogers, sorry -- if it's acceptable to the Board, we can maybe caucus slightly tonight or over supper, and I'll explain a little more detail of the question.
ACTING CHAIR: Please, Jim, carry on.
MR. ROGERS: Okay, the -- Jim Rogers -- the next question is throughout the report, the decant rate proposed by the Hamlet varies. The original design had as long as 60

days. At the technical meeting, we heard as short as four days. And the most recent one is a decant rate over two weeks. Is the decant rate going to be over the two-week? Is that the planned decant at approximately .1 cubic metres per second, or is it a different decant rate? This will apply to -- in the presentation, we'll explain why this question is coming about in a little more detail. Thank you.

ACTING CHAIR: Hamlet? And again, Colin, if you're not ready, just tell me, Can we defer it, please, until later.

MR. JOYAL: Thank you, Mr. Chairman. Colin Joyal, Dillon Consulting.

In accordance with the operations and maintenance manual, the decant is to occur once a year in late September over a two-week period.

ACTING CHAIR: Thank you. INAC?

MR. ROGERS: That's acceptable, thanks. I have no further questions, Mr. Chair.

ACTING CHAIR: Okay, thank you, Jim, appreciate it. BGC Engineering, questions?

BGC QUESTIONS HAMLET:

MR. HARTMAIER: Thank you, Mr. Chair. Holger Hartmaier with BGC Engineering.

I have several questions. First off, just a

few questions regarding the details that were in AMEC's presentation that they made. I had a couple of questions on some of the slides.

First off, Slide Number 3, which was the discussion on the work that AMEC had completed. I believe it was mentioned in that part of the presentation that AMEC had considered the berm to be a frozen core design. We were just questioning that because the geothermal analysis that they presented is showing that although the foundation is frozen, it's not really considered to be a frozen core design because you have quite a significant active zone within the berm, so the berm itself has not been engineered to maintain frozen conditions up to and above the full supply levels. So I just wonder if they could clarify that for us.

ACTING CHAIR: Hamlet?

MR. CAVANAGH: Paul Cavanagh. I used the term "frozen core" as a generic term to describe that the center portion of the berm would remain frozen. There will be annual active layer thawing of the outer surface of the shell on an annual basis.

MR. HARTMAIER: Thanks. Holger Hartmaier with BGC.

Then I think it's fair to note that within the active zone of the berm, the GCL is acting as a primary liner in that sense; it's not really a secondary liner. Perhaps a secondary liner only in the winter period, but during the active storage period in the summer when there's water behind the liner, it is the primary liner?

ACTING CHAIR: Hamlet?

MR. CAVANAGH: Paul Cavanagh.

Just for clarification, I understand they're talking about the portion of the liner above the frozen core within the active layer during the summer period, and that is the case. The water level -- or the fluid level within the lagoon will only be at that level for a short time, and, therefore, the liner is -- will only be put into service for a very short time each summer, if, in fact, the lagoon fills that high.

ACTING CHAIR: Thank you. BGC?

MR. HARTMAIER: Thanks, Holger Hartmaier, BGC Engineering.

It's an important point which we'll get into in our presentation, because the critical thing is what is the actual prediction of that active zone thickness. We believe it's potentially a lot bigger than what AMEC has predicted. Their

prediction is in the order of 1-and-a-half metres. We think it might be 3 to 4 metres, so the length of time that that GCL has to act as the primary liner could be significantly longer.

ACTING CHAIR: Thank you. Any further questions, Holger?

MR. HARTMAIER: Yes, I have a couple more questions on the presentation. Holger Hartmaier, BGC.

The slide that was presented, Slide Number 4, which showed the site layout and bore hole locations, I just wanted to note that that particular layout that was shown is not really the detail that was in the as-built drawings that were submitted on November 15th. There's variations that we've noted in our intervention with regard to the north abutment of the west berm and the actual location of the access roads around the north and south sides of the berm -- of the lagoon, sorry.

ACTING CHAIR: Now, is that a comment, or is that a question?

MR. HARTMAIER: Holger Hartmaier. It's more of a comment, but I think it's just as far as the presentations go here, I was assuming that everything would be according to as-built details from here on in, just reflected an older design

layout, and it relates to some comments we have in our intervention as well.

ACTING CHAIR: Okay, thank you. Dionne? No. Hamlet, questions or comments, please?

MR. CAVANAGH: Paul Cavanagh.

The intent of that slide was -- it was not intended to provide as-built design details. It was intended to provide some background information and set a context for the location of the structure relative to P Lake and relative to other things, so it really wasn't -- it wasn't intended to convey an as-built condition. It was intended to provide background information.

ACTING CHAIR: Thank you.

MR. HARTMAIER: Holger Hartmaier, BGC. Fair enough.

Another comment on Slide 6 in the presentation, which was the slide that showed the temperature variations within the berm after the end of the first winter, which was assumed to be eight months after the end of construction.

I just noted that the -- there's a difference in this detail compared to the one that was originally presented by AMEC in their August 21st geothermal analysis, and the main difference is the indication of the GCL liner, and I just wanted to

get clarification from AMEC that in the August 21st geothermal analysis, which you presented in our pre-hearing in Iqaluit back at the end of September, I think, from my understanding, the contours that you're showing on this section were based on the conservative assumption that there was no liner present and that the water level as shown was creating the temperature effect within the berm.

So I just wanted to confirm that what was in the slides that you're presenting today with the GCL liner that really that condition hasn't changed. The -- I note that the contours are exactly the same as what you're showing in your August 21st presentation, so in effect, the GCL liner really has no impact on the temperature contours, you know, that was not included in the model, so the temperature contours in your presentation today are still reflective of a liner not being there.

ACTING CHAIR: Thank you. Hamlet?

MR. CAVANAGH: Paul Cavanagh.

Yes, that's correct. The -- I inserted the liner in this presentation just as a point of reference again, to show that there is a liner within the frozen zone.

MR. HARTMAIER: Okay, thanks.
ACTING CHAIR: Holger, does that answer your question?
MR. HARTMAIER: Yes. Just checking if I had a couple other questions on -- oh, yes, there's one more on Slide 12, which was the slide that showed the slope stability under rapid drawn-down conditions.

I just want to ask Paul whether this was a new analysis that was done in response to our intervention request to do an assessment of the upstream slope stability with the GCL shown in its as-built configuration, because the stability analysis that was actually included in the September 21st -- or August 21st analysis seemed to show a vertical GCL going down to the frozen soil, so it didn't look like the effects of the sloping GCL had been taken into account. So I'm just wondering whether this is a new analysis that is an update of the previous analysis.

ACTING CHAIR: Go ahead. Sorry, one Elder is walking in. I've just got to find out who they are. If I can just hold that for a second. I'd like to welcome Oqutaq Mikiguk. Welcome to this hearing. Just stand up and wave hello. One of our Elders from Kingait. Welcome to the

meeting.
Thank you, Holger. Sorry. Hamlet?
MR. CAVANAGH: Paul Cavanagh.
The analysis is identical to what was presented in the report. Again, I included the GCL liner as a point of reference. I guess what I was doing was just checking to see where the failure circle occurred, the critical failure circle in relation to that liner, and it was more just from -- as a point of reference again, but the analysis is the same one that we had within our -- within our report.
MR. HARTMAIER: Holger Hartmaier, BGC.
Okay, to that end then, did you actually run a factor of safety for the condition, for the circle going from the crest, as shown, and then along the GCL and then coming out on the upstream slope? Do you have an actual value of a factor of safety for that condition?
ACTING CHAIR: Hamlet?
Mr. CAVANAGH: No, we haven't run that condition -- Paul Cavanagh -- no, we haven't run that condition yet.
ACTING CHAIR: Thank you.
MR. HARTMAIER: Holger Hartmaier, BGC.
Then I think as -- that wasn't a request.

That's maybe perhaps you could submit to the Board as an addendum to the work that was done. That was one of our intention requests, and just wonder if you're agreeable to providing that just to show that the -- that this is -- or compare this factor of safety with the condition of sliding on the GCL.

ACTING CHAIR: Hamlet?

MR. CAVANAGH: Paul Cavanagh.

I have no issue with running additional analyses, but I just want to make sure that I understand exactly what the intervener is looking for so that I get it right again.

ACTING CHAIR: Okay, Holger. Do you want to explain exactly what -- I think there was an intervention submitted, and you had a question that you wanted answered, and I guess it has been answered, and now you want a clarification; is that correct?

MR. HARTMAIER: Holger Hartmaier, BGC.

Well, what we could do is when I make our summary of our intervention and we have the request outlined in that, when they have the opportunity to question us on that, we can go into the specifics if it's still not clear at that point, but basically we just want to see what the factor of safety is for sliding on the GCL in that

configuration with the rapid draw-down condition.
ACTING CHAIR: Thank you. Does that suffice, Hamlet?
MR. CAVANAGH: Paul Cavanagh.
Yes, I think I understand what he's looking for.
ACTING CHAIR: Any more questions, Holger?
MR. HARTMAIER: Mr. Chair, I have a bunch of questions that have to do with things that were not addressed in their presentation with respect to questions we asked in our intervention. So I wonder is it appropriate to question them at this point, or do we make our presentation on our intervention questions, and then, you know, work back and forth on that. So, you know, I can go through our intervention and pick out some of the points that weren't addressed in this presentation and get their comments now, if you like.
ACTING CHAIR: Thank you. I will have to call on my technical staff on where to go from here. Dionne?
MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault.
I believe probably some of those are a fairly extensive list of clarification requests. If that

is the case, maybe we could highlight them at this point for the Proponent, such that when Mr. Hartmaier does his presentation, you are prepared to speak to those points, and whether or not you agree or disagree to his recommendations or not. Would that be acceptable?

ACTING CHAIR: Okay, thank you, Dionne. Holger?

MR. HARTMAIER: Okay, then -- Holger Hartmaier, BGC -- what I'll do is I'll just quickly run through the intervention issues, just to list them off. They have the copies of the intervention in front of them, so it's more for reading that into the record here and then getting the discussion going.

ACTING CHAIR: Just before you start, Dionne, go ahead.

MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault.

I just want to clarify that you're just going to be going through sort of an executive summary of the points that you feel that they have not highlighted; is that correct?

ACTING CHAIR: Holger?

MR. HARTMAIER: Holger Hartmaier, BGC.

Yes, I'll just go through the -- pick off the

ones that I don't think I've heard any response to at this point.

ACTING CHAIR: Please, carry on.

MR. HARTMAIER: Okay, one of the first ones was the need to have a stamped drawing from the AMEC side. We have stamped drawings from Dillon, but we still haven't seen any drawings that show a professional engineering stamp from AMEC. Wondering whether that will be forthcoming. That's one.

The next one has to do with the -- essentially highlighting the field changes that were made on the as-built drawings from the design drawings. We -- I picked up ones that have to do with geotechnical. I think it might be appropriate to try to highlight those just for the record in some form. Typically what we do is have some kind of a bubble around the area that was changed from the original design drawing and have a note as to why and when it was changed, just so it's highlighted.

The other one that has to do -- has some ramifications with the geothermal foundation conditions is the -- there seems to be a change in the detail of the north abutment of the west berm. For some reason, the width of the berm was changed to allow, it looks like, a turnaround area, and

there seems to be some ditches or swales on the upstream slopes, so the thickness and depth and extent of the berm material over the bedrock in that area is going to be critical to maintaining the inactive layer that is above the cutoff trench in that area, otherwise, there's a potential for some end-run seepage around the abutments through the active zone. If that detail could be provided and to make sure that it satisfies the geothermal criteria.

The other one is in Drawing 109; it seems that some riprap fill was placed on top of the original ground under the berm. We need to know what kind of material that consisted of because the core trench itself was backfilled with sand. The original AMEC design recommended that the core trench be backfilled with impervious material. So although we're predicting the foundation to be frozen, the problem occurs if there is a seepage occurring through the foundation, then that sand that is in the core trench could migrate into what's called riprap material, which, to me, is a material that has a lot of open voids within a rock mass. So we need to know what the gradation of that material was, whether it was riprap or sand or -- how compatible is that with the material that

was backfilled in the core trench.
ACTING CHAIR: If I can just for a second, please, Holger.
Thank you. There's been three or four questions now, and what we're trying to do, instead of holding them all towards the end, do you have a yes or a no answer for the first three, perhaps four questions that Holger has asked, and would you like to answer any of them now as he's going through them?
I should have deferred -- I should have asked the question, went to you first, and you could have said deferred or answer it yes or no, or do whatever. What is your wish, Hamlet?
MR. CAVANAGH: Paul, Cavanagh.
I'm a little confused. These requests are -- what document are they contained in?
ACTING CHAIR: Dionne? Sorry, or Holger?
MR. HARTMAIER: Holger Hartmaier, BGC.
These are all listed in our January 8th intervention statement, which was submitted to the Board.
ACTING CHAIR: Did the Hamlet receive that intervention? I guess that's the question I have for you.

MS. FILIATRAULT: Yes, they would have.
MR. CAVANAGH: Paul, Cavanagh.
No, I haven't received it. I don't know if other members of the team have received it, but I haven't received it.
ACTING CHAIR: Okay, I guess we may have a problem here. If there's interventions being done and you're not given copies, we've got a problem, so I'm going to call on Dionne.
MS. FILIATRAULT: Mr. Chairman, Dionne Filiatrault.
I think the question has to be asked to the Hamlet and CGS and their representatives of these submissions. This submission and the comments that Holger is making were received on January 8th, and those were filed with the Applicant. The responsibility is to the Applicant and CGS to make sure that their expert consultants, that would potentially be asked to answer questions of this nature, should have been provided the information.
So my question would be one to Art: Was CGS provided the information; second, to CGS, was the information provided to Mr. Cavanagh?
ACTING CHAIR: Thank you. Art?
MR. STEWART: And I'm going to ask Bhabesh Roy to answer that.

MR. ROY: This is Bhabesh Roy. I'm the Municipal Engineer of CGS. We received two sets of documents from Water Board on the comments of BGC. One document came on Saturday, January 19th, and I opened this file on Monday, last Monday. According to Dillon's letter, this document I don't know we can accept or dissent, but according to Dionne letters, after 8 of January, no document will be accepted, but these document came to me on -- issued on 19th of January.

ACTING CHAIR: Dionne?

MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault.

Let me clarify for the Licensee. The document that was submitted by BGC on January 8th in their intervention statement was received. The comments that are being made right now by BGC are from their January 8th submission that the Proponent has received.

There were two documents that were submitted following the deadline for interventions. Normally when the Board receives intervention statements, they receive executive summaries of the intervention statements. These are just a summary of the main intervention statement that was received. So the executive summary, which also

contains the comments that Holger is making right now in summary form, are based on the January 8th submission.

The executive summaries are used by the Board, and this was a direction that the Staff gave to Mr. Hartmaier when we realized that he did not submit an executive summary with his presentation, because we use those executive summaries and have them translated and available for the public so that -- the full technical submissions that are made by intervening parties are sometimes confusing for local people. So the executive summary was a request of the Staff to Mr. Hartmaier, but there's no new information in the executive summary that was not provided in the January 8th submission.

The other submission that was received was thermal analysis, and this, in the January 8th submission, it was identified that there was technical information that they were running a model and that the information would not be available by January 8th. So there was an indication provided to the Applicant that this information would be made available to them.

I would request, Mr. Chairman, that you may wish to seek clarification from BGC on whether or not this information is critical to any

determinations that they've made. It is only supporting background information that they've used to increase their confidence level in understanding the application that's been filed by the Proponent.

ACTING CHAIR: Between a rock and a hard place here. Do I go here, or do I go there? I guess I'll go, Holger, to you first and get your comments.

MR. HARTMAIER: Holger Hartmaier, BGC.

The deficiencies I'm running through right now are on our intervention statement, which was filed on January 8th. The executive summary, as Dionne has just outlined, is nothing more than an exact excerpt of the actual intervention deficiencies, except for the sort of paragraphs of explanatory text that go with our reports, so there's nothing new in that executive summary, basically a direct-word transcript out of our January 8th submission, which was prepared at the request of the Water Board for their own internal use. Nevertheless, it has been included on the pile in the back as materials being available to the hearing as well as filed on the FTP site as soon as we submitted it to them.

With respect to the geothermal analysis, the geothermal analysis was done by BGC as a means of

trying to get an understanding ourselves of a lot of differences in terms of as-built versus design details that were shown on the AMEC analysis versus our own feelings on what the assumptions with respect to existing ground temperatures and thermal, long-term global warming, those kind of assumptions would have -- what kind of effects those would have on the analysis, rather than take the existing geothermal analysis and present a list of questions which would go to AMEC, and then they would have to respond back. So it was our own means of saying, Okay, despite the fact that we have some reservations with maybe what was done, are we going to come up with the same answer at the end of the day. So that is just submitted for the record, and we'll go into the results of that as far as our presentation goes.

So again, that was submitted after the date. It's really immaterial with respect to the intervention. It really just provides everybody around this table with maybe a greater degree of confidence or understanding of what the geothermal implications are.

ACTING CHAIR: Thank you. Hamlet?

MR. CAVANAGH: Paul Cavanagh.

Okay, thanks for that clarification; I

appreciate that. Perhaps what we can do then is if the intervention that was received January the 8th -- I'm sorry, how many points were there that we need to go through?

ACTING CHAIR: If I can, we'll wait for that -- did you receive the January 8th BGC submissions; have you received them?

MR. CAVANAGH: Yes.

ACTING CHAIR: Doesn't look good. Have you received them before? I heard something about January 20-something, 21st. That's two days ago. I mean, have you actually seen this from before? And I'm trying to get at the questions that were in that intervention for the Board. Have they been answered?

MR. CAVANAGH: Yes, I've seen this before, yes.

ACTING CHAIR: So, Bill, legal opinion, where do I go from here, please?

MR. TILLEMAN: Well, Mr. Chair, I think what we need to do is make sure we help the Board understand the evidence and the application. So why don't you just have Holger turn his concern into a bunch of questions, and then the Applicant can answer those questions based on their knowledge of the file and based on their expertise generally.

And then you can go to Holger's presentation, whenever that happens, and then the Applicant can ask him questions at that time, if they have questions.

So, for example on the one question of whether or not the applicant believes that it should have stamped drawings, the answer is yes or no. And if it's yes, then the next question is, Well, when will you sign those, and who will do it.

So I don't think you need to get into going to their document, our documents, you know, and back and forth. Let's just have Holger -- this is an opportunity for cross-examination, so Holger should just take his points and turn them into questions, the best he can, and then the Applicant can answer these questions the best they can, and then when we're done with that, you go on to the next presentation.

ACTING CHAIR: Thank you, Bill. So basically then, the three or four questions that have already been asked, Paul, are you prepared to answer any of them now, or are you going to wait until after everything is asked?

MR. CAVANAGH: Paul Cavanagh.

Yes, I can answer some of these now.

ACTING CHAIR: Then please proceed. I

was supposed to, I think, do it every time a question was asked. I should have went to you first. So please answer the questions.

MR. CAVANAGH: Okay, the first one is a need for a stamped drawing by AMEC, correct?

MR. HARTMAIER: Holger Hartmaier, BGC.

Yes, it was to find out if AMEC is prepared to stamp the as-built drawings.

MR. CAVANAGH: Conceptually, yes, we are -- Paul Cavanagh -- yes, we are. The mechanism if that happens, I believe, is that Dillon will provide the engineering stamp. AMEC will provide signatures by a professional engineer that we have reviewed and accepted those drawings. Is that acceptable?

ACTING CHAIR: Holger?

MR. HARTMAIER: Holger Hartmaier, BGC.

I think there's a couple of issues here. First of all, I think under the NAPEGG Act, you are actually required to stamp it as a discipline, separate discipline. The other point is that the Board has a discretion as the authorizing body to request any kind of stamping they want. So if they want your stamp on it, they can ask for that, so I leave that up to the Board.

ACTING CHAIR: Thank you. Carry on,

please.
MR. CAVANAGH: Paul Cavanagh.
Then I'll let the Board advise us. AMEC is prepared to stand behind its work in whatever form you want.
ACTING CHAIR: Okay, do you have other comments on the other three questions?
MR. CAVANAGH: Paul Cavanagh.
The second question, I believe, is about highlighting the changes from the field during construction on the drawings, and my understanding was that Dillon was looking after that. Now, if that hasn't been done or if it needs to be clarified, then I think I'd have to ask Dillon. That's more of a mechanical process, but in principle, we've agreed to the changes that occurred in field and would have no problem.
ACTING CHAIR: Okay, thank you. Colin?
MR. JOYAL: If the Board requests that the drawings are clarified or re-issued, on that note then, we would be obliged to comply with that.
ACTING CHAIR: Next question? I think there was a four-part question there, I think.
MR. CAVANAGH: Paul Cavanagh.
I think the third question was about the change

in the abutment at the north end of the west berm, and the concern that seepage may go around the abutment.

This is always a concern in any structure that retains water. The area that is being referred to is actually quite high in elevation, and so the -- much of that area would only see fluid behind it or being retained by it when the pond is very full.

The answer to how that would be handled is -- again, it's through the monitoring plans with -- we can monitor temperatures with thermistors, or we can monitor performance and observations of seepage and deal with it at that time. As I understand it, it's being expressed as a concern that may need to be addressed during operations, and my suggestion would be that's how we would do it.

ACTING CHAIR: Okay, Holger?

MR. HARTMAIER: Holger Hartmaier, BGC.

Just on that point, what we were looking for is one of the earlier design drawings did include a detail of that abutment treatment, which was not included in the as-built, so essentially what we're looking for there is what the as-built condition is for the abutment and your concurrence that, you know, the end-run seepage would not be a problem through the active zone based on that

configuration.

So, you know, you can review what was done and whether, you know, the geothermal analysis that you've done would include that case, or whether you need to do some confirmatory geothermal analysis to show that, you know, as you were just mentioning with the fluid levels and the relative elevations of the cutoff trench and the rock and the active zone, that kind of thing, that there would be no issue with that.

ACTING CHAIR: Hamlet?

MR. CAVANAGH: Paul Cavanagh.

I think we can include a detail -- I'm looking at Colin -- I think we can include the detail on the drawings of what occurred during construction. We haven't done any specific geothermal analysis for that condition. We reckoned that it was a relatively small risk factor, and we would prefer to handle it through monitoring and operations.

ACTING CHAIR: Thank you. Holger?

MR. HARTMAIER: Holger Hartmaier, BGC.

I think the -- let's look at what the actual as-built looks like, and if it looks like, you know, a maybe relatively minor issue, then I would agree we could go with just monitoring.

However, our concern was the fact back in

September, the Hamlet was already reporting that they were seeing underseepage through the active zone, and so that, you know, any of the active zone areas are a potential seepage path, so we just want to make sure they're addressed, so there's no point going to great lengths to, you know, construct a frozen berm and have all those conditions if we have a weak point around the sides.

ACTING CHAIR: Thank you. Hamlet?

MR. CAVANAGH: Paul Cavanagh.

I'm not sure what was being suggested, but the seepage condition beneath the berm is a different situation -- consideration than the end-run potential, simply because the berm -- the seepage condition beneath the berm was expected as a possibility, and it's in the deepest part of the lagoon, so any amount of fluid that accumulated could potentially seep.

Where we're talking about the abutments of the berm, that's a condition where the fluid has to be at a certain level, and again, it's only going to occur potentially late summer, and I can agree with let's look at the as-built configuration. But if that's going to be a deterrent to issuance of a license, I'm a little hesitant to suggest that we include that in it as well. I mean, it can be a

condition of the license that we look at the abutment and put in place some monitoring, but I'm a little nervous about do we make this a condition of the license, because then it just delays everything.

ACTING CHAIR: Okay, Holger?

MR. HARTMAIER: Holger Hartmaier, BGC.

I think, as I suggested, we at least get the as-built and see what it looks like, get the elevations and the conditions, and then I think in our intervention, we're recommending that, you know, monitoring be done so if that is an area, and I think it's one of the critical areas of the dike, is we need to install the required monitoring into that area just to confirm that it's frozen back and that there's no seepage.

ACTING CHAIR: Hamlet? Observation, question, answers?

MR. STEWART: Mr. Chair, could we possibly have that question deferred?

ACTING CHAIR: No problem. Holger, any other questions for the Licensee?

MR. HARTMAIER: Holger Hartmaier, BGC. Thanks again, Mr. Chair.

Yes, I am still rolling through the items in the intervention statement, and what I could

suggest, maybe to speed up the proceedings, is that Paul Cavanagh now has a copy of those intervention statements, and perhaps we can have him respond at a later time in these hearings with specific responses to those rather than at this time. It's up to you; we can continue on, or we can just table the intervention statement as it is and have them respond.

ACTING CHAIR: Okay, sounds like there's quite a few more questions that you may have, so perhaps, if that is sufficient for you people, do you want to take it under advisement, and perhaps once he does his own presentation, you'll have a lot of answers at that time? Is that what you wish, or do you want us to carry on question by question?

MR. CAVANAGH: Paul Cavanagh.

Well, the suggestion earlier from, I believe, the Board's lawyer was that this is a submission. It has comments and it has recommendations, but it really doesn't have specific questions, and for me to try to address these is difficult right now. And the idea was that these need to be turned into some sort of specific question that I can answer. If we do that -- we can either do that now or after the presentation. It's probably better after the

presentation.
ACTING CHAIR: Because what I was thinking to do was take a 15-minute break, give our translators a few minutes and ourselves to get up and stretch. If you want to put your questions down in a question form, I don't know how you want to do this, but maybe Dionne can fill me in, but I know there's quite a few questions you need answered, and of course, we need all the evidence before us to make a decision. Without the information, it's pretty hard for us to make a decision. Dionne?
MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault.
What I might suggest, Mr. Chairman, is that there is a significant amount of questions, and even a 15-minute break, I don't think, is going to give them both the time to be able to do that.
What I might suggest is there are other presenters before we actually get to BGC. I believe, Mr. Chair, you have BGC as the last presenter for the hearing, that we give them the opportunity during breaks, during potentially a supper break, to side-bar between themselves, resolve any of the issues or questions that still remain outstanding and that, when Holger makes his

presentation, he can provide that list of clarification and the list of outstanding issues that still need to be clarified at that point in the form of questions to the proponent. If that's acceptable to you, Mr. Chairman, and to them, it will keep the process moving forward.

ACTING CHAIR: I have no problem. As I say, this is my first hearing. I just want to make sure that all the bases are covered for us and for our consultant and also the Licensees for sure.

Is that okay with yourself, Holger, that you can do a side-bar and discuss it with your counterparts and get some of that information done between now and, I don't know, tonight or something, 7:00, when we reconvene again? I know right now my Board has been up quite late, and I know their bottoms need to get off these chairs for a minute and walk around, so can you please carry on?

MR. HARTMAIER: Holger Hartmaier, BGC.

Yes, that's acceptable to me. I think it's only fair to Paul that, if this is the first time he's seen these things, that he gets a chance to read through it, and we can meet and discuss them point by point, and I can formulate questions so that for the purposes of a hearing, we can publicly

go through them question by question and have his formalized response for any of the outstanding issues.

ACTING CHAIR: If I may, do you have anything else besides your intervention questions; do you have anything else that you want to add now?

MR. HARTMAIER: Mr. Chair, no, the rest of the information we'll include in our presentation.

ACTING CHAIR: Okay. Thank you very much, Holger. Is that satisfactory, Paul; do you agree?

MR. CAVANAGH: Paul Cavanagh. Yes, that's fine.

ACTING CHAIR: Okay, legal dude over there in Calgary? Bill, any question?

MR. TILLEMAN: No, no comments, just whenever the break is, have the Staff call me, but I don't have -- or I'll call them, so no comments, just carry on.

ACTING CHAIR: Okay, so right now, we're going to take a -- let's say we'll reconvene again at quarter to 4.

(BRIEF ADJOURNMENT)

ACTING CHAIR: Okay, we'll come back into regular session. I guess basically, Holger,

do you have any more questions, Holger, on the Applicant's presentation at the present time?
MR. HARTMAIER: Holger Hartmaier, BGC.
No, not at this time. I think the way we're going to proceed is when I make my presentation, we'll have a list of recommendations, and we'll allow the Proponent to ask questions and clarification at that time.
ACTING CHAIR: Perfect. Thank you very much, so you're done. Any questions from the Staff or the technical people. David?
NWB STAFF QUESTION HAMLET:
MR. HOHNSTEIN: Thanks, Mr. Chair.
I'm going to bring up a drawing on the screen here just to have it illustrated for the Licensee.
ACTING CHAIR: While Dave is trying to find that, Dionne, do you have any questions you'd like to ask?
MS. FILIATRAULT: Yes, thank you, Mr. Chairman. It's a point of clarification understanding the unique dynamics between the Licensee and the Applicant, who is the Hamlet of Cape Dorset, the fact that they rely on CGS for technical expertise and financial dollars to be able to implement potential things that may be coming out of a potential future license, if the

Board decides to issue, and then their reliance on Dillon and AMEC, who are making commitments on behalf of the Hamlet.

So I guess my question is to the Hamlet, I would like to get, I guess, assurance and confirmation that they understand that, should a license be issued, that the conditions in that license related to any recommendations or any commitments made by CGS or Dillon or AMEC on behalf of CGS and the Applicant that the Board potentially would adopt in a license are bound solely by the Hamlet of Cape Dorset, and that they understand that the licenses issued to Cape Dorset and the subsequent enforcement of that license is the responsibility and solely the responsibility of the Hamlet of Cape Dorset and not of CGS and Dillon and AMEC, and I would like them to make a comment and assurances from them on that, Mr. Chairman.

ACTING CHAIR: Thank you, Dionne. Hamlet?

MR. STEWART: Art Stewart, SAO, Cape Dorset.

Mr. Chair, yes, we realize that we will be the owners, and as a Hamlet not having expertise in these matters, we do rely on the consultations from CGS and from Dillon, and we understand that we will

be the sole owners and that we will be responsible for any conditions that are attached to the license.

ACTING CHAIR: Thank you very much. Any follow-up, Dionne?

MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault. No follow-ups.

ACTING CHAIR: Thank you. David, are you now ready?

MR. HOHNSTEIN: Yes, thank you, Mr. Chair. Just a quick follow-up --

ACTING CHAIR: No, sorry, just I'm --

MR. HOHNSTEIN: No, sorry, David Hohnstein.

ACTING CHAIR: No, sorry, David, I didn't see his hand. Art, go ahead, please.

MR. STEWART: Mr. Chair, could we ask one question before David makes his presentation?

ACTING CHAIR: Sure, go ahead.

MR. STEWART: I'll ask Bhabesh Roy to ask a question on behalf of the Hamlet.

MR. ROY: This is Bhabesh Roy of CGS. I have a question, Mr. Chairman. Here we have three consultant present. I understand Dillon and AMEC, and to my concern to you and the Board, Mr. Holger is presenting a document asking

question, so I ask his -- what capacity he's -- he's asking question, as the consultant of the Water Board or as BGC as an intervener? Thank you.

ACTING CHAIR: Okay, Dionne? I know the answer, but go ahead.

MS. FILIATRAULT: Thank you, Mr. Chairman. Back in, I believe, it was May 2006 when the Board decided to engage BGC to assist with the review of this file, a letter was sent to all parties including, CGS, the Hamlet, and any other intervening party that had been identified, identifying that the Board intended to hire BGC and Associated Engineering as independent experts in the review of this file, and that any party objecting to the Board undertaking this, were to submit any notices of objection, and none were received that I am aware of, Mr. Chair, on the public registry.

So they were engaged as independent reviewers to provide technical advice on -- in the areas of their specialty, Holger in the area of geotechnical assessment, and Associated Engineering in the area of waste water engineering.

ACTING CHAIR: Thank you. Does that answer your question?

MR. ROY: Yes, Mr. Chairman. Thank

you.
ACTING CHAIR: Thank you very much. Okay, one more time, sir.
MR. HOHNSTEIN: Thank you, Mr. Chair. David Hohnstein.
I just wanted to ask a question in follow-up to the Environment Canada question regarding the runoff of the slope of the north bank there and the, I guess, what was supposed to be a diversion road in there to control the runoff. The question is for the runoff control on the north side: Has there been an estimate of the amount of water expected during spring runoff, and what effect would this have on the treatment of the sewage with the facility?
THE CHAIR: Thank you. Hamlet or Dillon? Colin? Got to stop asking all these hard questions. Are you ready?
MR. JOYAL: Thank you, Mr. Chairman. Can I defer that question to investigate a response to that and provide it later in the process?
ACTING CHAIR: Certainly. David?
MR. HOHNSTEIN: Thank you, Mr. Chair. Just one more quick question as a follow-up to my last. David Hohnstein.
I just wanted to clarify my reading of the

contours shows that there's a possibility of a considerable amount of water that flows to the northeast, towards the east dam. Just a clarification as to where that water would be going to and where it ends up. It looks like it would be, I guess, contained between the road and the access road coming down to the dump point.

ACTING CHAIR: Thank you, David. Hamlet?

MR. JOYAL: I believe your question pertained to the runoff and the direction of runoff in that area, in the slopes in the northeast portion of the site are downwards towards the berm and then down to the northeast, down the site road.

ACTING CHAIR: David?

MR. HOHNSTEIN: That's correct. If the road does provide some kind of deflection of the runoff, it looks like it would flow in that direction, the majority of it, rather than avoiding the area and going down towards P Lake and out to the inlet.

ACTING CHAIR: That's a comment. Do you have any question?

MR. HOHNSTEIN: It was just my question is to where -- if that is the direction of flow, where does that water end up? It looks like it

would be, I guess, contained within that little basin there.

Sorry, David Hohnstein.

ACTING CHAIR: Hamlet?

MR. JOYAL: Colin Joyal, Dillon Consulting.

That's correct.

ACTING CHAIR: Any other technical information you need or questions you may have? Staff?

MR. HOHNSTEIN: Mr. Chair, no, that's all for now.

ACTING CHAIR: Thank you. Any other comments -- sorry, Dionne?

MS. FILIATRAULT: Thank you, Mr. Chairman.

I believe that they have deferred the question regarding runoff to later, and I have no doubt that runoff will become issues in some of the other interveners' presentations, and if it's acceptable to the Applicant, we would raise the question again at that time.

ACTING CHAIR: Okay, thank you. Any other questions from the public for the Licensee?

Then, Art, thank you for your presentation. As you can see, there was other questions you're going to have to answer anyway, so you've got your work

cut out for you.

So what we'll probably do now, if you have no more comments, Art, I will move on to the next intervener. We're going to start with the interveners now, and it will be their turn to come and -- I guess they still stay at the same table, so you can ask -- answer the questions.

So do you have any final closing comments, Art?

MR. STEWART: Art Stewart, SAO, Cape Dorset.

We will definitely try to get the answers to those questions that we have deferred, and we'll try to get back as soon as possible.

ACTING CHAIR: Okay. Just a housekeeping issue; it's 4:00, it's going on to 5. We are meeting this evening at 7:00, so we can still carry on and perhaps do a couple more interveners also this evening, and probably I thought 7 to 9, maybe 9:30 max, because our Board is pretty tired. I'm sure you all are pretty tired from travelling, and we still have tomorrow anyway to finalize everything.

So, Bill, do you have any final comments for the Licensee?

MR. TILLEMAN: No, sir, I certainly don't have any questions at all. Thank you.

ACTING CHAIR: Okay, thank you, Bill. Then we will call on the Government of Nunavut-Department of the Environment to do their presentation, please.

PRESENTATION BY GN-DOE:

MIKE ATKINSON, sworn:

MR. ATKINSON: Thank you, Mr. Chair. My name is Mike Atkinson. I work for the Government of Nunavut-Department of Environment. I recognize the dynamic here may be a little strange with, obviously, Government of Nunavut, CGS representing the Proponent, and then myself here as an intervener.

I would stress that the Department of Environment has a legal mandate under the Environment Protection Act for environmental protection, and it's a mandate that obviously we take very seriously, and we are very keen to demonstrate this in such public arenas.

Our Environment Protection Act basically states that "no person shall discharge or permit the discharge of a contaminant into the environment". Within the Act, the definition of "contaminant" is defined as "any noise, heat, vibration or substance as the Minister may prescribe where discharged into the environment". And under that piece of

legislation, there are some fairly relevant regulations, and these are the spill planning and reporting regulations.

The Department of Environment has been involved in this file since 2006, and commenting on many issues, and I will attempt to summarize and conclude our findings on those issues. The areas that we will be discussing briefly are seepage and geothermal analysis, operation and maintenance, discharge criteria, sludge management, the use of the current treatment systems as a contingency measure, abandonment and restoration, and monitoring.

Through participation in the September 2008 technical meetings in Iqaluit, DOE became aware of concerns expressed by residents of Cape Dorset about integrity of the lagoon's retaining structures, specifically the downstream berm.

Correspondence from Dillon to AMEC August 2007 concluded that the geothermal analysis indicates the unlikely occurrence of seepage under the berm if the liner is installed in accordance with the drawing specifications. However, AMEC do know that this modelling is only based on predictions, and there is a need to monitor conditions and recommend the installation of thermistors.

In November, CGS wrote to the Water Board confirming that they will indeed install these thermistors. However, AMEC also state the need for a contingency plan, measures that should be applied should the berms not freeze back as anticipated. In the material submitted in the application, DOE could find no such contingency plan, although measures were outlined today by AMEC.

So on the seepage and geothermal analysis, DOE recommends that a license condition requiring the Proponent to monitor berm freeze-back and the further development of a contingency plan should the berm not freeze back as planned.

With regard to operations and maintenance, the final submission from the Applicant included an operations and maintenance manual, and DOE -- contained in that manual was an outline spill contingency plan. We did a comparison of the plan to the requirements of our regulations and consider that the plan submitted to be very much an outline and needs to be developed further to make it a useful plan that can be applied.

So we recommend as part of an updated O & M manual that the Proponent be prepared to file a comprehensive spill contingency plan that is consistent with our regulations prior to

commissioning the lagoon. We also recommend that the license state that the plan needs to be updated annually and when significant facility or operational changes occur.

ACTING CHAIR: If I could just interject here for a second. Another Elder just walked in, sorry. As soon as he gets the thing in his ear. Can your brother speak enough English? Echalook? We have another Elder just walked in. I just want to make sure he can hear me before I say hello. I'd like to welcome Echalook Pingwartuk to our hearing.

MR. PINGWARTUK: I can hear you.

ACTING CHAIR: This is Mary's brother; our translator from Yellowknife, that's her brother. Echalook, say hello. Sorry, I have to introduce the Elders. Please, carry on.

MR. ATKINSON: Thank you, Mr. Chair. So then the next area I wish to provide a recommendation on is in relation to discharge criteria.

During the July 2006 technical meeting, Dillon confirmed that the wetland and waterfall are considered a receiving environment and not part of the treatment system. Additionally, the November 2007 operation and maintenance manual states that

the point of compliance for the water license is the discharge from the lagoon into P Lake.

With this in mind, the Department of Environment recommend that the license should stipulate discharge standards at least equivalent to those outlined in the document guidelines for the discharge of treated municipal waste water in the Northwest Territories.

For a discharge of less than 150 litres per capita per day into a lake of a residence time of less than five years, we believe the discharge criteria should be as follows: For BOD, biological oxygen demand, we recommend 80 milligrams per litre, and for total suspended solids, 100 milligrams per litre.

Sludge management: The O & M manual submitted in November 2007 states that the sludge will be sampled annually when effluent becomes noncompliant or more often is required. The stated purpose of that sampling is to ensure that the sludge remains of a quality suitable for land disposal. However, DOE can find nothing in the O & M manual that gives any guidance on what this target sludge quality is.

Draft guidelines for disposal of sewage sludge exist in the, and I repeat draft document, draft guidelines for discharge of domestic waste water in

Nunavut 2000. However, these guidelines are not reflected in the O & M manual mainly because it's a draft. However, DOE recommends a license condition outlining terms and conditions of sludge disposal as contained in the document draft guidelines of discharge of domestic waste water in Nunavut. The Proponent should be required to submit a plan demonstrating how they would comply with these guidelines of sludge management and removal.

The next area or issue I wish to address is the use of the current treatment system as a contingency measure. We've all seen the road up to the lagoon, the new lagoon, and the December 2006 design report confirms some grade of 8 to 10 percent over the length of a kilometre. So this leaves -- this gives DOE some concerns about the accessibility of that road throughout the winter months.

The proponent has suggested that the cell one of the three existing cell lagoon will be used as a contingency, and certainly DOE supports that. However, if these old facilities are to be used, details of any repairs, upgrades, and maintenance required should be provided. The annual report submitted by the Proponent should document the number of days the contingency lagoon was used,

approximate volume of effluent stored, method of discharge, and the quality of that discharge from the contingency lagoons.

On abandonment and restoration, the lagoon is predicted to have a 20-year life span, and DOE acknowledges that submission of a detailed abandonment and restoration plan is premature at this stage. However, DOE does believe that conditions relating to abandonment and restoration should be contained within the proposed new license with end objectives to return the site to pre-use conditions.

So we recommend that similar to Part G, Conditions 1 to 4 of the existing license, the new license should require the abandonment and restoration plans for P Lake lagoon be submitted to the Water Board for approval at least six months prior to abandoning the facility. The Water Board should also require submission of abandonment and restoration plans for the old three-cell lagoon and the lagoon known as the "Honey Pit" within one year of issuing the new license.

Monitoring: The draft report, December 21st, 2006, submitted by the applicant, outlines a monitoring program essential to model and understand the treatment process and to aid in

future expansions of the system. The program includes eight sample locations along the effluent path with samples taken weekly during the open-water season. Parameters of interest include total suspended total, BOD, ammonia, nitrogen, and total phosphorus.

The November 9th operation and maintenance manual expands further on this monitoring program, including additional samples in P Lake itself. DOE concurs with the benefits of this monitoring program for the operation and maintenance of the lagoon, and therefore, we recommend that the Water Board include the sampling program outlined in the November 9th, 2007 O & M manual submitted by the Proponent as a term and condition of the license to be issued.

In summary, DOE believes that the Proponent has provided sufficient information to the Water Board that a license should be issued for the proposed Cape Dorset sewage lagoon subject to the terms and conditions previously described.

Thank you very much. Any questions?

ACTING CHAIR: Thank you very much. Any questions from the Hamlet?

MR. STEWART: No, Mr. Chairman, we have no questions.

ACTING CHAIR: That was Art Stewart. Environment Canada? I'm sorry, you've got to come to the table, state your name for the record, and say no.

MS. SPAGNUOLO: Thank you, Mr. Chairperson. Collette Spagnuolo. Environment Canada has no questions for the GN.

ACTING CHAIR: Thank you very much. INAC?

MR. ROGERS: Mr. Chairman, Jim Rogers of INAC. We don't have any questions at this time.

ACTING CHAIR: Thank you, Jim. BGC?

MR. HARTMAIER: Thank you, Mr. Chair. Holger Hartmaier, BGC Engineering. No questions at this time.

ACTING CHAIR: Thank you very much. Staff?

MS. FILIATRAULT: Yes, Mr. Chairman. I'm just wondering if I could beg your indulgence for just 2 minutes.

ACTING CHAIR: In the meantime, I'll just ask for any questions from the floor to the Government-Department of Environment? Bill, any questions you may have for clarification?

MR. TILLEMAN: Oh, no, sir.

ACTING CHAIR: Okay, thank you. While

we're waiting, if I can, I would just like to advise you in future when you do come to the hearings and you are coming with your presentation and the hard copy, would you please make sure the hard copies are always available for this Board so we can follow on because it's hard to peak around the corner and see what's happening, and by having a hard copy for everybody would be much appreciated in the future. Thank you very much.

Dionne, are you ready? Not yet? Go ahead, please.

NWB STAFF QUESTION GN-DOE:

MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault.

Department of the Environment has recommended some contingencies, and the question may not necessarily be for the Department of Environment, but is the Department of Environment aware of any confirmation of any funding being available for the installation of thermistors to monitor the freeze-back, given that your proposal is to -- for them to develop a contingency measure for the system?

ACTING CHAIR: GN?

MR. ATKINSON: Mike Atkinson, Department of Environment.

I'm not aware of any funding that CGS may have for thermistor installation.

ACTING CHAIR: Dionne?

MS. FILIATRAULT: Mr. Chairman, I think it would be useful -- Dionne Filiatrault -- to pose the question to CGS, given that a lot of the concerns and questions that are going to be raised and have been raised are based on the commitment made by the Applicant to install the thermistors.

And I think it would be useful information to know when the installation of these thermistors is being planned for, and if they are going to be installed, if they are installed prior to effluent being put into the system. And if that is the case, would DOE still require a contingency measure if the analysis of the freeze-back proved that there was freeze-back?

So, Mr. Chairman, the question is to CGS, and then a follow-up from DOE.

ACTING CHAIR: Got it. Thank you. CGS, would you like to respond to that question?

MR. FUENTES: Mr. Chairman, if you permit it?

ACTING CHAIR: Okay, the only thing is I don't know if you've been -- have you been sworn in?

MR. FUENTES: If you want it, I will swear.
ACTING CHAIR: Yes, I've got to swear you in. Bill, there's a gentleman that's part of the Hamlet group team who wants to do a presentation to the Board. Do I have to swear him in before he can give evidence?
MR. TILLEMAN: Yes.
ACTING CHAIR: Okay, please.
PATRICIO FUENTES, affirmed:
MR. FUENTES: My name is Pat Fuentes or Patricio Fuentes. I'm the Regional Manager for Project Division. This particular project fell under my jurisdiction, and we're looking forward to the recommendation of the Board to install the thermistors. We would like to know how many they are, the location that would you like to prefer to be located, and we will proceed as soon as we get all the information.
ACTING CHAIR: Thank you very much. GN-DOE, a final comment?
MR. ATKINSON: Mike Atkinson, Government of Nunavut-Department of Environment.
I'll briefly respond to the second part of Dionne's question, I think -- thanks, Jim -- which

was if thermistors demonstrated that the berms are freezing back, would we still like to see a contingency plan be developed.

I would first qualify my intervention here -- or I did qualify my intervention by quoting sections in correspondence between Dillon and AMEC, which were submitted as part of the public registry. I would say that I am not an engineer, so I will not engage in any dialogue between Holger and AMEC.

Having said that, I think it would be useful for the Proponent to explore a little further under what circumstances they would implement their contingencies so that should they be required to be implemented, they could do so quickly. So taking the outline of the plan they have so far and just developing that a little further with various triggers for implementation.

ACTING CHAIR: Thank you. Final comment? Dionne?

MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault, no further questions.

ACTING CHAIR: Okay, then on behalf of the Board, thank you for your presentation. It's 4:30. Environment Canada, would you like a -- you need about a half an hour to do your presentation?

MS. SPAGNUOLO: (NONVERBAL RESPONSE)
ACTING CHAIR: Then, Environment Canada, would you please come forward.

COLLETTE SPAGNUOLO, sworn:

ACTING CHAIR: I just want to check, Bill, are you still with us?
MR. TILLEMAN: Yes, sir.
ACTING CHAIR: Thank you. And Thomas?
THE CHAIR: Yes.
ACTING CHAIR: We're just setting up here with the computer, and I'm sure Environment Canada will be ready. While we're waiting, Bill and Tom, what we're going to probably do is stop at 5 and probably stop until 7, and then we'll come back and hopefully do INAC and BGC and whatever else is left to be done, and we shall have tomorrow to finalize everything.
MR. TILLEMAN: Okay.
ACTING CHAIR: I know how hard it is to deal with a hearing by phone because I think I dealt with one a few years ago, and it's extremely -- a very hard way to go to a hearing is by phone. Very, very hard.

So, Environment Canada, please go ahead.

PRESENTATION BY EC:

MS. SPAGNUOLO: Thank you very much, Mr. Chairperson. Once again, my name is Collette Spagnuolo, and I'm here representing the Environmental Protections Operations Directorate of Environment Canada.

The primary legislation that Environment Canada has submitted our intervention under is both the Department of the Environment Act, as well as Section 36(3) of the Fisheries Act, which are the pollution prevention provisions. The Hamlet should also be aware of work that is being done under the Canadian Council of Ministers of the Environment to develop a Canada-wide strategy for the management of municipal waste water effluents.

The Canadian-wide strategy will more clearly define the regulatory requirements related to the release of discharges from municipal waste water treatments into surface waters, and the latest draft of the strategy is available on the Internet and was released in October of 2007.

As part of the Federal Government's implementation of the Canada-wide strategy, it is Environment Canada's stated intention to develop a regulation under the Fisheries Act, and our goal in developing this regulation is to ensure that effluents from municipal waste water systems are

treated before being discharged to surface waters so that effluents do not pose an unacceptable risk to ecosystem or human health or to fishery resources.

So the first issue that I'd like to discuss is the compliance point for the license. Any effluent that is discharged into fish-bearing water must be nontoxic in order to comply with the Fisheries Act. In order to achieve this, it may be necessary for the license to differentiate between the last point of control, which is the outfall from the lagoon, and the final point of discharge, which is at some point upstream of the entrance into Telik Inlet.

Making this differentiation is not inconsistent with the latest draft of the Canadian-wide strategy, and the latest draft does state that effluent from a waste water facility must be sampled upstream of the point where the effluent enters the receiving water body and downstream of any treatment processes. It also defines "end-of-pipe" as the point between the end of the treatment process and the receiving environment.

So as we know from the Applicant's presentation earlier this morning, the proposed lagoon will decant into P Lake, and the outlet of P Lake flows into a small wetland area, which then drains

through a small channel over a waterfall before entering Telik Inlet.

The application documents also state that both P Lake and the wetland are not fish-bearing. Therefore, the first waters frequented by fish would be Telik Inlet, and it's these waters that are protected under the Fisheries Act.

All effluent that is discharged from the final discharge point, which will be designated by the Board, must be demonstrated to be acutely nontoxic. While not the only method of determining whether an effluent is deleterious, a common biological test that can be used to determine whether or not an effluent is acutely lethal is the reference method for determining acute lethality to rainbow trout.

However, if the 96-hour rainbow trout test, as it's commonly referred to as, is not appropriate for this location due to the hardness of the water, EC recommends that the Board include an appropriate acute lethality test as a condition in the license. We do recommend that the Proponent should conduct an acute lethality test from either the effluent sampled from the outflow of P Lake or from the final discharge point once annually during the second half of the decant.

The next issue I would like to discuss is the

discharge criteria. Any discharge criteria included in the license by the Board need to be both protective of the receiving environment and still achievable by the Applicant. Discharge criteria that are normally included in a water license are fecal coliforms, biological oxygen demand over five days, total suspended solids, oil and grease, and pH.

In our original intervention, our written intervention, Environment Canada did recommend that the limits from the expired license would be appropriate for the outflow from P Lake. However, given that the Licensee in their presentation and as a result of the questioning by the Department of Environment with the Government of Nunavut, as the Licensee has agreed to the use of 80 milligrams per litre biological oxygen demand and 100 milligrams per litre total suspended solids, we feel that the -- we agree with the Government of Nunavut that these would be appropriate limits for the outflow from P Lake as per the guidelines from the Northwest Territories.

Under the Canada-wide strategy for the management of municipal waste water effluents, the focus is on setting maximum allowable limits for BOD 5, residual chlorine, and total suspended

solids. There will be a period of up to five years, during which northern issues will be examined under the strategy, and practical limits will be put forth for the management of municipal waste water in the north. The Hamlet should realize that this may eventually impact the BOD and TSS discharge criteria in their license.

Environment Canada also recommends a periodic analysis of a full suite of parameters, including metals, nutrients, and major ions in addition to the regulated parameters. Additionally, we suggest that carbonaceous biological oxygen demand or CBOD should also be added as a monitored parameter to help the Hamlet assess whether or not they would be able to meet the proposed national performance standards, as the national performance standards will look at CBOD as opposed to BOD 5.

In terms of the lagoon design, we've heard over the last number of months and again here today various dialogue between the Applicant and different consultants regarding the integrity of the lagoon and the operational aspects in regards to the design in construction. While Environment Canada doesn't have technical expertise in relation to engineering, we do have concerns with regards to the integrity of the lagoon, as these issues could

impact the water quality in the receiving environment.

So we recommend that the water balance of the lagoon system be closely tracked so that any losses through exfiltration or seepage are detected. And we also recommend, similar to the Government of Nunavut, that a contingency plan should be drafted, including appropriate management actions, so that they can be implemented if required.

In regards to monitoring, Environment Canada recognizes that a new surveillance network program will need to be identified for the P Lake system, and we recommend that the new monitoring program include sufficient sampling sites and frequencies in order to inform the community about treatment efficiencies. As currently proposed, the final design report recommends using eight sample locations and completing analyses for five different parameters. Sampling is proposed to be done a week prior to discharge and weekly during decant.

We support the proposal to start sampling with a series of samples taken along the treatment system. However, we also suggest that samples be taken at the outflow into Telik Inlet. In addition to the five parameters, which are suggested by the

Applicant, we feel it would also be useful to add periodic analysis for a full suite of parameters in order to characterize the waste water. Specifically we believe that an ICP metal scan should be completed as well as analyses for major ions and carbonaceous biological oxygen demand. Finally, bioassay -- annual bioassay testing should be done using an appropriate test method, and we do support the Proponent's stated recommendation that thermal monitoring of the berms be completed.

Regarding the frequency of the monitoring, we feel that sufficient operational monitoring must be done in order to allow the system managers to optimize treatment so that the results can be used to rationalize the decant strategy. While weekly sampling may be more than what is needed, there should be sufficient monitoring completed to characterize the effluent and the quality of the effluent as it travels through the treatment system.

In regards to the operation and maintenance manual, we do note that one was submitted in November, and we apologize for the oversight in our written intervention, where we did not have a chance to fully review the operation and maintenance manual. While we note that the manual

does address some of the concerns from our written intervention, we would still recommend that the plan be kept open for review prior to Board approval. There are some items which we feel require further discussion, including optimizing the timing of the decant in order to allow maximum wetland polishing of effluent, expanding the list of parameters to be monitored, issues surrounding whether and how ice will be removed from the lagoon in order to allow discharge of effluent, and drainage management around the site.

Regarding the abandonment and reclamation of the existing lagoons, in the final design report, we do note that the Applicant has stated that an A & R plan will be required for the three-cell lagoon as well as for the new lagoon system and that there may be a need to use the first cell of the three-cell lagoon system as an emergency discharge option in the event that P Lake is not accessible for a long period of time due to the weather. So we do agree with this recommendation, and we suggest that the submission of an A & R plan be a term and condition in the license.

Finally, we would like to remind the Proponent that if the three-cell lagoon system is to be designated as providing emergency capacity, it

should be included in the operation and maintenance plan, and its maintenance during its standby status should be described in the plan. We would like to highlight that the consequences of allowing the old lagoon to fail would almost certainly result in a violation of the Fisheries Act, and so, therefore, appropriate planning and actions must be identified in order to avoid that.

There are -- most of the discussions occurring here today have focussed on the sewage lagoon in the P Lake system; however, we do recognize that there are some other components of the municipal infrastructure that are also addressed in the renewal application. We feel that the application at this time does not contain detailed information on aspects of the license beyond the P Lake sewage lagoon, such as O & M plan for the solid waste disposal facility, and a quality assurance and quality control plan.

So we recommend that either the applicant re-submit the renewal application with a better level of detail on all aspects of the municipal infrastructure, including terms and conditions -- or, sorry, or that the renewal license include terms and conditions that require the submission and approval of the plans outlined in the previous

license, such as the O & M plan and the QA/QC plan.
So, thank you, that concludes my presentation, Mr. Chairperson. If anyone has any questions, I'd be pleased to attempt to answer them.
ACTING CHAIR: Thank you for your presentation. Again, I'll start with the Hamlet. Any questions?
MR. STEWART: Art Stewart, SAO. Mr. Chairman, Mr. Bhabesh Roy would like to make some comments.
ACTING CHAIR: Thank you.
HAMLET QUESTIONS EC:
MR. ROY: This is Bhabesh Roy, Municipal Engineer at CGS. Thank you, Mr. Chairman.
This is just for your information with the discussion with the Water Board, we applied for renewal of the existing license, and considering the process will take this -- we don't know how long, that's why the existing system is being renewed. When the P Lake lagoon design will be approve, and then we amend the existing license. So this will cover the -- as you know, this license include water, waste water, and solid waste, so similarly, when we amended this license, automatically all three systems will be admitted

into the license. Thank you, Mr. Chairman.
ACTING CHAIR: Thank you. Did you get all that? The only problem is what happened is you didn't address the Board. You addressed her, and when you turned on me, I didn't catch you. I hear you, but, sorry, I didn't hear what you said, and when you turned your head and talked to her, we --
MR. ROY: Can I --
ACTING CHAIR: -- missed it, so I --
MR. ROY: Mr. Chairman, can I repeat again?
ACTING CHAIR: Please, if you would, just so I know what you're saying. Thank you.
MR. ROY: Thank you. What I explained to Environment Canada and the Board, during this discussion process of the P Lake lagoon, with the discussion with the Water Board, we agreed to apply for the renewal of the existing license. We did it. That is in the process. So when the P Lake lagoon design will be approved, then that new license will be amended, and that license will consist of water system, waste water treatment system, and the solid waste management system.
ACTING CHAIR: Dionne, you had a question?

MS. FILIATRAULT: Thank you, Mr. Chairman. I will confirm with the Board and the parties the procedural aspects of the differentiation between the application for renewal and the current application that we're discussing today regarding the amendment. If I could do that following the supper break, if that's acceptable.

ACTING CHAIR: Okay, no problem. Anything else from the Hamlet?

MR. STEWART: Art Stewart, SAO. No, there's no further questions or comments at this time.

ACTING CHAIR: Thank you. GN-DOE?

MR. ATKINSON: Mike Atkinson, Government of Nunavut-Department of Environment. I have no questions, thank you.

ACTING CHAIR: Thank you, Mike. INAC?

INAC QUESTIONS EC:

MR. ROGERS: This is Jim Rogers with INAC. I just have one short clarification question for Environment Canada.

Collette talked about the polishing of water through the wetland system; however, we've pretty well clarified that it's not part of the treatment system. We have letters from Community Government Services stating that. If she could just clarify

how she looks at the wetland -- the P Lake and wetland system fitting in with the existing P Lake lagoon in that comment, if you wouldn't mind. Thank you.

ACTING CHAIR: Thank you, Jim. Environment Canada?

MS. SPAGNUOLO: Thank you. Collette Spagnuolo with Environment Canada.

We understand from the documentation that has been submitted and from the responses from the Applicant earlier today that the system that's being examined here today or I should say the primary system ends at the outflow from the lagoon.

However, given that the receiving environment in which fish are found is Telik Inlet and given that Environment Canada's -- one of our main concerns here today is as a result of our administration of the Fisheries Act, we are cognizant of the fact that some additional treatment of water, of effluent will occur through P Lake and through the wetland. So it was under that umbrella that we made the comments in regards to any polishing that may occur in the wetland area.

ACTING CHAIR: Thank you. Jim?

MR. ROGERS: That's acceptable.

Thanks.
ACTING CHAIR: Thank you. BGC?
MR. HARTMAIER: Thank you, Mr. Chair. Holger Hartmaier, BGC. I have no comments from the BGC side, but I do have a procedural comment if I may.
ACTING CHAIR: Of course.
MR. HARTMAIER: Just wondering whether John Granger is on the line at this point.
ACTING CHAIR: Let's find out. John, are you on line?
MS. FILIATRAULT: No.
ACTING CHAIR: No. Dionne?
MS. FILIATRAULT: Mr. Chairman, if it's identified that we need to get John on the line, we can bring him on the line. I'm not sure at this point, having the presentation actually finished, we probably should have forethought that and got him on the line before the presentation. So we will touch base with John Granger. A lot of clarification has been provided by Environment Canada, and I think some of it may address some of his issues.
ACTING CHAIR: Thank you, Dionne.
MR. HARTMAIER: Thank you. No further questions.

ACTING CHAIR: Okay, thank you. Staff, any questions for Environment Canada? Dionne?
NWB STAFF QUESTION EC:
MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault.
Just want to seek clarification because it's the first time that we've gotten this -- as specific as Collette has provided. So my understanding is that you want the Board to consider a distinction between a point of control and a final discharge point, correct?
ACTING CHAIR: Environment Canada?
MS. SPAGNUOLO: Thank you, Mr. Chairperson. Collette Spagnuolo.
Yes, that is correct, Dionne.
ACTING CHAIR: Dionne?
MS. FILIATRAULT: So just to confirm then at the point of control, is it your opinion that -- it's your understanding that that is where the parameters of 80, 100 would be imposed, at the point of control, and that that likely would not necessarily meet the Fisheries Act, and that there's an understanding that the wetland treatment system provides that additional treatment, and that...
ACTING CHAIR: Okay. Environment

Canada?
MS. SPAGNUOLO: Thank you. Collette Spagnuolo with Environment Canada.
Yes, Dionne, that is correct. It's at the last point of control, which is the outfall from the primary lagoon that Environment Canada is recommending that the 80 BOD 5, 100 total suspended solids would be met, and that at the entrance into Telik Inlet, which is where we would first encounter fish-bearing water, that Canada would like to ensure that the effluent is not acutely toxic to fish.
ACTING CHAIR: Thank you. Final comment?
MS. FILIATRAULT: Mr. Chairman, thank you. Dionne Filiatrault.
So the end-of-pipe is at the final discharge point, or is the end-of-pipe at Telik Inlet?
ACTING CHAIR: Environment Canada?
MS. SPAGNUOLO: Thank you, Mr. Chairperson. Collette Spagnuolo.
The end-of-pipe would be the last point of control, which is the outflow of the lagoon, and the final discharge point would be upstream of the entrance to Telik Inlet.
ACTING CHAIR: Dionne?

MS. FILIATRAULT: Mr. Chairman, the -- Dionne Filiatrault -- Environment Canada is also recommending that acute nontoxicity testing using the reference method, rainbow trout, she recognized that there are issues in some communities and some northern projects of that not being a doable test, and I'm wondering if Environment Canada can provide the Board with some recommendations on whether or not that is an acceptable test for this community or offer the Board another alternative to determining whether or not we can determine acute toxicity.

ACTING CHAIR: Thank you, Dionne. Environment Canada?

MS. SPAGNUOLO: Thank you, Mr. Chairperson. Collette Spagnuolo.

In regards to the first half of your question in terms of whether or not the 96-hour rainbow trout test is appropriate for Cape Dorset, perhaps I could defer that question to the Water Resource Officer from Indian and Northern Affairs Canada, who is here. He may have better firsthand knowledge in regards of the actual conditions here in Cape Dorset and whether or not that is an appropriate test for this location.

In regards to the second half of your question,

there are alternative tests that could be employed such as the Daphnia Magna test.

ACTING CHAIR: Would you like to give some evidence? I'll have to swear you in if you do.

MS. FILIATRAULT: Mr. Chairman, Dionne Filiatrault. I can ask -- I can defer the question and seek the response when we go through our next presentation.

ACTING CHAIR: Yes, no, I just want to make sure because you asked a question that's not answered, and I want to get on the record. Collette mentioned that he'd give an answer, but I need to swear him in first. If you want to defer it until 7:00 when INAC does their presentation, I'm sure you'll have an answer by then, so if that's your wish, carry on.

MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault. Yes, that's fine.

And a final clarification, the acute toxicity test, are you proposing that that is at the final point of discharge or at the inlet to Telik Inlet?

ACTING CHAIR: Environment Canada?

MS. SPAGNUOLO: Thank you, Mr. Chairperson. Collette Spagnuolo.

Just to clarify, the final discharge point is

the entrance to Telik Inlet. It would be the -- I think perhaps the question is at the final point of control or the end-of-pipe versus the final discharge point. I know it gets a bit confusing.

In terms of our recommendation, I think we are leaving the determination as to where the acute lethality test should be completed up to the Board. However, if you were looking for an opinion from Environment Canada, I think that the test would be most appropriate at the location where the effluent is entering fish-bearing water, which would be the final discharge point at the entrance to Telik Inlet.

ACTING CHAIR: Thank you. Dionne?

MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault.

And I'm sure there's an understanding with Environment Canada that if the acute toxicity is to be done, it would be done just prior to Telik Inlet, and that it wouldn't be done actually in Telik Inlet, which is outside the mandate of this Board, as it is marine waters.

ACTING CHAIR: Environment Canada?

MS. SPAGNUOLO: Thank you, Mr. Chair. Collette Spagnuolo.

Yes, that is correct; we do recognize that in

our recommendation is that it would be at some point upstream of Telik Inlet.

ACTING CHAIR: More comments? Many?

MS. FILIATRAULT: I think this is my final question, I believe, Mr. Chairman.

You mentioned -- Dionne Filiatrault -- you mentioned in your presentation the Canada-wide strategy, and the implementation time frame you suggested was five years. That five years represents -- I was under the assumption that five years represents the assessment for northern communities, but the actual implementation for the Canada-wide strategies is again beyond that five years, that there's a period of -- I believe there's a discussion now between eight to ten years or somewhere in there. Am I correct in that assessment?

ACTING CHAIR: Environment Canada?

MS. SPAGNUOLO: Collette Spagnuolo for Environment Canada.

Yes, you are correct.

ACTING CHAIR: Dionne?

MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault.

That was a clarification for the Applicant as well in that Environment Canada is proposing some

monitoring be done in this particular license in advance of trying to assess parameters that will eventually be required under the Canada-wide strategy, and given that we are likely ten years from the implementation -- ten-plus years from the implementation of this Canada-wide strategy, I would like to confirm with Environment Canada that they are at present recommending that parameters such as COD be included along with the requirements of BOD.

ACTING CHAIR: Thank you, Dionne. Environment Canada?

MS. SPAGNUOLO: Thank you, Mr. Chair. Collette Spagnuolo.

That is correct. We are recommending that, in addition to the regulated parameters that would be part of the license, which -- for other communities, we have typically seen to include BOD 5, fecal coliforms, TSS, and I believe you're also recommending ammonia and phosphorus. We are recommending, in addition to that, that there be some monitored parameters included in the license, not regulated, simply monitored in order to help the Hamlet assess in the future whether or not effluent from the lagoon would be capable of meeting the national performance standards that are

outlined in the Canada-wide strategy.
ACTING CHAIR: Thank you. Dionne?
MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault.
I think it would be of benefit also to the Board to understand the sampling and the difficulties of sampling associated with BOD and COD for this community, and whether or not it's an appropriate parameter, and I believe the inspector who does sampling in this community would be able to provide us with some assistance or advice on that during their presentation, Mr. Chairman.
ACTING CHAIR: Okay. David, any questions?
MR. HOHNSTEIN: No, Mr. Chair.
ACTING CHAIR: Okay, Bill, do you have any questions?
MR. TILLEMAN: No, sir, no questions or comments.
ACTING CHAIR: A lot of questions and answers been going on back and forth between Staff and Environment Canada, and I want to give a final comment to the Licensee. This is a one-sided conversation; you guys are kind of stuck doing all the work. Do you have anything you want to add to anything that's being asked or being told that you

heard right now? Do you have any concerns or questions that you may have?

MR. STEWART: Art Stewart. Yes, Bhabesh Roy from CGS has a comment.

MR. ROY: Yeah, this is Bhabesh Roy from CGS. Mr. Chairman, yes, we are familiar with the new guidelines with Dionne and Collette, what they're talking about, and we are involved in the process, so we know the system, and we know the process. Thank you.

ACTING CHAIR: Sorry, I just want to make sure that -- a lot of things have been told here the past 15 minutes. I want to make sure you're in agreement and not go and say, I didn't get a chance to give my 5 cents' worth. I always include the Licensee. Thank you.

MR. ROY: Thank you.

ACTING CHAIR: Okay, Environment Canada, thank you very much for your presentation. We will adjourn. It's almost 5:00. We will adjourn until 7:00. We will deal with INAC hopefully at 7, and then BGC Engineering or anybody else from the public that may have questions, and we may have final submissions tonight. If not, we'll do 'er tomorrow morning. We'll have a two-hour break, and who needs a little sleep now and then, go for it.

Bill and Tom, we'll talk to you guys about 5 to 7.

Oh, if I could just call on Catherine to do some exhibits, housekeeping.

PROCEDURAL MATTERS:

MS. EMRICK: Thank you, Mr. Chair. We have four exhibits to add to the exhibit list. Exhibit Number 5 will be the GN-Department of Environment Presentation for the Cape Dorset Type B Water License Amendment Application, and this is the hard copy submitted by Mike Atkinson.

EXHIBIT NO. 5:
HARD COPY OF THE GN-DEPARTMENT OF ENVIRONMENT PRESENTATION FOR THE CAPE DORSET TYPE B WATER LICENSE AMENDMENT APPLICATION, SUBMITTED BY MIKE ATKINSON.

MS. EMRICK: Exhibit Number 6 will be the GN-Department of Environment Presentation for the Cape Dorset Type B Water License Amendment Application, electronic copy submitted by Mike Atkinson.

EXHIBIT NO. 6:
ELECTRONIC COPY OF THE GN-DEPARTMENT OF ENVIRONMENT PRESENTATION FOR THE CAPE DORSET TYPE B WATER LICENSE AMENDMENT APPLICATION, SUBMITTED BY MIKE ATKINSON.

MS. EMRICK: Exhibit Number 7, Environment Canada Cape Dorset Sewage Lagoon Final Public Hearing Presentation, January 23rd, 24th, 2008, hard copy submitted by Collette Spagnuolo.

EXHIBIT NO. 7:
HARD COPY OF THE ENVIRONMENT CANADA CAPE DORSET SEWAGE LAGOON FINAL PUBLIC HEARING PRESENTATION, JANUARY 23, 24, 2008, SUBMITTED BY COLLETTE SPAGNUOLO.

MS. EMRICK: And Exhibit Number 8 will be Environment Canada Cape Dorset Sewage Lagoon Final Public Hearing Presentation, January 23rd, 24th, 2008, electronic copy submitted by Collette Spagnuolo.

EXHIBIT NO. 8:
ELECTRONIC COPY OF THE ENVIRONMENT CANADA CAPE DORSET SEWAGE LAGOON FINAL PUBLIC HEARING PRESENTATION, JANUARY 23, 24, 2008, SUBMITTED BY COLLETTE SPAGNUOLO.

ACTING CHAIR: Okay, thank you very much. We will -- Dionne, do you have a final comment? Please.

MS. FILIATRAULT: No, Mr. Chairman, that's fine.

(PROCEEDINGS ADJOURNED AT 5:00 P.M.)

(PROCEEDINGS RESUMED AT 7:15 P.M.)

ACTING CHAIR: Okay, we'll come back into regular session. Just before we start, I want to see, Thomas, are you on the phone?
THE CHAIR: Yes, I am.
ACTING CHAIR: Bill, are you on the phone?
MR. TILLEMAN: Yes, sir.
ACTING CHAIR: Thank you. Just before we go back into session again and I recognize the Elders, Art Stewart has a comment he'd like to bring to the table first.
SUPPLEMENTARY MATTERS:
MR. STEWART: Art Stewart, Hamlet of Cape Dorset. Mr. Chairman, Bhabesh Roy would like to speak for a moment.
ACTING CHAIR: Go ahead, please.
MR. ROY: Bhabesh Roy, Municipal Engineer, Baffin Region.
Mr. Chairman, we received a letter from Nunavut Water Board October 10, 2007, and in that letter, we have been advised to answer two questions, clarify some issues. A letter was sent -- signed by Dionne, and it has deadline when we have to respond those issues. Accordingly, we responded within the time frame it was given to us. We replied this letter on November 13, 2007. So for

the record, I ask Board if they officially received this letter, and if it was made available to the interpreters.

ACTING CHAIR: Thank you. Dionne?

MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault.

I believe that we have, Mr. Chairman. I'm going to confirm 100 percent that we do have it, and I will follow up.

ACTING CHAIR: Okay, thank you.

MS. FILIATRAULT: Mr. Chairman, Dionne Filiatrault.

Yes, we do have the document. We received it.

ACTING CHAIR: We do have the document, and it is part of the hearing.

MR. ROY: Thank you, Mr. Chairman.

ACTING CHAIR: You're welcome. Okay, nice surprise. Basically a lot of the people from Cape Dorset came out. I know I'm not going to get all of your names, but our young lady is running around trying to get a whole bunch of names for the Elders, and hopefully if I do miss you this time, I'll catch you a second time, but I want to introduce some of them. If you would just stand up and perhaps just wave: Peter Ningiushiaq, Panni Ningiushiaq, Suuyu Pootoogoo, Kananginak Pootoogoo,

Kanayuk Pootoogoo, Quppa Mike, Elaija Mike, Miisa Qinuajuaq, Ipayaqa Oqutaq, Eege Oqutaq, Papiaqa Tukiqqi, Qupi Tukiqqi, Jimmy Manning, Ashevak Eezekiu, Mary Eezekiu. Ashevak, good friend, welcome. I worked with this man in 1969, a good friend of mine, hope he still is. He and I worked many years ago on a building that's probably not even here anymore.

Now, I know I've missed some other people, so while the young lady is still trying to get your names, I'll just carry on. Just for the people of Cape Dorset, before I start, I want to introduce my Board to you. Thomas Kabloona is on the phone. Say hi, Tom. He is there. He is the Chairman of the Board from Baker Lake. To my right is Guy Kakkiarniun from Kugaaruk, Lootie Toomasie from Qikiqtarjuaq, George Porter from Gjoa Haven, Tommy Tatatuapik from Arctic Bay. Geoffrey Kusugak, another member, was weathered-out, and Thomas Kabloona is on the phone with us from Baker Lake. We also have our lawyer from Calgary, Bill Tilleman. Say hello, Bill.

MR. TILLEMAN: Hello.

ACTING CHAIR: Of course, for those of you who have no idea who I am, my name is Robert Hanson, and I'm the Acting Chair for this hearing.

The purpose of this public hearing is to review the application that has been filed by the Hamlet of Cape Dorset to amend their Type B water license in accordance with the Nunavut Waters and the Nunavut Surface Rights Tribunal Act. And when a Type B license comes before us or a Type A license comes before us, we have to hold a public hearing, and we hear from the Licensee, who is from Cape Dorset.

And there's a bunch of interveners from across Iqaluit and Nunavut that are here today giving questions to the Hamlet of Cape Dorset, and especially we want to hear from the people of Cape Dorset if you would have any concerns on the present sewage lagoon that's being commissioned now. We have to hear from you if it's a good thing or a bad thing.

Now we are like judges in a court. We eventually come here, we hear all the evidence from all the sides, we go into a private room. We take all the information that's been given to us, and we make a decision on whether they receive a license or not and what should be in that license. That's kind of giving you a really quick nutshell.

I have been asked, if possible, before you leave tonight, if you could all sign the register

when you come in or when you leave. We'll have a break, and if you could sign by Richard Dwyer over there -- he will wave -- just sign the book when you come in.

Just going through the names I might have missed, Qavaruaq Qatsija, Eqaluk Qatsija, Zeke Ejesiak, Pallu Pudlat, Majuqia Quvianatuliaq, Saana Pudlat, Arnasuk Qaqjurajuk, Pinguatuk Ottockie, and Lau Ottockie. Again, thank you for coming. I might have missed a few, but hopefully I'll see you in between the meeting.

I am just going to give an opportunity for you to see what has happened in Cape Dorset what you may not be aware of -- I'm sure all you are -- but I am going to call on the Hamlet and their consultants to give you a short presentation on why we are here and what is being built in Cape Dorset and how we're going to make our decision.

So, Colin, if I could call on you to make a slight presentation, please.

While you're setting up, Thomas, are you there?

THE CHAIR: Yes, I am.

ACTING CHAIR: That's the Chairman, the real one; I'm acting on his behalf.

Colin, you're still under oath. Basically for the people from Cape Dorset, everybody is sworn in

by Bible, and they take an oath whether they're speaking or not.

COMMUNITY PRESENTATION BY HAMLET:

MR. JOYAL: Thank you, Mr. Chairman, Colin Joyal. Dillon Consulting.

Okay, the first slide here introduces the Cape Dorset sewage P Lake lagoon. The name on there, Gary Strong, just to clarify, unfortunately Gary could not make it as there was a death in the family, and I'll be presenting the information on behalf of Dillon. Just a point of clarification there.

There's an outline of the presentation topics that will be covered. The project description and purpose, site selection and selection process, design considerations, the system description, there's a geotechnical presentation by AMEC, which I believe we will not be including in this session, as well as some comments on looking forward.

The project description and purpose: In short terms, the purpose of the project is to develop a new licensed sewage treatment system for the community at P Lake. The reasons for the new site have been the -- include the documented failure of the existing lagoon, the fact that it was not feasible to expand the existing system along with

an order issued by Environment Canada in 2003.

As part of the site selection process, a variety of options were reviewed. The Q Lake option. In the winter of 2001/2002, the community's water supply pipeline froze, and Q Lake was used as an emergency backup water supply source, so it's been indicated that it wanted to be maintained as an emergency backup source.

A mechanical plant: The capital and operating costs for mechanical plant were deemed to be cost-prohibitive. Site R lagoon option, the site is currently used as a granular stockpile and is located at the end of the runway and is also deemed unsuitable.

Through consultation, the proposed site was selected, and the letter there is from the community authorizing to proceed with the design of the lagoon at the P Lake site. The water license application was submitted, and the owner of the facility is the Municipality of Cape Dorset. The Applicant for the water license is the Senior Administrative Officer and the operating authority is the Senior Administrative Officer.

Some of the design considerations that were included in part of the work was to develop 5-, 10-, 20-year sewage generation rates based on

sewage generation and population growth estimates. Sizing in a lagoon is based on community requirements, and they identified potential for expansion beyond the 20-year design window. Development of the conceptual layout of P Lake lagoon included site access road to access the new site, the layout for the lagoon cells, and the location of the lagoon outfall for discharges, as well, they completed an assessment of the expected lagoon treatment.

This slide shows some of the options for treatment that are available. The mechanical treatment sewage plant, short-retention lagoon, long-retention lagoon with fall decant, and wetlands treatment as a polishing step. The long retention lagoon with fall decant was selected as a preferred option. The system includes year-long treatment of the sewage with freezing over winter. Sewage is treated for the duration of the ice-free days with discharge once per year in the fall. Relative to mechanical plant operation, lagoons are easier to operate and more cost effective.

As part of the design considerations, the design of the lagoon incorporated target discharge criteria to be met following the treatment period. Just going to grab a pointer here. This figure

shows the location of the proposed lagoon site relative to the community -- looking for a red dot; there it is -- so I've got the north arrow pointing up, the community is located here, the existing site was over in this area with the three cells lagoon and the discharge point. The new lagoon includes the site access road through here. This is the location of the new lagoon site with the discharge here into P Lake and the flow patterns out of P Lake through the wetlands and down a waterfall and into Telik Inlet.

This drawing here shows the system, the lagoon facility. Just to give a bit of an overview -- find my pointer again -- at the top here is a turnaround area for the sewage truck. The sewage is dumped down a discharge flume into the lagoon. This is the lagoon here contained by berm at the west side and another berm in the northeast and a road around the perimeter through an existing channel on the existing site topography.

The sewage resides in the lagoon for the duration of the year and is treated through the ice-free days in the summer. The discharge is through the discharge pipe here at the bottom of the lagoon. Discharge occurs over a two-week period in the fall, typically in September, through

the discharge pipe into P Lake, down the drainage pattern as shown in the other drawing.

The next series of slides are photos of construction. Mostly the pictures tell the story. On the left side is the access road that was shown in the previous slide, showing the access road up to the new site. On the right, we've got some of the drainage works with the culverts managing surface water flow across the road. On the left, we see the road, 8-metre wide road, with guardrails on both sides. On the right is the main access where the new road is tied in to existing roads.

These two photos show lagoon berm construction with a key trench down into existing materials in permafrost. On the right, we've got a geosynthetic clay liner, which is a form of textile with bentonite-packed clay powder incorporated into it that can be used as a liner. So that's a picture showing the installation.

The photo on the left shows the lagoon at the -- sorry, the berm at the bottom of the lagoon; the inside slope with the placement of large rocks for erosion control, so the riprap. On the right is the construction of the deflection.

We have compaction of the material being placed back in the trench, and the photo on the right

shows the large discharge vault and discharge pipe as it's being backfilled in place. The picture on the left here shows where the discharge pipe goes through the berm and penetrates through the liner. There was more bentonite clay powder placed along with the geosynthetic clay liner where the pipe penetrates through it. On the right is the truck discharge flume. This is where the sewage truck will discharge the sewage down these pipes into the lagoon.

Moving past those photos of construction, the performance of the lagoon was modelled to ensure that treatment would meet the discharge criteria prior to being discharged from the lagoon into the environment. The quality of the discharge will be monitored, and effluent quality limits will be sustained by the Water Board as part of the license. I'm not getting into too much detail on the numbers here, but the important part is that there will be monitoring of the discharges, and guidelines for acceptance will be established.

Prior to and during discharge, there will be monitoring at the site, so there will be samples taken at the eight locations in total as part of the monitoring program. So you can get your bearings a little bit on this drawing, the site

access road is up in this area. This is where the truck dump or discharge area is. The lagoon is not shown on this slide, but it's in this area here, and with the discharge into P Lake, which is this lake shown, and the wetlands and discharge down into Telik Inlet.

So again, this shows the eight locations for the monitoring program. We've got a control site, lagoon inflow, which is the raw sewage coming in, lagoon effluent over here, which is the discharge of the treated sewage outside of the lagoon, monitor lagoon performance. As the liquid leaves P Lake, there will be more monitoring at that point along with through the wetlands and, finally, just prior to going into the ocean. As mentioned, we're going to skip past that presentation.

Other items here, looking forward, the items to be addressed by the Proponent will be responses to issues from today, responses to any draft license conditions if issued by the Nunavut Water Board, and then compliance with license requirements if issued by the Nunavut Water Board.

Some of the requirements that may be included in the license would be things such as monitoring of lagoon performance, issuance and update of the operations and maintenance manual, issuance and

update of the spill contingency plan, response to issues that arise from monitoring, and annual reporting to the Water Board.

That concludes my presentation, Mr. Chairman.

COMMUNITY QUESTIONS:

ACTING CHAIR: Okay, thank you very much, Colin. I'm just wondering -- that should be adequate. I appreciate you presenting that again for the people of Kingait.

So basically the people of Cape Dorset, the floor is open to you, that if you have any questions about what has been presented to you on behalf of the Hamlet of Cape Dorset or any information you think is relevant for us to hear, because we don't live here and we don't know what is happening, so we have to depend on yourselves and also all the interveners, so if anybody would like to come to the front table, I know it's scary, but all you have to do is tell us your name. Dionne has a microphone, just tell us your name only, so that way we'll put you on record as giving evidence, and we would appreciate the community to come forward and say whatever you want, even hello if you want.

Mr. Manning in the back.

MR. MANNING: Thank you. My question

is I probably missed some in regards to proposal for the new lagoon, and if you -- what's going to happen 20 years or more than 20 years from now? Will it going to be the same side? Is that going to be repaired as well, or is that going to be the same from here on when it becomes in operation? Is it going to be more than 20?

ACTING CHAIR: Thank you, Jimmy. That was Jimmy Manning. Licensee? Art, you have a comment?

MR. STEWART: Colin, would you like to answer that?

MR. JOYAL: Mr. Chairman, could you please repeat the question? I caught part of it.

ACTING CHAIR: I think Jimmy was wondering what is going to happen to this lagoon in 20 years, what is the life of it, what's going to be happening. And I also think he was asking about the other lagoons too, and maybe give him an update on what's going to be happening to them for reclamation. Is that right, Jimmy? Okay.

MR. ROY: My name is Bhabesh Roy. I'm the Regional Engineer of Baffin Region.

The answer to your question is very important. As the public, you can ask this question. The new facility we are designing for 20 years lifetime.

It means if it is commissioned today, it will stay for 20 years. It means 2028. During the period, we have the existing system. The existing system will keep on going, make sure the new facility is functioning good. Once the new facility is satisfactory functioning, we can plan for decommissioning of the existing system. Thank you, Mr. Chairman.

ACTING CHAIR: I think his other comment was what's going to happen over the next 20 years. Are you going to be looking for another facility to replace the 20-year one also?

MR. ROY: Mr. Chairman, this is a municipal environmental project, so when the design life will expire, definitely within this time frame, we have to plan for the expansion of the new facility, of the new system.

ACTING CHAIR: Thank you. Okay, Jimmy? Okay, any other questions from anybody else?

MR. EJESIAK: I also have a question. It would have been better if you had a first meeting prior to this before you came up with the new designs or the new locations. There are some streams or small rivers flowing that are in sensitive area. They tend to overflow during the freshet. And also, are you aware of the fact that

in between the -- in that particular site, there are some streams that do flow, overflow towards our community where the houses are?

ACTING CHAIR: Art?

MR. STEWART: Thank you, Mr. Chairman. Art Stewart.

I would like to answer the first part of that question. Back in November of 2003, there was a consultation in this very hall about the situation of the next sewage lagoon, and the vote, I believe, was 23 to zero to proceed with the P Lake. All of the other options were explained, and the public had a chance at that time to vote on it, and that's what they came up with, that P Lake was the most viable option.

Thank you, Mr. Chairman, and I believe Bhabesh Roy has something to add.

ACTING CHAIR: Mr. Roy?

MR. ROY: Thank you, Mr. Chairman. Actually the -- I also missed the last part of the question. If you don't mind to repeat the second part of the question.

ACTING CHAIR: Of our question or --

MR. ROY: No, the gentleman's, the question asked by the public.

ACTING CHAIR: He basically asked why it

wasn't brought to the public prior to, and if you had any other meetings, and I think there is other meetings.

MR. ROY: Okay, thank you, Mr. Chairman. This is Bhabesh Roy again.

The answer, I think the issue of the Hamlet, Mr. Art Stewart, he already answered the question. I just added to his comments.

During this site selection process, there was a consultation session with the public, as he mentioned. And following the consultation, the public and the Council give us a mandate to go ahead to design the lagoon at P Lake location. This is the way how we decided the P Lake location. Thank you, Mr. Chairman.

ACTING CHAIR: Just state your name, please, if you would for the record.

MR. GILLIS: My name is Cal Gillis. This meeting that they're talking about, that Bhabesh was just talking about, this consultation, was this not the second meeting regarding the sewage system?

ACTING CHAIR: Hamlet?

MR. STEWART: Art Stewart, Hamlet. I can't get the microphone to work. Somebody must have theirs on.

Yes, I believe that was the second consultation. There was also one, I believe, prior to that where we actually talked about the option of having the sewage lagoon out by the waterfall at Q Lake, and that was not a viable option, and CGS came back with another consultation. I don't know exactly when but -- or how long after the first one, but I know it was in November of 2003.

MR. GILLIS: Now, that first meeting, and I remember that first meeting very well, and in that first meeting, it was agreed by the Community, people voted that they wanted a sewage treatment plant. I remember that clearly. They did not -- that's what they voted for. They voted for a sewage treatment plant. Now, how did we end up with a sewage lagoon? Now, I know you're saying the second meeting; how many people were at that second meeting?

ACTING CHAIR: Hamlet?

MR. STEWART: Art Stewart, Hamlet. There was approximately 23 to 25 people at that second meeting. Probably the same number as what was at the first meeting. And the reason that the mechanical facility didn't go through is that CGS studied it, and they thought the cost was way too high. There wasn't enough -- the funding for it.

So they come back with this other option of the P Lake.

And also at that time, back in 2003, I know that there was at least one mechanical plant, and it wasn't working very good. They had all kinds of problems. I believe that was in Pangnirtung, and that was taken into consideration, Cal, in the overall scheme of things.

MR. GILLIS: But is not that plant in Pangnirtung working up to specs now?

MR. STEWART: Yes, it is. However, I think at that time, it was deemed not to be a viable option. I know they spent a pile of money on that.

ACTING CHAIR: Cal, I know you're going to ask more, but for your information, please come through the Chair, otherwise, he's going to start talking to you, and he'll avoid us. Thank you. Go ahead, Art.

MR. STEWART: Okay, I was just handed the documentation from that meeting, and in summary, one of the options was to build a mechanical sewage treatment facility. This option provided good treatment; however, there's a yearly maintenance cost of $260,000. In order to afford this facility, the water rates would have to

increase roughly $80 per month per household. So that was certainly the consideration as why we did not go to the mechanical plant at that time.

ACTING CHAIR: Thank you. Cal?

MR. GILLIS: I would like to know what the maintenance will be on this sewage lagoon as far as keeping that road clear, plowing during the wintertime, maintenance on the road, maintenance on the sewage lagoon. What are the costs for that, yearly costs for that as compared to what the mechanical plant would cost?

ACTING CHAIR: Thank you. Hamlet?

MR. STEWART: Art Stewart. Mr. Chairman, I'm going to defer that question to Bhabesh Roy.

MR. ROY: Mr. Chairman, this is Bhabesh Roy again.

The answer to your question is when we designed the municipal facilities, we have three different costing. One costing is the capital cost of the project; second is the operation and maintenance cost of the project. We have to make sure the -- it is easy for the community to operate and maintain for the design life of the project.

And doing that, we also calculate the life cycle cost of the project. Initially this project

has been estimated. The cost estimated for capital -- of the capital plan -- project was $3,047,000. That was the estimated cost. The life cycle cost was -- life cycle costing was $14,827 thousand (sic) and total life cycle cost considered 17,874 thousand --

ACTING CHAIR: 17 million perhaps?

MR. ROY: Oh, sorry, yes, sorry, 17,874,000, yeah. So it means that the total life cycle cost for 20 years' period, we are using kind of 8 percent discount rate.

ACTING CHAIR: So if I get that correct, you said 17 plus 14, is that 31 million over --

MR. ROY: That's the total life cycle costing is 17,874,000 plus 14.

ACTING CHAIR: That's over --

MR. ROY: The $17 million.

ACTING CHAIR: So 17 million.

MR. ROY: Yes.

ACTING CHAIR: I heard a 14,000 --

MR. ROY: No, no.

ACTING CHAIR: -- and 17,000 and 17 million. So 17 million.

MR. ROY: Okay, if you -- I can --

ACTING CHAIR: It's okay, no, no. I've got it now, 17 million.

MR. ROY: Okay, thank you, Mr. Chairman.
ACTING CHAIR: Question?
MR. GILLIS: So is that $17 million over the 20-year period, the life of the lagoon?
ACTING CHAIR: Is that correct, Mr. Roy?
MR. ROY: That -- yes, Mr. Chairman, this is estimate given by the consultant. This is not a lagoon, this is also the access road to lagoon, effluent quality monitoring, all together.
ACTING CHAIR: Okay, thank you.
MR. GILLIS: So what does that break down yearly? How much is that a year?
ACTING CHAIR: Hamlet? $2 million a year?
MR. ROY: If you can -- yes, Mr. Chairman, the 17,874,000, it has to be 20 -- 1/20th will be the yearly, and then 365, it should be coming by day, so I don't have calculator, otherwise, I can give you the yearly expenses.
ACTING CHAIR: I guess, Cal, what he's probably saying if it's 17 million over 20 years, it's under a million dollars a year.
MR. GILLIS: Okay, it's under a million. And how much was the -- how much was the

plant? Was that $280,000 a year?
ACTING CHAIR: Hamlet, he asked a question on the costs of the -- of the capital outlay for the plant and then what it's going to cost per year. I think it was 280-some thousand a year to maintain, but the cost of it, I have no idea. So, Hamlet?
MR. STEWART: Mr. Chairman, referring back to the data as presented on November 28th, the project -- and we're talking about the P Lake now -- back then, the estimate was that the project would require a large capital cost but would cost only about $37,000 per year in maintenance costs versus $260,000 maintenance costs if we would have went to the mechanical plant. Those were figures based -- projected in 2003, and thus, that's why, looking at those figures, that is easily one of the reasons why the P Lake option was chosen.
ACTING CHAIR: Cal?
MR. GILLIS: Well, from what was just stated, 31 million or just under a million a year for the next 20 years, I think getting a sewage plant would have been a deal at 280,000.
Now, I -- these numbers just don't jive here. They don't make sense. We have one person saying one thing; we have the Hamlet saying something

else. What is it going to cost? What is the cost per year for the sewage plant and for the treatment, the sewage lagoon? Somebody has not -- these numbers don't make sense to me.

MR. STEWART: Mr. Chairman, I'm Art Stewart again. I don't know what the cost to run the Pangnirtung plant is, but I know back in 2003, the estimated cost was $260,000 maintenance costs on a mechanical plant versus figures that we got from CGS at that time; to operate the P Lake lagoon was $37,000 per year. You do the math, and that was the reasoning as to why we -- they -- the plant option was not an option at that time.

Now, the actual costs have changed obviously since then, and we would -- we will know -- if we do get the license for this P Lake, we will be able to tell you exactly what the added cost for plowing the road will be, and that will be -- it's hard to predict exactly how much more plowing it will take. We have to plow the road anyway now where the sewage lagoon is, so yes, there probably is a little bit more maintenance, but I can't think of any other maintenance cost that would go up.

When you're talking about a mechanical plant, you're also talking about having somebody that knows how to actually run the plant, and at that

time as well, we did not have expertise in place in order to run a mechanical plant, and I think Pangnirtung also suffered that problem for at least the first two or three years that it started.

ACTING CHAIR: Go ahead.

MR. GILLIS: Well, Mr. Chairman, it seems to me that there hasn't been a lot of thought put into this so far. I mean, these numbers are not -- just the numbers themselves are not making any sense to me. We don't know; we're going to agree on something we don't know how much it's going to cost really; we don't know really. Now, the numbers are anywhere from three-quarters of a million dollars to $31,000. What's it going to cost? We don't know.

But my -- what I want to get back to again though is the original decision to have a plant. Now, you're saying that there was 23 people at the meeting. This is a town of 1400 -- or 1300 people. There was not enough people involved in that decision. Now, that second meeting, I don't even remember hearing about it until after the fact. I don't even know where it took place. I know if it would have been there, I would have been there at that meeting, and to have 23 people make a decision like this just doesn't seem right to me.

But now that we do have the lagoon, I have one other question. Does anybody know the depth of the water in the lake, the T Lake that we're using now for our drinking water? Does anyone up there who's done the study, do you know the depth of that lake?

ACTING CHAIR: Hamlet?

MR. ROY: Thank you, Mr. Chairman. This is Bhabesh again.

The drinking water source is monitored by INAC. They are doing the annual water quality testing, but some of the drinking water sources are being controlled. We started in Clyde River, but here two winter ago, I did the monitoring by myself. During the wintertime, I went inside and make a hole. I saw also with the depth and also with the ice thickness. If you want me to know the depth of water and the ice for two winter ago, I have that information, but not available right now with me.

ACTING CHAIR: I guess we're kind of stuck in a rock and a hard place, and I appreciate what you're doing, but it is difficult for us to have a debate on the cost in this present forum. The ability of the Board -- the ability for the Board is to consider options, and they are restricted given the fact that the facility is already built, so we're kind of -- we kind of have

a problem.
MR. GILLIS: Yeah.
ACTING CHAIR: The facility is built, and now what we have to do as a body is to find out, number one, should the lagoon have been built. Okay? Yes or no. Is it the right place to put it? Yes or no. We can't worry about the cost of running the facility and so on and so forth. That's something for your elected officials and yourselves, I guess, to deal with, and that kind of puts you in a bad situation.

But I could go on for quite a while with you back and forth in debating this, and like you, I've done some figuring too, and I agree, it may not work, but I hear their side too, that they have done work on the cost of a plant, and at that time, it wasn't feasible to put that plant in place. That's what we're kind of hearing.

But because the lagoon is there, and all the information that we have received all day today is about an existing sewage lagoon that's there, now, is it feasible to monitor that over the next 20 years and is it good and so on, so forth, that's what we have to do from this end.

So I guess if you can put your comments more towards the lagoon, you know, perhaps, and is it a

right place to put the lagoon, do you have issues about the lagoon's location, do you have questions on why it shouldn't be or whatever, maybe that's what we need to hear. We pretty well can't do much about anything else, I don't think. Do you follow me?

MR. GILLIS: Oh, yes, yes, clearly. And this is my question about the depth of the lake. The elevation of the bottom of the lake, is it below the elevation of the lagoon right now? Is there a possibility at some point where water from that lagoon can leach over? That lake isn't that far away from the lagoon. Can that water leach over? I mean, we're going through periods of warming now, and they're talking about permafrost and everything else; can that lake at some time, and I don't mean in the next 20 years, I'm talking 25, 30 years, can anything from that lagoon leach into T Lake, the drinking water for Cape Dorset? Has anybody looked into that? Has anybody thought about that?

ACTING CHAIR: Good point, thank you. Art? Sorry, Dionne? Okay, Art? Can anybody from Dillon answer Cal's question is -- what is the depth of the water in the lake, and is there a possibility that this stuff may go into the lake in

25, 30 years? Go ahead, Colin.
MR. JOYAL: Thank you, Mr. Chairman. I guess to address that, the lagoon is being designed for and monitored for containment of that sewage for the duration of its lifespan. That is the design considerations and that is the operating, functioning lagoon. So for that, to have discharges get into water supply is what would -- designing against any discharges outside of that lagoon. In addition to that, it's my understanding the water supply lake is at a higher elevation than that of the lagoon.
ACTING CHAIR: And I guess the question that I want to go back to time and again, he asked you for an -- a figure. Do you have a depth on the difference between the two in measurements?
MR. JOYAL: I don't have the relative elevation difference between the lagoon and the water supply lake offhand.
ACTING CHAIR: Thank you. That's what I want to hear. Cal?
MR. GILLIS: So, in other words, they don't know. Okay, they don't know. I think they should know. And it's just not the lagoon. When you decant that lagoon, where is that water going to go? It's going to go into the next little lake,

which isn't lined. What's to stop it leaching from that when you decant it? Nice word "decant" for flushing. Where's that water going to go? As soon as you decant that, where is it going to go? It's going to go into the next little lake that has no liner, that has nothing, and then it's supposed to slowly run down to the ocean. Well, how about if it slowly runs into our water supply at T Lake because you guys don't know how deep T Lake goes. You don't know if T Lake is below that.

Our water supply is right beside what you're doing, if you get up there and look. T Lake is right beside. This is an island. We live on a little island here, and our water supply is our water supply, and you're going to put a sewage lagoon right beside it, and you don't know how deep the lake is, you don't know if there's any chance of leaching over. You say this is good for the duration, the 20-year duration. What after the 20-year duration? What's going to happen then? Cape Dorset's not going anywhere. We're going to be here after 20 years. What's going to happen then? What's going to happen to the water that you're going to decant into this next lake? I don't think there's a lot of thought gone into this. This has been very expedient as far as I'm

concerned.
ACTING CHAIR: Bill, is there some legal opinion here? Do we carry on and -- with debating this, or what do you suggest?
MR. TILLEMAN: Well, I mean, it's ultimately up to you as a Board, and I think you're right in calling it just about the right way.
ACTING CHAIR: So carry on with debating for a bit longer?
MR. TILLEMAN: Well, what I meant was you could remind the audience that the Board is here to deal with an application involving a facility that is built or at least, you know, has to be decided by the Board on the issue of the deposit of waste into water, and the last 10 minutes have been enlightening for a lot of reasons, and that's why you ask the Community for their views and --
ACTING CHAIR: I agree. Yes -- sorry, Bill -- I agree what you're saying. I just want to make sure everything that Cal is saying is pertinent information for our decision and is pertinent to the Hamlet of Cape Dorset, and it's something you gentlemen are going to have to answer to because there is questions on the floor, and we need to hear the answers.

MR. TILLEMAN: So I have no comment. Just carry on, Mr. Chairman. It's the Board's, you know --

ACTING CHAIR: Yes, thank you, Bill. Dionne?

MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault.

I guess one question that could be posed to the Applicant is are there any assurances that can be provided by the Applicant for them to confirm the protection of T Lake and that there will be no contamination through monitoring or any other measures.

ACTING CHAIR: There is a few questions here, so, Art?

MR. STEWART: Thank you, Mr. Chairman. I'm going to defer this question to Colin of Dillon. Colin, could you answer that, please?

MR. JOYAL: Thank you, Mr. Chairman. I apologize I wasn't able to answer the question earlier.

ACTING CHAIR: Please state your name, Colin.

MR. JOYAL: Sorry, Colin Joyal, Dillon Consulting. It's not that the information is not available; it's that I didn't have it on

hand and now I do. So if you can bear with me, I'll read a portion of a report here: (As Read)

> P Lake and T Lake are located approximately 1 kilometre apart. The surface at T Lake is located at 150.5 metres above sea level, which is significantly higher in elevation than the surface of P Lake at 113. The variance in elevations suggests that the possibility of sewage running from P Lake to T Lake is highly unlikely. Sewage would, in essence, have to run uphill in order to reach T Lake. In addition, the land mass lying in between P Lake and T Lake is significantly higher in elevation than P Lake, creating a physically impossible path for sewage to flow to T Lake from P Lake. The second flow path extends northeast from P Lake. This flow path will be blocked by a construction of lagoon berms that will contain the volume of sewage discharged into P Lake.

The source for that is from a report issued in January 2006.

To address one of the other issues was regarding discharges from the lagoon. To be clear, the discharges from the lagoon is treated sewage.

There is discharge criteria that is set and monitoring that is done to provide assurances that the sewage -- or the effluent, because it's no longer sewage, it's treated sewage, the effluent that is being discharged from the lagoon meets the criteria through the monitoring program established in the license by the Water Board. So I think it's important to differentiate that at the discharge time in September, it's treated effluent that's being discharged to P Lake and through the wetlands.

Thank you, Mr. Chairman.

ACTING CHAIR: Thank you, Colin. Mr. Roy?

MR. ROY: This is Bhabesh Roy again, Mr. Chairman.

The question is before if we have any control of the water lake. I think I answered the question that I physically measured the water depth and the snow thickness. But all the water lake when it was declared as a potable water source, there is a procedure to follow to do that. There is a control done on each and every potable water source, and the control was mentioned to us. And this is the control, Mr. Chairman, is done for the water lake, and it is in our record. So this will sure tell us

what is the bottom elevation of the drinking water source.

ACTING CHAIR: Okay, thank you. There's a couple people here. Jimmy Manning and --

MR. QUPIRRUALUK: I'm Qupirrualuk, and I lived in Kingait all my life. I grew up here, and our drinking water source closer to the community is no longer a viable place to receive our drinking water, potable water.

Our community is very small in terms of placements for buildings and so on, and the population is continually growing, and people are always -- there's always a shortage of housing in the community. And no doubt that in the future, we would have to find additional -- or different sources for locations of both possibly the water source and the lagoon, as is the problem apparently in Iqaluit. It's so close to the community that you get the stench and so on coming from it, depending on the winds.

And there is fish apparently in the drinking water source, and I'm wondering whether -- also a concern about whether there would be any seepage underground from one facility to the other.

And also we'd like to know, I don't know for sure if there is any liner placed in the lagoon

that is built. And those are the types of questions that we really need answers to.

I don't know a whole lot about these designs and so on, but I know that I'm -- unfortunately was not able to attend the 2003 public meeting that is held with regards to discussions on this issue. And no doubt, there were enough concerns raised that you had to come in and do this hearing. And I know that a lot of work has been done in order to prepare for this and that we have to think of our future, our children and grandchildren, and this has to be well thought out.

If there's too much stench and smell from the lagoon towards the community, I don't know whether that has been considered and whether testing has been done to that effect, and I know that things cost a lot of money, and even if we have to plan to move to a different location, it would cost a lot of money, but those things have to be considered. And thank you for the opportunity to speak.

ACTING CHAIR: Most of your questions were answered earlier this evening. I'm sorry you missed the presentation from Dillon, but there is -- a lot of your questions have been answered at the beginning of this meeting this evening, and there is lining there and there's all kinds of

other things.

Maybe if I can just have Art do a quick update for him on what's been happening.

MR. STEWART: Okay, thank you, Mr. Chairman. Art Stewart, SAO, Cape Dorset.

Just to address the -- there seems to be some feeling that there was no thought put in this. That is absolutely false. CGS hired a consultant, Dillon Consulting. They did all the tests. They come up with the design of the lagoon, and that's basically why we are here today because this was the best option for our sewage treatment.

Currently our old sewage treatment, which consists of a three-cell, we are not meeting the standards, environmental standards. We are putting raw sewage into the ocean, and this is why a lot of thought has gone into this. There was consultation, there was at least two consultations. And there was a thought process there, and this was our best viable option, through CGS helping us out, to treat our sewage -- our -- the raw sewage, and I'm just going to ask Colin and/or Bhabesh to comment on the seepage and explore what kind of liner we have in the berms and that sort of thing.

ACTING CHAIR: Just kind of a short answer, please.

MR. CAVANAGH: My name is Paul Cavanagh. I'm with AMEC Earth & Environmental. We're geotechnical consultants. We were hired by CGS through Dillon to evaluate the design, to prepare the design for the main berm on the west side of the lagoon. The design was -- and also look at the lining of the lagoon. The design relies on permafrost as a liner, and also a secondary backup liner that's made of synthetic materials to -- that's sealed in the presence of fluid or water.

A lot of design consideration has gone into the site selection so that it is remote from drinking water sources and from the town of Cape Dorset. Part of the construction was to build a new access road, which was by no means an easy task in itself.

So I must admit that some work was done prior to us coming on the scene and helping out, but we've been working on this for two or three years, and Dillon has been working on it for longer than that with CGS. So I concur, I think there has been a lot of effort and thought and involvement to get to where we are today.

ACTING CHAIR: Okay, thank you. Jimmy Manning, you had a question?

MR. MANNING: It's not a real question. It's during this meeting this evening, what the

Hamlet has been developing up to now, and I'm sure that some people have now gone to their office and to see the consultants are working closely with the Hamlet through their CGS. I've gone through their several meetings during their consultation. And if it's not going to be -- we want to make sure that if it's not going to be any seepage to anywhere, to any environment that's sensitive to the land where I care about, as long as it's stable, if it was well thought out. I just want to support this in regards to this issue. Thank you, Mr. Chairman.

ACTING CHAIR: Thank you, Jimmy.

MR. MANNING: Thank you.

MR. HAYWARD: My name is Mike, and I work for the Municipal Works Department, and that new access road, I'm curious about the safety on the switch-back in wintertime. There's no runoff for the sewage trucks if they start sliding. Is that going to be addressed before the road opens?

ACTING CHAIR: Dionne, is that for us?

MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault.

The operation of the road falls within the mandate of the Board insofar as there's water crossings or drainage. The issue of public health and safety, unfortunately, isn't the mandate of

this Board, but I was just conferring with Catherine to try and determine whether or not we can provide recommendations to the responsible authority, who has the responsibility for public health and safety.

It might be worthwhile, Mr. Chairman, to actually -- not to put Mike on the spot because I seem to do it in every hearing, but to actually go to the Government of Nunavut and determine who's responsible for public health and safety. It may be -- I'm not sure if it's Territorial or if there's a Federal responsibility. I believe it's Territorial though.

ACTING CHAIR: Okay, it's just that Art had a comment. So before I call on Mike, Art?

MR. STEWART: Thank you, Mr. Chairman. Art Stewart, Hamlet of Cape Dorset.

The issue of the road is separate from the water license itself. However, this is something even though the Hamlet is a proponent of the new sewage lagoon, we understand that the road can be changed to be more safe, and that is an issue that we would like to address with CGS at another forum.

To answer your question, Mike, yes, we know that it is a concern, and we are looking into having that situation fixed.

ACTING CHAIR: Mike, is that an adequate answer for you?

MR. HAYWARD: Well, we sent a loader up there once, just our operators from town. One of our loader operators was scared coming down there, so if you send a fully loaded sewage truck going up that hill, it starts sliding backwards, and the only thing at the end of it is a mountain and a 90 degree turn, which he'll never make, I think it's a very serious concern.

ACTING CHAIR: Okay, point taken, thank you. Probably something to be involved with the Department of Environment or something we could probably take under advisement and bring back to your people, and perhaps it's something that we can discuss, I don't know. What do you wish, Mike?

MR. ATKINSON: Mike Atkinson, Government of Nunavut-Department of Environment.

My suggestion would be concerns regarding safety and Municipal workers on the road should be reported to Workers' Compensation. That's the only advice I can give him.

ACTING CHAIR: I guess that is probably the right way to go is through WCB for sure if members of the staff has a problem. You know, I know I personally wouldn't -- don't want to see a

sewage truck going up a hill fully loaded and then coming down backwards, trying to stop because he's not going to. It's just going to be a wall of you-know-what at the end of it. And that's not what anybody wants to see; let alone the spillage, it's the guy's life or the person's life that we're talking about. So it is an issue for WCB more so than us for sure. So we'll take it under advisement, and I'm sure the Hamlet also will. That's all I can say.

MR. HAYWARD: One last thing, while the construction guys were here, we did mention if they had a runaway lane for something like that. If they had to build it, it would solve the problem, but they still didn't build it.

ACTING CHAIR: Well, cost probably. Yes, something that will be taken under advisement. Art?

MR. STEWART: Thank you, Mr. Chairman, yes, we certainly know about the turn that Mike is talking about. Several letters have been written to CGS, notifying them of our concern, and as I say, that is something that we want to address with CGS before we actually open up the sewage lagoon if we do get the water license for it. Thank you.

ACTING CHAIR: Kananginak, I think you

had a question?
MR. POOTOOGOO: My name is Kananginak Pootoogoo. I'm another local person here in Cape Dorset.
It's not a real question. I've been involved with this -- with people consulting in regards to same issue here. I'm quite knowledgeable in this area. Like I'm quite up to what's been happening in regards to the lagoon.
The particular site that has been chosen, and when it turns to runs down to the ocean and during the low tides or the beaches area along the shore, it's completely contaminated. It's so dark now where it used to be clear. And also further down, there's an area, some areas that's dangerous, and the whale, they do come around that area, and also I want to say like there's some areas too -- there's other options in that area for possible lagoon sites, although I'm concerned about -- and it used to flow so easily in some areas over there where there's some streams flowing. They used to be more forceful; now they hardly run because, like I said, I'm quite up to date.
And I like that site to be -- remain a lagoon site, and if it should be moved, I don't think there are any other options to pick. That's all I

want to say.

ACTING CHAIR: Thank you, Kananginak. Any other questions from the public? Ashevak?

MR. EEZEKIU: Can you hear me? My name is Ashevak. Thank you, Mr. Chair. I just want to make small comment here. Like our community still developing fast, and the population is growing fast. And prior to the Government start building the houses and before the new infrastructure, there was hardly any people here then.

And also there was a devolution long before Nunavut creation, and they gave us an idea what eventually they're going to be building. That was then in -- back in 1970s when the Legislative Assembly of the NWT used to come here from Yellowknife region.

They came here to Cape Dorset, and they give us an idea that eventually Cape Dorset's going to be too small for infrastructure alone because it's only -- it's an island. Where we live, it's an island, and perhaps it will even eventually reach the camp called Saaturittug and Isoktok, and they also gave us an option, maybe perhaps we should move to one of those camps and pick them as a community instead of Cape Dorset because Cape Dorset's right on the small peninsula, it's on an

island. Other -- if we were closer to the mainland, we would have better access to water, roads, access to roads.

When people pick to remain in this site, in Cape Dorset, so it never went further any of then -- other than that. So now we are facing this problem with the sewage lagoon sites, and now you're doing your job for our future generation, but still this is community issue.

At that time in 1970s, if we had made the decision to move or prefer our community in a different location not far from this area, but majority of the local people from Cape Dorset, they did not want to move out of this community.

And in those days, we were not very familiar with -- to be involved with developing our communities then. And although some of the topics were not supported mainly in some areas, we were consulted from outside of our communities through GNWT.

At that time then only if we had made a decision, different decision. We're just facing different situations today, which is more difficult.

The Nunavut Water Board is here, they're here to listen to us, and also the consultants here for

our Hamlet on behalf of our community. Let's not worry about how much it's going to cost. Let's have a good discussion amongst us here and talk about our involvement, let's be involved.

And this -- like the plant that they have in Pangnirtung, sewage plant, that we were also given an option, but the money was the issue. We know that it was going to cost us a lot more than what we're facing with our sewage lagoon. But our community here, it's -- everything is close together, like the houses, the roads.

So I just wanted to give a small -- a history about -- this is all I have to say. Thank you, Mr. Chair.

ACTING CHAIR: Any other questions or comments from the community?

MR. WEEDMARK: Yes, Mr. Chair, my name is Steve Weedmark. I'm with the Hamlet also. This is basically addressed at Dillon Consulting. I continually hear them say that the treated waste; well, treated waste when you're dumping in there continuously is never going to be treated. There should have been a holding cell made for the ten-day stand-down period of the sewage so that it would settle out. So we're continually dumping; where do we dump for those ten days?

ACTING CHAIR: Hamlet?
MR. STEWART: Colin, could I have you respond to that? Colin or Bhabesh.
MR. JOYAL: Thank you, Mr. Chair. Yes, I think I hear the question and understand, and, I guess, not to -- to provide information, the effluent is -- the criteria for the effluent is what comes out of the pipe, which is continually monitored and must meet the discharge criteria. So that is what the lagoon is designed for, and that's what will be monitored.

If there are concerns about the residence time during the decant, then that will show up in the monitoring program, if there are issues there. It is standard practice for other lagoons, and it is accepted and successful in meeting discharge criteria by using those methods.

ACTING CHAIR: If I can, for the members of Cape Dorset, I forgot to mention also, there is a lady over here who's typing all the proceedings, and she's been typing now for about an hour and 15 minutes. Her fingers are starting to go hard, and she can't move them, so we're going to take a 15-minute break, not just for her but also for our translators. So we'll take a 15-minute break, and we'll come back about 5 to 9.

(BRIEF ADJOURNMENT)
ACTING CHAIR: Are there any other questions from the public, from Cape Dorset? There's a question up here, in the very back, lady up in the back there.
MS. POOTOOGOO: My name is Kanayuk 'P'. I have a question here, although I missed quite a bit because I got here late, late.
I think it was in the year 2000, I think there was about 20 people attended a meeting here during the -- when people were making the decision. Like I said, I missed most part of the meeting.
Are we talking about the definite plans with regards to the new site, the new lagoon site? Is that a definite? Is that the Board's decision; are they going to make a decision on this after their meeting? Can you please give me an answer to my question?
ACTING CHAIR: I will. We are here to listen to the public, to the Licensee, and all the interveners, including the Community of Cape Dorset to discuss the issuance of a license, Type B, for the new sewage lagoon that's presently built.
MS. POOTOOGOO: If this now should not be approved, but I understand that the new lagoon site, that was an option. I think that has been

already -- it's going to be positive according to other people's opinion, and it is cost lots of money. I've heard little bit about how much it cost to maintain it.

Don't forget that you're from outside of our community, and even the people working for us or on our behalf, they're from outside of community. They may be consultants, and they're not the local people, while we are the local people. Perhaps next time through our Hamlet office, like if we should be -- if we should -- if we could be more consulted in the future. Like if it's possible, if you could include us more in future for discussions like this. I'm also supporting like what is being discussed here. Thank you.

ACTING CHAIR: Okay, thank you. Just for clarification, it was the Hamlet of Cape Dorset who applied for a license in consultation with the Community of Cape Dorset, and we are here now to hear evidence from them, the interveners, and yourselves on whether or not we are going to issue a license. It's not because it's built it's automatic. It has to go through a hearing, which we're doing here today, and that decision will be made at a later date when we get together to discuss it. So just to give you a quick overview.

It may not happen, but we have to hear all the evidence and make our decision at that time. And that's why we are hear, to listen to the people like yourself from Cape Dorset and get your opinion on whether or not that sewage lagoon should go ahead. Thank you. Art?

MR. STEWART: Thank you, Mr. Chairman. Art Stewart. Kanayuk, as I explained earlier on, and I don't believe you were here yet, but back in 2003, the community was consulted. It was advertised on the radio, et cetera. As a matter of fact, it was done in this very building. And as I remember, there was roughly at any one point in time, coming and going, there was probably 40 people. At the end of the night, we had 26. The options were -- there were all kinds of questions. The options were put on the table, and the option to go to use P Lake was voted on, and it passed 26 to zero, so just to let you know.

ACTING CHAIR: Thank you. A gentlemen over here had another question.

MR. WEEDMARK: Yes, Mr. Chairman. Steve Weedmark, Hamlet. I'd just like to go back to where Zeke was there, concerns of the seepage from the new lagoon.

I can give you an example. We had to

effectively put a geotech repair on one side of the new lagoon because the freshwater from T Lake was running in. That filled up the lagoon probably about half full. We didn't open the valve and drain it. We didn't pump it out, but the water disappeared within a couple of weeks.

I'm just wondering why the consultants or whoever didn't put some kind of eco-dye in the water and find out where it was actually going. I think that Zeke has got a good valid point of saying it's running down through town, right through the valley, and into the ocean. And if that be the case, the only way to effectively repair it would be to encase the whole lagoon with a liner, and that is a very costly venture.

ACTING CHAIR: Hamlet? Colin, you're back on the hot seat.

MR. JOYAL: Colin Joyal, Dillon Consulting.

Not totally sure what the question there was, but it did pertain to the integrity of the containment system, and Paul can speak to this a little bit as well, but there has been considerable design effort put into the design of the containment system, and a monitoring program is detailed so that the performance -- and the

monitoring program including thermistors to monitor the freezing of the berms, which is part of the containment system, as well as monitoring stations for water quality.

So from our end of things, we're quite confident in the design and containment of the facility. And in addition, there's monitoring programs in place to observe the performance and detect any issues that may arise so that the reaction time can be quick in that case.

ACTING CHAIR: Okay, so I think there's still a question on the floor that this gentleman has asked along with Zeke, that that sewage lagoon perhaps was half full at one time. Something leaked into that facility, and that water disappeared. I think what you're asking, is that correct, where it went?

MR. WEEDMARK: Yes, that's right.

ACTING CHAIR: So I guess it's just clarification. They're asking the sewage lagoon did -- was half full, and it did disappear somewhere, and maybe the comment now is perhaps to put a complete liner in the whole lagoon to stop that from happening; that was the question. So can we have an answer on that, please?

MR. CAVANAGH: Paul Cavanagh.

Just so I -- we're talking about the site that we're working -- we're not talking about the existing lagoon in town; we're talking about the current -- the seepage that -- the water that ponded behind the lagoon last fall and then seeped away; is that what we're talking about?

ACTING CHAIR: I have no idea. Let's --

MR. WEEDMARK: Yes --

ACTING CHAIR: -- find out.

MR. WEEDMARK: -- that's correct.

ACTING CHAIR: That's correct.

MR. CAVANAGH: Okay, Paul Cavanagh again.

Earlier today, we talked about how the berm of the west lagoon -- sorry, the west berm of the lagoon -- getting a little tired -- the west berm of the lagoon is designed to act as a frozen berm. It takes time for the berm to freeze completely, and when the berm was constructed last summer, it was constructed over the active layer, which is the thawed portion of the permafrost, and then the berm itself would have been unfrozen when constructed.

There was not enough time for the berm to freeze when the water ponded, and our conclusion is that the water seeped beneath the berm through the unfrozen soils and drained out through P Lake.

Now that freezing is occurring through the wintertime, permafrost will develop, a permanently frozen condition should develop within the berm, and that condition should not repeat itself, and that is the way the berm has been designed.

ACTING CHAIR: So come next summer, once they start using that facility very shortly, then come next summer when the weather warms up and so forth, we're guaranteeing that that seepage will not happen again with the sewage coming out through the bottom and out into the land; is that what we're saying?

MR. CAVANAGH: Paul Cavanagh.

I hesitate to use the word "guarantee", but the thermal analysis, the geothermal analysis that we've now done and has also been now replicated by the Board's own consultant, BGC, supports the view that the berm will stay frozen, and the base of the lagoon itself will stay frozen throughout its operating life, and so we're pretty confident now because there's been two sets of analyses that suggest that the risk of seepage is very, very low.

ACTING CHAIR: Thank you. Does that answer your question, sir?

MR. WEEDMARK: Not really, but we'll let it go.

ACTING CHAIR: I hate to leave a person hanging. You do have a concern, and your concern is not answered. I don't want you to feel you're being pressured to pass the mike on. If you need more clarification and also pass the information on to the Board, feel free to carry on until you're satisfied with the response.

MR. WEEDMARK: I'm just curious why they -- not guaranteeing, but almost guaranteeing something, but they have not yet responded to my fact of why didn't they use dye to see where this stuff was going, where it would turn up.

ACTING CHAIR: Hamlet?

MR. CAVANAGH: Paul Cavanagh.

The information that -- the data that we got, the observation by the Hamlet that this event had occurred, where water had ponded and then seeped out and gone to the other side of the dam, was only brought to us after the fact, and it was very late in the fall when we heard about it. I think it was October the 1st. Difficult to react now and put dye in the water and start doing those kinds of things. I guess that's from my perspective. I didn't have any direction to do that as a consultant, and I think it would have been pretty impractical at that time to try such a venture.

MR. WEEDMARK: Mr. Chair, no due disrespect to you all, but the water didn't end up on the other side of the berm. That's my point. It didn't end up on the P Lake side of the berm; it went through the ground.

ACTING CHAIR: Okay, Hamlet? I think what it is it's not really a question; it's an observation, and he's just advising you that that happened, and something you may want to take under advisement perhaps for later on. Thank you for that comment, sir.

MR. WEEDMARK: Thanks.

ACTING CHAIR: Okay, is there any other comment? I think -- Kanayuk, you had a question? Anyone else? Sorry, anybody who wants to -- I thought you had a hand up, and we'll do over here after.

MR. NIVIAQSI: I just got here myself. This is in regards to -- I was attending some kind of workshop, and then after that, I came -- when I came here it's regards to a sewage lagoon and also related to our drinking water. This what I was hearing.

Then -- but to me -- and it's the sewage waste side, it's quite far from here. I would like to see it in a different location, and there is to be

a person used to work for GN one time, he said possibly it's going to be moved, it's going to be different location one of these years.

And I heard some -- there was some study on that, where would be the best location, and this is -- I just want to understand better if someone has knowledge of this issue in regards to like which area would be better, a better location for the new sewage lagoon.

ACTING CHAIR: Thank you. As far as we understand right now, the only issue on the floor is where the sewage lagoon is right now. It's not about being removed or being put somewhere else. It is there, it is in place, and it's not going anywhere. It's now there.

We have to make a decision after all the evidence is given on whether we agree to issue a license for this lagoon or not. If by chance, the Board says no, then the Hamlet is going to have to go back and find another location and build another sewage lagoon, of course. If we say yes, then that lagoon will be there probably for the next 20 years. So it's not going anywhere. That's what we're dealing with here tonight.

You had a question?

COMMUNITY MEMBER: I was not in this

community then when the issues were -- there was some discussions in regards to this, the same project. I was not happy with the access road. For one thing, the road, access roads to that area, it's very narrow. It's very, very narrow. It can be dangerous when the garbage trucks or sewage trucks, and if there should be an accident with those two, that's the only thing I don't support. I never have because the access roads are too narrow for traffic.

ACTING CHAIR: Thank you. Again, you did maybe come in a bit later. That question has already been brought up, and the recommendation for the Hamlet or somebody is to contact Workers' Compensation because it is a safety issue for the drivers, and it will be dealt with, and the Hamlet is also aware of the danger, and it has been brought up for different options, maybe to make it a better road, and they will be looking into that.

And that again, may be a part of our -- it's not really a part of our license, but it's something that's going to have to be done by another department and not us, but it already has been brought up, but thank you for bringing it up again. Any -- sorry, Art?

MR. STEWART: Thank you, Mr. Chair.

Art Stewart, Hamlet of Cape Dorset.

On the issue of the road and the width, et cetera, I'd like to ask Pat Fuentes from CGS if he could comment on that.

MR. FUENTES: Thank you, Mr. Chairman. The question of the road, it was presented a long time ago when we start the construction of the facility. For that, we did adopt Transport Canada guideline. Recently after the construction, we proceed to measure the sewage truck, sewage truck width, and we compare it to the narrowest point in the entire road. If we put two trucks together, it will be and a space of 2 metres in between. That is satisfy our concern, and I believe it satisfy the Transport Canada guidelines as well. Thank you, Mr. Chair.

ACTING CHAIR: Thank you. Again, just to reiterate, this is not an issue for us. It is a Workers Comp. and somebody else. Comments have been made, and I appreciate it's being passed on to the Hamlet. I appreciate your comments, yes, but again, I think the biggest concern of the member from the community is when they're going up hill with a fully loaded sewage truck and it starts to go backwards full, where's it going to go and how's it going to stop, and that's their concern. I

don't think it's the width of the road or how much space you have between the two trucks. It perhaps is another issue altogether, and that's what, I think, the Hamlet will be dealing with in the future, if I got your drift the first time. Thank you.

Okay, any other questions? Yes, there is. Okay, state your name and go ahead.

MS. NIVIAQSI: I'm Mukshowya Niviaqsi. I have a question. In other communities, are there lagoons that are built in a similar fashion?

ACTING CHAIR: Hamlet?

MR. STEWART: Perhaps Bhabesh or Colin could answer that.

ACTING CHAIR: The guy behind you wants to answer that.

MR. STEWART: Okay, Pat, go ahead.

MR. FUENTES: This is Pat Fuentes. For the record, I would like to state, Mr. Chairman, we have a facility currently in operation in Pond Inlet that is exceeding -- it's below the amount required by the Department of Environment and all the regulatory bodies. That is one. The other one is we recently, about three, three or four years ago, we contracted another facility in Hall Beach. It's also in compliancy. Therefore, we have a

certain amount of records that this facility will be able to comply. Thank you.

ACTING CHAIR: Thank you. Another follow-up question.

MS. NIVIAQSI: This question that I had asked because we've seen some pictures of the facility that's built, and we've seen the outfall, and I'm just wondering whether -- how it would be during the winter. We've seen some photos of it during the spring, and I'm just wondering what kind of conditions or situation it will be in during the winter, and that's one of the things that I am a bit concerned about, so I am asking this question. Thank you.

ACTING CHAIR: Okay, thank you. Hamlet?

MR. STEWART: Thank you, Mr. Chair. I'm going to ask for a clarification on that. Are you asking what the condition of the road would be in the wintertime or the actual sewage lagoon, Mukshowya?

MS. NIVIAQSI: I am asking about the actual sewage lagoon. When we were seeing the pictures on the screen where the sewage truck will be emptying down these half pipe, we saw that on the screen, that was taken in the summer. And I'm just wondering how it looks right now in the

wintertime. Again, going back to if we're going to be in operation, whether -- which truck will be going up to empty down the slope or whatever, it probably is covered with snow right now. Does that make sense?

ACTING CHAIR: Yes. Hamlet?

MR. STEWART: Thank you, Mr. Chair. Art Stewart, Hamlet of Cape Dorset.

Our current three cell, when the trucks go up there -- I don't know whether you've been there, but there are three cells, and during the wintertime, they're usually full of ice, and they're not in very good condition. One of the reasons why we have to do something about it.

In the sewage lagoon -- the new sewage lagoon is going to be many times larger than the three-cell. So in that aspect, we aren't going to have a problem with the ice and freeze-up and spill over.

The road itself, it is a windy road. It is steeper than the road going to the current three-cell, and we are -- we know that there's going to be a lot of snow and that. We've requested for a loader and a snowblower in order to get rid of the snow so that we can have safe passage of the sewage trucks.

We're hoping once we get the snowblower, et cetera, that the road will be safe, and as I mentioned before you came in is we do have issues with the road, and we are working with CGS to make sure that the road is safe in the winter and the summer. I don't know whether I answered your question totally or not.

MS. NIVIAQSI: (NONVERBAL RESPONSE)

ACTING CHAIR: Okay, thank you. Are there any other --

MS. QAQJURAJUK: I'm Arnasuk Qaqjurajuk. I've always wanted to walk up to go and see, and I did that during the summer. I didn't think the number 20 -- for 20 years, if it should get full, and if it should eventually start running towards the community, if it should spread out, if it -- if the seepage should become more than just slightly seeping, if it becomes serious, if it should spread out, for one thing, and that would damage the lagoon side.

Our community, it's very small, everything so close together, our infrastructure in our community. We also live off the natural plants. They are nutritional to our body. We still pick our plants from various sites, and we don't want to see them to be contaminated as a result of the

damaged lagoon, if it should happen.

ACTING CHAIR: Thank you for that comment. Any comment from the Hamlet? That is just more of a comment for your information. Do you want to have a say on it? Art?

MR. STEWART: Thank you, Mr. Chairman. Art Stewart, Hamlet of Cape Dorset.

To answer the question, prior to you coming in, the consultants explained that how in the design of the actual sewage lagoon, that though they couldn't guarantee that seepage would not happen, there is a very good chance that it won't, and if it ever did, with the monitoring systems that are in place, we should be able to detect that real quick and correct the problem. I don't know, Bhabesh or Colin, if you have further comments.

MR. ROY: Mr. Chairman, this is Bhabesh. Before you came or probably during the presentation, you probably recognize that we are building a new facility. At the same time, we're also keeping the existing facility to make sure the new facility is functioning to our satisfaction. So the existing facility we are keeping as a contingency plan, so if anything happens, so that we can right away address the situation, and we can plan to correct the situation.

ACTING CHAIR: Thank you. I think Cal had a question over there or a comment or whatever.
MR. GILLIS: The question is with respect to monitoring. What's in place? I would like to know what's in place. What has the Hamlet put in place as far as training somebody? Is there going to be somebody that's to be monitoring both sides of the lagoon, one side of the lagoon? Is there anything in place? Is there anything they're doing now as far as training somebody to do this monitoring?
ACTING CHAIR: Sorry, Cal, I just needed some direction. Is that -- I know what he's getting at, but is that our mandate now or -- because the question I think is once the license is done, then, of course, there will be certain regulatory items in there to do, but I think the question he's asked is what is happening now probably in the older lagoons. Where do I go with this?
MS. FILIATRAULT: Thank you, Mr. Chairman. Dionne Filiatrault.
I think it speaks to the fact that, as you say, once a license is issued, if the license is issued, there's generally monitoring requirements that are put in that license. In general, I think what the

gentleman is trying to find out is whether or not there's somebody in the community that's actually going to be trained to be able to take and do the sampling.

Historically for the smaller communities, there is a lack of training and a lack of communities actually doing the sampling that they're required to do, and I think he's trying to find out for this particular community if somebody has been identified to do that sampling.

And I think when you're looking at compliance to the water license, and INAC may speak to this tomorrow in their presentation, they could probably speak a little bit more to historically what has been the compliance for this community as far as sampling goes at their current sewage lagoons.

ACTING CHAIR: Yes, Cal, just before I pass it to the Hamlet, to give you a better idea, we issue the license, but we don't enforce it. It is enforced by the person right in front of you there. Now, I don't know -- again, probably by tomorrow, as Dionne said, that will probably be addressed.

But I don't know, Art, if you want to tell Cal what is happening today with what you have in place, what is coming that will come once a license

has been issued. So Art or somebody from the Hamlet?

MR. STEWART: Thank you, Mr. Chair. Art Stewart, Hamlet of Cape Dorset.

At this point, no, we do not have anybody identified. Once we know the recommendations of the Water Board and as to what type of monitoring that the Water Board needs, then we will indeed, with the help of CGS, get the proper people trained to do the monitoring. But to answer your question as of right now, no, we don't have that in place.

With the old sewage lagoon, the testing is done by our works foreman or delegated by the works foreman, and that's basically done -- it's the testing where the samples are taken, and they're sent away to be looked at.

But again, to answer your question, no, as of right there now, because we don't know what type of monitoring that we're going to have to do, we don't have somebody trained for it at this time.

MR. ROY: Mr. Chairman, I just add something more to the addition of Art Stewart --

ACTING CHAIR: State your name --

MR. ROY: -- the issue --

ACTING CHAIR: -- please.

MR. ROY: -- of Cape Dorset.

ACTING CHAIR: Just state your name. I know who you are.

MR. ROY: This is Bhabesh Roy again, the Municipal Engineer at CGS, Baffin Region.

For -- the great news for the communities, to you and to all the people of Nunavut, do you know that there is an organization called Nunavut Water and Waste Water Association? This association formed by Nunavut and Northwest Territories together. We have 50/50 membership in this association. We keep -- once in a year, in that seminar, one particular day we keep for the operator training. We call it operators' workshop, and we invite all the communities to send their representative to attend this workshop. And in that workshop, we show them how to do the water sampling, and how we go ahead for doing the waste water sampling and so on.

This year, I think in January, we had a conference in Iqaluit, where our good friend to the -- Andrew also participated. He was talking about how doing the sampling of the waste water system, and also we taught the operators how we can do the water sampling.

So to answer to your question, yes, we have to

identify a person in a community who is knowledgeable about the environmental law and who is knowledgeable about the sampling procedures. So we are in a process to develop this technique.

Thank you, Mr. Chairman.

ACTING CHAIR: Realizing the time, it is 9:30. I hate to stop this because it is a very valuable -- information for us, and it's nice to see everybody from the community here this evening giving these presentations.

We are meeting all day tomorrow, and you are more than welcome to come back, please, tomorrow and carry on this dialogue with us for sure because our court reporter, our stenographer, is really getting tired. They've been there since 5:30 this morning, and she's been typing for almost, I don't know, 12 hours I guess by now, and our translators are getting tired, and I know the members of the group are getting tired.

So if we can, I'd like to adjourn the meeting this evening for now and come back in tomorrow morning, Dionne, at 9 -- okay, at 9. And if that's the case, just before we close, I've just got to do a bit of housekeeping, just a question. Bill, are you with us?

MR. TILLEMAN: Yes, sir.

ACTING CHAIR: Thank you. Thomas?
THE CHAIR: Yes.
ACTING CHAIR: Okay, good. It's just something for INAC for tomorrow. There was a statement --
MS. FILIATRAULT: You don't have their attention, Mr. Chairman.
ACTING CHAIR: Oh, sorry, I don't have their attention, but if you'd just listen, there was a statement by Pat that similar sewage lagoons in Pond Inlet and Hall Beach are in compliance, and I would like to request that INAC -- I'd like to request INAC to confirm or speak to the compliance of these two systems with respect to the water licenses and their discharge requirements. INAC can do this in their presentation, so I'm giving you forewarning.

Directions to the party that we are at the end of the first day. Assuming closing will follow by tomorrow, with a couple items here. At the opening of the meeting tomorrow, I intend to ask each party to comment on whether the Board should consider merging the renewal of the existing license, which is concurrently underway, with a license amendment for the newly constructed sewage lagoon should we decide to do so.

Secondly, in the closing submissions of tomorrow, the Board asks that each party advise the Board whether or not the party recommends that the Board issue the license amendment for the new -- newly constructed sewage lagoon. So just to give you an update on that.

Is there any other housekeeping issues that we have to deal with? No? Dionne?

MS. FILIATRAULT: No, Mr. Chairman.

ACTING CHAIR: Bill, any follow-up?

MR. TILLEMAN: No, sir.

ACTING CHAIR: Thank you. Again, on behalf of our Board, I do want to thank the citizens of Kingait for coming out, taking time out of your night to come before us.

It's very important that you come to us because we've taken time out of our jobs to come here to listen to your comments, and it's peoples like yourselves that needs to come and tell us what's going on, because as we've heard a number of times, we are from outside this community. But believe one thing, we live in Nunavut, and we're all Nunavut residents, and I'm probably the least person that ever lived here, but everybody around me -- but I have also lived in Nunavut for 43 years, and my decisions that I make in my job and

in my life is on behalf of the people of Nunavut, and only the people of Nunavut.

So on that, we will adjourn until tomorrow morning at 9:00. Thank you very much.

(WHICH WAS ALL THE EVIDENCE TAKEN AT 9:36 P.M.)

I, Karoline Schumann, Court Reporter, hereby certify that I attended the above Hearing and took faithful and accurate shorthand notes, and the foregoing is a true and accurate transcript of my shorthand notes to the best of my skill and ability.

Dated at the City of Calgary, Province of Alberta, this 30th day of January, 2008.

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Karoline Schumann, CSR(A)
Official Court Reporter

EXHIBITS

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