

CONSOLIDATED HEARINGS BOARD

IN THE MATTER OF Sections 2 and 3 and 6 (3) of the Consolidated Hearings Act, 1981, S.O. 1981, c.20;

— and —
IN THE MATTER OF Section 12(2) of the Environmental Assessment Act, R.S.O. 1980, c.140;

— and —
IN THE MATTER OF Sections 30, 35 and 38 of the Environmental Protection Act, R.S.O. 1980, c.141, as amended;

— and —
IN THE MATTER OF Sections 24 and 61 (2) of the Ontario Water Resources Act, R.S.O. 1980, c.361, as amended;

— and —
IN THE MATTER OF Section 28 (3) of, and Regulation 164 under, the Conservation Authorities Act, R.S.O. 1980, c.85, as amended;

— and —
IN THE MATTER OF Section 40(12) of the Planning Act, S.O. 1983, c.1, as amended; in connection with site plan control of the sanitary landfill site;

— and —
IN THE MATTER OF Section 22(1) of the Planning Act, 1983 in connection with a referral to this Board by the Honourable Bernard Grandmaitre, Minister of Municipal Affairs, on a request by the Regional Municipality of Halton to amend the Official Plan for the Town of Milton to redesignate a parcel of land comprising Part Lots 3 and 4, Concession 2 N.S. in the Town of Milton from "Agriculture" and "Conservation and Hazard Lands" to permit the construction, operation and maintenance of a landfill site, Minister's File No. 24-OP-0208-A01;

— and —
IN THE MATTER OF Section 34(11) of the Planning Act, 1983 in connection with an appeal to this Board by the Regional Municipality of Halton for an order directing an amendment to By-law 61-85 of the Town of Milton to rezone the lands situated at Lot 3 and part of Lot 4, Concession 2 N.S., in the Town of Milton from "Agriculture" to permit a regional sanitary landfill site and ancillary uses;

— and —
IN THE MATTER OF Section 15(1) of the Planning Act, R.S.O. 1980 ch.379 in connection with a referral by the Honourable Claude F. Bennett, Minister of Housing on a request by Tremaine Brianna Citizen's Group for consideration of part of the Official Plan for the Halton Planning Area with respect to Sections 1 to 5 inclusive, 7, 9 and 10 of Part III D3 Solid Waste Management, Minister's File No. OPC-0026;

— and —
IN THE MATTER OF Section 64 of the Ontario Municipal Board Act, R.S.O. 1980, c.347 as amended in connection with an application by the Regional Municipality of Halton for an order approving:

a) the acquisition of land for the construction, operation and maintenance of a sanitary landfill site to contain 7.96 million cubic metres of waste in the Regional Municipality of Halton and to do so by one of two alternative methods as follows:

- (i) landfilling at the site referred to in Halton's Environmental Assessment as Site F in the City of Burlington;
- (ii) landfilling at the site commonly referred to in Halton's Environmental Assessment as Site D in the Town of Milton

at an estimated cost of \$12,775,000.00, and the borrowing of money by way of temporary advances not exceeding in the aggregate such estimated cost pending the sale of debentures, and

(b) the issuance of necessary debentures to a maximum of \$12,775,000.00 for a term not to exceed fifteen years;

— and —
IN THE MATTER OF Section 193(5) and Paragraph 84 of Section 210 of the Municipal Act, R.S.O. 1980, c.302, as amended;

— and —
IN THE MATTER OF Sections 6, 7 and 8 of the Expropriations Act, R.S.O. 1980, c.148;

— and —
IN THE MATTER OF an undertaking of the Regional Municipality of Halton to provide facilities for the purpose of receiving, dumping and disposing of waste as required by section 137 of the REGIONAL MUNICIPALITY OF HALTON ACT, R.S.O. 1980, c.436, as amended, by acquiring the land for, constructing, operating and maintaining a landfill to contain 7.96 million cubic metres of waste in the Regional Municipality of Halton.

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NETHERCUT & COMPANY LTD.
260 RICHMOND ST. W., SUITE 506
TORONTO, ONT. M5V 1W5
TEL: 593-4802



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BEFORE: H. H. Lancaster, Q.C. - Chairman

Dr. D.J. Kingham - Member



Hearing conducted at The Oakville
Granary Commercial Centre, 105 Robinson
Street, Oakville, Ontario, on
October 19, 1988

VOLUME 181

APPEARANCES:

T.R. Lederer and H.D. Hodgson	for the Regional Municipality of Halton (Proponent)
J.R. Tidball	for the Ministry of the Environment
T. Vigod J.F. Castrilli	for the West Burlington Citizens Group
D. Estrin, F.E. Leitch and H. Dahme	for the Corporation of the Town of Milton
S.R. Garrod and A. Nurvo	for the Milton Area Citizens Coalition and several affected Milton area landowners
R.B. Tuer, Q.C. E.A. Cronk and F. Perrier	for National Sewer Pipe Limited
L.F. Longo	for Azova Investments Limited
M.J. McQuaid, Q.C. and C.J. Tzekas	for the City of Burlington
C. Mansfield	for the Ministry of Natural Resources
P. Renaud	for Cumis Limited



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APPEARANCES (Cont'd):

1		
2	C. Stevenson	for Framgard Holdings,
3	P. Hancock	Fosseri Investments
4		Limited, Seriphos
5		Investments Limited and
6		Topic Investments
7		
8	J.H. Olah	for the Halton Region
9		Conservation Authority
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Toronto, Ontario
M5V 1W5

Per: C.F. Nethercut, CVR



1 ---Upon commencing at 9:30 a.m.

2 MR. LANCASTER: Good morning, thank
3 you, please be seated.

4 MR. ESTRIN: I note Ms. Vigod is not
5 here yet.

6 DR. KINGHAM: Will we be revisiting H-
7 10, H-13, H-38?

8 MR. ESTRIN: I believe not. The next
9 one I will be asking you to look at is H-14, the
10 comparative analysis.

11 DR. KINGHAM: That allows us to do a
12 little housekeeping.

13 In light of the fact Ms. Vigod is not
14 here, perhaps we could do some housekeeping. The cores
15 and the big models; have you found a home for those
16 after the hearing is over before the decision is
17 written?

18 MR. LEDERER: Well, the cores I suspect
19 would be somewhere within the Region and subject only
20 to this; at some point we would like to get rid of them
21 and that is sometime in the future, but one of the
22 difficulties is something like this could hang around
23 forever.

24 So far as the models are concerned, they
25 don't belong to us, they belong to the Board as



1 exhibits, but they originated with the City of
2 Burlington. I am not sure this is the kind of project
3 people proudly show in the front hall of the Regional
4 Council Hall, I don't know, but it may be something
5 that the Region might likely have to look after, we
6 would have to see, but it is up to the Board, but I
7 don't think that is something that is required.

8 DR. KINGHAM: I think after the Board's
9 decision is out and the appeal period is ended, you may
10 want to have some use of the models.

11 MR. LEDERER: That is possible.

12 DR. KINGHAM: Then you would have to
13 discuss that and at that point we will disown them and
14 we won't have any use for them.

15 MR. LEDERER: When you disown them, I
16 suspect we will figure out what to do with them.

17 DR. KINGHAM: They have to have a place
18 to be put between the end of this hearing since we will
19 no longer be using this room.

20 MRS. HENDERSON: I understood the
21 exhibits were going to Toronto.

22 DR. KINGHAM: These exhibits, yes, and
23 these will go to the Environmental Assessment Board
24 offices, but we don't want the model there, we don't
25 have room for it.



1 MRS. HENDERSON: I will work on it.

2 DR. KINGHAM: Thank you. Do the
3 bookcases belong to the Region?

4 MRS. HENDERSON: Yes, they do.

5 ARGUMENT BY MR. ESTRIN (Cont'd):

6 Yesterday you will recall we ended the
7 day by looking at where hydrogeology entered into the
8 site selection process, commencing in the candidate
9 area, the screening process, and then in the 2C site
10 selection process and I think that brings me then to
11 look at how hydrogeology was a factor, again in the
12 comparative analysis H-14.

13 If you look at page 2 of this exhibit,
14 you will see the first full paragraph on the page
15 states, that:

16 "The purpose of this Comparative
17 Analysis is to form a reasoned
18 comparison of the two sites, taking into
19 account the newly available
20 information,..."

21 which is the technical studies which have been done:

22 "...while maintaining consistency with
23 the decision-making process that was
24 developed through the Environmental
25 Assessment."



1 Now, if new information was evaluated in
2 order to, as it is put there, to form "a reasoned
3 comparison of two sites", in my submission it is clear
4 that the information we now have about Site D must be
5 evaluated before any decision is made as to the margin
6 of difference between the two sites. I think that that
7 is an obvious statement, but I think it needs to be
8 said.

9 If we can come to pages 3 and 4, and I
10 would ask you to look where it begins at the bottom of
11 page 3:

12 "This Comparative Analysis is intended
13 to relate most directly to the final
14 stage of the site selection process
15 under the Environmental Assessment,
16 which is 'Stage 2C, Selection of
17 Preferred Site.' The final reports
18 which emerged from this stage include
19 twelve individual 'assessments' or
20 technical reports which evaluate,
21 compare and rank six 'Candidate Sites'
22 from the perspective of each of the
23 specialist disciplines."

24 Skipping down to the bottom of the page, or to the
25 second paragraph under the listing:



1 "The results of the individual
2 assessments are brought together in an
3 'Evaluation and Summary Report', (H-13)
4 which compares the six sites based on
5 constraints identified by the study team
6 for each evaluation factor, together
7 with a ranking..."

8 Skipping down to the last paragraph on page 4:

9 "The methodology used in Stage 2C forms
10 the basic framework of this Comparative
11 Analysis. The information now available
12 for both sites is far more detailed than
13 was available for Stage 2C."

14 And it is the next sentence in particular I want to
15 draw your attention to:

16 "By using the Stage 2C analysis as a
17 reference point, however, changes in net
18 potential impacts arising from the more
19 detailed level of information now
20 available can be identified and
21 explained, so that the new pairing
22 analysis conducted as part of this
23 Comparative Analysis will comprise a
24 logical extension to the Environmental
25 Assessment process."



1 Stopping there, that statement indicates
2 that it was important, if indeed not fundamental, for
3 new information to be taken into account in determining
4 whether or not there were as they put it "net potential
5 impacts arising from the more detailed information."

6 While it is my submission that unless
7 changes in net potential impacts arising from the
8 evidence here in the area of hydrogeology are assessed
9 with respect to Site D, particularly the evidence
10 arising towards the end of the hearing, Mr. Feenstra's
11 evidence is evaluated, we have somehow left the EA
12 process with a major hole in it, or whatever, but
13 something is markedly skewed at that point.

14 As the Board has indicated, or as Joint
15 Boards have indicated in the past and as the EA Board
16 has indicated in the past and as this Board has
17 ordered, the environmental assessment doesn't end with
18 the documents submitted. It continues through the
19 process of the hearing and takes into account all of
20 the evidence and exhibits, and so, Mr. Chairman, we
21 can't stop with Stage 2C and we can't stop with H-14,
22 that exhibit, we have to now ask the proponent where is
23 the assessment and where does Site D fall out, if we
24 take into account hydrogeological criteria for site
25 selection?



1 If I could now ask you to turn to page
2 11 of this document, H-14, the last paragraph on that
3 page which states:

4 "It is clear that the configuration of
5 the sanitary landfill now proposed on
6 the two alternative sites ..."

7 And they mean the site plans which are now being
8 evaluated in H-14 are different from the Stage 2C
9 conceptual design, and you can find that if you look at
10 pages 8 and 10 of this document:

11 "It is clear that the configuration of
12 the sanitary landfill now proposed on
13 the two alternative sites may give rise
14 to changes in impact compared to those
15 which were identified for the Stage 2C
16 conceptual design. The possibility of
17 this type of change in impact will be
18 addressed as part of this Comparative
19 Analysis."

20 Mr. Chairman, we are advocating to you the same
21 consistency of principle to be used in respect of the
22 new data as we have with regard to hydrogeology at Site
23 D. We think that the proponent has set out a process
24 and their process was a reasonable process. What has
25 happened though is that we have to evaluate the data



1 that we have now in relation to that process, but
2 fundamental changes have arisen with respect --
3 fundamental changes have arisen with respect to
4 fundamental factors; the attenuation assumptions and
5 the assumption of the need for engineered liners.

6 At page 12 the methodology employed in
7 this comparative analysis again assists us in
8 confirming the need for further analysis at this time
9 in light of the hydrogeology evidence as we have heard
10 it. At page 12 it is indicated that the objective of
11 the methodology used here, and I am looking at the top
12 of the page:

13 "...is intended to identify potential
14 for changes to the environmental impacts
15 that were identified for the two
16 alternative sites in Stage 2C of the
17 Environmental Assessment,..."

18 and the next words are important:

19 "...to evaluate the degree of such
20 changes where they are confirmed, and to
21 repeat the site 'pairing analysis'
22 utilized in Stage 2C, using the revised
23 impact levels."

24 It goes on to make the point that in undertaking this
25 comparative analysis there were certain steps used



1 including, and I am asking you to look at No. 1:

2 "Detailed review of all Technical
3 Reports against corresponding subject
4 material and findings generated in Stage
5 2C... to identify areas of new
6 information and potential for changes to
7 impacts identified in Stage 2C."

8 All of those factors speak in the same way, "review the
9 new information and to evaluate it further." Look at
10 No. 4:

11 "Review the impact levels identified in
12 Stage 2C and in the Technical Studies."

13 And No. 5:

14 "Undertake discussions with consultants
15 to confirm new or revised evaluation
16 factors arising from the new information
17 to ensure that identified impacts are
18 correct, given the treatment of
19 recommended mitigation measures in the
20 Design and Operations Reports."

21 Mr. Chairman, that again shows how fundamental the
22 exercise is. They are trying to confirm the evaluation
23 factors and confirm the analysis, taking into account
24 the mitigation measures including the design report.

25 Well, if there is in effect no design that is before



1 you that the proponent wants to rely on, that whole
2 evaluation is viciated.

3 Next is page 16, Mr. Chairman, if I
4 could ask you to turn there, the first full paragraph:

5 "One additional hydrologic/hydrogeologic
6 factor has been introduced for the
7 purpose of this analysis..."

8 And it is entitled "Potential Impact of Landfill
9 Contingency Implementation on Water Resources":

10 "...and it reflects impacts of the two
11 sites with proposed contingency measures
12 in place."

13 Skipping down:

14 "This new factor is considered
15 appropriate, given that contingency
16 measures have been proposed in the
17 Design and Operations Reports, and sites
18 can now be compared based on impacts
19 with these measures in place."

20 Stopping right there, Mr. Chairman, the question is
21 what now are those measures? We don't know. We don't
22 know what the conceptual design is, we don't know what
23 the contingency measures are. At Site D the conceptual
24 design is unknown and the contingencies are unknown.

25 If I could ask you to turn to page 22,



1 it goes on here to discuss the changes in impacts, in
2 anticipated impacts identified in Stage 2C reports were
3 developed. If you look at the bottom of the page it
4 says:

5 "Changes in anticipated impacts
6 identified since the Stage 2C Report are
7 based on three main variables:..."

8 And that is including, and the first one is:

9 "Changes in the level of detail of
10 information, or the introduction of new
11 information through the Technical
12 Studies."

13 That was important.

14 Then, if I might ask you to turn the
15 page and look at the bottom of page 23 under the factor
16 "Public Health and Safety (Category) Hydrogeology":

17 "The higher level of detail of
18 engineering design which has been
19 undertaken for landfilling at each Site
20 now justifies a shift in emphasis from
21 the existing hydrogeologic setting of
22 each site which was the focus of Stage
23 2C evaluation, to the relative
24 effectiveness of the engineering designs
25 that have now been developed."



1 It goes on to indicate that in the factor entitled
2 "Hydrology/Hydrogeology - Potential Impacts of
3 Engineered Sites", and I am looking at another
4 paragraph down:

5 "...the following anticipated impacts
6 have been modified from those identified
7 in Stage 2C:"

8 and the first two deal with groundwater users, quality
9 and groundwater resources, quality and in both cases
10 impacts for Site D were reduced from low to nil impact
11 and it is stated, if you go down to the last full
12 paragraph:

13 "The changes in impact identified for
14 these sub-factors with respect to Site
15 'D' are mainly related to the 'hydraulic
16 containment system' that has been found
17 to be feasible on this site."

18 Well, it seems that two things emerge thus far.

19 First, if present knowledge of Site D
20 including many of the things Mr. Feenstra was talking
21 about in his reply evidence were properly taken into
22 account, Site D never would have made it down to a
23 preferred site and, secondly, there would have been a
24 much greater difference between the two remaining sites
25 on any kind of comparative analysis, assuming Site D



1 remained in the running.

2 If I can ask you to turn to Appendix A
3 to this exhibit and which I think is Mr. Sobanski's
4 letter.

5 DR. KINGHAM: We have that as pages 59
6 and 60 -- 61 and 62.

7 MR. ESTRIN: I am looking at 60, 61 and
8 62 and I would ask you to look at the items under Site
9 D, advantages and particularly 3, 4 and 5:

10 "The design is simpler and more
11 straightforward. The installation of
12 the tile collector system is more
13 straightforward. The leachate tile
14 collection system will be very efficient
15 because hydrogeologic conditions are
16 suitable for the installation of a
17 hydraulic containment system."

18 Mr. Chairman, those, in my respectful submission, are
19 at the very least highly dubious if not completely
20 wrong as we are being told the site conditions are
21 today, or that the Board should assume them to be based
22 on the Region's submission. The same applies with
23 respect to Table 1 on page 63. If I can ask you to
24 look at that -- let's look at that, existing
25 constraints to site development and looking under Site



1 D: "Attenuation Capability." There is a low written
2 there and I suggest that that should be changed to
3 high. Overburden thickness and that is a low and I
4 think and my submission is that it clearly should be a
5 high. A factor of complexity to engineer the site. It
6 was low.

7 I will give you two choices in my
8 respectful submission, either a question mark or, high,
9 and in the absence of knowing I think we should put it
10 as high and in fact I will be arguing later that Site D
11 is a very difficult site to engineer. We have heard a
12 lot about it and about the delicate balance involved
13 there and I will be taking you to some of that
14 evidence, and even if nothing changed in terms of
15 Mr. Feenstra's analysis in reply, Site D as we know it
16 before Mr. Feenstra's reply evidence, it was clear is a
17 compromise site, a very difficult site to engineer and
18 should be rated as high regardless, but now we don't
19 even know what the engineering is so it should probably
20 be "high/?", high for the former design and question
21 mark for any new concept which we have not heard about.

22 Then is Table 2, pages 64 to 66, and I
23 won't take you through it, but I think the Board could
24 very easily modify this table based on the same
25 considerations under the attenuation capability, the



1 level of constraint which is low and that should be
2 high, et cetera, et cetera and overburden thickness
3 would change from low to high, et cetera.

4 Well, now, I want to come back to draw
5 this into the evidence about process. If you have
6 volume 168 handy of the transcript, and this is the
7 evidence of Mr. Clarke from the Ministry of the
8 Environment, and at page 42011 and at that point
9 Dr. Kingham is asking the witness how did the branch
10 in evaluating the EA take into account the purpose of
11 the Act being for the betterment of the people of the
12 whole of Ontario or some part of Ontario, and if I can
13 suggest, we could paraphrase that question and ask how
14 does the type of procedure that has -- let me put that
15 another way. If we do not re-evaluate Site D in light
16 of the information as we know it, and without, as
17 Mr. Clarke used the term, reiteration, or without re-
18 evaluation, how does this type of procedure become for
19 the betterment of the people of the whole of Ontario or
20 indeed of Halton?

21 If I could ask you to look at page
22 41866, Mr. Clarke said, or reminded you and it is
23 nothing startling, but the branch interpretation of the
24 purpose of the Act is to provide for sound planning and
25 informed decision-making, at line 11, and as part of a



1 planning framework in the locating of facilities or the
2 development of plans by various proponents.

3 It is my submission that unless a re-
4 evaluation of where Site D fits in amongst the till
5 plain sites, the pre-submission consultation process
6 undertaken by the Region and the public participation
7 process which is supposedly a hallmark of procedure
8 under the Assessment Act would be abrogated.

9 Mr. Clarke told us the first key component of the Act
10 as far as he and the branch were concerned was
11 consultation with the affected parties to ensure that
12 concerns are identified and addressed and that they
13 promote a co-operative aspect of the planning process
14 and that is at 41868, and you don't need to look at it.
15 You will find that at 41867-68.

16 At page 41935 he explained why he
17 considered it integral to have public involvement and
18 he says, first of all, looking at line 14:

19 "...to ensure that local community
20 values and concerns are addressed in the
21 development of any plan or facility that
22 affects the community..."

23 In other words, people who have to live with this
24 project are aware of the development of and
25 implementation of this project, should it be successful



1 and get an approval.

2 Mr. Chairman, even though the Town of
3 Milton and ratepayers are represented at this hearing,
4 if the process that Mr. Tidball, and I think
5 Mr. Hodgson are suggesting occurs, wherein the
6 conceptual design for this site will now be left in the
7 hands of the Director, we are going to be excluded from
8 knowing, questioning and bringing evidence with respect
9 to the type of design that would be necessary.

10 Mr. Clarke continued just in about that
11 area and he said that he agreed with Mr. Tzekas that it
12 is important for people to understand what the reasons
13 are for the project and to understand fully the
14 implications of it becoming part of their community,
15 and beyond that, and this is a quote:

16 "...they should have the ability to have
17 their concerns addressed and make some
18 input into the process." (p. 41935 l 25)

19 Well, we are not exactly sure what the design is and we
20 don't know what the concerns are until we have heard
21 that design; but a compacted liner, that is a
22 suggestion. Mr. Chairman, if you go back and look at
23 some of the various articles which have been made
24 exhibits here, you will recall when I was cross-
25 examining Mr. Petrie and Mr. Crutcher about the value



1 or lack of value of laboratory testing to determine
2 hydraulic conductivity, a number of articles about how
3 valid laboratory testing was or wasn't arose in the
4 context of determining the hydraulic conductivity of a
5 clay liner, a compacted clay liner, and there were many
6 references to the fact that it is very difficult to get
7 a good handle on the actual in situ permeability of a
8 compacted clay liner and you have to do testing with
9 very specific protocols in mind. In fact, I will be
10 able to show you later that one of the articles said in
11 the case of a compacted clay liner, there could be a
12 factor of 10 to 1000 times in terms of the permeability
13 between what you would design and what you would expect
14 to get in the field or a factor in other words of 1 to
15 3 orders of magnitude.

16 I raise that parenthetically because it
17 goes back to the argument that we need to know what is
18 the design and then we should be able to talk about it.
19 We didn't call evidence about what are the factors
20 going to variability and potential problems with a
21 compacted clay liner at the site, but we would like the
22 opportunity to do that if that is going to be the
23 design.

24 There is also the argument that flows
25 from what I have just been saying which is that it is



1 imperative that the proponent evaluate which
2 alternative methods are more impactive, if I can use
3 that term, than others, having regard to mitigation,
4 and that is section 5(3) which I spoke to yesterday.
5 How can this be determined when proponents are
6 reconsidering in the course of the hearing their basic
7 concepts of hydrogeologic suitability and at the 25th
8 hour of the hearing we end up with a different design
9 -- we end up with not the design we were looking at but
10 some unknown design? How can we do that without
11 further evaluation?

12 Mr. Chairman, given the importance of
13 conceptual engineering and design in site selection,
14 because it was very important as we just saw in the
15 documents we went through in terms of how the candidate
16 sites were evaluated and eliminated, and given its
17 importance in protecting the environment, it is clear
18 that different designs and in my submission it is clear
19 that different designs are alternative methods of
20 carrying out the undertaking. I will go over that
21 again. My proposition is that alternative methods of
22 carrying out the undertaking under section 5(3) of the
23 EAA include an evaluation of the conceptual engineering
24 that would be applied, given the importance of that in
25 site selection.



1 If I could refer you to this transcript
2 at 41870, if that is the right page, Mr. Clarke agrees,
3 and the question is at 41870 of volume 168, line 3, a
4 question from Mr. Tidball:

5 "Q. What would an alternative method
6 be?

7 A. Alternative methods could include
8 different sites for those facilities
9 identified in alternatives to, such as
10 different sites for energy from waste,
11 different sites for landfilling,
12 different sites for composting. It
13 could also include different methods or
14 modes of operation of those sites.

15 Q. Could it include different designs?

16 A. Different designs, yes, engineering
17 versus non-engineering, et cetera."

18 Mr. Chairman, what did Mr. McQuaid have to say about
19 the significance of Mr. Feenstra's reply evidence? If
20 we look at volume 174 at page 43380 at line 17, he
21 said:

22 "We have had a very dramatic change of
23 application and position in my mind as a
24 result of Mr. Feenstra's evidence based
25 on what was the Ruland hypothesis and



1 now the Feenstra hypothesis in the sense
2 it has been applied to Site D."

3 He says:

4 "I think the evidence, certainly, it can
5 be argued that it would have been a very
6 much different hearing if the testing
7 had not been initiated..."

8 The point is it is a very dramatic change of
9 application and position.

10 Mr. Lederer points out in his cross-
11 examination something which bears on this, and going
12 back to the transcript of Mr. Clarke, volume 168 at
13 41981 at line 7:

14 "Q. The point is that the whole notion
15 of net effects or residual analysis
16 would you agree only becomes effective
17 when you get to a fair degree of detail
18 or a fair degree of understanding of
19 what the proposal is likely to be and at
20 an early level it doesn't help much?

21 A. I think there are degrees or levels
22 you are talking about and I think there
23 is some value in having mitigation
24 considered at the earlier level and more
25 intensely considered at the site-



1 specific level."

2 My submission is that we don't know what that
3 mitigation is, but it is definitely part of what is an
4 environmental assessment and we can't complete the
5 environmental assessment, it hasn't been completed with
6 respect to Site D until we know what those mitigation
7 measures are.

8 If I could ask you to pull out
9 Mr. Clarke's flow chart with the arrows on it, Exhibit
10 E-933 entitled "The Planning Framework", and if you can
11 have that handy when I say the following: since the
12 need for a new design has been made evident, including
13 a liner, or potentially a liner, since it arose so late
14 in the hearing, what we are left with at this hearing
15 point is nothing more than concepts and obviously those
16 have not yet been the subject of engineering
17 consideration, and we have had no engineering evidence
18 on it, no cost, nothing about what are the pluses and
19 minuses of a liner, what are the impacts of purge wells
20 as engineering potentially to disrupt the groundwater
21 resource off-site?

22 It is my submission that in accordance
23 with this iterative framework that is described in
24 Exhibit E-933, the Board has not heard evidence with
25 regard to the advantages and disadvantages and the



1 environments that would or may be affected by Site D
2 when it will finally be designed.

3 Now, if you can keep that exhibit out
4 and turn to Mr. Clarke's transcript again, volume 168
5 at page 41885 at line 19, there is a question by
6 Mr. Tidball:

7 "Q. One final question on E-933. What
8 do we take from the arrows that go up
9 and down the length of this document?

10 A. I think any planning framework is
11 considered to be iterative in that if
12 there are changes in technology or
13 changes in information that become
14 available to the proponent, that a
15 reconsiderations of previous stages to
16 some degree is necessary to ensure that
17 the planning model reflects the most
18 recent information."

19 Mr. Leitch asked Mr. Clarke about this exhibit at page
20 41929, line 6:

21 "Q. You talked about the upward and
22 downward arrows and you used the term
23 looping. As I understood you meant by
24 that was that at any stage of the
25 planning process that is in this diagram



1 of, you take information and you can go
2 back to earlier or an earlier stage
3 using that new information to review the
4 decisions at the earlier stage. Have I
5 got that right?

6 A. Conceptually, yes, that's right.

7 Q. And then Dr. Kingham asked you a
8 question in regard to that for
9 clarification and suggesting you could
10 only loop back from one stage to the
11 immediately preceding stage?

12 A. That was the question, yes.

13 Q. Do you recall that? My first
14 question to you is would you understand
15 you could loop back from this hearing to
16 the earlier stages, or in other words
17 take information which we have heard in
18 evidence and which may not have been
19 part of the assessment document the
20 government reviewed and apply it to that
21 work?

22 A. If I understand you right, you are
23 saying that in the final analysis the
24 Board could consider information beyond
25 what was submitted originally to the



1 Minister in their decision.

2 Q. And can further loop back to any
3 point in the planning process?

4 A. The Board has that right."

5 Then, Mr. Tzekas picked up on this in his cross-
6 examination of Mr. Clarke, and again referred to
7 Dr. Kingham's question about only going back one level,
8 and if I could take you to page 41931, line 5:

9 "Q. If we go to the other parts of the
10 chart, sir, ..."

11 This is Exhibit E-933:

12 "Q. ...is it not possible for
13 information at some subsequent stage to
14 have, if you will, a chain reaction
15 throughout this process?

16 A. I agree in the planning component
17 before implementation that if you go
18 back one step you are likely to affect
19 the information that will then effect
20 the previous step.

21 Q. Exactly.

22 A. It should be considered before you
23 finalize the new information.

24 Q. Exactly.

25 As I understand that then, if



1 information becomes available at a later
2 stage, it is not only appropriate, I
3 take it that you would suggest it would
4 be almost necessary to go back and
5 consider how that might affect the
6 entire evaluation process?

7 A. It is appropriate that you consider
8 that information in the total picture."

9 In his cross-examination, Mr. Lederer asked Mr. Clarke
10 something again which bears on this at page 42026, line
11 4:

12 "Q. Would you agree with me that an
13 environmental assessment is a dynamic
14 process and I am not talking in general
15 concepts of environmental assessments,
16 but an environmental assessment, a
17 specific assessment is a dynamic
18 planning process?

19 A. Yes.

20 Q. As you proceed down your study path
21 it evolves and changes may occur to
22 adjust to increased knowledge?

23 A. Yes.

24 Q. Would you agree that that
25 demonstrates, for example, there may be



1 some need to evolve or amend the
2 criteria used to evaluate certain sites?

3 A. I would agree provided that there
4 are sufficient reasons stated why such a
5 change is made."

6 Then if you turn the page to line 24:

7 "Q. ...isn't it intrinsic within the
8 environmental assessment process that as
9 these things evolve in this fashion a
10 criterion may be applied differently or
11 may change as increased knowledge of the
12 various alternatives actually available
13 becomes apparent?

14 A. ...I agree with the caveat that you
15 must consider the effects of any change
16 on other aspects of the process."

17 Mr. Chairman and Dr. Kingham, there has
18 not been an assessment of where Site D would come in
19 light of its recently-revealed complexities and in
20 light of the unknown design or designs that are being
21 mooted about.

22 Without such the requirements of the
23 Environmental Assessment Act with respect to Site D
24 appear to have not been met and Site D, in my
25 respectful submission, cannot be approved for that



1 reason.

2 Now, before I finish with this process
3 part of my argument on hydrogeology, I want to review
4 some specific evidence to substantiate the position
5 taken by Mr. Feenstra, by the Region in argument, by
6 the Ministry of the Environment, at least those parties
7 we have heard from so far, that new engineering designs
8 are needed at Site D in light of, (a), the likelihood
9 of fractures or, (b), the evidence of the potential
10 shadow effect and that the evaluations of such new
11 designs and the data and investigations that would be
12 inherent in developing these need to be made the
13 subject of a hearing.

14 What I am saying is that there needs to
15 be a hearing. There needs to be a hearing in respect
16 of that in the same manner as Trow's original design
17 and CRA's modified design were made the subject of
18 extensive scrutiny at this hearing, and I want to go
19 over some of the evidence which would justify and
20 substantiate the need for these new designs, whatever
21 they may be, because I am not sure what right, if any,
22 I will get to reply to anything anybody says later, and
23 I just don't know what my friends will say about the
24 Region's position that a new design is needed, and so I
25 want to go over some of that.



1 In my respectful submission, based on
2 the likelihood that the upper unweathered till has
3 hydraulically significant fractures as the Region -- as
4 Mr. Feenstra's opinion or thesis was, and you are asked
5 to accept that for the purposes of this hearing, but
6 based on that or the shadow effect that would have
7 implications for the hydraulic trap based on CRA's
8 thesis that the UGU is a limited lenzoid feature, it
9 would be irresponsible to approve Site D
10 hydrogeologically without engineering conceptual
11 designs being considered.

12 However, to the extent the liner or some
13 other new design is required for Site D in order that
14 it be made hydrogeologically acceptable, in all of the
15 circumstances in my submission, Site D must not be
16 approved at all. As indicated, to do so without
17 evidence of what design is appropriate, and the impacts
18 of that design and comparing Site D to other sites,
19 would be to visciate the principles of the Assessment
20 Act and the importance of the approvals and public
21 hearing process under the Environmental Protection Act.

22 Now, why is some basic new engineering
23 design needed at Site D? Well, a liner or some other
24 basic new engineering design is necessary at Site D
25 based primarily on the facts collated, first of all, by



1 Mr. Tidball in his argument and Mr. Feenstra's opinion
2 regarding such matters that there is a reasonable
3 possibility that the upper unweathered till has
4 hydraulically connected fractures and also based on
5 Mr. Petrie's work and that of other investigators in
6 tills that were supposedly unfractured.

7 As you appreciate, Site D was originally
8 proposed to have an operating hydraulic trap such that
9 while operating there would be no migration of
10 contaminants from the landfill into the groundwater
11 within the underlying granular units. In his witness
12 statement in reply, H-936, Mr. Feenstra made it clear
13 how different the situation is between how it was
14 conceived and where we are today and he says in
15 paragraph 2:

16 "In the work done at Site D, (by Trow)
17 it was assumed that the depth of
18 fracturing and the depth of weathering
19 coincided. The weathered zone and
20 therefore the fractured zone extended
21 only to a depth of approximately 4 m
22 below ground surface. The unweathered
23 Upper Till from a depth of 4 to 7 or 8 m
24 was assumed to be unfractured. If,
25 however, the unweathered Upper Till



1 underlying the landfill is fractured,
2 the assessment of potential contaminant
3 migration out of the landfill must be
4 very different than that performed by
5 THCL and Dr. Rowe."

6 And he goes on to say:

7 "...the very short travel path (3 to 4
8 m) would result in a rapid impact on the
9 groundwater quality in the Upper
10 Granular Unit... in the event of failure
11 of the hydraulic trap."

12 And he said something of a similar nature in paragraph
13 7 of his witness statement:

14 "The presence of fractures extending
15 through the unweathered upper till has a
16 significant effect on the nature of
17 contaminant transport through this unit.
18 In the event of failure of the hydraulic
19 trap, contamination of the UGU may occur
20 rapidly (less than a year)."

21 I think something Mr. Crutcher said is important in
22 assessing the need for a new design.

23 At volume 113, Mr. Crutcher expressed
24 something on the design condition, and I am reading --
25 I don't have the volume in front of me, but I hope I



1 have an accurate quotation here. He said at page 27193,
2 and I can't give you the line because I don't have the
3 volume. He was under cross-examination by Mr. Tidball
4 and he said:

5 "A. Depending on your level of
6 confidence in your predictions, if in
7 fact, your confidence is very poor you
8 would tend to take a look more at the
9 worst case and if you could pass the
10 worst case test..."

11 And then going on:

12 "If in fact you impose on yourself a
13 worst case scenario, a case that borders
14 on being unreasonable and you can pass
15 the test of being acceptable under that
16 criterion, then in fact, you can lessen
17 your need to gain additional
18 information." (p 27194 1.6)

19 It seems to me that that is essentially what the Region
20 is saying to you, accept the worst case, we won't go
21 out and get more information and design for that. I
22 don't think that there is a difference. If Mr.
23 Crutcher's advice is to be taken and the Region's
24 advice, the Board must look at the worst case scenario
25 as postulated by Mr. Feenstra and see how the site can



1 pass the test of acceptability under that criterion.

2 It is likely that only through a liner
3 could it pass, but even then we don't know. CRA's
4 position was similar to Trow's originally with regard
5 to the importance of the unweathered upper till. They
6 said, either Mr. Crutcher or Mr. Petrie:

7 "Under a failed case we have a very good
8 unweathered upper till. It provides a
9 high level of confidence in the
10 integrity of the site under our failure
11 situation."

12 and that was volume 113, 27199 to 27200.

13 Mr. Feenstra made the point in reply
14 that Mr. Sobanski indicated in his evidence that there
15 are times of the year where the hydraulic trap wouldn't
16 work because the head in the UGU may be less than the
17 head of leachate in the landfill and that originally
18 this was not a major issue as it was assumed the till
19 was not fractured, but if it is, to quote him:

20 "...even seasonal localized failures of
21 the hydraulic trap taken (sic) on much
22 more significance."

23 That was at page 42124.

24 While Mr. Feenstra went on in his
25 witness statement and his evidence to indicate there



1 were potentially three options for dealing with a
2 fractured unweathered till; the first being a more
3 detailed long-term monitoring programs combined with
4 the installation of a purge well system in which
5 monthly or bi-monthly sampling would be conducted, I
6 suggest that was in effect retracted by him in the
7 event that even one test pit at the site showed
8 fractures.

9 Now, if I could just have a moment.
10 What happened was I pulled out the transcripts I was
11 going to refer to yesterday and put them somewhere else
12 so they are not here. Does anyone have volume 174
13 here?

14 MR. LANCASTER: 174?

15 MR. ESTRIN: There may be some others.
16 Mr. Hodgson has one but of course he wants to look at
17 it. I made a list for everyone and now I don't have my
18 transcripts here. I put them together and I guess I
19 have put them somewhere else.

20 MR. LANCASTER: Take the Board's, we
21 can listen.

22 MR. ESTRIN: Thank you, Mr. Chairman.

23 MR. LANCASTER: It is better you make
24 the point than we read it.

25 MR. ESTRIN: At volume 174, page 43348,



1 he is being cross-examined by Mr. McQuaid about what
2 investigations he might make and he says what would
3 happen if he saw a fracture in a test pit and he says
4 at line 7:

5 "A. I guess at that point ..."

6 Or Mr. McQuaid says, I am sorry, this is part of an
7 answer:

8 "... I guess at that point one would
9 expect a failure of the hydraulic trap,
10 one would fully expect contamination to
11 occur as rapidly as was hypothesized."

12 If one saw fractures in a test pit:

13 "Q. Yes.

14 A. So, in that particular case, simply
15 the installation of the purge wells and
16 the detailed monitoring likely isn't a
17 sufficient response..."

18 And he goes on to say:

19 "So we have turned our reasonable
20 possibility into a stronger possibility
21 that fractures exist. That would lead
22 one to the other two alternatives, one
23 being the connection of the surrounding
24 residents to piped water with a purge
25 well system as a contingency... or the
construction of a recompacted liner at



1 the base of the landfill."
2 So what has Mr. Feenstra said? He has indicated that,
3 first of all, piped water supply might be an
4 alternative and Mr. Leitch will deal with the potential
5 problems with that from a planning perspective and
6 indeed from a legality perspective at the present time
7 in his submissions. The point is a piped water supply
8 would not deal with the potential and eventual
9 contamination of the lower granular unit as well as
10 off-site impacts that could be caused through
11 contamination of the upper granular unit which may feed
12 creeks, streams and ponds in the area.

13 Mr. Feenstra said in that context, just
14 to go back over the lines I was reading from, when they
15 talked about the piped water supply he said you could
16 have:

17 "... piped water with a purge well
18 system as a contingency to prevent off-
19 site migration which might impact more
20 existing users or surface water or some
21 other receptor..."

22 In my respectful submission Mr. Feenstra does not
23 recommend rejecting his hypothesis, it is clear. To do
24 that at this site is to gamble with public health and
25 safety, and Ms. Cronk made that point at volume 172,



1 page 42869.

2 He agreed with Ms. Cronk that two of his
3 three methods of dealing with fractures are reactive
4 and Mr. Hodgson brought that out in his submissions and
5 they don't prevent contamination of the existing
6 groundwater, and simply to bring in piped water does
7 not prevent off-site contamination. This is all at
8 volume 172, pages 42872 to 76.

9 Mr. Feenstra made it clear that Site D
10 is especially sensitive if fractures are present and he
11 rejected the notion that such fracturing will generally
12 be revolutionarily significant. Mr. McQuaid wanted
13 Mr. Feenstra to agree that this was some revolutionary
14 theory that was being espoused and somehow Site D --
15 this would affect how we locate any landfill site on a
16 till plain. I think it is important the Board remember
17 what Mr. Feenstra said about that. He didn't agree.
18 He said at volume 174, page 43294 to 5:

19 "The example at Site D, I believe, is
20 reasonably unique in the fact that we
21 have, with the proposed landfill design,
22 a fairly thin unit underlying the
23 landfill of between three and four
24 metres of what was considered to be
25 unweathered, unfractured till overlying



1 the thin, granular unit, in which there
2 is very little potential for dilution to
3 clean water or a cross-flow beneath the
4 site. We have got potential receptors
5 or private wells that would be
6 potentially impacted by off-site
7 migration relatively close to the site
8 boundaries. I think those are fairly
9 unique conditions."

10 He then continued:

11 "If one took a hypothetical Site D ..."

12 And this is at page 43295:

13 "...where the granular units were at a
14 depth of 15 metres, rather than eight
15 metres, given that we would expect the
16 depth of fracturing or the frequency of
17 fracturing to diminish with increasing
18 depth, I think we have a much more
19 difficult time imagining fractures
20 extending to granular units at that
21 depth ... in terms of lateral flow away
22 from the landfill site..."

23 And this is the hypothetical site he was talking about:

24 "...you are dealing with distances that
25 are much greater than just the three or



1 four metres we are talking about from
2 the bottom of the landfill to the
3 granular units."

4 He goes on:

5 "At Site D, the lateral distance of flow
6 would be 100 metres to the site
7 boundary. Over a distance of 100
8 metres, matrix diffusion will be a very
9 important process and will minimize any
10 impacts on off-site ... So, just the
11 fact that there might be fracturing
12 extending to depths of eight or possibly
13 ten metres, I don't think necessarily
14 has implications at a great many sites."

15 In other words, Mr. Chairman, even if the Feenstra
16 hypothesis about fracturing is accepted, not only at
17 Site D but at other till plain sites, there may be some
18 of those other till plain sites A, B, C or E that
19 nevertheless would be suitable. We don't know. They
20 may be suitable without complex engineering and
21 suitable without a liner; we don't know.

22 Mr. Feenstra continued in the same vein
23 at page 43300:

24 "In the deeper fractured zones if the
25 bulk hydraulic conductivity is 10^{-7} or



1 10⁻⁶, you are still getting a very small
2 volume of flow of contaminated water to
3 whatever receptor you are looking at.
4 At Site D that is important. At other
5 sites, it probably isn't as important if
6 there are other mechanisms for
7 attenuating the leachate or diluting the
8 leachate as it enters the aquifer."

9 Now, Mr. Feenstra also talked about failure of the
10 hydraulic trap occurring due to a lowering of the head
11 in the upper granular unit, and he talked about a
12 potential conceptual solution to that, and that is a
13 liner. He had originally talked about or mused about
14 purge wells in the UGU -- sorry, that was if
15 contamination resulted, but he talked about a liner and
16 he said purge wells would only aggravate the situation
17 and that is at volume 172 at pages 42798-99.

18 He had another potential solution to
19 lowering the granular head in the upper granular unit
20 around the site and that was injection wells, and
21 something he suggested in passing. Mr. Chairman, that
22 is very interesting, and I am glad Mr. Feenstra
23 addressed his mind to it, but Mr. Hodgson has now said
24 that you know Site D can be approved, don't worry about
25 the upper granular unit, because Mr. Feenstra said we



1 fundamental issue regarding the
2 integrity of that site?

3 A. It's a very fundamental issue for
4 the site and the monitoring program, as
5 previously stated, yes."

6 Ms. Cronk went on to point out in cross-examination by
7 Mr. Tidball -- of Mr. Feenstra, it was suggested that
8 perhaps these further investigations could be carried
9 out as a required condition of any approval of Site D
10 and coincident at point in time with other site
11 preparation or investigation work, and
12 Mr. Feenstra was asked:

13 "Q. Is it correct... if these further
14 investigations were undertaken that
15 clearly you can't predict in advance how
16 extensive the fracturing in the
17 unweathered till unit might be if it is
18 there at all? You can't tell that in
19 advance?

20 A. No, you can't tell that in advance,
21 you have no information from the site
22 itself.

23 Q. Nor can you tell the direction or
24 the location in which the fracturing
25 might exist?



1 A. That is also true, yes.

2 Q. Until that information is known,
3 those who stand to be affected by the
4 implications of contaminant migration at
5 that site aren't really in a position to
6 assess how their interests might be
7 affected, wouldn't you agree?

8 A. For the site as designed at the
9 present time, yes."

10 Pages 42864-65. She continued at line 24:

11 "Q. I suppose what I am really
12 suggesting to you is that approval
13 today, both of a further investigation
14 program coupled with one or more of the
15 proposals that you make on the decision
16 tree to take place in the event that
17 fracturing is discovered, assumes that
18 those people or those persons whose
19 interests stand to be affected by
20 fracturing, would be content to accept,
21 without further challenge or opportunity
22 to challenge, that those proposals are
23 adequate in the circumstances? It
24 assumes that there would be no basis for
25 those who would be affected by the fact



1 of extensive fracturing, would be
2 content with the proposals to respond to
3 extensive fracturing that you suggested
4 on the decision tree?

5 A. I think that assumption would be
6 implicit in what you are indicating,
7 yes."

8 Pages 42865-66 and then the next page, 42867:

9 "Q. We don't know in advance of
10 carrying out the kinds of investigations
11 that you describe whether fracturing
12 does exist, how extensive it might be or
13 where it might be, we don't know that in
14 advance?

15 A. You don't know that in advance,
16 that's correct."

17 Mr. Chairman, the above evidence I have just described
18 demonstrates that a liner or any other engineering
19 measure is in effect a new design and it would be based
20 on new information. Those who would be potentially
21 affected are entitled to a fair hearing.

22 The Board has not had the benefit of
23 such new engineering designs and yet, to quote
24 Mr. McQuaid, "We have had a very dramatic change of
25 application and position" and I gave you the reference



1 for that, and he said it again in another place, volume
2 174, pages 43344-45, if Mr. Feenstra is right, Trow
3 were wrong, re the till. Mr. Chairman, Mr. Feenstra
4 agrees a worst case scenario at Site D is, (a), if the
5 trap fails and, (b), if the unweathered till is
6 fractured and Site D should be designed to avoid that
7 scenario and he agrees with that at volume 172, page
8 42892. But, it is very clear that it hasn't been
9 designed this way, and no design to deal with that has
10 been put to the Board by the proponent.

11 Now, neither Trow nor CRA considered the
12 implication of what CRA say is the situation at Site D,
13 that the upper granular unit consists of isolated
14 lenses. That is CRA's thesis, and Mr. Petrie had a lot
15 of submissions on that or gave his opinion on that, but
16 they didn't consider the implication of that and
17 Mr. Feenstra did. It wasn't considered, however, by
18 Trow in their design of the site and Mr. Feenstra
19 underlined that, what is the implication and the
20 implication is that there may very well be insufficient
21 recharge to maintain the hydraulic trap.

22 That problem, and I think it was made
23 clear, but I want to underline it, but that is
24 independent of whether there is fracturing in the
25 unweathered upper till, independent of whether



1 fractures may be induced by heaving or unloading, and
2 it is independent of drought conditions, but it is
3 created because of CRA's theory of isolated lenses in
4 the upper granular unit and the potential for the
5 landfill causing a shadow effect.

6 There are many significant implications
7 of this problem and none of which were discussed by
8 CRA. The most important of these is if there is not
9 sufficient recharge to maintain the trap and in the
10 absence of recharging the underlying units
11 artificially, and I say we have no evidence of how one
12 could do that or if it could be done at all, in that
13 situation the present Trow design and the CRA
14 modification is inadequate. The hydraulic trap would
15 not be the key principle for the operation of the site
16 and, for that reason alone, a different design would be
17 required.

18 I want to go over Mr. Feenstra's
19 evidence on the shadow effect problem to demonstrate it
20 does raise fundamental issues relating to the process,
21 fundamental issues relating to fairness in an
22 administrative law sense and fundamental with respect
23 to the integrity of the public hearing process.

24 Mr. Feenstra in his witness statement in
25 paragraph 15 touched on the impact of isolated UGU



1 lenses and the notion of recharging to maintain the
2 trap and he elaborates on this in cross-examination by
3 Ms. Cronk and Mr. Garrod.

4 At volume 172, page 42879 under
5 questioning from Ms. Cronk at lines 8 to 17,
6 Mr. Feenstra indicated that upon further examination of
7 the groundwater system at Site D, it is possible that
8 it could be disclosed that the recharge conditions were
9 such that there would be insufficient recharge to
10 maintain the hydraulic trap once a landfill is
11 introduced and, if that were the case, in the absence
12 of recharging the underlying geologic units
13 artificially, that could not be lived with insofar as
14 the design of Site D is premised on the maintenance and
15 continuing maintenance of the hydraulic trap. Page
16 42879.

17 Mr. Feenstra went on to make clear that
18 should it be the case that further investigation
19 indicated there was insufficient recharge to maintain
20 the recharge, to quote him:

21 "It would certainly mean that the
22 hydraulic trap was not the key principle
23 for the operation of the site... It
24 would certainly require a different
25 design,..."



1 MR. LANCASTER: Is it volume 172 you
2 wish?

3 MR. ESTRIN: Yes, thank you. At volume
4 172 at page 42882, and Mr. Hodgson has the same lines
5 highlighted as I do from 1 to 13.

6 MR. LEDERER: Thank God!

7 MR. ESTRIN: Yes.

8 "A. It would certainly mean that the
9 hydraulic trap was not the key principle
10 for the operation of the site, that is
11 correct.

12 Q. Wouldn't that entail an entirely
13 different design proposal?

14 A. It would certainly require a
15 different design, either in terms of
16 containment of offsite migration by the
17 purge well system or the construction of
18 a liner at the site.

19 Q. And the proposals of that design
20 are not fully before the Board at this
21 stage?

22 A. The proposals for that design, no."
23 Perhaps if it is not too early to take the morning
24 break now, if we could, and perhaps I could find the
25 transcripts I am missing?



1 MR. LANCASTER: Yes, and you have our
2 No. 174.

3 MR. ESTRIN: Yes, and I will give it
4 back right now.

5 MR. LANCASTER: Fifteen minutes.

6 ---Recess

7 MR. LANCASTER: Please be seated. We
8 apologize for being longer than usual, but it was time
9 very well spent, I can assure you, from my point of
10 view.

11 MR. ESTRIN: I don't mind having a few
12 extra minutes. I think we will have to take a few more
13 minutes. The Region isn't here. Shall I go ahead?

14 MR. HODGSON: I apologize,
15 Mr. Chairman.

16 MR. LANCASTER: It is all right. We
17 just finished apologizing.

18 MR. ESTRIN: I was at the point where I
19 was going over Mr. Feenstra's evidence with respect to
20 the shadow effect problem to demonstrate how it does
21 raise these fundamental issues of process and I had
22 just finished reading from his testimony that if there
23 were insufficient recharge to maintain the trap, it
24 would certainly mean the hydraulic trap was not the key
25 principle for the operation of this site and it would



1 certainly require a different design.

2 In the same volume, 172, at about the
3 same page, 42882, Ms. Cronk also was asking for further
4 implications of this and to determine whether or not
5 you could rule out the shadow effect if you undertook
6 these further investigations, and she said:

7 "Q. ...clearly they will result in the
8 generation of fresh data, fresh data not
9 presently available?

10 A. That's correct."

11 That is at lines 19 and 23.

12 MR. McQUAID: What page?

13 MR. ESTRIN: 42882 and then at the
14 bottom of the page:

15 "Q. To the extent that fresh
16 information and fresh data is generated,
17 that could well lead to conclusions
18 different from those at Site D that have
19 to date been put before the Board?

20 A. That is correct, yes.

21 Q. Those new conclusions... could
22 apply to any number of things. They
23 could apply to interpretation of the
24 groundwater flow system at the site,
25 they could apply to appropriate



1 contingencies, they could apply to
2 design issues to a whole myriad of
3 things; do you agree?

4 A. That is correct.

5 Q. Now, in those circumstances none of
6 those details are before the Board
7 because one can't predict in advance
8 what those new conclusions might be, not
9 knowing what the new information might
10 be, it follows one from the other,
11 doesn't it?

12 A. That is true, yes."

13 Mr. Chairman, you may recall that Mr. Garrod had
14 Mr. Feenstra draw on a flip chart some implications of
15 a shadowing theory and that eventually became an
16 exhibit, MR-948, and I am not sure if I could ask as an
17 aside, Mr. Hodgson, if the small version was made
18 available to the Board. It was. You may have that as
19 a looseleaf exhibit, 948, the decision tree arising
20 from the shadow scenario. If you look at that you will
21 see that under that decision tree arising from that
22 problem, Exhibit MR-948, that if you accept the shadow
23 problem hypothesis, then you must use a new design.

24 Now, what did Mr. Feenstra say to Mr.
25 Garrod about whether or not we should or should not



1 reject this hypothesis. At volume 172, page 42915 at
2 lines 10 to 13, Mr. Feenstra said to Mr. Garrod:

3 "...that hypothesis could not be
4 confidently rejected at this time."

5 That is page 42915 and he went on to say at 42916, and
6 to confirm that this is an independent hypothesis from
7 there being fractures in the upper unweathered till or
8 fractures induced by unloading and that is confirmed at
9 42916 to 42917. He confirmed that under this scenario
10 of shadow effect the hydraulic trap would not be the
11 primary design and the primary defence against
12 contamination would be purge wells in his view. That is
13 page 42918 at line 13:

14 "Q. In other words, the hydraulic trap
15 would cease the design and the primary
16 defense would be the purge wells?

17 A. That would be true."

18 And then he goes on to say, Mr. Feenstra goes on to say
19 in that scenario, and this is pages 42919-20:

20 "...the design would have to be re-
21 evaluated to prevent offsite migration
22 of contaminants... There would have to
23 be changes to the design... The
24 hydraulic trap would not be effective in
25 preventing the movement of leachate out



1 of the landfill."

2 And Mr. Garrod at page 42921, line 9 asked the
3 question:

4 "Q. Can we perhaps summarize that by
5 saying present design is insufficient...
6 If we accept that hypothesis?

7 A. Yes, I think I would concur with
8 that.

9 Q. Thank you. How about inadequate?

10 A. I'll accept that."

11 At page 42922 at lines 20 to 25 he confirmed to
12 Mr. Garrod that this scenario is independent of
13 a drought and a drought would only make this scenario
14 worse and he elaborated on that at page 42923 and says
15 at line 3:

16 "What Mr. Garrod and I are discussing
17 now are the long-term declines of the
18 water levels underneath the site, simply
19 due to the presence of the landfill
20 cutting off recharge to the underlying
21 granular units. If the underlying
22 granular units are of limited extent and
23 the groundwater flow patterns and
24 conditions, as might be described,
25 enveloping the granular units are such



1 that you cut off thirty or fifty or
2 seventy per cent of the amount of
3 recharge downwards into the granular
4 units, there will be a decline in the
5 water levels. The actual magnitude of
6 the decline depends on a great many
7 factors which we certainly can't
8 estimate at the present time."

9 He goes on to say at line 22:

10 "I am not sure you will ever be able to
11 confidently conclude that we can reject
12 this hypothesis. In other words, I
13 don't think we could conclude that there
14 would always be sufficient recharge to
15 maintain the hydraulic trap. I am not
16 sure we could ever learn enough about
17 the system to make that conclusion
18 positively."

19 Mr. Chairman, that has to be a body blow to the
20 hydraulic trap concept all by itself. This is the
21 proponent's own experts telling you this.

22 Now, under cross-examination by
23 Mr. McQuaid, Mr. McQuaid put it to Mr. Feenstra that
24 perhaps one could go ahead and landfill at Site D
25 having this affect in mind, having this affect in mind.



1 Mr. Feenstra at that point did seem to indicate some
2 concurrence with that notion but he said at volume 173,
3 page 439 -- 43193, he did say at line 8:

4 "A. I think in practical terms the case
5 is that one probably won't know what the
6 effect is until one builds the landfill.

7 DR. KINGHAM: I am sorry?

8 THE WITNESS: Until one actually ,
9 constructs the landfill and monitors."

10 MR. McQUAID: I don't find that on that
11 page.

12 MR. ESTRIN: 43193.

13 Mr. Chairman, if you do that, it does
14 seem to be inconsistent with what Mr. Feenstra had
15 clearly said before, you shouldn't really reject this
16 hypothesis and at volume 172, 42932 -- 42932 he said,
17 and he was answering a question of Mr. Garrod and at
18 line 2 he said:

19 "Conversely ..."

20 I should take you back to the previous page, 42931, and
21 he says at line 24:

22 "One could accept the hypothesis and
23 commence the landfilling with a
24 different design basically assuming that
25 this hypothesis is true. Conversely one



1 could reject the hypothesis and continue
2 as designed with very careful monitoring
3 of the fluctuatings that are occurring
4 in the underlying granular units, as
5 long as one was comfortable with a
6 contingency to deal with that situation
7 if it does develop.

8 Q. Sort of a design-as-you-go
9 approach?

10 A. You could well, I guess, design it
11 as you go, evaluate and react to your
12 observations and your monitoring."

13 To allow that approach, Mr. Chairman, and that does
14 seem to be the approach Mr. Hodgson is suggesting in
15 his argument re the fracturing issue, it has all the
16 problems raised by Ms. Cronk in her cross-examination
17 of Mr. Feenstra which I just mentioned and it leaves us
18 with a host of unknown impacts that have never been
19 assessed and which have not been discussed in a public
20 hearing.

21 This problem of the shadow effect, as I
22 indicated earlier, can't be dismissed as perfunctorily
23 as Mr. Hodgson wanted you to do in his argument because
24 Mr. Feenstra had said in passing it could be overcome
25 by artificial recharge so let's get on with it. As I



1 said, there is no study of how much water is needed,
2 where it would come from, and the off-site impacts.

3 As Mr. Feenstra himself told Mr. Garrod,
4 the implications of this problem are substantive. The
5 hydraulic trap won't work and a new design is needed
6 and he couldn't recommend rejecting the hypothesis.
7 Surely, Mr. Chairman, the groundwater resources at and
8 around Site D deserve the benefit of the considerable
9 doubt that has been cast upon the viability of the
10 design by these uncertainties raised really by CRA's
11 hypothesis of isolated lenses and the proponent's
12 experts own hypothesis and analysis with respect to the
13 implications thereof.

14 Where such a degree of uncertainty is
15 raised, whether it is because of the shadow effect or
16 whether it is because of the fracturing, a new design
17 is needed simply because we know the proposed one can't
18 work and even if we didn't have the shadow effect and
19 if we didn't have the fracturing potential, we have
20 also heard, and it was admitted by Mr. Hodgson, we
21 can't assume that the hydraulic trap if it worked for
22 other reasons will work for the contaminating lifespan
23 of this landfill. We have to assume that it won't.

24 The whole basis for the hydraulic trap
25 as the conceptual design is gone, no matter what you



1 assume about this site, and the original ranking of the
2 site, the original degree of safety contemplated is not
3 correct. The rationale for Site D as proposed by the
4 proponent is no longer there. Where new designs must
5 be developed and are not available for examination at a
6 hearing, what does this mean? It raises very
7 substantial procedural fairness issues and those who
8 have been represented here for almost 18 months can't
9 question or call evidence about any designs which
10 proponents may eventually put forward and it would lead
11 to non-fulfillment of section 5(3) of the Act in that
12 the Board will not have been given an opportunity of
13 assessing the advantages and disadvantages of the
14 alternative method of carrying out the undertaking and
15 it also means that the Board has no basis for
16 determining whether the undertaking at Site D fulfills
17 the purpose of the Environmental Assessment Act.

18 In all of these circumstances the Board
19 cannot or at least, in my respectful submission, must
20 not approve an undertaking at Site D.

21 I suppose parenthetically I could note
22 that an alternative from withholding any decision on
23 the approval of the Site D undertaking would be to
24 allow the proponent the opportunity to go out and do
25 the conceptual design, assess its impacts, assess where



1 Site D stands vis-a-vis the other till plain sites,
2 bring that information back here and let's have a
3 hearing on those matters. But, in the absence of that,
4 it is my respectful submission that there is no
5 alternative and that is that Site D can't go forward,
6 it fails the test of the Environmental Assessment Act
7 on process and it has serious and fundamental problems
8 under the Environmental Protection Act from a
9 procedural fairness point of view.

10 DR. KINGHAM: Just so we can be clear
11 on that point, you are suggesting, are you, that we
12 should have a new hearing for all sites in Halton based
13 on a new set of criteria?

14 MR. ESTRIN: Not at all.

15 DR. KINGHAM: That sounds like what you
16 have been suggesting since yesterday afternoon and this
17 morning.

18 MR. ESTRIN: No, no, and thanks for the
19 opportunity of clarifying that. I think we could
20 simply go back to the stage, to the Stage 2C level
21 possibly, and take the information we have about the
22 hydrogeology and see how the attenuating capacity
23 issues, the major factors under hydrogeology would now
24 fit and at that stage determine whether or not -- how
25 Site D fits vis-a-vis the other till plain sites.



1 DR. KINGHAM: Is that not a new
2 hearing?

3 MR. ESTRIN: It is not a new hearing.
4 If the proponents choose, they could ask for an
5 adjournment of this hearing until they do that and we
6 could continue.

7 DR. KINGHAM: Is that your submission?

8 MR. ESTRIN: I am saying -- no, I don't
9 want to be here any longer.

10 DR. KINGHAM: I just want to know what
11 your submission is, Mr. Estrin.

12 MR. ESTRIN: I think in fairness my
13 analysis is that that is conceptually possible and
14 under all the circumstances I don't think it is the
15 appropriate way, but as I say that was a parenthetical
16 note about the jurisdiction of the Board and a possible
17 outcome.

18 However, after 18 months -- it is not as
19 if Site D is the only site on the table, because in my
20 view, we have an approveable site under the EPA and
21 under the Environmental Assessment Act and I think the
22 misranking of Site D doesn't in any way impinge upon
23 the environmental assessment process as regards Site F.

24 DR. KINGHAM: Are you not arguing by
25 implication, and would you not have us believe by



1 implication, that you should re-evaluate every other
2 site A to E inclusive vis-a-vis Site F, or are you
3 suggesting to us, or would you have us believe that all
4 sites A to E inclusive should be disregarded vis-a-vis
5 Site F?

6 MR. ESTRIN: I am not saying that. I
7 am saying that Site F, the way it was arrived at in the
8 environmental assessment process certainly was compared
9 to till plain sites, but I don't think particularly it
10 matters where Site F in the final analysis stands vis-
11 a-vis whatever is the highest ranked till plain site.
12 It has its own attributes and it can withstand and stay
13 in the process notwithstanding.

14 I am clearly not saying that we have to
15 go back and start again entirely. We could give Site D
16 the proper ranking and see where it falls out or
17 whether it does fall out in the 2C and forward process
18 and if only -- if that means some other site like Site
19 E or something or Site A emerges that may be, or maybe
20 all of those sites fall out, I just don't know, but the
21 point is that Site F -- we can still compare Site F to
22 those other sites.

23 Mr. Chairman, you know I want to be
24 clear. As I say, the implications are not that both
25 sites have to fail. I think that when the process is



1 carefully analyzed, F can stay there and have its own
2 particular attributes and there has always been some
3 distinction about Site F.

4 Now, just before I close my arguments on
5 this process issue, there are a couple of references I
6 wanted to make and one was to some brief comments of
7 the Joint Board in the Ontario Hydro Southwestern case
8 which decision was eventually quashed by the Divisional
9 Court, but it had nothing to do with this particular
10 reference about the environmental assessment process,
11 and I just want to turn, and I have only given you one
12 page, but I would go to page 270 under the heading of
13 "Environmental Assessment Process" and the Board notes
14 in that case the Ministry was represented and they
15 heard from a senior environmental planner with the
16 Environmental Approvals Branch of the Ministry of the
17 Environment who was instrumental in the preparation of
18 the general guidelines for the preparation of
19 environmental assessments as they existed at that time
20 and the Board notes:

21 "In his evidence, Mr. Young reviewed the
22 guidelines and described the procedures
23 which are followed by his branch. His
24 evidence highlighted the fundamental
25 philosophy of the Environmental



1 Assessment Act, as interpreted by his
2 branch. In his view, the legislation is
3 designed to promote an involvement of a
4 wide variety of interests at an early
5 stage of planning and development of an
6 undertaking for the wise management of
7 the environment. All information
8 relevant to the undertaking and its
9 alternatives must be gathered and
10 analyzed at a time in the process when
11 options are still open to the
12 proponent."

13 Let me stop right there. Those options are still open
14 to the proponent and they still have a site that
15 remains proposed and ranked first and viable, and they
16 also have the option of deferring this hearing if that
17 is their request.

18 The Board goes on:

19 "In preparing an environmental
20 assessment, guidance is given to the
21 proponent by the provisions set out in
22 s. 5(3) of the Act. A detailed review
23 of this section and the position taken
24 by the approvals branch of the ministry
25 are set out in the guidelines.



1 Mr. Young described his view of the
2 assessment process as multi-directional
3 in nature, requiring constant feedback,
4 review and re-evaluation at each step
5 along the way. Conclusions which have
6 been reached, or positions taken, may
7 have to be altered and repeated many
8 times as new information is obtained."

9 They go on to give an example about altering the
10 statement of the purpose which may or may not be
11 directly applicable to the scenario we find ourselves
12 in here, but in the context of that example, the Board
13 says:

14 "For example, a statement of the purpose
15 of the undertaking may have to be
16 changed or modified several times as the
17 examination and analysis of the
18 undertaking proceeds through the steps
19 of evaluation of the alternatives,
20 identification of the effects on the
21 environment, mitigation measures which
22 are available, preparation of a
23 statement of the advantages and
24 disadvantages of the undertaking and its
25 alternatives, and the determination of



1 the rationale for the undertaking, its
2 alternatives and alternative methods of
3 carrying out the undertaking.

4 Each step of the assessment process
5 must be considered in terms of the full
6 scope of the environment as it is
7 broadly defined, but the level of detail
8 of the analysis may vary according to
9 the information obtained or the nature
10 of the alternative and what is
11 reasonable under the circumstance. In
12 the end, the environmental assessment
13 must be satisfactory to enable a
14 decision to be made as to whether or not
15 approval should be given to proceed with
16 the undertaking, and whether terms or
17 conditions should be imposed."

18 I don't think what the Board has said here or that Mr.
19 Young's evidence is summarized as is any different from
20 what this Board was told by Mr. Clarke, but I bring it
21 to your attention because Mr. Young as described by
22 this decision ...

23 MR. LEDERER: Just a moment. With
24 respect, I was reading these paragraphs and trying to
25 figure out who was talking, whose comments Mr. Estrin



1 is in fact quoting. Is he quoting the comments of the
2 Board which is one thing or the comments of Mr. Young?
3 If he is quoting the comments of Mr. Young, all he is
4 doing is bringing or attempting to bring into this
5 Board hearing evidence led at some other hearing,
6 because Mr. Young is still around and he could have
7 been called to give evidence, but the way in which his
8 understanding of the way the Act and these processes
9 may have evolved at the time of this hearing might be
10 quite substantial for all we know, but Mr. Estrin is
11 confirming my suspicion, this isn't the Board, this is
12 Mr. Young's view, and with the greatest of respect, it
13 is inappropriate for him to raise it in this fashion.
14 Mr. Young was available to be called to give evidence
15 and this case occurred five year ago to the best of my
16 recollection and who knows how Mr. Young has changed.

17 MR. ESTRIN: I brought it to your
18 attention because I thought the Board was summarizing
19 Mr. Young's evidence and putting its own views on the
20 record.

21 MR. LANCASTER: Just a moment.
22 Mr. Tidball?

23 MR. TIDBALL: To be fair, I called
24 Mr. Young's evidence and I don't know if it is relevant
25 if he has changed his position or not, and I don't



1 think in fact it was different from what Mr. Clarke
2 said, but to be fair, if Mr. Estrin puts to you an
3 excerpt from the decision he must give you a few more
4 pages and I can't remember what it says, but if you
5 look at the last two lines on the page, the Board
6 summarizes Ontario Hydro's position and I think at the
7 end they say it doesn't make any difference, but if he
8 does put the excerpt he must put the whole thing and
9 even under the topic of the environmental assessment
10 process, he can't just put one page to you.

11 MR. McQUAID: I agree.

12 MR. ESTRIN: I will be happy to file
13 the whole decision.

14 MR. LEDERER: Mr. Tidball's
15 recollection of how the decision continues only
16 confirms my point. I don't want the rest of the
17 decision. Putting in Mr. Young's evidence is simply
18 not appropriate in this format. With great respect, it
19 is not a matter of filing this, but rejecting it
20 because it doesn't belong here in this fashion.

21 MR. ESTRIN: Mr. Lederer must think we
22 are still in the evidentiary stages of this hearing.

23 MR. LEDERER: I am not the one who made
24 that mistake based on my submissions.

25 MR. ESTRIN: In any event, I can either



1 file the whole decision or simply say to you that you
2 can look at it if you like. I don't care which. The
3 point is nothing has changed in the process and nothing
4 seems to have changed what you heard today and it seems
5 to be consistent with what that Board was hearing in
6 1982.

7 MR. LANCASTER: We can look at it
8 ourselves, if necessary, and decide what that Board
9 said at that time.

10 MR. LEDERER: With respect, and I
11 apologize when one arises in the circumstances with a
12 certain amount of hesitation, but in these
13 circumstances and given that we are approaching the end
14 of the day, I am asking the Board for a ruling on this.

15 What Mr. Estrin is doing is improper and
16 I am asking you to make that ruling now so we know
17 whether we have to deal with this in reply or whether
18 it will be a factor in the Board's consideration of
19 this matter.

20 MR. LANCASTER: You mean referring back
21 to this hearing?

22 MS. CRONK: I am sorry, I sometimes fall
23 into the trap of criticizing other people for sotto
24 voce comments, but Mr. Estrin has put a statement to
25 you in a certain way and certain people have objected



1 and then he says fine I withdraw it and ask you to find
2 that what was put to that Board in 1982 is no different
3 from what you are hearing today, and that's no
4 different than judicial notice in another forum. You
5 can look at any cases in the area of the law you think
6 is appropriate, and for Mr. Lederer to suggest in the
7 middle of another counsel's argument that you make a
8 ruling on propriety or impropriety is simply
9 unnecessary, and I am urging you allow the argument to
10 proceed as the matter is dealt with and the case is
11 gone and we can move on.

12 MR. LANCASTER: I think the Board can
13 be referred back to other Board's decisions.

14 MR. LEDERER: Thank you, sir.

15 MR. ESTRIN: I have one more reference
16 to give you, but I don't have copies available, so I
17 will leave it until after lunch.

18 I am now ready to turn to another phase
19 of my argument, and this part of my argument deals with
20 approval criteria under the Environmental Protection
21 Act and the state of the evidence with respect to Site
22 D in respect of appropriate approval criteria.

23 You will recall, Mr. Chairman, the
24 purpose of the EPA is to conserve the natural
25 environment and in thinking about that and thinking



1 about the issue I am dealing with in particular,
2 hydrogeology and Site D in particular, I thought the
3 following quotation might be helpful to have in mind
4 from Dr. Freeze when he gave the 1987 Haiti lectures
5 at Waterloo on groundwater contamination:

6 "We do not inherit groundwater resources
7 from our parents, we borrow them from
8 our children."

9 And lest my friends be worried, I have nothing else to
10 quote, but it seems to me that that is a wholly
11 appropriate observation to have in mind when we are
12 considering these issues and it helps set the stage for
13 answering the question why do we need approval
14 criteria. I have looked in this context at
15 Mr. Tidball's submissions to you, and he of course does
16 address the approval criteria. If you have his blue
17 binder handy I would like to refer to a few parts of
18 it.

19 First of all in making this shift from
20 the EAA to the EPA in my argument, I do agree with
21 Mr. Tidball's submission No. 12 at page 6, that

22 "...approveability under the EAA is at
23 least in part related to approveability
24 under the EPA. That is, if an
25 undertaking is unacceptable and



1 therefore unapproveable under the EPA it
2 should not be given approval to proceed
3 under the EAA."

4 I think that that is right. I also
5 agree with Mr. Tidball's submissions that there are no
6 clear criteria for approvals under the EPA, but I would
7 like to suggest that Mr. Tidball did bring something to
8 your attention which I think could be viewed a bit
9 differently than he put it. He has set out section 38
10 of the Environmental Protection Act on page 7 and you
11 will see he quotes section 38, and this is the -- he
12 says the Director after considering an application for
13 a Certificate of Approval may issue a certificate and
14 then under sub (2), the Director may refuse to issue or
15 renew a certificate or impose alter or evoke terms and
16 conditions in a certificate where, (d), the site does
17 not comply with the Act or the regulations or, (e), he
18 considers on probably ground that the use,
19 establishment, operation of the waste disposal site may
20 create a nuisance, is not in the public interest or may
21 result in a hazard to the health or safety of any
22 person.

23 As Mr. Tidball put it, those are sort of
24 negative criteria, but what they do help us understand
25 is that it is clear that this Board does not have to



1 find a proposed site will beyond doubt create a problem
2 before refusing approval. Indeed all you need do is
3 make a finding that there is a probable basis to
4 believe that the proposal, as the words say, may create
5 a nuisance or may result in a hazard to the health or
6 safety to any person, or you can find that it is not in
7 the public interest.

8 What does "may" mean? Let me give you
9 one reference to may in the context of may which is
10 also a term used in the Water Resource Act and up until
11 June of this year, there was a section that said no one
12 could place material in any place that may impair the
13 quality of water and one court has said that in that
14 context "may" means a possibility.

15 The public interest clause says it can
16 be refused because it is not in the public interest and
17 that is relevant here. To the extent you agree that it
18 is inappropriate to approve an application because
19 there has been no engineering conceptual proposal and
20 therefore no hearing available with respect to the
21 proponent's methods for operating the site safely, on
22 that basis alone it is clear to me, in my submission,
23 that you may reject the proposal under that clause.

24 I agree with paragraph 16 of Mr.
25 Tidball's submission that approval of an application



1 under the Environmental Protection Act should be
2 considered in light of the purpose of the Act which is
3 to provide for the protection and conservation of the
4 natural environment in terms of impacts on the natural
5 environment, and I ask the question, how can we know
6 that approval of Site D will protect and conserve the
7 natural environment if we know that without some
8 engineering design it will definitely contaminate the
9 environment. It will definitely do that and there is
10 no dispute about it and, therefore, in the absence of
11 evidence to tell us how the environment is going to be
12 protected it can't be approved, in my respectful
13 submission. It would be quite contrary to the section.

14 In paragraph 19 of his submission
15 Mr. Tidball sets out three criteria to determine
16 whether impacts on groundwater are acceptable. I think
17 his criterion No. 1 at the bottom of the page, that it
18 should be demonstrated that any predicted leachate
19 migration from the landfill will not impair the
20 reasonable use of groundwater on adjacent property is
21 the most important of those three.

22 I endorse on behalf on the Town of
23 Milton that criterion if, if it assumes that a
24 proponent must demonstrate, (a), a degree of
25 predictability commensurate with the risks of



1 impairment on an off-site groundwater resource and,
2 (b), that there is a conceptual engineering design
3 presented which demonstrates how that impairment can be
4 prevented.

5 Let me go over that again. I say it
6 should be read into and inherent in his No. 1 criterion
7 that the degree of predictability must be commensurate
8 with the risk of impairment of an off-site groundwater
9 resource and also that it must be inherent that there
10 is a conceptual engineering design presented which
11 demonstrates how that impairment can be prevented.

12 If those two concepts are read into his
13 criterion No. 1, I think it is an appropriate
14 criterion, and indeed I think that those concepts must
15 be inherent in his criterion No. 1 because after that
16 he leaps to monitoring and contingencies.

17 Mr. Chairman, Mr. Crutcher agreed in
18 evidence with the notion of a degree of predictability
19 commensurate with the risk. You will find that at
20 volume 131, page 31776. With those understandings of
21 what should be read into the approval criteria, I can
22 agree with Mr. Tidball's paragraph No. 20, that a
23 certain degree of predictability is inherent in all
24 three suggested criteria, but predictability in and of
25 itself should not be a separate and distinct criterion.



1 As I say, it is interesting that
2 Mr. Tidball's criteria does not mention engineering
3 design. As I say, I hope and I suggest that it is
4 implicit in No. 1, his criterion No. 1, that a design
5 will be part of the demonstration that he speaks of how
6 leachate migration will not impair off-site reasonable
7 use.

8 Yesterday I set out two criteria of my
9 own for approval under the Environmental Protection Act
10 and the first was that the proponent should demonstrate
11 a high level of certainty exists with respect to
12 geology and hydrogeology of the site and its
13 relationship to surrounding lands and groundwater. In
14 reflection I don't think that that is much different
15 than Mr. Tidball's criterion No. 1.

16 The second criterion I put forward
17 yesterday was that the proponent demonstrate a degree
18 of understanding of the geology and hydrogeology
19 sufficient to allow the Board to consider and evaluate
20 and conclude at the hearing that the conceptual site
21 design will protect off-site resources for the
22 contaminating lifespan of the facility and without
23 resort to various contingency measures or monitoring.

24 This second criterion that I articulated
25 yesterday would have the following benefits; (a), it



1 would ensure there was conceptual engineering design
2 for handling leachate evaluated and presented at the
3 hearing and, (b), the conceptual engineering design
4 would be shown to be able to work for the contaminating
5 lifespan or at least replace during the contaminating
6 lifespan and, (c), it would help the Board and the
7 Director understand what are contingency measures and
8 they don't somehow become fuzzy and enmeshed with the
9 design and help articulate that these are different
10 from the engineering concepts so that these contingency
11 measures can be evaluated at the hearing in the context
12 of the design. So, provided that the conceptual
13 engineering design has been shown to achieve these
14 objectives at the hearing, these objectives meaning the
15 ones I have just referred to, I would also endorse his
16 second and third criteria.

17 In summary on this point I can agree
18 with all of Mr. Tidball's three criteria, if No. 1 were
19 amended in the following way. After the words "it
20 should be demonstrated" you should add the words "by
21 the proponent both through hydrogeological and
22 conceptual engineering design evidence presented at the
23 hearing" and then go on, "that any predicted leachate
24 migration from the landfill will not impair the
25 reasonable use of groundwater on adjacent property" and



1 I would add "for the contaminating lifespan of the
2 landfill."

3 With those modifications to his
4 criterion No. 1, or that articulation of what I hope
5 was implicit in No. 1, I think that that is an
6 appropriate criterion.

7 Now, Mr. Chairman, I want at this point
8 to go over CRA's evidence with respect to approval
9 criteria because, as you will remember, they came to
10 this Board and it was with a substantive part of their
11 written report on both sites dedicated to telling you
12 in their view what was acceptable landfill site. Both
13 in B-617 and 618, part A dealt with this issue and in
14 chief Mr. Crutcher spent a fair amount of his time
15 elaborating. So, if it is handy you may want to get
16 out B-617 -- for some reason I have reference to B-618
17 but I don't think it makes any difference because I
18 think part A is the same in both reports, but the page
19 numbers have changed. So if you take out B-618 that
20 might be best.

21 Before I get to the specifics of it, I am
22 going to say that it seems to me that it is agreed by
23 all those experts who testified on this subject that
24 there will off-site negative impacts from landfill at
25 Site D, unless appropriate measures, engineering



1 measures are taken, and there is no doubt about it and
2 there is no disagreement about it.

3 It is, therefore, critical that the
4 evidence before you indicate that the criteria for
5 approveability, whether they are Mr. Tidball's criteria
6 as modified as I suggest or CRA's which are met, it is
7 critical that the evidence demonstrate that these
8 approveability criteria can be met and, in my
9 submission, you can easily find whether you are talking
10 Mr. Tidball's criteria, you are talking CRA's criteria
11 at Site D, it is very easy to conclude that they are
12 not going to be met; whereas if you look at Site F, CRA
13 and all other experts who have testified are clear,
14 that there is no reasonable use of groundwater on the
15 adjacent property that can be impaired by groundwater
16 migration.

17 Now, if we could first look in B-618 at
18 page 3, and even though I am reading from 618 it is the
19 same in B-617. At page 3 they set out, or CRA sets out
20 its definition of hydrogeologic suitability for
21 landfill and they say that five items must be
22 addressed, they must be addressed in order to conduct an
23 assessment of the hydrogeologic suitability and No. 1
24 is the hydrogeologic setting; No. 2, the level of
25 engineering necessary to provide necessary primary



1 protection.

2 Let's stop right there. Where is that?
3 We don't have that with respect to Site D,
4 Mr. Chairman. We don't know what engineering is
5 necessary to provide effective primary protection at
6 Site D. They talk about being able to protect boundary
7 impacts for the landfill design option considered.
8 Again, that condition is not fulfilled because we don't
9 have a landfill design and 4 and 5 only come in after
10 you have got 2 and 3, it seems to me. So, if I could
11 ask you to turn the page, and my supposition is
12 confirmed by CRA where they say at the bottom of page
13 3:

14 "The hydrogeologic setting is defined
15 initially as this provides upon which to
16 develop the required engineering design.
17 The final three of the above points are
18 addressed following the definition of
19 the hydrogeologic system and the
20 conceptual engineering design."

21 That just seems logical. We don't have No. 2 and we
22 don't have the rest.

23 Then if we look at page 4 of this
24 exhibit they go on to say if you have done an
25 assessment, "...a hydrogeologically acceptable landfill



1 site must meet the following minimum criteria:" and the
2 first of which is:

3 "Migration of contaminants from the
4 landfill must be predictable and the
5 impact from this migration must be
6 determined..."

7 et cetera.

8 It is my submission that we don't have
9 that predictability at Site D except in one sense. We
10 do know it is certain that there will be off-site
11 migration of contaminants from this landfill, or
12 impairment of reasonable use of the groundwater
13 resource in any event unless engineering is applied.

14 Before we analyze how that criterion of
15 predictability is or is not met at Site D, I want to
16 take you further into CRA's criteria and go to page 5
17 under the heading of "Hydrogeologic Setting" and if you
18 will bear with me, I want to read the first paragraph:

19 "It is accepted practice to site
20 landfills in a hydrogeologic setting
21 which minimizes the risk to public
22 health and safety. Such sites are
23 typically characterized by low permeable
24 materials with a significant capacity to
25 attenuate migrating leachate. Emphasis



1 is placed on a high degree of protection
2 provided by the natural environment
3 because of concerns regarding the
4 reliability and longterm performance of
5 an engineered landfill system."

6 Well, Site D if you accept the Region's evidence and
7 their argument doesn't have natural protection. You
8 must go to an engineered landfill whereas I think it is
9 clear that at Site F not only do we have predictions of
10 natural protection with some things like a perimeter
11 drain and a toe drain, but we have field evidence of 20
12 or 30 years, experience that we have a natural
13 environment that deals with the deep groundwater such
14 that it gets there at all.

15 At page 6, if I could ask you to turn
16 the page, they say in the middle of the page where they
17 are talking about hydrogeological investigations and
18 they say:

19 "It is therefore the basis of any
20 hydrogeologic investigation aimed at
21 assessing the suitability for
22 landfilling to establish the geologic
23 sequence of the site..."

24 And they go on to say:

25 "Such investigations require drilling...



1 the installation of observation wells,
2 and the conducting of various
3 hydrogeologic tests, in both the field
4 and laboratory, to quantify those
5 hydrogeologic parameters that govern the
6 rate and direction of groundwater flow
7 in each of the geological strata
8 identified."

9 What I am going to be saying to you, Mr. Chairman,
10 subsequently is that when we look at the evidence about
11 Site D, we don't know the rate of flow at Site D, we
12 don't know the direction of groundwater flow at Site D;
13 whereas at Site F, using Mr. Crutcher's own criteria of
14 relative predictability, we know those things on a
15 relatively sufficient scale, but at Site D we have not
16 been able to quantify and it becomes much more
17 critical.

18 As they say on page 7:

19 "From an understanding of the flow
20 system it is then possible to define the
21 pathways along which leachate generated
22 at the site may potentially migrate
23 offsite. Having defined the contaminant
24 pathways, the travel time taken for
25 contaminants to migrate in the



1 groundwater environment to a discharge
2 point or to the site boundary is
3 undertaken."

4 And what I will be submitting to you is, that we have
5 not defined the pathways that may potentially migrate
6 off-site at Site D and we don't know exactly the
7 environment or the discharge points that will be
8 affected.

9 Now, Mr. Crutcher elaborated on some of
10 this in his evidence and in volume 105 at page 25235 at
11 line 5 he says:

12 "...you must be able to predict what is
13 going on at the site and be able to
14 monitor it and you must be able to
15 implement a contingency plan. If in
16 fact you cannot do that, then you cannot
17 state that the site is acceptable."

18 He went on at pages 25239-40 and at the bottom of page
19 25239 at line 22:

20 "Of utmost importance in determining the
21 hydrogeologically (sic) setting is the
22 groundwater flow system and from that
23 definition of the groundwater flow
24 system we can then determine the route
25 that contaminants may migrate and from



1 that we would develop what I refer to as
2 our impact assessment."

3 At page 25244 over to 25245 he says:

4 "It is necessary for an impact
5 assessment to be able to estimate the
6 estimated time of travel and the
7 anticipated peak concentrations of
8 leachate that may migrate in the
9 groundwater. You must be able to
10 predict that, where it discharges, to
11 the surface water, and what
12 concentrations would reach the site
13 boundary and/or to the receptor of the
14 groundwater. An example would be a
15 well."

16 In another volume he says, volume 131, page 31771 he
17 says:

18 "Migration of contaminants from the
19 landfill must be predictable with
20 confidence."

21 At volume 131, page 31775 over to 76, and he is being
22 cross-examined by Ms. Cronk and he agreed with her at
23 the bottom of the page:

24 "Q. So, I suggest to you, sir, that the
25 issue before this Board in terms of



1 criteria for approval for a landfill is
2 whether or not there is sufficient
3 predictability at either Site F or Site
4 D to permit approval, isn't that the
5 issue?

6 "A. One of the issues."

7 Then, at volume 108, page 26014 and following,
8 beginning at the bottom of the page:

9 "...if the direction, concentration and
10 extent of contamination cannot be
11 predicted, a determination of the effect
12 this contamination will have on a
13 neighbouring property cannot be made."

14 He said that in the context of Site F, Mr. Chairman,
15 but it is equally applicable to Site D:

16 "...if the direction, concentration and
17 extent of contamination cannot be
18 predicted, a determination of the effect
19 this contamination will have on a
20 neighbouring property cannot be made."

21 Having set out their criteria for
22 approveability under the EPA, what did Messrs. Petrie
23 and to some extent Crutcher have to say about Site D in
24 terms of these requirements for predictability and
25 certainty? It is my submission that in summary their



1 evidence demonstrates without even considering
2 fracturing of the upper unweathered till or the shadow
3 effect that Site D is not well enough understood to
4 meet their criteria, and I guess we would have to now
5 turn to B-617 because I want to refer to a statement or
6 ask you to refer to one of the pages in there -- I am
7 sorry, B-618, excuse me. B-618 is the Site D report,
8 page 45.

9 What do the authors of this report,
10 Messrs. Petrie and Crutcher, indicate about the upper
11 granular unit and the lower granular unit at Site D in
12 their report? I direct your attention to near the
13 bottom of the page and what they say is that they can't
14 determine the flow direction or the gradient with
15 confidence in the UGU and they say there is
16 insufficient data to determine the flow direction and
17 the gradient in the lower granular unit. That is what
18 they say:

19 "Given the uncertainty regarding the
20 distribution of this Unit and the few
21 piezometers screened within it, CRA
22 considers that a flow direction (to the
23 upper granular unit and gradient) can
24 not be determined with confidence. CRA
25 considers that insufficient data are



1 available to determine a flow direction
2 and horizontal gradient in the Lower
3 Granular Unit."

4 Keep that page open if you would and turn back to page
5 6 in this very same report, and what do they say under
6 their criteria. They say in the middle of the page:

7 "Such investigations require drilling
8 ... to quantify those hydrogeologic
9 parameters that govern the rate and
10 direction of groundwater flow in each of
11 the geologic strata identified."

12 "The rate and direction of groundwater flow." Go back
13 to page 45 and what do they say? They can't tell you
14 what the flow direction is and they can't tell you what
15 the gradient is and, therefore, they can't tell you
16 what the rate is, and they can't tell you about the
17 flow direction and the gradient in the lower granular
18 unit. Right there you either accept their criteria and
19 look at page 45 and then Site D can't be approved.

20 CRA go on to say -- what are they saying
21 on page 45 beyond that? They are saying Trow never
22 established this either. If you look at page 45 in the
23 middle:

24 "Trow calculates a mean eastwards
25 hydraulic gradient in the Upper Granular



1 Unit..."

2 as a certain number:

3 "However, one of the wells shown... is
4 completed in the Lower Granular Unit.
5 Given the uncertainty... of this Unit...
6 CRA considers that flow direction and
7 gradient can not be determined with
8 confidence."

9 In effect they are saying Trow didn't tell you and they
10 don't know and we, CRA can't tell you either.

11 Now, how does this come into play when
12 we got to the Board?

13 DR. KINGHAM: I beg your pardon?

14 MR. ESTRIN: How did this issue get
15 handled in evidence, in viva voce evidence? In
16 evidence Messrs. Petrie and Crutcher, while admitting
17 that they didn't know these essential parameters at
18 Site D, essentially took the view that they could find
19 and say Site D was suitable because they made
20 conservative assumptions about these directions and
21 values.

22 If you look, Mr. Chairman, at volume 110
23 at page 26530, line 24 to 26531 line 12, you will see
24 how they thought they could ignore their own criteria,
25 and this is examination in chief by Mr. McQuaid, and



1 the evidence is and the answer at this point:

2 "A. ...the granular units we are
3 referring to are in the lower till..."

4 Volume 110.

5 DR. KINGHAM: That's not one of the
6 ones we brought down.

7 MR. ESTRIN: Sorry, I am into my next
8 binder and I can rectify that over the lunch hour.

9 DR. KINGHAM: You didn't give us a
10 list.

11 MR. ESTRIN: I can do that over the
12 lunch hour:

13 "The granular unit, the granular units
14 we are referring to are in the lower
15 till, comprise a pathway through which
16 lateral off-site groundwater movement
17 may occur. Again, the hydraulic
18 gradient and direction of the flow in
19 these units are imprecisely defined.
20 However, in fact we have taken quite a
21 conservative approach and under the
22 conservative approach ..."

23 and I hate to use those terms now, especially in an
24 election campaign:

25 "...under the conservative approach we



1 believe the site is both predictable and
2 acceptable. If you can meet the
3 criterion of being conservative then in
4 fact when you get to reality you are
5 most certainly in an acceptable fashion.
6 So, where we have some uncertainty about
7 the granular units we have overcome that
8 by being conservative in dealing with
9 them."

10 That is essentially their tack.

11 My first comment on that, Mr. Chairman,
12 is that for CRA to make assumptions about these
13 critical matters which they say, and in the absence of
14 the data that they say is critical to hydrogeologic
15 suitability, is at the least a clear inconsistency on
16 their part.

17 Secondly, that approach is inconsistent
18 with their refusal to make assumptions about similarly
19 critical units at Site F. I don't intend to discuss F
20 in any significant way, but I will tell you what I
21 mean.

22 DR. KINGHAM: I would like to
23 understand what you are telling us about by an
24 inconsistency, and if you forgive me I am going to use
25 an apples and oranges case. If you say that you have



1 got two apples and three oranges and you are not sure
2 whether you have two or three apples or you have three
3 or four oranges, just to be on the safe side you will
4 have a bushel basket to contain them; is that not
5 consistent with planning for the uncertainty?

6 I am wondering in light of your last
7 statement whether you were taking issue with planning
8 for uncertainty aspects of the evidence. You just
9 explained the uncertainty having to do with groundwater
10 gradients and flow direction and you then quoted to us
11 from the transcript references to addressing that
12 uncertainty by means of design...

13 MR. ESTRIN: Not by design but
14 assumption.

15 DR. KINGHAM: Then you said it was an
16 inconsistent approach.

17 MR. ESTRIN: Based on their own
18 criteria which set out on page 6 say you have to
19 quantify these things. If you go back to page 6 of the
20 exhibit, Dr. Kingham, those were the words I wanted to
21 emphasize on that page, they say the hydrogeological
22 suitability analysis must quantify, quantify, those
23 hydrogeologic parameters that govern the rate and
24 direction of groundwater flow in each of the geologic
25 strata identified.



1 They are saying that you need -- I
2 believe what they are saying there clearly is that you
3 don't make assumptions and you don't even make
4 conservative assumptions, you need to quantify and you
5 do testing -- they are talking about investigations.

6 DR. KINGHAM: You are in essence taking
7 issue with making what we have all referred to as
8 conservative assumptions?

9 MR. ESTRIN: That is correct, and based
10 on their own criteria. I am just going on their
11 criteria, and that is why I say there is a gross
12 inconsistency in their approach. Mr. Chairman, I am
13 not commenting on the notion of whether or not one
14 should be conservative in bringing this out at this
15 point. I am simply directing my remarks and your
16 attention to their own criteria for hydrogeologic
17 suitability.

18 DR. KINGHAM: And we did understand
19 that, but you then followed it up with a direct quote
20 from the transcript and the implication was that the
21 conservative assumptions were not a reasonable response
22 to uncertainty, and I think you have just repeated that
23 to us, that given criteria that demand precision in
24 your opinion, or in your submission, and I must be
25 careful with these words...



1 MR. ESTRIN: Their evidence.

2 DR. KINGHAM: You can't allow any room
3 for conservative assumptions.

4 MR. ESTRIN: CRA said that you quantify
5 and you go out and investigate and make these
6 investigations and you quantify and calculate the
7 impacts. That is what they said on page 6, and on page
8 45 they say we can't do it at Site D and in evidence
9 they say notwithstanding what they said on page 6 of
10 the report, it is okay, we will make conservative
11 assumptions and I am saying having set up their own
12 criteria then they are being inconsistent and that is
13 what my comment is.

14 DR. KINGHAM: You are just making a
15 comment on that matter of consistency and you are not
16 making a statement about the acceptability or
17 applicability of conservative assumptions in an area of
18 some uncertainty?

19 MR. ESTRIN: I have not made that
20 comment at this point, no.

21 DR. KINGHAM: Thank you.

22 MR. ESTRIN: Would this be an
23 appropriate point to take our break?

24 MR. LANCASTER: Yes, I think it would
25 be. I guess 1:45 should be enough time.



1 MR. ESTRIN: I would think so. I did
2 mention to Mr. Hodgson this morning that if it was at
3 all possible, and I have thought about this, but if it
4 was possible for him to make his submissions after the
5 coffee break this afternoon on the conditions, because
6 I don't anticipate -- because I anticipate still
7 finishing tomorrow morning, and if that could be done
8 it would accommodate me so that I could then make some
9 comments on those conditions and those that affect my
10 hydrogeological submissions and I don't know if he can
11 do that, but I would appreciate that.

12 MR. LANCASTER: Are you in a position
13 to do so?

14 MR. HODGSON: I don't know the answer to
15 that because I have been trying to reach the Director
16 of Waste Management since yesterday at this time. I am
17 hoping that Mrs. Henderson has set up a meeting with
18 the Director for the lunch hour and I will find out
19 when I go upstairs. I will know after lunch whether I
20 can be ready, and if I am ready I am more than happy to
21 do it then, if it is the pleasure of the Board to do it
22 then, otherwise I hope I can be ready at least some
23 time tomorrow to make my submissions.

24 MR. LANCASTER: We will leave it up to
25 you to find out. Thank you. Does that give you enough



1 time, a quarter to one -- or rather a quarter to two,
2 or would you prefer two o'clock?

3 MR. HODGSON: A quarter to two would be
4 fine.

5 ---Luncheon Adjournment at 12:35 p.m.

6 ---Upon resuming at 1:45 p.m.

7 MR. LANCASTER: Please be seated.

8 MR. LEDERER: Mr. Chairman, could I
9 just have a moment. Mr. Chairman, you have asked, or I
10 guess you and various of our friends have asked that we
11 deal with the comments the Region has with respect to
12 the conditions which are really the substance of
13 Mr. Tidball's submissions to you as early as possible.

14 As appears to always be the case,
15 neither Mr. Hodgson nor I have the wherewithal to
16 comment on anything without a bit of help, and for this
17 we need the help of Mr. McKay who is with us, the
18 Director of Waste Management for the Region. Before we
19 commit the Region to anything we want to be sure
20 Mr. McKay doesn't think we are doing something
21 terrible. Mr. McKay does need to return to his office
22 and we have asked Mr. Estrin whether we might make
23 these submissions now rather than later this afternoon
24 and since it is agreeable to him, we propose to do that
25 with your agreement.



1 MR. LANCASTER: Fine.

2 FURTHER ARGUMENT BY MR. LEDERER:

3 Sir, I in fact will not be making
4 comments with respect to very many of these. As the
5 Board will recognize, the largest majority of them deal
6 with matters of Site operation and design and I will
7 leave that to my friend Mr. Hodgson.

8 With respect to the conditions you have
9 seen as being suggested under the Environmental
10 Assessment Act, the ones which you find at Tab 1 and
11 Tab 2, I would like to refer the Board to two
12 conditions, first of all, condition 9 with respect to
13 Site D at Tab 1.

14 This condition does not appear as I
15 recall it with respect to Site F and if I could read it
16 to the Board:

17 "Within one year of this approval, the
18 Regional Corporation shall submit an
19 application to the Town of Milton for an
20 Official Plan Amendment to provide for
21 the creation of a Special Policy Area
22 pertaining to the lands surrounding Site
23 D. The Special Policy Area shall be
24 created in accordance with Ministry of
25 the Environment Policy # 07-07."



1 Mr. Chairman and Dr. Kingham, you will recall that that
2 policy is one which would seek to impose more or less
3 but generally a 500-metre boundary or half kilometre
4 boundary around this prospective landfill site. It
5 appears to be Mr. Tidball's view that this is
6 consistent with that policy. The Board may recall when
7 the policy was put to you there was some debate about
8 the circumstances in which it was intended to apply.
9 It was the position of the Region then and it is my
10 submission to you now, that that policy does not have
11 application in these circumstances. It was meant to
12 apply in circumstances where the landfill already
13 exists and is operated and may well be closed.

14 In my respectful submission, the policy
15 was meant to apply to landfills that were put in place
16 in circumstances where the regulation and the stringent
17 kind of operational controls which are presently in
18 place and which will be in place for this site did not
19 exist and in my respectful submission to take that
20 policy now and attempt to apply it in a circumstance
21 for which it was not intended is an effort by the
22 Director, Mr. Tidball's client in this case, to try and
23 further the parameters or coverage, if you like, of a
24 policy prepared by the Ministry.

25 In my respectful submission that is not



1 appropriate. The Ministry and whoever is involved in
2 the preparation and approval of these policies has
3 given the matter that consideration and has found, in
4 my respectful submission on a reasonable interpretation
5 of the document that it was not to apply in these
6 circumstances, and accordingly it is not appropriate
7 that the Director now seek to have that imposed as a
8 condition in these circumstances.

9 Secondly, if I could refer you to
10 condition No. 13, still with the Environmental
11 Assessment Act conditions proposed for Site D:

12 "On or before December 31, 1996, the
13 Regional Corporation shall make all
14 necessary applications for the
15 construction of a gravity sewer or
16 forcemain to connect the site to the
17 Mid-Halton Water Pollution Control Plant
18 or for the installation of leachate
19 treatment facilities at the site."

20 I would remind the Board with respect to that last
21 clause Mr. Tidball indicated it was really put in place
22 to encompass any new technology which may develop and
23 it does not, in his submission, exist now which may in
24 effect make it impossible to treat or pre-treat the
25 leachate at the site prior to its removal from the



1 site.

2 My difficulty is rather with that part
3 of the condition which refers to an application for a
4 gravity sewer to the Mid-Halton Water Pollution Plant.
5 In my respectful submission you should rely on the
6 evidence of Mr. Hiraishi which says that at least at
7 the outset it makes sense to truck this leachate until
8 we can see what the situation is going to be and how in
9 fact the circumstances will develop.

10 In my submission it is significant that
11 the Town of Milton called no evidence with respect to
12 this issue and there is no evidence before you which
13 suggests there is some sort of imperative that this
14 forcemain be put in place at the outset of the
15 operation of the site. It may become necessary, but in
16 my respectful submission it is not possible for you to
17 make that determination now.

18 DR. KINGHAM: Mr. Lederer, our
19 recollection of Mr. Hiraishi's evidence on that was
20 that it makes sense some time around 1996 from an
21 economic perspective, considering the number of
22 truckloads and the break-even point for the
23 construction.

24 MR. LEDERER: I believe that that is
25 correct.



1 DR. KINGHAM: Not from an environmental
2 perspective.

3 MR. LEDERER: I believe that is correct
4 and certainly consistent with the submissions I made
5 earlier regarding economic considerations. You will
6 recall Mr. Stamm used the number of \$1.8 million as the
7 cost of such a system and in fact trucking throughout
8 the life of the site would be more expensive and, of
9 course, to use the range of numbers given in evidence
10 by Mr. Watson and provided originally by
11 Mr. Hiraishi, which was \$2.3 million to \$3 million --
12 and I don't recall the exact number, oh, \$3.8 million
13 -- that would be consistent with the view taken by Mr.
14 Stamm in cross-examination and to which, as I recall,
15 he agreed.

16 The other point arising from this or one
17 of the other points arising from this condition relates
18 also to evidence put to Mr. Stamm with which he agreed
19 and that is the status of the Mid-Halton Water
20 Pollution Control Plant. That plant does not exist at
21 the present time. You will recall that it came up in
22 the cross-examination of Mr. Stamm with respect to the
23 reliance on the development in Oakville which he
24 predicts upon that plant. You will recall the Phase I
25 lands in Oakville, which are presently under



1 development, are designed to receive service from this
2 plant and they are presently borrowing the capacity of
3 an existing plant.

4 The Phase 2 lands in Oakville are
5 designed to rely on Phase 2 -- sorry, the second module
6 of the Mid-Halton Water Pollution Plant, and so as
7 matters now stand neither module has been built, in
8 fact neither module has yet been approved. This isn't
9 before the Board but if my friends don't object I will
10 tell you it will shortly come before Council and there
11 is an issue as to whether or not tendering will go out
12 or not, but the matter is now under discussion.

13 As the matter is before the Board,
14 however, there is no confirmation the plant will ever
15 be built and in those circumstances to make it
16 imperative and an absolute mandatory condition that
17 this application be made, is in my respectful
18 submission, at best premature.

19 Beyond that you will recall the evidence
20 of Dr. Willis and Dr. Norman from Pollutech which
21 indicated a concern as to whether this plant would even
22 be suitable for the treatment of the leachate, and I am
23 informed that the issue is not so much one of quantity
24 but whether or not the plant will be set up in a
25 fashion that could deal with this material.



1 In my respectful submission to make this
2 a mandatory condition is simply premature in the
3 circumstances. There will be and there are only really
4 three possible solutions to this issue, either we truck
5 it, we build a forcemain or do some kind of pre-
6 treatment, and at some point, in my respectful
7 submission, it must be accepted that the Region of
8 Halton is a public agency and a responsible public
9 agency that will carry out its responsibilities in a
10 responsible fashion, and to the extent it doesn't, the
11 sanctions are there and can be taken by the Director.

12 To ask for this now in the absence of
13 evidence demonstrating its need in circumstances where
14 there is a real question as to whether the service can
15 be supplied by the plant in question is, in my
16 respectful submission, inappropriate.

17 Finally, Mr. Chairman, if I could turn
18 you to the Environmental Protection Act conditions
19 brought forward by Mr. Tidball with respect to Site D
20 and turn you to 8, 9, 10 and 11. It is 8, 9, 10 and
21 11.

22 DR. KINGHAM: All the conditions,
23 general operations and public containers, or 8.8,
24 8.9...

25 MR. LEDERER: 8.9, 8.10 and 8.11 on



1 page 12 under Tab 3. I am not that comprehensive ...

2 DR. KINGHAM: When you say 8, 9, 10 and
3 11 we didn't know what 8, 9, 10 and 11 you were talking
4 about.

5 MR. LEDERER: That's another version of
6 the problem Mr. McQuaid pointed out. 8.9:

7 "The working face of the site shall be
8 overwired for bird control purposes.

9 8.10: Surface ponding of water shall be
10 minimized and permanent surface water
11 catchment areas shall be overwired for
12 bird control purposes.

13 8.11: Grass on finished or temporarily
14 stabilized areas shall be maintained at
15 a minimum height of 12 centimetres to
16 discourage bird loafing."

17 I want to draw your attention particularly to 8.9 and
18 8.10, the requirement for overwiring. With the
19 greatest of respect, it is not clear from the wording
20 of the condition what it is that is being asked for
21 here.

22 In my submission, you have two examples
23 of overwiring that might be the subject matter of such
24 a condition and the first is the kind of moveable cage
25 which Miss Hellas told you has been used in England and



1 which was, as I recall, referred to in the cross-
2 examination of Dr. Richardson and there is such a
3 drawing of such a cage.

4 The second is not a cage but the
5 placement of monofilament wiring over the face of the
6 waste in order to retard the ability of birds to feed
7 on the refuse.

8 In my respectful submission the evidence
9 with respect to the latter comes again to the best of
10 my recollection from two places, first of all,
11 Dr. Richardson has been carrying out some experiments
12 with respect to monofilament wiring in New York and
13 that was discussed with him and, secondly, you have
14 before you as an exhibit the work of Mr. Rizley in
15 Trenton and I can't recall, but it may be that Mr.
16 Rizley within that report refers to that as a proposed
17 kind of mitigation for that facility although it was
18 not used there.

19 With respect, it is simply premature to
20 now predict the nature of the problem and, more
21 specifically to start indicating what concrete
22 mitigation efforts should be put in place. We simply
23 don't know what it is that will be appropriate, nor can
24 we know, having regard to the nature of the evidence
25 and, frankly, the nature of the issue raised by that



1 evidence.

2 There are known and established means of
3 mitigating bird control and there are standards which
4 surely can be applied and which Miss Hellas has
5 referred to as birds don't like to loaf on grass of a
6 certain length and therefore to grow the grass as has
7 been suggested elsewhere to 12 centimetres is not
8 something anyone could object to. It is not difficult
9 to obtain and occasionally let off a machine, a so-
10 called pyrotechnic noise, and all of these things are
11 standard, but to go to something which is essentially
12 experimental and not standardized in circumstances
13 where the definition of the problem is not yet before
14 us, and the validity and availability of that procedure
15 is equally unknown, it seems to me, and it is my
16 submission to you, is premature.

17 In my submission by all means the kinds
18 of standard programs suggested by Miss Hellas at page
19 115 and 116 of Exhibit H-17 are appropriate simply
20 because they are standards, but experiments or to move
21 experiments into something standardized at this stage,
22 in my submission, is premature. Certainly if it is
23 necessary it can be ordered again by the Director who
24 has the ability to amend the Certificate of Approval,
25 but again in my submission, there must surely be a



1 point where it is accepted that a municipal government
2 such as the Region of Halton will act in a responsible
3 fashion and in my respectful submission there is
4 nothing here to suggest to the contrary, and that
5 should be the first prima facie view taken of any
6 public agency.

7 Thank you, sir.

8 DR. KINGHAM: Before you relinquish the
9 podium to Mr. Hodgson, I would like your views on the
10 Environmental Assessment Act conditions in combination
11 1, 2 and 14 under Tab 1 which would correspond to 1, 2
12 and 12 under Tab 2. That is to say the programs
13 promoting reuse and reduction and separation and
14 compliance with energy from waste and the obligation to
15 make known not only to officials but to the general
16 public by notice or other means the measures being
17 taken by the Region in regard to its responsibilities
18 and, if necessary, its responsibilities in co-operation
19 with municipalities for waste reduction, recycling or
20 other means than landfill.

21 MR. LEDERER: When you asked me for my
22 comments ...

23 DR. KINGHAM: Your submission.

24 MR. LEDERER: My submission is the
25 Region has no reason to and does not object to the



1 conditions, but I point out the obvious. With respect
2 to 1 and 2, the condition is to make all reasonable
3 efforts and as a responsible public agency we would, I
4 suspect, be doing that without it being imposed as a
5 condition by this Board, but to the extent it gives
6 comfort there is no objection to that and it may well
7 be appropriate.

8 With respect to 12, the reporting
9 function, and without dealing with it in the terms of
10 it being moved to the public as you suggested to
11 Mr. Tidball and as he agreed in his submissions, that
12 form of annual reporting to the Ministry is customary
13 as far as I am aware with respect to most if not all
14 landfills.

15 DR. KINGHAM: The context in which I
16 put the question goes back to the original draft
17 conditions and I think you know what I am getting at
18 and that is the extent to which the Region has
19 considered and would be amenable to more strict
20 suggestions or conditions with regard to recycling.

21 MR. LEDERER: Oh, oh, oh.

22 DR. KINGHAM: Or reduction.

23 MR. LEDERER: On behalf of the Region
24 it would be inappropriate for you to do that and I say
25 so for two reasons. First of all, the reason which has



1 been put to you already in the course of other
2 submissions, the Region can't control that ultimately
3 and it is not a matter which is part of its
4 jurisdiction but a jurisdiction that falls to the area
5 municipalities and their's is the jurisdiction to
6 collect.

7 To the extent of separation and
8 recycling, since it begins with collection, it is not
9 something which is strictly within the Region's control
10 and it would be inappropriate for you to impose that on
11 the Region, but, in my submission, there is a
12 considerably more fundamental reason. This is, as has
13 been said so many times, a planning process and the
14 Environmental Assessment Act is a planning Act. What
15 we are attempting to do is plan reasonably. If when
16 you plan you know that the terms which you are -- if in
17 planning you know the terms or conditions you are
18 planning to are going to be imposed upon you, in my
19 submission you will plan very differently. You will no
20 longer look at what is possible and look to extend, if
21 I can quote an expression from The Right Stuff, but to
22 extend the envelope, to move the matter out as far as
23 is reasonably possible. You will plan to what you know
24 you can do, so you don't get yourself into trouble.

25 What you would be asking for is a



1 considerably more conservative approach to this kind of
2 process. We are planning and we think reasonably we
3 can do what has been suggested here, but we might not
4 be able to and we may do better. To impose it as a
5 condition really, in my respectful submission, will
6 change radically what it is that is brought before this
7 Board and what it is you will in fact be asking for,
8 and in my respectful submission, in a planning process
9 that kind of stricture would be inappropriate. In fact
10 it would really retard our efforts to move more and
11 more into these new kinds of better and hopefully more
12 efficient and useful technologies.

13 DR. KINGHAM: We have heard lots of
14 evidence about the dilemma that obviously exists, the
15 dilemma that exists for the Region of Halton vis-a-vis
16 the municipalities with regard to who has
17 responsibility for what in waste collection and
18 disposal. I think what you are telling us is that you
19 don't have submissions as to how working together the
20 municipalities and the Region can reduce the volumes of
21 waste that the Region ultimately has to dispose of. I
22 hope the dilemma is obvious, namely, you provide the
23 landfill site without having a lever on the generation
24 of waste, it has been suggested by a number of
25 witnesses that that might be seen as a kind of carte



1 blanche to produce waste until the site is full and I
2 think you are telling us you have no innovative
3 solutions to change that mentality or your client
4 doesn't, as it applies directly to these conditions.

5 MR. LEDERER: Lots of innovative ideas
6 no doubt but the question is the jurisdiction of this
7 Board to impose them in circumstances where you would
8 be imposing them on a party that doesn't have the
9 direct responsibility. I am sorry to fall back to
10 this, but in my respectful submission it is a matter of
11 some considerable importance.

12 You have before you three
13 municipalities, the Town of Milton, the City of
14 Burlington and the Region of Halton and that is three
15 of the five municipalities who, in some fashion, share
16 the responsibility for providing in totality this
17 necessary municipal service. The presence of these
18 three municipalities who have been, and I don't want to
19 in any way downgrade the participation of anyone else
20 here, but they have been three of the major players, if
21 I can put it that way without suggesting there aren't
22 other major players, in the proceeding before you.

23 In my respectful submission there can't
24 have been a better demonstration to you of the
25 sensitivity that these municipalities feel with respect



1 to their responsibilities to their various constituents
2 in this area.

3 In my respectful submission what you
4 should take away from this as a result of that is the
5 continuing efforts of all of these municipalities to
6 work to find a reasonable, appropriate and proper
7 solution. I daresay, sir, that that will encompass and
8 should encompass the kind of agreement which is already
9 in place and which allows us to indicate to you that a
10 new recycling facility is now being built which will
11 increase upon the capacity of the present facility and
12 you should also, in my respectful submission, find some
13 encouragement in all of this by knowing that the
14 present facility is now operating to capacity.

15 I don't think there is more than I can
16 say than that. These are public agencies and at some
17 level until they demonstrate otherwise, they deserve
18 the respect and trust of this Board and frankly of
19 their electorate. I keep getting these messages and I
20 have no idea what they mean.

21 DR. KINGHAM: We will give you a few
22 moments to read the messages and then we will see if
23 you have anything to add.

24 MR. LEDERER: I think I have got it,
25 but I am trying to shuffle the cards now. My friend



1 Mr. Hodgson and Mr. McKay have raised three points
2 which I would now refer to the Board.

3 First of all, with respect to our
4 ability to control the percentages and have more
5 stringent conditions, one of the things you will have
6 to address is the difficulty that the Region would have
7 in monitoring or quantifying the amount of recyclable
8 waste from private industries, and presumably from
9 residences. There is some ability to understand the
10 general more typical nature of the split of recyclable
11 and non-recyclable material, but with respect to
12 individual industries it becomes a mammoth task, first
13 of all to determine what the starting point is or what
14 the starting assumption is with respect to each
15 industry and then after that is the whole matter of
16 enforcement as the processes and products of those
17 industries change. It is a very substantial problem
18 and therefore it creates a problem for the Region in
19 even knowing if it is meeting the standard suggested in
20 that original draft.

21 If you say 15.9 per cent of waste will
22 be recycled, you have to know surely how much of it is
23 recyclable before you even start and it is very
24 difficult ultimately to find that out in any kind of
25 exact way which would be imposed by the condition that



1 is suggested.

2 With respect to putting faith, if that
3 is what I have been saying, in the Region to do this in
4 the best way possible, there is an obvious incentive to
5 the Region in my respectful submission and frankly to
6 its area municipalities, to see that these things
7 happen. It must be self-evident to this Board now what
8 a controversy the attempt to find a new landfill in
9 this community has been. We have had 10 to 15 years of
10 efforts to locate it and we have now had a year and a
11 half long hearing where the substantial -- a
12 substantial or the largest majority of the evidence has
13 been produced by the municipalities, government
14 fighting itself, if you like. It must be clear there
15 is an incentive for them to avoid this problem and of
16 course that incentive translates itself into efforts to
17 recycle and remove this waste from the waste stream.

18 There is a serious commitment in this
19 community to go to energy from waste and it has been
20 the subject matter of several resolutions and, as I
21 understand it, certainly in the Region and in some if
22 not all, and I confess to not being clear on it, but in
23 the area municipalities and the incentive is there and
24 is inherent in the system and inherent in the nature of
25 the problem and problems we have been putting before



1 you and which this Board will now have to deal with as
2 we come to the end of this very protracted proceeding.

3 DR. KINGHAM: On that point it is
4 implicit in what you say that you are advising we
5 should give no weight to the evidence we have heard
6 that once the decision is made if approval is given for
7 a landfill, that that will take the pressure off the
8 incentives and that evidence should be given no weight.

9 MR. LEDERER: Absolutely. By planning
10 in the way we have we have really, and this was the
11 subject matter of Mr. Watson's evidence. You will
12 recall Mr. Watson and Mr. McNaughton took the opposite
13 view of all of this, but Mr. McQuaid put to Mr. Watson
14 in cross-examination Mr. Watson you are an economist
15 and as an economist you are always conservative and you
16 must always have more money set aside, and isn't it the
17 same here, and shouldn't you always have more landfill
18 capacity set aside, and Mr. Watson disagreed and said
19 you must steer a careful middle course because you are
20 not dealing with money, you are dealing with a larger
21 more complex, if you like, problem.

22 The middle line you have to steer is
23 between having enough landfill capacity to make the
24 thing reasonable and appropriate and, presumably in
25 Mr. Watson's terms economically feasible, and on the



1 other hand, not to make it so easy that you forget
2 about all your other responsibilities and that is
3 inherent in the proposition that we have energy from
4 waste within eight years, and we have recycling at 15.9
5 per cent rather than the 12 per cent suggested by
6 Mr. Mereu and it is implicit in our planning that that
7 planning will continue and is there and should be
8 relied on.

9 In my submission you can also take some
10 comfort in what I say as a result of the example which
11 are already before you as to the Region's efforts to
12 decrease the amount of waste going to landfill and you
13 know there is a by-law now which says that the landfill
14 will not accept cardboard or corrugated paper. It will
15 not accept newspaper and those are efforts to, in
16 effect, force recycling on the community because if you
17 drive up to the landfill with a truckload of newspaper
18 you will be told to turn around and go home.

19 In that sense I guess the Region does
20 have some capacity and some ability and my hope,
21 Dr. Kingham would be, and Mr. Chairman, that you will
22 see in that the real and true motivation of the Region
23 to act on these problems and to attempt to alleviate
24 all of these difficulties. The fact is you have before
25 you, and I apologize as I am obviously going from



1 memory, but I think it is Exhibit 844, a chart put to
2 Mr. Mereu as I recall in cross-examination which
3 demonstrates the success this Region has had in
4 decreasing the amount of waste which has been going to
5 landfill over the last two to three years as I recall.

6 DR. KINGHAM: Let me see if I
7 understand that correctly. You are saying to the
8 extent the Region has a requirement that cardboard be
9 recycled and it can therefore turn away waste at the
10 gate which doesn't conform to that by-law, that the
11 Region could also deny receipt of wastes from a
12 municipality that didn't, for instance, have a
13 mandatory recycling by-law. Would you extend it that
14 far?

15 MR. LEDERER: I would have to think
16 about that.

17 DR. KINGHAM: It is a legal point.

18 MR. LEDERER: A pretty complicated
19 legal problem. To be honest I don't know. The
20 difficulty is, and I don't give these kinds of opinions
21 to clients this quickly.

22 DR. KINGHAM: You will have an
23 opportunity to think about it.

24 MR. LEDERER: At first blush the issue
25 becomes in legal terms at least this one; when a



1 municipality has the power to make by-laws, then that
2 power is restricted in the sense that you cannot use
3 that by-law making power for some purpose other than
4 that for which it was intended, and there is a series
5 of cases in administrative law that make that point and
6 the best known is the case called Padfield Dairies
7 which deals with milk marketing in England in an effort
8 to use that power for milk marketing for a political
9 purpose, and that was not a proper use of the power.

10 Whether what you are suggesting takes us
11 into that netherworld I don't know, I would have to
12 look at the Municipal Act to consider the problem, but
13 your suggestion again in my respectful submission
14 starts from the basic assumption that we had better not
15 trust anybody and I hope that that is not the position
16 you are taking.

17 DR. KINGHAM: That's not the position I
18 am taking, but one likes to be as sure as one can.

19 MR. LEDERER: Absolutely. Thank you,
20 sir.

21 FURTHER ARGUMENT BY MR. HODGSON:

22 Mr. Chairman, I have a submission to
23 make with respect to only one of the conditions under
24 the Environmental Assessment Act and that is condition
25 7 having to do with a proposal from Mr. Tidball, from



1 the Ministry of the Environment, that the Regional
2 Corporation undertake industrial and commercial waste
3 generator surveys.

4 Now, as it happens, that provision under
5 the condition under the Environmental Assessment Act is
6 tied to condition 3.3 under the Environmental
7 Protection Act having to do with the generation and
8 record keeping -- the generation and the keeping of
9 certain kinds of records having to do with waste
10 disposal at any proposed landfill and I propose to deal
11 with these two together in a kind of backward way.

12 If I could take you first of all under
13 Tab 3 of Mr. Tidball's submissions, the Environmental
14 Protection Act conditions or proposed conditions of
15 approval, to page 4, 3.1, you will see there that
16 certain kinds of wastes are wastes that are deemed to
17 be appropriate for the landfill and it is also made
18 clear from the second sentence that "In no case shall
19 any hazardous or liquid industrial waste be deposited
20 at the site."

21 Now, as I understand these conditions of
22 approval, these proposed conditions of approval, what
23 we have in these proposed conditions is, as it were, a
24 legislative scheme to control the deposition of
25 hazardous or liquid industrial wastes in a proposed new



1 regional landfill facility, and that scheme of control
2 has two branches, in my submission.

3 The first branch or the first method of
4 control can be interpreted from these conditions by
5 reading together proposed condition 3.8 and proposed
6 condition 3.5. 3.8 first of all on page 7 has the
7 Regional Corporation employing a properly trained waste
8 inspector "...to exclusively monitor the dumping of all
9 waste at the working face." First of all, that is a
10 condition that the Region has already agreed to in
11 discussions with the Ministry of the Environment and I
12 am not sure that is not something -- that position is
13 currently filled and that activity is currently being
14 monitored at the existing transfer facility.

15 The purpose here is that a waste
16 inspector will stand at the working face and he will
17 inspect every load of waste that is deposited at this
18 site and where he finds or where he suspects that
19 wastes are being inappropriately deposited at the
20 landfill, he is going to have the authority to order
21 the waste to be immediately removed. If he is not sure
22 about the waste, then, under 3.5, he will have
23 available to him a facility, an appropriately designed
24 and built facility where he can have that waste picked
25 up, delivered to the facility, dumped out and where he



1 can conduct a proper inspection under circumstances
2 where the waste can be contained if it turns out that
3 they are inappropriate wastes.

4 Now, in addition to being able to
5 monitor the input of waste to the landfill facility
6 through the use of this waste inspector, there is a
7 second line of defence, as it were, and that is -- and
8 you can't read this from the conditions themselves, but
9 you will recall from the evidence of Mr. Hiraishi that
10 in the operation of a landfill site one of the pieces
11 of equipment that is used and has always used at the
12 regional landfill facility is a compactor. The
13 operator of the compactor has the job of driving back
14 and forth and moving piles of waste over to the working
15 face and running back and forth over them several times
16 to make sure they are reasonably compacted and at the
17 end of the day depositing the daily cover. The
18 compactor operator has a personal interest in keeping
19 his eye on what it is he is driving over. He doesn't
20 drive over barrels because he doesn't know if barrels
21 contain explosive materials because if they do he will
22 be the one who is incinerated. He watches what he is
23 doing.

24 So, in addition to a waste inspector,
25 the operator of the compactor provides, as it were, a



1 second line of defence in terms of monitoring of the
2 waste being deposited in the landfill on an ongoing
3 basis.

4 Now, in addition to those two parts of
5 this legislative scheme as proposed by the Ministry of
6 the Environment for controlling the deposition of
7 liquid industrial and hazardous wastes at any proposed
8 Halton landfill facility, we have also the operation of
9 proposed conditions 3.3, 3.4 and Environmental
10 Assessment Act condition No. 7.

11 Now, in my discussions with Mr. Tidball
12 and Mr. Parsons, I developed the following
13 understanding of what it is that is proposed in this
14 kind of quasi-legislative scheme. Turning first of all
15 to paragraph 7 of the Environmental Assessment Act
16 conditions for Site F under Tab 2 and it doesn't
17 matter, it says:

18 "The Regional Corporation shall
19 undertake industrial and commercial
20 waste generator surveys to identify all
21 potential generators of commercial and
22 non-hazardous solid industrial waste and
23 the disposal method of each type of
24 waste. The information in the survey
25 shall be up-dated as appropriate and at



1 least annually. The information in the
2 surveys shall be made available to the
3 operators of the site on a continuous
4 and interactive basis..."

5 and I don't know what "an interactive basis" is:

6 "...and to the Director of the Central
7 Region of the Ministry of the
8 Environment upon request."

9 First of all, it is to be noted that the Region of
10 Halton does not have the power to require any generator
11 of commercial and non-hazardous solid industrial waste
12 to respond to any question from the Region as to their
13 waste generation situation.

14 However, the Region is being asked to
15 conduct a survey, at least an annual survey, and the
16 kind of information that is sought is first of all to
17 identify who the generators are, secondly, to generate
18 the kind of wastes that each generator produces, and
19 that is of a non-hazardous solid type, and then,
20 thirdly, to identify the disposal method.

21 I suppose what this means is you go to
22 Ford of Canada and you say to them what kind of waste
23 do you generate every year and they say we have
24 cardboard boxes, bits and pieces of metal and some
25 office scraps and we burn our cardboard boxes in our



1 own EFW facility and the rest we ship to the Region of
2 Halton landfill facility when they have one.

3 So, that is the kind of information that
4 will be generated. Then we go under the Environmental
5 Protection Act to 3.3 and as I understand the scheme of
6 3.3, and forgetting about the problems with the
7 drafting of 3.4 which Dr. Kingham has already alluded
8 to in his questions to Mr. Tidball, in 3.3, as I read
9 3.3 I believe the following is required; let's suppose
10 that a truck from Laidlaw, the Laidlaw company goes one
11 morning and picks up garbage from the X company, the Y
12 company and the Z company. The driver drives to a new
13 landfill facility and while his truck is parked on the
14 weigh scale having its weight taken as it always does,
15 I suppose through the window to the weigh scale
16 operator he will hand the weigh scale operator a piece
17 of paper that will say I have waste in the back from
18 the X company, the Y company and the Z company.

19 From the X company I have got scraps and
20 metal; from the Y company I have got bits and pieces
21 from garbage cans in an office and from the Z company I
22 have old rags. The weight is taken and the name of the
23 truck is taken, the hauler's certificate isn't a
24 problem and the name of the driver is taken and I
25 suppose the computer will keep track of infractions of



1 the site operating rules, and then the hauler will
2 drive to the landfill and somehow between the time the
3 truck leaves the weighscale and the time the truck
4 arrives at the working face, somebody will figure out
5 some method of identifying where in the landfill the
6 garbage from the X company, the Y company and the Z
7 company went. So, we will have cross-reference to the
8 disposal location.

9 Mr. Chairman, to understand the scheme
10 of this quasi-legislation, I think I need to ask you to
11 consider for a moment what goes on under Regulation 309
12 for the regulation of hazardous and liquid industrial
13 waste, and I apologize I do not have a copy of
14 Regulation 309 with me and my colleague advises he
15 does, in which case I will make it available to the
16 Board. I recently had to give a speech on this
17 subject and I have it all in my head, and I will give
18 it to you from my head, and you can check the
19 Regulation 309.

20 Very recently in terms of how important
21 liquid industrial and hazardous wastes are to the water
22 quality, et cetera, in this province, and shockingly
23 recently, Regulation 309 was amended to put into place
24 a very, very comprehensive scheme for the management of
25 hazardous and liquid industrial wastes and the scheme,



1 and I am paraphrasing the legislation, always a
2 dangerous thing, but I think from my purposes and your
3 purposes it is probably sufficient and as I said I will
4 give you Mr. Lederer's copy of Regulation 309.

5 The scheme of the legislation, the
6 genuine legislation as the Ministry and the Lieutenant
7 Governor in his or her wisdom have decided pursuant to
8 their power to make regulations under the Environmental
9 Protection Act, the scheme of this legislation is this;
10 first of all, every generator of hazardous or liquid
11 industrial waste, and the wastes under the regulation
12 are called subject wastes, but every generator of
13 subject wastes must register as a generator of subject
14 wastes with the province and advise the province what
15 kind of wastes they generate and in what quantities and
16 what methods they have for storing them and what
17 methods they have for disposing of them.

18 This scheme is so comprehensive that
19 Mr. Sobanski advises me that his wife, who is a high
20 school chemistry teacher, is registered as a generator
21 of subject wastes because of what goes on in her high
22 school chemistry class. I don't suggest for a moment
23 that that's inappropriate, but that just gives you an
24 idea of the intended reach of the legislation as I
25 understand it.



1 Every generator of subject wastes then
2 is supposed to be registered with the province. Then
3 there is a scheme for determining what happens to these
4 wastes once they are generated. There are in fact two
5 disposal methods and one disposal method is you can
6 dump them down a sewer and the whole MISA program as I
7 understand it is designed to allow the Ministry of the
8 Environment to start to get some control over what it
9 is that is being put in local sewage systems and
10 treated by local sewage treatment plants because of the
11 concern about whether appropriate wastes are reaching
12 those facilities.

13 The second method and the method I want
14 to detail for you is the manifest system. The province
15 is so concerned about the disposal of hazardous and
16 liquid industrial wastes, and I don't suggest
17 inappropriately concerned, that the disposal of these
18 wastes takes place in the following fashion.
19 Transporters of these wastes fill out a manifest that
20 has six copies to it. They fill out a manifest that
21 demonstrates that they are a registered hauler of
22 hazardous or liquid industrial wastes and when they go
23 to the generator of such wastes they hand over a
24 manifest already completed under part 2 which is the
25 hauler part of the manifest.



1 The generator fills out part 1 saying
2 who the generator is, what kind of waste it is they
3 have generated and where they are sending it. Then
4 they are required to tear off one copy of the manifest
5 and keep it and tear off another copy of the manifest
6 and send it to the Ministry of the Environment so that
7 the minute that hazardous and liquid industrial waste
8 leaves the premises of a generator, the Ministry of the
9 Environment gets notice that some waste has been picked
10 up by the transporter of such waste and the Ministry of
11 the Environment already knows from the manifest
12 completed as it is at this point where that waste is
13 going.

14 The hauler is then to take it to a
15 licenced disposal facility. At the licenced disposal
16 facility the disposer of the waste has to fill out part
17 three of the manifests. Part 1 is the generator, part
18 2 is the hauler and part 3 is the disposal facility.
19 The disposal facility has to give one copy back to the
20 hauler, send one copy to the original generator of the
21 waste and another copy to the Ministry of the
22 Environment and keep the fourth copy. In total we have
23 six copies of this document and one has been kept by
24 the hauler, one has been kept by the generator, one has
25 been kept by the disposal facility, two have been sent



1 to the Ministry of the Environment, one by the
2 generator and one by the disposal facility and the last
3 copy was sent by the disposal facility back to the
4 original generator.

5 The Ministry of the Environment by this
6 method have a complete system in place to track
7 hazardous and non-industrial hazardous wastes they
8 think, and that was an addition sotto voce from behind
9 here.

10 Now, Mr. Chairman, having exercised
11 their power to make regulations under the Environmental
12 Protection Act, this is the scheme that the Lieutenant
13 Governor in Council has determined is the appropriate
14 scheme under the legislation to control these wastes.
15 Now, we have under the guise I suppose of whoever it is
16 who instructs Mr. Tidball, we have an attempt at the
17 Halton landfill hearing to put into place a
18 comprehensive scheme that amounts to a kind of manifest
19 scheme for keeping track of all of the other wastes and
20 the reason for doing this or the stated reason is in
21 case somebody is in breach of Regulation 309 and
22 attempts to dump some hazardous waste in the Halton
23 landfill.

24 Let's go back to 3.3 and see how the
25 scheme will work. X company or the X company is not



1 going to when it provides its waste to Laidlaw or any
2 other hauler tell them by the way, we slipped a little
3 hazardous waste in there. The hauler isn't going to
4 know he has any hazardous waste on there. The driver
5 obviously isn't going to tell the weighscale operator
6 and so the first hint that there is a problem will come
7 at the working face when the load is dumped and it will
8 come when the inspector inspects the load or it will
9 come when the compactor operator is scattering the
10 waste and has an opportunity to look over it as well.

11 It is not going to come because of this
12 comprehensive information developing scheme proposed by
13 Mr. Tidball to you. The only protection that the
14 Region is going to have, and in my respectful
15 submission which you can impose, is one already agreed
16 to by the Region, and that is that they will have an
17 inspector at the working face. This scheme of
18 generating information proposed by whoever it is who
19 instructs Mr. Tidball, is not going to accomplish
20 anything in my respectful submission.

21 However, it is an attempt to turn the
22 driver of every garbage truck in the Region into a
23 clerk and every driver of a garbage truck will now be
24 asked to keep records as to where it is he picked up
25 wastes and who he picked it up from and hand over those



1 records when he gets to the weighscale.

2 In my respectful submission it ain't
3 going to happen. The garbage truck operators in this
4 Region simply can't be turned into clerks operating a
5 manifest system and also in my respectful submission it
6 shouldn't be something that anyone attempts to impose.
7 The scheme for regulating hazardous and liquid
8 industrial waste is in place under Regulation 309 and
9 by all means if it is a good scheme let the Ministry
10 enforce that scheme. To the extent there are breaches
11 of the scheme in place by the Ministry of the
12 Environment, the only way they will be caught is by the
13 inspector at the working face or by the operator of the
14 compactor and isn't going to be caught because any
15 shipper has said we slipped in hazardous wastes and it
16 won't be caught by the driver of the truck and if it
17 does get caught, as I said, it will get caught by our
18 inspector.

19 What I am respectfully submitting to you
20 is that 3.3 is an onerous requirement and is an
21 unworkable scheme. It just isn't going to accomplish
22 the goal it was intended to accomplish and it will not
23 regulate hazardous and liquid industrial waste.

24 In my respectful submission it won't
25 work. So, I would ask under 3.3 that you delete 3.3.1,



1 3.3.2 and 3.3.8. The Region takes no exception to any
2 of the others and also I might add, Mr. Chairman, if
3 the inspector at the working face finds inappropriate
4 wastes are being deposited, then he is going to know
5 which truck they came off and that truck operator can
6 be interviewed at that point and that truck operator
7 can say where he has been picking up wastes that
8 morning and to the extent there is any method of
9 tracing it back it is going to have to come, in my
10 respectful submission, from that route, not from the
11 route of generating information as waste is picked up
12 because no one will admit they are doing anything in
13 breach of Regulation 309 as their waste is being picked
14 up at the gate.

15 DR. KINGHAM: That is presumably the
16 critical point in fact, if we have understood what you
17 have said. You will recall we heard a great deal of
18 evidence about the analysis of leachate from the
19 present sites, the Bayview site and the Burlington
20 landfill site and the composition of that leachate in
21 comparison with leachate from other sites across
22 Ontario. You have presumably had compactor drivers
23 driving across the garbage at both sites since that is
24 not new technology, but you have not had an inspector,
25 as I have understood the evidence, certainly not at



1 Bayview. I am also going from memory over a year's
2 evidence and I am not sure of the reference.

3 MR. HODGSON: It is my understanding
4 that the inspection of loads as they came into the
5 landfill didn't occur on a load-by-load basis until
6 fairly recently and it didn't occur on a periodic basis
7 until approximately four years ago, and in fact it was
8 the evidence before this very Board in 1984 that that
9 kind of inspection system was already in place, but
10 they would single trucks out of the line and take them
11 to a separate place in the landfill and ask them to
12 dump their load and inspect them, and by that method
13 create a method of self-policing and it was not in the
14 interest of any hauler to get caught bringing in
15 inappropriate waste. Another thing given in evidence
16 at that hearing was that the Region had imposed a
17 condition that they simply would not accept barrels at
18 the landfill because they didn't know what was in the
19 barrels so they wouldn't accept any barrels.

20 DR. KINGHAM: So we are to understand
21 that the remedies being proposed and accepted by the
22 Region now would in your view deal with the problem of
23 hazardous materials that had inadvertently or
24 wrongfully gotten to the site and that leads to the
25 next question. Having identified that, does the Region



1 or have we any evidence that suggests that the Region
2 would pursue the matter and if so would they pursue it
3 under Regulation 309 or are you telling us they would
4 pursue it in other ways?

5 MR. HODGSON: Under Mr. Tidball's scheme
6 the Region or the environmental inspector would be
7 required to notify the Director of any breaches of the
8 Act.

9 DR. KINGHAM: Then presumably it would
10 be left to the Director.

11 MR. HODGSON: 3.6.3.

12 DR. KINGHAM: 3.6.3.

13 MR. HODGSON: Conditions 3.6.3 that he
14 will report all incidents of non-compliance with the
15 regulations and these conditions of approval. So, yes,
16 they would have to be reported immediately to the
17 Director and I think you can take judicial notice of
18 the fact that the Ministry of the Environment have a
19 well beefed-up enforcement section.

20 DR. KINGHAM: In that case it would be
21 the non-compliance going back to condition 3.1. Okay.

22 MR. HODGSON: Yes, sir.

23 DR. KINGHAM: That would be the non-
24 compliance under 3.6.3 which would then trigger the
25 regional director to take action under Regulation 309.



1 MR. HODGSON: I am sorry but one thing
2 you have said, unless I misunderstood you, but the non-
3 compliance or the first non-compliance stated in 3.6.3
4 is non-compliance of the regulations which I took to
5 mean regulations under the Environmental Protection Act
6 and that would mean regulations having to do with the
7 disposal of certain types of wastes. We are not
8 talking and certainly Dr. Kingham hazardous liquid
9 industrial waste because there are other kinds of
10 wastes that can't be deposited in a landfill, and PCBs
11 are regulated in a special way and pathological wastes
12 are regulated in a special way, and in fact those kinds
13 of problems have occurred in the past at Metro Toronto
14 landfills where pathological wastes have been
15 improperly brought to those landfills.

16 DR. KINGHAM: I think we have an
17 understanding.

18 MR. HODGSON: I don't for a minute
19 suggest that the Region isn't interested in this matter
20 and concerned to control it, but the question has to do
21 with what is an effective method as opposed to what is
22 an ineffective method. Where the Region sees an
23 effective method they are prepared to agree to it and
24 if anyone has a better suggestion then those made here,
25 we would certainly be more than happy to listen to



1 them, but with the greatest of respect we don't wish to
2 have forced upon us a system which would be totally
3 ineffective and very time consuming to implement.

4 Now, if you agree with me on all of my
5 submissions on 3.3, I don't need to make any on 3.4.
6 If you don't agree on 3.3 then I respectfully ask in
7 respect of 3.4, as I have asked Mr. Tidball on two
8 other occasions, that something be done about the
9 drafting of that section. The intention here is that
10 certain kinds of information isn't going to be
11 generated in respect of waste that is brought in and
12 put into the bins at either of these two proposed
13 landfills, but the way the thing is worded, the
14 information has to be generated in the end and it
15 simply needs to be clarified what information the
16 Ministry thinks the Region is supposed to collect on
17 the waste going into the bin area.

18 As to the control of hazardous and
19 liquid industrial waste in the bin area, I might as
20 well advise you there is a condition that the Region
21 have a traffic controller and in fact the Region
22 currently has a traffic controller at the bin area at
23 the existing landfill site and part of his function is
24 to make sure that this kind of waste doesn't get
25 deposited there either.



1 To go back then to the EAA condition No.
2 7, this comprehensive scheme of information generation
3 that is set out in 3.3 is also tied into condition 7
4 and, in my respectful submission, that kind of an
5 annual survey is going to accomplish nothing. The
6 Ministry are already collecting that information for
7 hazardous and liquid industrial waste and collecting
8 the information for everything else, in my respectful
9 submission, is simply not a solution to any landfill
10 problem in the Region of Halton. If it is a solution
11 to some problem the Ministry has, then by all means let
12 the Ministry carry out that kind of information
13 gathering thing and in fact let the legislation require
14 it if the Legislature in its wisdom deems it
15 appropriate.

16 Now, Mr. Chairman, the next submission I
17 wish to make has to do with condition 5.3 on page 9.

18 DR. KINGHAM: Under Tab ...

19 MR. HODGSON: ...3, EPA condition 5.3.

20 I don't intend to make any further submissions on the
21 question of a liner at Site D as you have my
22 submissions on that subject. However, I note during
23 Mr. Tidball's submissions that questions have arisen as
24 to the appropriate standard to which any liner that may
25 be ordered by this Board should meet. In my respectful



1 submission, although there is some evidence on this
2 subject actually conveniently generated by Mr. Crutcher
3 in respect of Site D, namely, the lab permeability
4 tests which provide you with some kind of indication as
5 to the permeabilities that can be achieved in respect
6 of the glacial materials at Site D, in my submission
7 that should be left to further testing and the standard
8 that is required of this liner should be one that is
9 developed after further testing and this section could
10 be re-written to indicate that the Director will
11 establish a standard after appropriate further testing
12 has been carried out.

13 It would be a mistake in my submission
14 to impose a condition of 1×10^{-7} if a higher standard
15 can be met and at the same time, in my respectful
16 submission, it would be a mistake to impose a condition
17 that couldn't be met and once the condition is
18 established by this Board in a manner that can't be
19 changed, if it can't be met, it creates, to say the
20 least, some awkwardness.

21 In respect of 5.4.1, I made it a point
22 during my argument in chief to read into the record
23 again Mr. Feenstra's evidence given during the cross-
24 examination of Mr. Feenstra by Mr. Tidball, but
25 Mr. Feenstra's evidence about whether or not a standard



1 greater than one metre could be achieved and
2 Mr. Feenstra indicated that a standard of greater than
3 0.4 would give more comfort, but when he was asked to
4 name a standard he asked for an opportunity to think
5 about it and there is no evidence that anyone asked him
6 later if he had reached a view.

7 In my respectful submission this
8 condition could be re-written to say that the maximum
9 hydraulic head at the base of the landfill be at least
10 0.4 of a metre lower than the lowest measured hydraulic
11 head and greater than 0.4 where practical and greater
12 to the maximum extent practical. I will obviously give
13 some thought as to how that can be drafted, but the
14 point is you could establish the minimum and you could
15 impose as a condition that the maximum practical
16 freeboard be provided on a further landfill, but in my
17 respectful submission these issues of what can be
18 achieved have to be balanced with other design criteria
19 such as 5.4.2, namely, in providing some slope to the
20 headers you may have a situation where the base of the
21 landfill is not uniform and therefore there will be
22 some variation. While the minimum certainly is
23 achievable, whether or not the maximum is achievable
24 over the entire base of every cell is an engineering
25 question which I suggest should be left open and could



1 be the subject of a determination by the Director.

2 Also in respect of 5.4.3, the condition
3 as written is "provide maximum possible access to
4 collectors for routine inspection and maintenance."

5 You will recall from the evidence that
6 there are some practical implications here and one is
7 that first of all there are two alternatives, one you
8 are providing clean-out and two is you are providing a
9 manhole. There is some evidence that there is a
10 practical limit as to how deep a manhole can be in
11 order to be usable at all.

12 There also is a need to some extent to
13 balance this requirement against the requirement that
14 the after-use be an agricultural after-use. In the
15 circumstances, I would suggest the word "possible" be
16 re-written as "practical" and "provide maximum
17 practical access" and to set the requirement that to
18 the extent it is appropriate and practical it be done,
19 but maximum possible means that it doesn't matter how
20 much money or how much trouble you have to go to you
21 can provide a clean-out at the end of every line.

22 DR. KINGHAM: Before you leave that
23 area, I understood the rationale of your argument with
24 respect to 5.3 and I think I understood the rationale
25 of your argument with respect to 5.4.1 and 5.4.2 up to



1 a point, but I wonder if you could clarify. Is there
2 not a fundamental qualitative difference between the
3 approach one might take under 5.4.1 and 5.4.2 versus
4 the approach to 5.3.

5 You referred to the technical
6 difficulties in regard to the profile of the base of
7 the landfill and achieving a certain minimum head
8 difference, whatever that would be, and is that the
9 real tradeoff or is the thickness of the underlying
10 strata the real tradeoff?

11 MR. HODGSON: As these conditions are
12 drafted I don't think the thickness of the underlying
13 strata is the real tradeoff because as they are drafted
14 there is to be a minimum one metre thick liner.

15 DR. KINGHAM: That is precisely the
16 question I am putting. Therefore, the hydraulic head
17 difference could be anything you wanted to make it if
18 you weren't invoking the thickness of the underlying
19 strata?

20 MR. HODGSON: I take that if you weren't
21 imposing a liner then you would be in the tradeoff
22 situation and if you were in imposing a liner then
23 certainly there is less of a tradeoff situation and I
24 think there is a minimum thickness one would want to
25 maintain of that unweathered upper till.



1 But, Mr. Feenstra's evidence is that
2 there is no magic to the 4 metres suggested by
3 Mr. Sobanski and other goals are appropriate goals and
4 whether it is 4 metres or 3 metres, it isn't that
5 critical, the issue is whether or not it is fractured
6 and what needs to be done to mitigate any possible
7 fracturing.

8 6.1, Mr. Chairman, and a very small
9 point. Paved roads in the dry season to the extent
10 that they get clay and gravel materials on them become
11 dusty and therefore need to be cleaned. The Region has
12 no objection to a condition that the paved roads will
13 be cleaned whenever necessary. However, this reads
14 they shall be cleaned on a daily basis. Some of the
15 days of the year include days when paved roads are
16 salted in order to prevent ice from accumulating on
17 them, and, in my respectful submission, that is not a
18 day on which one cleans the road. That is a day on
19 which deposits what in another season might generate
20 dust in order to prevent certain other kinds of
21 contingencies from occurring. There are also days of
22 the year when it is raining and it would not be a very
23 useful exercise. In my respectful submission it is
24 sufficient to ask that they be cleaned whenever
25 necessary.



1 There is also an intention from the
2 evidence that not all the roads all the way to the
3 working face are going to be paved because the tires of
4 trucks lose their accumulated build-up of detritus,
5 better on gravel roads than paved roads so that some of
6 the roads will be gravel roads.

7 Now, 8.1. I have had two opportunities
8 to persuade Mr. Tidball that 8.1 needs to be redrafted
9 and I have failed on both occasions. However, I
10 thought I had an understanding from Mr. Tidball
11 previously that what 8.1 meant was that if one is
12 landfilling from, let us say, west to east as he has
13 requested, that when one goes up and begins landfilling
14 at a new lift, obviously one goes to the western
15 perimeter of the landfill and starts to landfill and my
16 understanding of Exhibit E-265 was that at the western
17 perimeter of the landfill the Region was going to be
18 required to construct a triangular-shaped or wedge-
19 shaped berm behind which it would landfill.

20 The Region has no objection to that
21 imposition. However, in his submissions, Mr. Tidball
22 has said that this wedged levelled berm will be "around
23 the entire perimeter of the cell" and "around it on all
24 sides" and I can't believe that Mr. Tidball is asking
25 that when we need to go up a lift that we are required



1 to put a wedge-shaped berm on the east, south, north
2 and west sides of the landfill.

3 My understanding is that you do it only
4 on the west side of the landfill and work behind it and
5 if you are at the northwest corner obviously you would
6 have it on the north side and the west side and work
7 behind it, but you wouldn't have a wedge-shaped berm on
8 the south side and if you did you would have to use a
9 helicopter to lift all the garbage trucks into the
10 working face. 8.1 needs to be redrafted so it
11 indicates that from the direction in which one is
12 working, one constructs this wedge-shaped berm.

13 12.1.6. The conditions of approval as
14 issued by this Board become the law and the Region can
15 be tried and potentially convicted for a breach of the
16 conditions of approval. To the extent that they become
17 the law, I ask you to consider the appropriateness of
18 12.1.6 as drafted. The imposition here is that the
19 monitoring wells all be constructed of stainless steel
20 and which has been steamed cleaned.

21 Now, this is a simple point. You will
22 recall that Miss Hewetson operating at the state of the
23 art as it then was in about 1983, used PVC pipes that
24 were welded with glue and uncleaned. That was the
25 state of the art in 1983. By 1985 the state of the art



1 seems to be PCV pipes that are threaded, but even in
2 1985 Mr. Feenstra was the first, as I understand it, to
3 install a stainless steel well at HC15 in three out of
4 the four piezometers and the deepest one doesn't have a
5 stainless steel well.

6 In my submission you should not, given
7 changes in the state of the art in just three years as
8 indicated in evidence before this Board, you should not
9 enshrine stainless steel wells that have been steam
10 cleaned. In my respectful submission you should
11 enshrine a requirement that the wells be suitable for
12 volatile organic compound testing and that the design
13 and materials for the wells be recommended by a
14 qualified hydrogeochemist and approved by the Director
15 of Approvals, so that a qualified person can make a
16 recommendation where there is a change in the state of
17 the art and the Director, if he agrees there has been a
18 change in the state of the art, can approve that change
19 in the state of the art.

20 To now enshrine stainless steel wells
21 because they worked in 1986, in my respectful
22 submission...

23 DR. KINGHAM: I think you are telling
24 us that the Region is prepared to bear the cost of new
25 technology and which might be more sophisticated than



1 present technology, Teflon wells?

2 MR. HODGSON: It has borne that in the
3 past and the reality is that stainless steel wells were
4 installed by the Region after the 1984 expansion
5 hearing, and you have already heard evidence that the
6 number of Gartner Lee wells which are stainless steel
7 wells and if you check the monitoring reports H-83 and
8 H-625 you will note how many of those wells are
9 stainless steel wells and when they were installed. The
10 Region went to the state of the art when it became the
11 state of the art.

12 Then, page 18, leachate monitoring.
13 14.2. At Site F, in my respectful submission, it would
14 be if not impossible certainly impractical after the
15 completion of the landfill to somehow monitor the
16 amount of leachate generated from each cell and also in
17 my respectful submission there is no evidence before
18 you to support the need for separate monitoring of the
19 leachate flows from the two cells.

20 There is no difficulty with the
21 requirement that total leachate flows be monitored so
22 it is possible to conduct or carry out a calculation of
23 how much leachate is being generated and how much
24 leachate is being collected at the site, that is
25 already being done at the existing Burlington landfill



1 site and you have evidence before in Exhibit H-625 that
2 there is a flowmeter and the leachates are monitored
3 and the quantities are monitored and, in fact, you will
4 find in there a water balance attempted, with some
5 flaws, but attempted by Gartner Lee with respect to the
6 Burlington landfill site.

7 In my respectful submission there is no
8 evidence to support separate cell monitoring for Site
9 F, and I think it should not be forgotten,
10 Mr. Chairman, that the Ministry of the Environment sort
11 of produced these, as it were, out of the head of Zeus
12 at the end of evidence and notwithstanding my request
13 that they be produced in a much more prompt and useful
14 way, the reality is that Mr. Feenstra got it virtually
15 on the morning he went into the witness box, but on
16 this particular one, I don't think I need to make my
17 submissions or take my submissions further.

18 DR. KINGHAM: But we might ask you to
19 take them just a little bit further. The question we
20 put to Mr. Tidball and on which we would appreciate
21 your views as well, can be extended, because you have
22 already stated your view about monitoring Site F, the
23 deeper collection tiles at the junction of cells 1 and
24 2 and your point is that that is not necessary and
25 indeed it might be very difficult if not impossible



1 with present technology, I don't know. What about
2 monitoring leachate quantities at the exit from the
3 deeper underdrain as distinct from leachate quantities
4 from the base of the landfill underdrains? Do you
5 understand what I mean? I am having reference to H-
6 42-B5R, the red lines as distinct from the blue lines.

7 MR. HODGSON: I understand. With
8 respect to the blue line, and it looks a little bit
9 like the underground in London, but with respect to the
10 blue line my understanding is that, (a), it is deep
11 and, (b), it will require a pumping station to pump the
12 liquid back up and to the extent there is a separate
13 pump for the blue line, then that could be monitored
14 and it wouldn't be difficult to monitor. My
15 instructions are that where you have a pump it is easy
16 to keep track of the flows, but you will not know with
17 the blue line whether it came from cell 1 or cell 2.

18 DR. KINGHAM: No, nor will you know
19 presumably whether it is from the subsurface or whether
20 it is leachate from above in fact, but it might be
21 valuable to understand the total volumes.

22 MR. HODGSON: I agree. If the condition
23 could read, "if practical", -- no, if the condition
24 could read "if possible" and I can go that far here, I
25 think, if it is possible, then it could be agreed to,



1 but as between cell 1 and cell 2, just looking at the
2 map of the London underground and in order to measure
3 the flow out of cell 1 as distinct from cell 2, there
4 are four separate measuring points on the completed
5 landfill site and that is a lot of devices to go wrong
6 and some of them buried very, very deep.

7 However, at Site D, and this is back to
8 condition 14.2, I believe the situation is different
9 and in my submission all that needs to occur under 14.2
10 is that after the words "continuously measured" in line
11 2, you put in a comma and insert "where practicable."
12 The reality of any design at Site D is that it is
13 likely to have several pumping stations and is likely
14 to have a pumping station for each cell and it is
15 likely not going to be a difficult matter to monitor
16 the leachate flows from each cell where there is a
17 pumping station.

18 If it could read "where practicable" I
19 think the likelihood is that it can be achieved at Site
20 D and in my submission there is certainly some
21 justification in the evidence for monitoring those
22 flows on a cell-by-cell basis where possible.

23 DR. KINGHAM: Are you making the same
24 change on 14.2 for Site F?

25 MR. HODGSON: For Site F I am saying you



1 don't require it at all, you don't require it at all on
2 a cell by cell basis.

3 With respect to 14.3, the condition as
4 drafted is acceptable to the Region at Site D.
5 However, in my respectful submission there is no
6 justification whatsoever in the evidence for requiring,
7 first of all, hydraulic testing for the hydraulic
8 conductivity of the waste at Site F. That would not be
9 a useful expenditure of public funds. There is no
10 justification for it in the evidence.

11 In my submission it may be a useful
12 thing to have a few, one, two or three wells in the
13 landfill to monitor leachate levels in the landfill,
14 but comparing it to Site D, where at Site D you may
15 want several of these in each cell, at Site F I don't
16 think that it is justified in having very many at all
17 and I think in my respectful submission it could be
18 left to the designer of the monitoring program at Site
19 F to make an appropriate recommendation as to the
20 number of leachate monitoring wells that need to be
21 developed at Site F.

22 MR. ESTRIN: Which condition are you
23 talking about?

24 MR. HODGSON: 14.3 as drafted is
25 acceptable to the Region at Site D. At Site F we ask



1 hydraulic conductivity testing of the waste not be
2 required and indeed that unless the Board is of a
3 strong mind to impose it, all of 14.3 could be dropped
4 and there is probably no need for wells in the waste at
5 all at Site F and if they are needed, they would be
6 recommended by the designer of the monitoring program.
7 On the evidence before you I don't believe there is a
8 justified need.

9 14.4. In my respectful submission there
10 is no evidence before you to justify continued analysis
11 of leachate samples from all the leachate wells at Site
12 D. It is sufficient in my respectful submission on the
13 evidence before you to require that the leachate that
14 is being shipped by one mode or another to a treatment
15 facility be characterized and characterized on a
16 reasonably frequent, probably a quarterly basis, but as
17 for the characterization of leachate from each one of
18 the leachate wells, as I understand it the costs of
19 this kind of exercise they are quite high, and in my
20 respectful submission there is no evidence before you
21 to support that kind of testing program from all of
22 these leachate wells.

23 Now, those are all the submissions,
24 Mr. Chairman, that I have at this time, with respect to
25 the proposed conditions of approval.



1 MR. LANCASTER: Thank you, Mr. Hodgson.
2 Mr. Estrin, before we get to you we will take a ten
3 minute break or so.

4 ---Recess

5 ARGUMENT BY MR. ESTRIN (Cont'd):

6 MR. LANCASTER: Are we all set?

7 MR. ESTRIN: Mr. Chairman, you may
8 recall that before lunch I had raised with you CRA's
9 criteria for site acceptability, specifically page 6 of
10 B-618, the report, and the previous pages which talked
11 about it being predictable and on page 6 talking about
12 calculating gradients and flow directions and then how
13 at page 45 with regard to Site D it was admitted by CRA
14 that they didn't know those parameters with regard to
15 the lower granular unit and the upper granular unit,
16 and then in evidence how CRA took the view that they
17 could get over those problems by being conservative,
18 and we had that discussion about that.

19 As I said just before lunch, my first
20 comment and the one which gave rise to a bit of
21 interchange was that it was inconsistent to make those
22 assumptions in the absence of the data which they say
23 is critical.

24 My second comment is this, that the
25 approach -- that approach is inconsistent with CRA's



1 refusal to make assumptions about similarly critical
2 units at Site F. Now, I would like to refer to volume
3 118, page 28562 and Mr. Hodgson is cross-examining CRA
4 and at line 2 he asks:

5 "Q. What I suggested, Mr. Petrie, was
6 that if there is an underdrain to that
7 system, for purposes of understanding
8 Site F it doesn't really matter exactly
9 at what elevation that underdrain is
10 since we know there is an underdrain?

11 A. There are a number of qualifiers to
12 answer that. One ought to know where
13 the drain is because presumably one will
14 try and characterize the hydraulics of
15 it to be able to monitor and so I do not
16 believe I can agree with your question.
17 If you are understanding the site and
18 the intention of understanding with
19 respect to a landfill investigation, you
20 understand it so you can categorize the
21 hydraulics of each zone of concern and
22 you can define those zones in space,
23 i.e., the elevation and continuity, and
24 therefore you can focus your monitoring
25 program or additional investigations if



1 so required on to those zones."
2 And then if you turn over to 28569 line 14, he is
3 giving an answer there on the same topic, the drain:
4 "A. ...and if the position of that
5 drain is unknown, then I am of the
6 opinion that the site is ill-defined
7 with respect to its hydrogeologic
8 characterizations which impacts the
9 modelling undertaken and which impacts
10 the design options considered and which
11 impacts on the monitoring program
12 proposed and which impacts on the
13 contingency options considered and it
14 has a big significance if the position
15 of that drain is or cannot be defined."

16 So, he is quite willing to say, well, yes, you must
17 have this certainty at Site F, but at Site D we can
18 make these assumptions, and that is patently
19 inconsistent in my respectful submission.

20 Again the issue arises at page 28575 and
21 Mr. Hodgson is still going after Mr. Crutcher on this
22 topic at line 1:

23 "Q. ...why does the exact location make
24 any difference to this Board's ability
25 to approve Site F or find it suitable



1 for landfilling? I am just focusing on
2 the location and location only. Why
3 does the location matter?

4 A. The location is a contaminant flow
5 pathway as defined by Mr. Sobanski and
6 if you do not know where that pathway is
7 or its hydraulic properties, it is my
8 opinion that the site is ill-defined and
9 that impacts on all deliberations
10 regarding suitability for landfilling."

11 It seems to me that CRA is wanting to have -- they have
12 set up their criteria and they have applied it very
13 nicely for the purpose of making Site F an uncertain
14 site, but at Site D we will ignore those uncertainties
15 and we can make conservative assumptions.

16 Mr. Chairman, even if one was to accept
17 the notion that making conservative assumptions is
18 appropriate, then you have to look at whether they were
19 in fact conservative. Just one example.

20 Trow and CRA both indicated in their
21 opinion that it was conservative to consider at Site D
22 that the UGU may be continuous. I am sure you will
23 recall Mr. Sobanski and Mr. Petrie saying that. For
24 example, at volume 111 Mr. Petrie says at page 26791:

25 "I, therefore, concurred with Trow, that



1 it is prudent to consider, for the
2 purpose of assessing the suitability of
3 the site for landfilling, that this
4 upper granular unit may be continuous."
5 But, as Mr. Feenstra pointed out, if the UGU is one or
6 more lenses, the shadow looms and the trap fails and a
7 new design is needed and without that new design we
8 have potential impacts in Mr. Feenstra's view on the
9 LGU, on the bedrock and potentially off-site impacts et
10 cetera. You can say you are making conservative
11 assumptions but, you know, I think we have to also test
12 the validity of those conservative assumptions and CRA
13 did not, and Trow unfortunately did not.

14 Now, I would like to turn to now examine
15 the state of knowledge with regard to the upper
16 granular unit having CRA's criteria re certainty and
17 predictability in mind, and that is where I am heading.
18 Why look first at the UGU at Site D? It together with
19 the unweathered upper till are the critical units at
20 this site.

21 In this discussion I want to consider
22 the significance of uncertainty as to the upper
23 granular unit and assuming that the upper unweathered
24 till is not fractured as it was postulated in the
25 earlier part of the hearing.



1 Mr. Petrie said that the UGU is a
2 horizon of concern respecting potential for lateral
3 migration from the site in the groundwater regime. I
4 don't think that that is a statement that is surprising
5 now. He also said there are some uncertainties with
6 that unit. At volume 111, page 26664 he said:

7 "I recognize from the available data one
8 cannot be confident with regard to the
9 flow directions in this unit."

10 That is at lines 5 to 7 on page 26664.

11 MR. McQUAID: I am sorry, 26664?

12 MR. ESTRIN: Yes, volume 111. Then you
13 will recall, I think, Mr. Chairman, that Mr. Garrod in
14 his cross-examination of Mr. Petrie had him divide the
15 upper granular unit into three and if you look in B-
16 618, page 81, there is a plan view of the UGU, and Mr.
17 Garrod had Mr. Petrie put numbers on these for the
18 purposes of his cross-examination and the one on First
19 Line he had him label No. 1 and the bigger portion in
20 the middle of the site was No. 2 and the one over on
21 Highway 25 as No. 3, and you may have those numbers on
22 your copy, I don't know, but don't numbers do appear on
23 Exhibit MR-695.

24 In any event, Mr. Garrod then cross-
25 examined Mr. Petrie with regard to uncertainty in the



1 know, and that was his evidence. We would have to know
2 a lot more about Site D to know the answer to that. If
3 it is a lens you can't assume it will all stay in a
4 neat puddle under the site and not contaminate off-
5 site, and that was his evidence.

6 At page 29194 in volume 121, Dr. Kingham
7 asked Mr. Petrie if he was giving evidence as to where
8 the dotted line at the bottom of unit 1, whether it
9 should be extended down First Line Road, where it
10 crosses First Line Road to the west, and Mr. Petrie
11 said:

12 "The position of that line you have just
13 referred to we have no information
14 exactly as to where it crosses First
15 Line Road. For the domestic wells to
16 the west, they are completed in the
17 overburden and I'm not entirely clear if
18 they are completed in the upper or lower
19 granular units but they are definitely
20 completed in the overburden materials."

21 Now, let's stop there. What about Mr. Feenstra's
22 hypothesis of fracturing? If the upper till is
23 fractured it doesn't really matter if it is the upper
24 granular unit -- it will certainly get down to the
25 upper granular unit and then link in with Mr. Petrie's



1 uncertainties about where it goes from there.

2 At page 29196 Mr. Garrod asked him if a
3 well -- there was some discussion about if a well was
4 screened in the upper granular unit or the lower
5 granular unit and Mr. Garrod asked about a well
6 driller:

7 "Q. He wouldn't be concerned about
8 screening an upper granular unit from a
9 lower granular unit if he found them in
10 a well?

11 A. He would not.

12 Q. Even if a well on First Line is
13 drawing predominantly from the lower
14 granular unit, if it also intercepts the
15 upper one it could be contaminated if
16 that unit became contaminated?

17 A. If it was exposed to the upper
18 granular unit, potentially, yes."

19 At page 29197, line 8, talking about unit 1:

20 "Q. It could represent part of a larger
21 overburden aquifer which is more
22 extensive off-site and intercepts Site D
23 only in part?

24 A. It could.

25 Q. You don't know, do you,



1 Mr. Petrie?

2 A. I do not know.

3 Q. You certainly can't be definitive
4 about that, can you?

5 A. I cannot.

6 Q. Right. We have an upper granular
7 unit here according to your
8 interpretation that we have no
9 hydrogeological information about?

10 A. Just the descriptions from the well
11 borings.

12 Q. That quite likely is utilized as a
13 domestic water source by people
14 immediately across the road?

15 A. It could."

16 When the discussion turned to the UGU unit 3 which
17 underlies Highway 25, again Mr. Petrie had no
18 information and admits there is no information of a
19 hydrogeologic nature about that unit, if it indeed is a
20 separate unit and that is found at page 29202, and in
21 fact if you look at the beginning of that page the
22 question is, by Mr. Garrod:

23 "Q. It can't be conservative to adopt
24 an interpretation which gives you
25 information when your real



1 interpretation is that you have none,
2 can it?

3 A. Ideally, no.

4 Q. Thank you. I put it to you, Mr.
5 Petrie, that the same thing is true for
6 upper granular unit No. 3 which
7 underlies Highway 25. You have no
8 information of a hydrogeologic nature
9 about that unit, do you?

10 A. Correct."

11 It is clear that Mr. Petrie had no certainty about the
12 UGU from a hydrogeological perspective and he does not
13 know where the water in the unit is coming from. If we
14 look at volume 124, page 30061, he is answering, and
15 this comes at the end of a long answer and he is
16 talking about the UGU in my cross-examination, but at
17 line 4 he says:

18 "A. So, the question in my mind is
19 where does the water come from?"

20 And again at the next page, 30062:

21 "Q. You are telling us you don't
22 understand what is going on under Site
23 D?

24 A. I am saying I don't know where the
25 water in the upper granular unit is



1 coming from."

2 This is clearly inconsistent with anybody's test of
3 certainty or predictability. It is a lack of
4 understanding.

5 Even in re-examination Mr. Petrie was
6 left with difficulty about this unit. In volume 134 at
7 page 32389, while insisting that the UGU is dis-
8 continuous, he was still left with the difficulty and I
9 am looking at lines 8 to 11:

10 "...the pumping wells or the wells in
11 the upper granular unit seemed to
12 recover better than I had envisioned
13 which leads me to some question
14 regarding the source of that water,..."

15 At another point in volume 125, Mr. Petrie agrees that
16 it is a possibility that the UGU extends across the
17 site. That is at volume 125, page 30178 lines 17 to
18 20.

19 When Ms. Cronk cross-examined Mr. Petrie
20 on this, he admitted that there are three different
21 interpretations of the extent of that unit by three
22 different groups of hydrogeologists and those
23 interpretations do not coincide, and that is found at
24 volume 132, page 31841, and Ms. Cronk prepared Exhibit
25 N-776 which puts those three different interpretations



1 in front of you. Ms. Cronk also got him to agree at
2 page 31846:

3 "The extent of the upper granular unit
4 westward from First Line Road is
5 unknown..."

6 And we have a paucity of data regarding the extent of
7 the UGU to the east. That is beyond Highway 25. That
8 is page 31847.

9 Mr. Chairman, Mr. Petrie's uncertainty
10 with respect to the upper granular unit, particularly
11 where the water in it is coming from, is remarkably
12 similar to Mr. Feenstra's uncertainty and demonstrates
13 why Mr. Feenstra's concerns about Site D expressed in
14 reply are very significant.

15 Without more information there is no
16 certainty that the hydraulic trap will work, putting
17 aside fracturing or even the k of the waste issue, the
18 hydraulic conductivity of the waste issue.

19 Volume 173 where Mr. McQuaid is cross-
20 examining Mr. Feenstra in reply and at page 43174, line
21 10:

22 "Q. Where do you say the water from the
23 upper till goes to then?

24 A. Water from the upper till, it
25 certainly goes downward. There may be



1 some lateral movement in the weathered
2 zone and zones which are fissured but
3 that is going to be largely controlled
4 by variations of the deposit.

5 Q. So, if you pump the water from the
6 upper granular unit, how much of the
7 water would come from above?

8 A. I don't know. I don't know the
9 answer to that question. Actually, if I
10 knew the answer to that question I could
11 give you a much clearer evaluation of
12 what the effect of the installation of a
13 landfill would be above the upper
14 granular unit.

15 As I described to Mr. Garrod yesterday,
16 I can't make that evaluation with the
17 evidence that is available now.

18 Q. Is this because of the fracturing,
19 or is this completely independent of the
20 fracturing?

21 A. That is completely independent of
22 the fracturing.

23 Q. So, this has nothing really
24 whatsoever to do with the Ruland
25 hypothesis or thesis, does it?



1 A. Whether the water in the upper
2 granular unit comes from above or
3 below?"

4 and they go on and the eventual answer is at line 24:

5 "A. That is correct. The water that is
6 in the upper granular unit may come from
7 above, or in some areas may come from
8 below. It is going to depend upon the
9 hydrogeological conditions, the
10 hydraulic gradients, the hydraulic
11 conductivities of the units, their
12 lateral extent and continuity and that
13 is independent of whether the hydraulic
14 conductivity in the upper till is
15 imparted by fractures or by the nature
16 of the intergranular permeability."

17 Mr. Chairman, Mr. Petrie, CRA and Mr. Feenstra seem to
18 be in agreement. You can't assess the impact of a
19 landfill without that kind of information.

20 I think Dr. Charlesworth said the same
21 thing. Because of such uncertainty about the UGU, the
22 Board cannot be confident, I ask you to find, that the
23 trap will work and when it fails and contamination is
24 released, how much of a groundwater resource will be
25 contaminated, and you cannot be sure of the direction



1 and speed of impact, and all of which are criteria of
2 CRA. Without being certain the UGU does not extend
3 off-site, both Dr. Charlesworth and Mr. Feenstra were
4 concerned that off-site water extraction could reverse
5 the head under the site in the UGU, thus causing the
6 trap to fail.

7 So, what I am saying here is that if you
8 are not certain that it does not extend off-site, in
9 other words, if it potentially does extend off-site,
10 then off-site water extraction could reverse the head
11 and for that reason causing the trap to fail. That was
12 first put forward by Dr. Charlesworth in his report, M-
13 438 at page 6-6, and turning to that exhibit, he says:

14 "In discussing the impact of either
15 purge wells or the hydraulic trap on
16 water levels in the domestic wells it
17 should be noted that a reverse situation
18 could occur. Thus pumping from wells or
19 boreholes on nearby properties could
20 produce drawdowns in the Upper Granular
21 Unit beneath the landfill."

22 And he goes on to say:

23 "Trow, on Page 133, calculate that purge
24 wells in the Upper Granular Unit pumping
25 at 2.8 (gallons per minute) would lower



1 water levels in nearby domestic wells by
2 1.7 m. Assuming that this calculation
3 is correct would mean that a well on
4 nearby property, pumping at the rate for
5 the same time period, would lower the
6 head in the Upper Granular Unit below
7 the landfill by a similar amount.

8 Such a well could be constructed
9 for a dairy farm or similar operation.
10 Whilst it is extremely unlikely that the
11 well would operate continuously it is
12 possible that it would pump at 2 to 3
13 (gallons per minute) and, if this was
14 sustained for only 24 hours, it would
15 still draw the water level down beneath
16 the landfill. Such a drawdown would
17 produce the same effect as the mounding
18 of the leachate, as modelled by Dr.
19 Rowe, and combined with mounding, could
20 lead to the onset of off-site migration
21 of leachate."

22 Now, what did Mr. Feenstra say about this? If you look
23 in his witness statement, the last one that is, 936, H-
24 936, paragraph 12, he talks about this and he says near
25 the bottom of page 5 of this witness statement, and he



1 first of all is talking about widespread declines in
2 the UGU and the potential for it and the design doesn't
3 take year to year fluctuations due to dry years or
4 drought into effect and he goes on to say:

5 "If private wells began pumping at
6 significantly increased rates for lawn
7 watering, irrigation or livestock,
8 groundwater levels beneath the site
9 could be affect similarly."

10 And he refers to the same thing I just referred to:

11 "Groundwater fluctuations of 0.4 m (the
12 margin of safety for the hydraulic trap)
13 are not large in the context of year to
14 year changes in recharge and groundwater
15 usage."

16 And you just saw that Dr. Charlesworth just calculated
17 what Trow had calculated, a purge well, or rather a
18 domestic well off-site could have a 1.7 metre, I think
19 the number was, drawdown.

20 Then at volume 175 of the transcript,
21 Mr. Feenstra elaborated on this, page 43586 at line 10,
22 where he is answering Ms. Vigod and part of the answer
23 reads:

24 "The influence of pumping private wells
25 could distort or have an influence even



1 on your regional hydraulic trap."

2 And then going on she says:

3 "Q. We have discussed, we think there
4 is going to be some wells that are
5 removed with the landfill?

6 A. I am talking about wells off-site.

7 Q. Would you agree that certainly as
8 far as the water is going to want to
9 move towards that lower level?

10 A. As long as there are no other
11 influences that are pumping or removing
12 water from a lower level till, for an
13 agricultural or domestic well pumping
14 from that unit, it could very well be
15 lowered."

16 And at page 43587 at line 3:

17 "Q. If we do have this situation
18 created then there wouldn't be, again,
19 we wouldn't be worried about the off-
20 site migration because you would have
21 continuous...

22 A. No, I don't think that is quite the
23 case. You are talking about the
24 possible shadow effect basically
25 lowering water levels and creating a



1 sink. That water has to go somewhere to
2 some degree. It is going to only lower
3 the water levels below the landfill to a
4 certain degree. If you have an off-
5 site, off-site being off the landfill
6 site, a sink such as a private well or
7 an agricultural well pumping from a
8 lower level it is going to be competing
9 with the landfill for water. There
10 could still be a potential for the
11 movement from underneath the landfill to
12 a well pumping at a deeper level."

13 And then on page 43588 he says in part of an answer to
14 a question:

15 "I don't believe we have a very
16 significant record with respect to
17 groundwater level monitoring in the
18 vicinity of the private wells."

19 He says going down the page, page 43588, line 17:

20 "Certainly the performance of the
21 pumping test at PW-2, indicates that
22 when you are pumping the central
23 portions of the site..."

24 and he points to the location in the northern third
25 eastern quarter of the site:



1 possible, I would ask you to find, that any number of
2 wells could be going in and people have a right to do
3 that, and reverse the trap. If the trap is a proposal
4 that can be reversed by off-site pumping, there is
5 nothing in law that gives the Region the a priori right
6 to stop people for that reason.

7 Now, I mentioned in passing a few
8 moments ago that in my view it was not only important
9 to be concerned about the lack of certainty about the
10 UGU itself, its extent, where its water comes from and
11 where it is going, but this uncertainty has
12 relationships to other methods of impacts because it is
13 clear, I think, that if contaminants get to the UGU the
14 Board has heard evidence that other sectors could be
15 impacted.

16 Ponds and streams possibly are around
17 the site, and they are around the site, but the issue
18 is will they be impacted if the UGU is contaminated? I
19 don't believe we have heard enough evidence to evaluate
20 that. I know Mr. Petrie said something about ponds and
21 I will come to that, but Mr. Feenstra was concerned and
22 he did say if the UGU was contaminated he was concerned
23 about surface waters and other potential sources of
24 impact around the site. He talked, and his evidence
25 was to the effect that he didn't know and he couldn't



1 say whether the LGU would or would not then be affected
2 and you will recall that there is a significant portion
3 of the flow potentially down to the bedrock once it
4 starts getting down that far. We just don't have
5 enough information to evaluate how quickly or where
6 such contamination will result.

7 With result to the UGU and the LGU in
8 the bedrock, Mr. Feenstra said, at volume 172, page
9 42775:

10 "We are not quite sure at this point
11 where the upper granular unit does go
12 and whether any seepage which enters the
13 upper granular unit may actually, for
14 example, be connected with the
15 groundwater flow system in the bedrock
16 and the flanks of the bedrock valley as
17 a possibility."

18 You heard some suggestion in Mr. Hodgson's argument
19 that perhaps as well there is only a small number of
20 wells in the granular units and half of them or more
21 than half of them are in the bedrock and the
22 implication was they would be protected if any
23 contamination got to the granular units. That is
24 contrary to that quotation, I suggest, from Mr.

25 Feenstra because he has a concern that the bedrock and



1 the flanks of the bedrock could well be connected with
2 the upper granular unit.

3 Mr. Chairman, that statement by
4 Mr. Feenstra which I just read to you is remarkably
5 similar to a statement of Dr. Charlesworth in his
6 report, Exhibit M-438 found at page 8-11. I think I
7 have the wrong page. It is found at page 8-1. I can't
8 read my own writing, of Exhibit M-438. Now this is
9 under his conclusions and he says:

10 "There is considerable uncertainty with
11 regard to the lateral extent of the
12 Upper Granular Unit and also some
13 uncertainty with regard to groundwater
14 flow directions within that unit. There
15 is uncertainty with regard to the
16 hydrogeological significance of the
17 Lower Granular Unit."

18 Now stopping there, let's look for a moment at
19 Mr. Tidball's conditions for approval if I could ask
20 you to look at that for a moment for Site D under Tab
21 3, Item 12.1.1 and at the bottom of page 14 the
22 statement is:

23 "New well nests shall be established
24 around the site with particular emphasis
25 on the area adjacent to First Line,



1 where information suggests that granular
2 units may extend off-site. Exact
3 locations shall be selected to
4 investigate the lateral continuity and
5 hydraulic characteristics of the
6 granular units and to facilitate
7 comprehensive monitoring along major
8 contaminant pathways."

9 And at 12.1.5 on page 15:

10 "The lateral continuity and hydraulic
11 characteristics of each granular unit
12 shall be investigated through the use of
13 environmental isotopes and hydraulic
14 testing methods, including pumping
15 tests."

16 Mr. Chairman, the Ministry of the Environment has the
17 very same concerns about these units that I am telling
18 you Mr. Feenstra was concerned about and which CRA say
19 certainly that they in assessing any site would be
20 concerned about.

21 Mr. Feenstra also had the following
22 discussion with Ms. Cronk at volume 172, page 42855,
23 line 4:

24 "Q. You also told me, I thought, that
25 it was your opinion that the exact



1 nature of the groundwater paths at Site
2 D is not fully established, either based
3 on information available to date?

4 A. Particularly in terms of a
5 relationship between the overburden
6 groundwater system and the bedrock
7 groundwater system."

8 Now, just stop there. You cannot assume that even if
9 the upper granular unit is a lens that it will end
10 there. You can't and Mr. Feenstra is saying we don't
11 know, particularly in terms of the relationship between
12 the overburden groundwater system and the bedrock
13 groundwater system. He goes on to say at page 42857:

14 "No one has at this stage done the
15 appropriate analysis to give an
16 indication of what the effect..."

17 This is what the effect of a landfill at Site D would
18 be in the vicinity:

19 "...would be."

20 The question is at line 6:

21 "Q. Do I take it from that that you
22 would agree with me that we can't today
23 say what the probable effects of a
24 landfill, of a landfill at Site D would
25 be on the groundwater levels in the



1 contingency "to prevent off-site migration which might
2 impact more existing users or surface water or some
3 other receptor." That is at line 174, page 43349,
4 lines 23 to 25.

5 So, for the above reasons as to the need
6 for certainty and predictability, and in the clear
7 absence of such certainty, in my respectful submission,
8 Site D should be rejected for those reasons.

9 Now, I am about to turn to another
10 chunk, if you like, and I wonder if it would be an
11 appropriate time to break.

12 MR. LANCASTER: I think it would be an
13 appropriate point to adjourn as it is almost 4:30.
14 Yes, Mr. Lederer.

15 MR. LEDERER: Would it be possible, and
16 I apologize I didn't raise this with anyone until this
17 moment, but for the Board to commence tomorrow at ten?

18 MR. LANCASTER: Anything is possible.

19 MR. LEDERER: Let me rephrase that.
20 Will the Board agree to start at ten?

21 MR. LANCASTER: The Board will agree.
22 Is there any other comment?

23 DR. KINGHAM: But we are going until
24 midnight tomorrow night.

25 MR. LANCASTER: Ten o'clock is fine,



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45033

Estrin, arg.

1 Mr. Lederer.

2 MR. LEDERER: Thank you, sir.

3 ---Adjournment at 4:25 p.m.

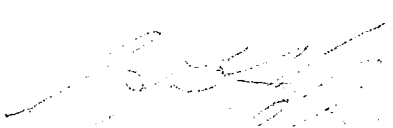
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C. F. Nethercut, C.V.R.

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