

T. Vigod

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 Britannia 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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2 Consolidated Hearings Act, 1981, S.O. 1981, c. 20;

- and -

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BEFORE: H. H. Lancaster, Q.C. - Chairman
Dr. D.J. Kingham - Member



Nethercut & Co. Ltd.

Toronto, Ontario

Hearing conducted at The Oakville
Granary Commercial Centre, 105 Robinson
Street, Oakville, Ontario, on
Wednesday, January 13, 1988

VOLUME 73

APPEARANCES:

T.R. Lederer and
H.D. Hodgson

for the Regional
Municipality of Halton
(Proponent)

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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
L.J. Griffiths
L.F. Longo

for National Sewer Pipe
Limited

for Azova Investments
Limited

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for the City of Burlington

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for the Ministry of Natural
Resources

P. Renaud

for Cumis Limited



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Toronto, Ontario

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2	P. Hancock	Fosseri Investments
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4		Investments Limited and
5		Topic Investments
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J.H. Olah

for the Halton Region
Conservation Authority

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Per: P. D. McQueen



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

2 MR. LANCASTER: Good morning. Please be
3 seated.

4 MR. ESTRIN: I wonder -- Mr. Lederer
5 distributed a paper yesterday by Dr. Solman, that we all were
6 given, The Influence on Garbage Dumps near Airports on
7 the Bird Hazard to Aircraft Problem. Could we please
8 have that marked as an exhibit?

9 MR. LANCASTER: It is marked as Exhibit
10 H-401 and we have one after that, "Bird Strikes to
11 Canadian Aircraft, 1984 Summary" is H-402.

12 MR. LEDERER: Just while we are at that,
13 Mr. Chairman, I had referred you to the fact yesterday
14 that ...

15 MR. LANCASTER: The photographs?

16 MR. LEDERER: Yes. Photographs of
17 various aircraft and I would like to just review
18 those, to make sure myself, referring Mr. Richardson
19 to the correct photographs for the correct airplanes.
20 I apologize for the delay.

21 WILLIAM JOHN RICHARDSON, (resumed):

22 CROSS-EXAMINATION BY MR. LEDERER, (continued):

23 Q. Mr. Richardson, yesterday we
24 referred to the aircraft, I think what you called some
25 of the aircraft that make use of Canadian Forces Base



1 Trenton. I would like to show you some photographs
2 and ask whether you are able to confirm for me that
3 these are photographs of the airplanes involved. This,
4 I am informed, is a CC109 Cosmopolitan?

5 A. That is a Cosmopolitan, yes.

6 Q. That is a turbo-prop aircraft?

7 A. A twin-engine turbo-prop aircraft.

8 Q. Thank you, sir. This, I am
9 informed, is a CF113 Voyageur Labrador search and
10 rescue helicopter?

11 A. Yes, Voyageur helicopter. I think
12 the designation is CH113, a twin turbine.

13 Q. This, I am informed, is a CC115
14 Buffalo DeHavilland aircraft?

15 A. That is a Buffalo, yes.

16 Q. Also a turbo-prop aircraft?

17 A. Yes.

18 Q. This, I am informed, is a CC130
19 Hercules?

20 A. That is a Hercules, yes.

21 Q. Also a turbo-prop?

22 A. A turbo-prop transport.

23 Q. This is a Boeing 707?

24 A. Yes, it is.

25 Q. This then is a Challenger, a



1 .CC144?

2 A. It is a Challenger, yes.

3 MR. LEDERER: Sir, if these could be
4 exhibited. As I indicated to the Board I acquired
5 these at another hearing and the numbers on the back
6 reflect the exhibit numbers from that hearing. They
7 are labelled in that case 103A through F. They could
8 simply receive the appropriate numbers for this hearing.

9 MR. LANCASTER: We will mark them H-403
10 and mark them A, B, C, D, et cetera.

11 --- EXHIBIT NO. H-403A: Photograph of a CC109
12 Cosmopolitan aircraft

13 --- EXHIBIT NO. H-403B: Photograph of a CH113 Voyageur
14 Labrador search and rescue
helicopter

15 --- EXHIBIT NO. H-403C: Photograph of a CC115 Buffalo
DeHavilland aircraft

16 --- EXHIBIT NO. H-403D: Photograph of a CC130 Hercules
17 aircraft

18 --- EXHIBIT NO. H-403E: Photograph of a Boeing 707
aircraft

19 --- EXHIBIT NO. H-403F: Photograph of a Challenger
20 CC144 aircraft

21 MR. LEDERER: Xerox copies I can
22 certainly make. As a result of the way I acquired them
23 I don't have the negatives.

24 Q. Now, sir, I would like also to
25 return to one other point which we had discussed
yesterday. I think the way to do this would be to turn



1 to tab 7 of Mr. McDonald's witness statement.

2 MR. LANCASTER: Three ninety-four.

3 MR. LEDERER: Thank you, sir.

4 Q. Do you have that, sir?

5 A. I do.

6 Q. What I would like to do is just
7 review with you how this works. This is Part 3, "Bird
8 Hazards", Part 3 of the document which you can identify
9 by looking at the front page of the tab "Air Navigation
10 Systems Requirements Branch".

11 It was referred to you by Mr. Estrin as a
12 demonstration of how in this particular document Transport
13 Canada has dealt with the issue of the bird hazard.

14 If we could look at the first page of Part 3, we have
15 halfway down the page the quotation "A. Extremely
16 hazardous land use practices"?

17 A. Yes, and there are two, foodland
18 landfill sites in coastal commercial fish plants.

19 Q. We then turn over the page to
20 "Moderately Hazardous Land Use Practices". Do you see
21 that?

22 A. Yes.

23 Q. "The following land use practices
24 are moderately hazardous to airport
25 activities because they attract bird



1 species that are of moderate hazard to
2 aircraft because of their smaller size,
3 behavioural characteristics and not
4 particularly far-ranging in their food-
5 searching activities and/or are of
6 concern as aircraft hazards chiefly
7 during limited time spans only, i.e.,
8 migration and frequent climatic conditions.
9 These practices are not recommended for
10 areas two miles, 3.2 kilometres, or
11 less from the airport boundary."

12 Do you see that?

13 A. Yes.

14 Q. And No. 1 is agricultural
15 practices and you have a series of kinds of agricultural
16 practices which are not recommended with suggested
17 alternatives. Do you see that?

18 A. Yes, I do.

19 Q. Can we agree then and this is in
20 reference to our discussions yesterday with regard to
21 the nature of hazards represented by agriculture, can
22 we agree that the kind of agricultural practices shown
23 and I believe the evidence here is barley and oats are
24 grown in proximity to this proposed landfill.

25 These are moderately hazardous, defined as moderately



1 hazardous practices with respect to this potential
2 hazard of the interaction between aircraft and birds?

3 A. Yes, I would agree that Transport
4 Canada has characterized them as such and of course
5 the lesser hazardous category than landfill.

6 Q. Absolutely. So in reference to
7 our discussion of yesterday and looking for a relative
8 classification, if you like, the degree of hazard, we
9 now find one here. Here we see that in reference to
10 landfills which are the higher level these are classi-
11 fied as moderately hazardous; do you agree with that?

12 A. Yes.

13 Q. Would you agree with me as well
14 that as you look at the Site D and we have still up,
15 happily for me, Exhibit M-102. If we look at that
16 landfill and we compare the area of the landfill,
17 assuming that there is a landfill there which is
18 active, that there is a lot more farming going on in
19 this area by acreage than there is -- than there is
20 landfilling?

21 A. By acreage that is correct, would
22 be correct if Site D were established of course not in
23 terms of the number of gulls that were attracted.

24 Q. Now, I also -- with respect, sir,
25 all you can tell us is that there is more area



1 attract them to a less hazardous use. Isn't that fair?

2 A. No, I don't think so.

3 Q. When we come to deal with the
4 Maple site I want you to remember that you made that
5 point with me. We will come back to that.

6 Now, we will just leave that and
7 come back to it. What I would like to do right now,
8 I asked you yesterday if you have a copy of Volume 2
9 which I gather is the important volume insofar as this
10 hearing is concerned, of your work with respect to
11 Pickering airport or the proposed Pickering airport.

12 A. Yes, I do, Volume 2.

13 Q. What I would like you to do, sir,
14 and I apologize -- this is a library copy. I obviously
15 haven't got a copy. It would be quite expensive to
16 reproduce. There are just a couple of rather short
17 quotes.

18 MR. ESTRIN: Before we go into this, I
19 haven't got a copy. Mr. Lederer indicated yesterday
20 he intended to ask some questions about this. I asked
21 him if he had a copy available for me and he said he
22 didn't. I don't have any problem as long as he is
23 prepared to loan me his copy immediately after he is
24 finished asking these questions so I can have a look at
25 the document .



1 MR. LEDERER: I am certainly happy to
2 make the copy I am using available as long as it's
3 understood it belongs to a library and will have to be
4 returned. I only want to make the observation that it
5 would be surprising to me that I would be supplying to
6 Mr. Estrin copies of reports his witness has referred to.

7 MR. ESTRIN: This witness has not
8 referred to that except for purposes of illustration.

9 MR. LANCASTER: The fact remains,
10 Mr. Lederer, you are referring to it.

11 MR. ESTRIN: I just want to make sure
12 before we get into it right now that if you like
13 immediately at coffee break I could have the opportunity
14 of having it.

15 MR. LEDERER: Perhaps the witness could
16 -- we have got labels all over this. The witness has
17 a copy. Surely he can get the witness' copy.

18 MR. LANCASTER: And other counsel as well
19 may wish to look at it.

20 THE WITNESS: I have what I think is a
21 clean, unmarked copy of it here. It is my own personal
22 copy. I can loan it to whoever needs it.

23 MR. LEDERER: In the meantime what I am
24 going to do is read these quotes to you and I will set
25 this next to Mr. Estrin so he can follow along with my



1 reading.

2 Q. Sir, what I would like you to do
3 is refer to page 275 of the report. I would like just
4 to say that what you are doing here and please correct
5 me if I am wrong, you were doing research into the
6 impact that birds might have on this proposed new air-
7 port; is that correct?

8 A. That was the overall objective.
9 It involved surveys of a much broader area than just the
10 airport site.

11 Q. Among the things you did was to
12 locate landfills in the area to determine what impact
13 they may have on bird hazards as you depicted in your
14 evidence here?

15 A. That was done.

16 Q. You located by way of example
17 three sets of landfills, as I understand it, defined
18 by way of distance from the airport?

19 A. We categorized -- after the fact
20 we categorized landfills by distance from shore.

21 Q. Mr. Richardson, it's obvious your
22 voice is not as strong as it was yesterday. If you
23 ever get to the point you cannot continue I would rather
24 have you tell me. We want to have your best evidence
25 and have you be able to provide it in the best possible



1 way. If you feel that you're incapacitated in any way,
2 please let me know and we will have an adjournment.

3 A. Thank you.

4 Q. What you did, again just to -- so
5 we understand the nature of this is you defined them
6 in terms of waterfront which were what distance from
7 the water, sir?

8 A. I believe that was less than two
9 miles from the waterfront.

10 Q. If we were to refer to Exhibit
11 M-396 we can get some help with the second two. There
12 were then intermediate zones which were two to eight
13 miles inland?

14 A. Yes, that's right.

15 Q. Then there were interior zones
16 which were 11 to 26 miles inland?

17 A. Greater than the eight or ten, yes.

18 Q. My understanding is that the first
19 two, certainly?

20 A. I am just looking for my copy.
21 I believe you are correct on those numbers. I am just
22 trying to find my own copy.

23 Q. Can you just help me with what
24 happens between eight to 11? I know it's not a big
25 point.



1 A. I think the problem there is that
2 there were no cases within that particular range.

3 Q. Just to put this Site D into
4 context relative to Hamilton Harbour, you indicated in
5 your evidence that it is 20 kilometres from Site D, the
6 colony itself?

7 A. Twenty kilometres from the colony
8 itself and less from other parts of the waterfront.

9 Q. I think your report says it is
10 18 kilometres it seems to say from the colony but I think
11 it really means from Hamilton Harbour.

12 A. From Hamilton Harbour and I think
13 I also say in the report it is some lesser distance, 13
14 kilometres from the closest part of the Lake Ontario
15 waterfront.

16 Q. So if we were to take then the
17 flight paths from Hamilton Harbour, this proposed site
18 would fall into the interior classification. If we were
19 to take it from the closest waterfront it would fall
20 into the intermediate zone classification; is that fair?

21 A. That is correct, it is near the
22 borderline depending on which part of the water you
23 choose.

24 Q. Having done that then you looked
25 at the number of gulls that would be expected and as I



1 understand it the further away you got, the fewer gulls
2 were anticipated?

3 A. Other things being equal, yes.

4 Q. Again you've got an example of
5 that by reference to Exhibit M-396. What those graphs
6 depict is the number of gulls you would expect to see
7 at certain times of the year at intermediate and
8 interior sites. Of course fewer at the interior sites
9 than the intermediate sites?

10 A. That is correct, other things
11 being equal.

12 Q. In that context then I would like
13 to just look at some of the comments you made and if we
14 could turn to page 275. Do you have that, sir?

15 A. Yes, I do.

16 Q. I would like to read to you from
17 the second paragraph. It is really the last, to be
18 fair, the last two sentences:

19 "This change in behaviour meant that
20 regular surveys of day use sites which
21 were conducted at midday show the decline
22 in the numbers of ring-billed gulls in
23 late August and early September. Whereas
24 the counts at Musselman Lake roost, the
25 roost where most Ballantrae birds..."



1 .Ballantrae was one of the landfills you looked at?

2 A. That is correct.

3 Q. "...it did not show a decline until
4 mid-September. It is probable that some
5 of the gulls were leaving the Ballantrae
6 Landfill Site in order to feed in
7 recently ploughed fields."

8 Do you see that?

9 A. Yes.

10 Q. Am I right then that in that
11 particular circumstance where fields had just been
12 ploughed these particular birds found it preferable to
13 go to the fields to feed rather than the landfill?

14 A. It was our interpretation that
15 that was the probable explanation for that particular
16 observation.

17 Q. Can I also in the same light
18 refer you to page 280 of the same report? Do you have
19 that, sir?

20 A. Yes.

21 Q. Looking here at the first para-
22 graph and again I am going to read you an earlier
23 sentence than the one I am directly interested in,
24 starting at "The autumn migration..." Do you see that
25 four lines down?



1 A. Yes.

2 Q. "The autumn migration from other
3 areas apparently began passing through
4 in late September and continued until
5 early December. Some migrants may have
6 appeared early in September but were not
7 identifiable as such. These migrant
8 birds were less reliant on day use sites
9 or landfill areas or on specific lake-
10 front day use sites. Rather they were
11 more widespread along the shore of Lake
12 Ontario and fed primarily at agricultural
13 fields."

14 Do you see that?

15 A. Yes, I do.

16 Q. I understand two things; first of
17 all, the birds dispersed along the shore and didn't
18 remain at isolated colonies or congregate solely at
19 colonies in any particular location; is that fair?

20 A. Yes. As I testified yesterday,
21 as the summer and autumn wears on, they become less and
22 less focused around the colonies where they had been
23 concentrated during the breeding season earlier in the
24 year.

25 Q. In that particular case again, they



1 chose again to feed on agricultural fields?

2 A. A particular fraction of the gull
3 population chose to feed on agricultural fields.

4 Q. In that circumstance, sir, were
5 there landfills available for those gulls to feed at?

6 A. There were landfills in the area
7 and other gulls were feeding on landfills at that time.

8 Q. So what we know then in this case
9 we have a circumstance where at least some fraction of
10 the gulls having a choice between landfills and fields
11 chose to feed on the fields?

12 A. That's right and I should point
13 out that that is also consistent with something I showed
14 to you yesterday. On this overhead it summarizes the
15 pattern of movements of gulls. I pointed out that it
16 deals with the commuting cycle except during the breed-
17 ing season when they tend to remain on the waterfront
18 near the colonies. Except during active migration
19 when this kind of daily local commuting cycle is not
20 consistent with the long-distance movement of birds
21 from their colonies perhaps on Lake Huron or wherever
22 further north to wintering areas, they can be further
23 south.

24 Q. The point here is surely this,
25 that this Board in assessing the degree of risk will



1 want to consider the fact that in at least one circum-
2 stance we now know this is the Ballantrae case, the
3 first of the quotes I gave you, in at least one circum-
4 stance we have a situation where confronted with a
5 direct choice birds actually left the landfill to feed
6 at a ploughed field and in another case in which
7 confronted with a choice a certain fraction of birds
8 stayed in the field rather than going to the landfill.
9 That is correct, isn't it?

10 A. That is one observation among
11 many. Before going further with that I think one would
12 want to investigate how much material was being brought
13 to that landfill site at that time and so on and I would
14 have to look up those numbers. I certainly don't
15 recall them. Actually I do have a number here. For
16 the Ballantrae Landfill Site the figure that we quoted
17 in the report was only 80 tons per day as the typical
18 amount of material coming to that site, so it obviously
19 is not a major landfill site and a major attractor of
20 gulls.

21 Q. Let us be fair. Landfills attract
22 birds because of the food supply; right?

23 A. In part but largely ...

24 Q. The principal issue here is not
25 how much garbage or waste is disposed of but rather how



1 much of it, first of all, is potentially food for birds
2 and, secondly, how much of it remains exposed for birds?

3 A. These are major factors, yes.

4 Q. You have to look at the operations,
5 you have to look beyond the sheer quantities to determine
6 whether a site is a particularly good food supply for
7 birds?

8 A. Right. I think it is also fair
9 that the landfill site that has something in the order
10 of a tenth of the amount of material coming to it, as the
11 one that we were talking about for Site D, it is not a
12 major attractant for birds.

13 Q. You are prepared to say, not
14 knowing anything about how this site is operated, that
15 it is going to be more of a bird attractor than some
16 other site just based upon the amount of waste that is
17 delivered there; is that your position?

18 A. I had already said I would want to
19 know more about the details of the operation of these
20 sites before going much further.

21 Q. So without going into any further
22 detail can we say that there are circumstances in which,
23 for reasons of operation, perhaps the amount of waste
24 disposed of, the proximity of the bird colonies, what-
25 ever, there are circumstances in which we see that



1 agricultural fields will be chosen by the birds as
2 feeding grounds over landfill? Those circumstances
3 exist?

4 A. There can be such circumstances,
5 yes.

6 Q. Doesn't that help us in looking
7 at the hazard or the potential for the creation of a
8 hazard for pollution between birds and planes from
9 agricultural practices, don't we now know that in
10 certain circumstances there is moderate hazard that will
11 in a sense take over what is generally defined as the
12 more significant hazard of landfill? There are cir-
13 cumstances where that can happen; aren't there?

14 A. Circumstances that do not on the
15 face of it appear to be similar to the situation we are
16 talking about. I think you should also be aware and
17 the Board should also be aware that there have been
18 studies done to try and estimate the fraction of the
19 gulls from an area that do commute to landfill sites
20 in the interior versus other kinds of food sources in
21 the interior. A couple of those studies that I am
22 aware of which were not in this area I hasten to point
23 out but a couple of such studies that I am aware of
24 indicate that approximately three-quarters of the gulls
25 that were engaged in this kind of commuting pattern



1 .that we have been discussing commuted to landfill sites
2 as opposed to -- despite there being a very small area
3 of landfill sites in the total Region in contrast to
4 the more -- in the order of a quarter of the gulls that
5 would commute to the other attractants.

6 Q. What we now know, sir, is when we
7 come to evaluate this situation, absent landfill, we
8 have an attractant of gulls or birds which is suffi-
9 ciently serious that in certain circumstances it will
10 overtake landfill as an attractant. Isn't that right?

11 A. In certain circumstances that is
12 right.

13 Q. Thank you very much. Sir, are
14 you aware of -- I will show you an article and ask you
15 whether you are aware of it. This is an article
16 entitled "The Importance of Refuse Pits to Gulls Wintering
17 in an Inland Area of Southeast England." I gather
18 some of this work has been done in England?

19 A. Yes.

20 Q. This is an article of Horton,
21 Brough, B-R-O-U-G-H ...

22 A. I'm not positive of the pronouncia-
23 tion.

24 Q. ... and J. B. A. Rochard, R-O-C-H-
25 A-R-D. Are you aware of this article?



1 A. I have seen this article. I have
2 certainly not read it recently and at this point I
3 couldn't tell you what's in it.

4 Q. But you recognize the work of
5 these three people?

6 A. I know some of those people are
7 involved in this field, yes.

8 Q. What I would like to do is -- I
9 will leave you this copy. Unfortunately I hadn't
10 planned to refer to this but since it has come up in
11 this way I will give you a copy if you wish to read it
12 over the break.

13 MR. ESTRIN: Well, well now, Mr. Chairman,
14 I think we are having an unequal standard applied here.
15 You will recall how vigorously Mr. Lederer insisted
16 that when I went to cross-examine his witness he
17 insisted that I supply everyone with a copy of the
18 document and it had to be provided in advance. You will
19 recall, for example, the blue binder of U.S. EPA
20 documents was supplied to the witness in advance and
21 distributed in advance. I must insist that Mr. Lederer
22 give me copies of any articles he wishes to put to the
23 witness and that I have an opportunity to look at them
24 as well as the witness. It will save a lot of time.

25 MR. LEDERER: I'm happy to do that and if



1 Mr. Estrin wants me to wait, I will. I hadn't planned
2 to do this. I am not going to spend a lot of time. I
3 am in the Board's hands.

4 MR. ESTRIN: As Mr. Lederer indicates
5 he may only have one or two questions. I may have a lot
6 more and I don't know.

7 MR. LANCASTER: I think Mr. Estrin should
8 have the opportunity and the witness too.

9 MR. LEDERER: Q. Now, sir, at the end
10 of the day yesterday I had begun to refer you to -- we
11 had begun to discuss this matter of 50 per cent of all
12 bird strikes being gulls and we looked at some of the
13 statistics which are provided in the material you have
14 brought before this Board. What I would like to do in
15 reference to that is to return to your 1973 report and
16 to page 5 of that report -- sorry -- 1978 report.
17 Excuse me, I am transposing all sorts of numbers here.
18 Page 5. This is the sentence in which this matter of
19 50 per cent being gulls comes up and I just want to read
20 with you again, first of all, the opening sentence at
21 the top:

22 "Gulls are the bird group most commonly
23 involved in collisions with aircraft
24 (Blokpoel, 1976). Gulls have been reported
25 to account for 40 per cent (Seubert, 1975)



1 or perhaps even 50 per cent, (Solman, 1973)
2 of the world's reported bird-aircraft
3 collisions."

4 Do you see that?

5 A. Yes, I do.

6 Q. That says 40 or 50 per cent of
7 the reported collisions, doesn't it?

8 A. Yes, it does.

9 Q. There is no reference there to
10 40 or 50 per cent of those collisions where the bird
11 was identified or the species was identified, does it?

12 A. That is not the way the sentence
13 is written, yes, you are right.

14 Q. When we come to relate to that
15 figure what we really have got to do is take the per-
16 centage of gulls as identified of the total number of
17 accidents, not as you suggested yesterday only those
18 where birds are identified to make a proper comparison
19 with those numbers?

20 A. A couple of points on that. First
21 I am not -- I would have to double-check these references
22 but I believe the 40 or 50 per cent figures are of the
23 identified birds, although that sentence that I wrote
24 in this report does not reflect that. To be specific
25 -- also another related point is that when you first



1 read that sentence out yesterday I also indicated that
2 the recent Canadian statistics were somewhere lower
3 than that.

4 Q. I said to you and I repeat to you
5 that I will go through that today. What you are saying
6 is you can understand that it is because of the way
7 the sentence reads?

8 A. As I say, we do have some other
9 statistics in front of us that give us a much clearer
10 picture of this.

11 Q. What I am going to try to do is
12 go through this both ways with you so we have both
13 sets of figures before the Board or at least the
14 figures which you say are preferable but I would
15 appreciate it if you would review this material, the
16 papers to which you have referred and if you can tell
17 from those papers and my belief is you may not be able
18 to, tell whether 40 or 50 per cent is considered
19 unidentified. I would like to know that. I don't
20 suggest you do that right now, you can do it at a
21 break. It is an issue that will come up again in a
22 few moments.

23 MR. ESTRIN: If the witness has the
24 papers here.

25 THE WITNESS: I may or may not. I will



1 have to do some checking.

2 MR. LEDERER: I have given you one of
3 them, the '73 paper. I know you've got that.

4 Q. Now, with that in mind then, sir,
5 what I would like to do is return to this work of
6 Mr. Thorpe's and because of your comments yesterday
7 I have in fact said I have done this two ways. We will
8 try to go through it both ways, okay? If you take the
9 first group, serious incidents of airplanes over 5,700
10 kilograms with executive jets. First of all, did you
11 have a chance to go through this last night as I asked
12 you to?

13 A. I did not, I am prepared to accept
14 your totals on that.

15 Q. That first group which takes us
16 from page 26 to 30, there are, according to my count,
17 41 -- sorry -- at page 30 -- excuse me -- 41 incidents
18 depicted, ten of which, according to my count, are
19 specifically identified as involving gulls and 12 of
20 which the specific species of bird is not identified
21 in some way which would distinguish it from gulls.
22 If we can now take it first of all as if all birds
23 are included, would you agree with me that what we have
24 is ten of 41 are gull-caused?

25 A. That is what it shows.



1 Q. Which is 26 per cent, do you agree
2 with that?

3 A. You are close if not correct.

4 Q. Ten of 29 if we do it your way,
5 that is we take out the unidentified birds which means
6 34 per cent?

7 A. Correct.

8 Q. If we go to the second grouping
9 now which takes us to page 31, we have here two gulls
10 of 14 and every one of 14 is identified as some bird.
11 The problem I can tell you is the one matter of bats,
12 so what you have to do there, it would appear, is to take
13 the bats out.

14 MR. LANCASTER: To what are you referring,
15 Mr. Lederer?

16 MR. LEDERER: For someone who hasn't
17 looked at this before, it's a bit difficult to follow.
18 What you need to do is look at the opening page, you
19 see page 25 is the abstract and what follows then in
20 the succeeding pages are four lists -- sorry -- five
21 lists of different kinds of accidents involving
22 different kinds of airplanes and the first list, as you
23 can see the title of the page, page 26 "Serious incidents
24 to airplanes over 5,700 kilograms together with executive
25 jets"; do you see that, sir? Just because you turned



1 the page I can tell you are not in the right place.
2 You are in the wrong tab. That is the problem. The
3 list I have just dealt with now are these pages 26
4 through to page 30 and what you will find on those
5 pages, as I have said, is 41 under that heading. If
6 you turn the page, I believe it is 31, you will see
7 the next heading. There there are two of 14, as I said,
8 all of which are identified. The difficulty is that
9 Mr. Richardson informed me yesterday that for the
10 purpose of this kind of study bats are not considered
11 to be birds.

12 Q. So, sir, in effect then as it is
13 shown in Mr. Thorpe's work if you include bats, in other
14 words, it is two out of 14 and if you exclude bats it
15 is two out of 13; do you agree with that?

16 A. Again I haven't counted them up
17 but I will accept your numbers.

18 Q. The record will show I invited
19 you to count them yesterday. My math I can tell you
20 is a very big gamble on your part.

21 A. I partly agree because I don't
22 think the detail of these numbers is significant but we
23 will get into that later.

24 Q. If we can then go to the third
25 list, this is serious incidents to helicopters on page



1 .33; do you see that, sir?

2 A. Yes.

3 Q. There you include everything.

4 Three of 11 are caused by gulls and there is one which
5 is not identified in which case it becomes three of ten?

6 A. Okay.

7 Q. Which I presume we can agree is
8 just something over 30 per cent?

9 A. We can agree it is 30 per cent,
10 yes.

11 Q. Quite so. I told you my math
12 wasn't good..

13 A. I think we should clarify that
14 these three tables that you dealt with so far deal with
15 the years 1981 to 1983 only.

16 Q. As we agreed yesterday it was an
17 attempt to be comprehensive for those years?

18 A. Comprehensive in terms of serious
19 incidents to civil aircraft, not including military
20 aircraft.

21 Q. We can agree that we are not going
22 to have military aircraft at the Burlington AirPark?

23 A. We can agree that is not likely.

24 Q. To put it another way, if we have
25 military aircraft at Burlington AirPark we may have a



1 whole lot more serious problem on our hands?

2 A. Probably.

3 MR. LANCASTER: The pilot may, of that
4 particular plane.

5 MR. LEDERER: Q. Looking at the fourth
6 list, bird strikes 1912 to 1980; do you see that, sir?

7 A. Yes.

8 Q. On that list six of 14 are gulls
9 and I may say all of them are identified.

10 A. Yes.

11 Q. Finally, the final list, there are
12 by my count three of 11 which are gulls, two of which
13 are not identified so that would take it to three of
14 nine?

15 A. Three of nine or three of eight.

16 Q. We have 11 and you take away two,
17 you get nine.

18 A. I'm sorry, is that two unidenti-
19 fied?

20 Q. I said two unidentified. Sir, in
21 that case then if you do it including everything
22 according to me as I think we reviewed, you get 24 of
23 91 which are gulls. If you exclude those which are
24 not identified as gulls and also exclude the one of
25 bats, you wind up with 24 of 74 or 32.4 per cent.



1 A. Fine.

2 Q. Would you agree with me then, I
3 think it is a pretty straightforward question, that
4 insofar as these serious incidents are of concern we
5 don't have 50 per cent and 40 per cent, we have in fact
6 something less than that, something in the area of 30
7 per cent no matter how you count it, 26 per cent one
8 way and 32 per cent the other?

9 A. Yes, that is correct in terms of
10 these particular statistics.

11 Q. If we then try to take serious
12 incidents and that is what you have told us is unlikely
13 at this site and try to set it up against these more
14 general figures of 50 per cent, we discover, at least
15 this is an indicator, a suggestion that gulls are to
16 a somewhat lesser extent than is depicted on page 5 of
17 your 1978 paper and I don't want to make more of it
18 than is there, gulls are involved to some degree less;
19 can we agree?

20 A. Yes, I think the percentage is
21 slightly lower as I alluded to when I first introduced
22 that document yesterday.

23 Q. Can we then look at another set
24 of data which you provided us with and this is at tab
25 4, the CATA data. I gave you yesterday the 1984 version



1 of that, do you recall?

2 A. Yes.

3 Q. Do you have that?

4 A. I can't recall.

5 DR. KINGHAM: You are referring now to
6 Exhibit H-402?

7 MR. LEDERER: Yes, sir.

8 Q. Now, sir, what I would like to
9 do is refer you to page 5 of this. Do you have that,
10 sir?

11 A. Yes, I do.

12 Q. Here we have a chart that deals
13 with bird strikes in the years '82 to '84.

14 A. Yes, it does.

15 Q. If you go up -- I always get
16 these mixed up. If you go up the vertical axis you see
17 percentages?

18 A. Yes.

19 Q. You can by comparing the vertical
20 lines with respect to each year in each species of birds
21 determine what percentage of all of these bird strikes
22 involved those particular kinds of birds?

23 A. Correct.

24 Q. I just observe for you that when
25 Canada does its work and looks for percentages, it takes



1 .the percentages of the total including unidentified
2 species?

3 A. That is how this graph is set up,
4 yes.

5 Q. So they don't withdraw the uniden-
6 tified as we have done in our work with respect to this
7 last chart we looked at, with your encouragement?

8 A. They break them out so one could
9 do it either way.

10 Q. But when they charted , they charted
11 against the total?

12 A. That is correct, yes.

13 Q. What I wanted to point out to you
14 here is that, first of all, can we agree that gulls
15 taken then as a percentage of the total are approximately
16 20 per cent. You can see that in 1982 it is slightly
17 less and in 1983 I think it is fair to say it is a little
18 more and in 1984 it's reduced a little bit?

19 A. Birds identified as gulls account
20 for 20 per cent and as you say there may be some gulls
21 among the unidentified category.

22 Q. Can we agree that over those years
23 the amount of the unidentified category, the amount the
24 unidentified birds contributing has decreased from about
25 49 per cent in 1982 to about 30 per cent in 1984?



1 A. In general, yes.

2 Q. The amount that gulls have con-
3 tributed to this in total hasn't actually changed that
4 much?

5 A. The percentage that identified gulls
6 contributed to the grand total does not change much.
7 There is a dramatic increase in the percentage that are
8 identified.

9 Q. It would seem to suggest that as
10 more birds are identified they tend not to be gulls;
11 would you agree?

12 A. Yes, that is in general correct.

13 Q. To put it more simply gulls are a
14 bird which are easy to recognize and therefore don't,
15 this would suggest lend that much to the confusion of
16 unidentified birds; would you agree? We all know what
17 a gull looks like?

18 A. Of course a gull does not look at
19 all the same after it has gone through an engine and
20 that is always one of the problems of trying to identify
21 birds. In general you are correct that gulls are
22 comparatively easy to identify and therefore in the
23 earlier statistics it was easier to count the gulls than
24 it was many of the other birds. As more effort has
25 been put into identifying the remains of birds and birds



1 strikes a higher proportion of the other types
2 of birds have been identified. Therefore a proportion
3 of the identified birds that were gulls had tended to de-
4 cline and that I am sure contributes to a significant
5 part at least of the difference between those figures
6 that were quoted in the 1970's and before versus these
7 relatively current figures that we are looking at in
8 this graph in the 1980's.

9 Q. An indication of this is that
10 relatively fewer of the unidentified birds were
11 identified to be gulls that would seem to be the recent
12 history?

13 A. I agree that the percentage of the
14 unidentified birds that are gulls is probably more than
15 the percentage identified birds that are gulls, however, there will be
16 some gulls among the unidentified so therefore the 20
17 per cent of the total that are shown as gulls is
18 undoubtedly somewhat an underestimate of the total
19 percentage.

20 Q. I tried to do some work with
21 these numbers as well to see if we could come to some
22 idea of how this would help us with this percentage.
23 What I would like to do now is turn over the page to
24 page 6 and here we see a list of bird types reported.
25 Do you see that, sir?



1 A. Yes, I do.

2 Q. Do you see that there are three --
3 I guess four kinds of gulls? There is a general
4 heading of gulls, herring gulls, ring-billed gulls and
5 Glaucous-winged gulls?

6 A. Yes.

7 Q. Do you agree there are 151 gulls?

8 A. Yes, that is right.

9 Q. One hundred and fifty-one and
10 462 birds identified, to do it your way?

11 A. Thirty-three per cent.

12 Q. Actually I have 32 per cent but I
13 am not going to -- if we do it your way and exclude the
14 unidentified, what we have is 32 per cent?

15 A. Thirty-two or 33, yes.

16 Q. We have 20 per cent if we include
17 them all, 32 per cent if we take out the unidentified?

18 A. Yes.

19 Q. I also tried to do some work
20 there because basically the numbers were available to
21 see what in fact would happen if some of these uniden-
22 tified birds turned out to be gulls. What you have to
23 do I think to assist you with this is to turn to page --
24 graphs at the back and to the second-last one.

25 Unfortunately these copies have not turned out terribly



1 .well.

2 A. Are you referring to the computer
3 printouts at the back?

4 Q. The second-last page of the entire
5 exhibit.

6 Now, just so we can understand this
7 chart and everyone can understand it, I am going to
8 stand with you. Can we agree, first of all, if you
9 look down at the bottom what you see is a listing of
10 letters and numbers, for example, NE1 you see that
11 defined as gulls, basically a legend? You can trace
12 the legend up to the top of the page and if we follow
13 along at the top, in fact NE1 is the second column from
14 the total?

15 A. Correct.

16 Q. If you want to see how many of
17 these birds in various categories were gulls you look
18 under the column NE1?

19 A. I would prefer that Transport
20 Canada give you the details of this since this is their
21 data. The category NE1 refers to the generic category, gulls
22 and does not include the few that are identified as some
23 specific type of gull.
24 I believe that is correct but in any case the NE1
category includes the vast majority of gulls.

25 Q. If we then go down to the heading,



1 number of strikes occurring in Canada, specific type of
2 bird in Canada was 70 per cent of the total strikes to
3 aircraft , 661?

4 A. I would want to look through all
5 the details.

6 Q. Why don't you do that and if you
7 have any thing to suggest I am wrong, you can tell me.
8 You take the 218 and put it over 661 and multiply it by a
9 hundred, that gives you 32.9 per cent?

10 A. Yes, it does, 33 per cent.

11 Q. My point being here of course
12 that if you compare that to the number, the percentage
13 of strikes caused by gulls, assuming, doing it your
14 way and simply taking out the unidentified and comparing
15 that to the percentage assuming that the worst case,
16 that all medium unidentified gulls should come out of
17 the same percentage, approximately, it is roughly 32
18 per cent?

19 A. Yes, you do.

20 Q. As an exercise it doesn't make
21 much difference whether you put the unidentified in or you
22 don't to look at it in percentage terms?

23 A. Yes, in this case.

24 Q. I did one other exercise and I
25 agree with you the significance is not that great but I



1 had some fun with this and I want to take you through
2 it. I did one other exercise. I decided I would try
3 and do a more realistic calculation to see what would
4 happen to try to be more realistic about the number,
5 these gulls, the unidentified birds, the 67 that were
6 actually gulls. I want to show you what I did.

7 Could you go back now to the chart at
8 the back of the exhibit? You see that you have 143
9 medium-sized birds which are identified as being gulls?

10 A. The generic gull category, yes.

11 Q. Then what I did is I added up the
12 total of other specifically identified medium-sized
13 birds and I got the number of 19.

14 A. Yes. I think again I would refer
15 to Transport Canada but I believe the other column on
16 the right-hand side may include some identified birds
17 because they just don't have enough room on the printout
18 to have more than this number of columns.

19 Q. You think the other may include
20 specific species and not just identified?

21 A. I believe that is correct but
22 again I'm not positive.

23 MR. ESTRIN: Mr. McDonald is in charge
24 of developing these statistics.

25 MR. LEDERER: Q. If that were true,



1 Mr. Richardson, and some of these 67 were identified as
2 being other than gulls that would in fact help the
3 position that I am taking, wouldn't it, because of course
4 it would decrease the number that were actually gulls,
5 it would mean the percentage of bird strikes would be
6 less, the bird strikes involving gulls would be less;
7 isn't that correct?

8 A. That is correct. As we said, that
9 is the worst case calculation.

10 Q. Let us assume a worst case
11 assumption because we don't really know. Maybe
12 Mr. Richardson will help us -- Mr. McDonald will help
13 us and maybe he won't. We add up the number that are
14 specifically shown, you get 19, you agree?

15 A. I haven't done that but I will
16 take your word for it.

17 Q. It is not that hard to do.

18 A. Yes.

19 Q. What I then did is I added 19 to
20 143 which would give you in effect a total number of
21 birds that were specifically identified on this chart,
22 would you agree?

23 A. The total number specifically
24 identified on the chart, although not necessarily the
25 total number specifically identified.



1 Q. As I have already said that would
2 make my position stronger. Let us do it this way to
3 make it simpler. That gives you 162?

4 A. Yes.

5 Q. Then to figure out the percentage
6 of those birds which were not gulls you would take 19
7 over 162 and multiply it by a hundred which I hope you
8 agree would give you 11.7 per cent. So 11.7 per cent
9 of the specifically identified birds of the medium-
10 sized category were not gulls; agreed?

11 A. Well, I agree with what you just
12 said but I think this whole exercise is somewhat
13 futile, given that I'm quite confident to conclude that
14 some identified birds are not gulls but including some
15 specifically identified gulls in the 67.

16 Q. Again that helps my position so
17 let's be conservative and do it my way because we don't
18 know that for sure. Let us be conservative. I am
19 happy to be conservative in this case. Would you agree
20 with me that that would show as a worst case that some
21 of the 67 may be identified as something other than
22 gulls, that that would show 11.7 per cent, a worst case
23 situation of 11.7 per cent of those specifically
24 identified birds are not gulls. Do you agree?

25 A. That's not necessarily true given



1 that some of the 67 in that right-hand-most column would
2 be gulls. I am confident of that because if you look
3 at other statistics in this report ...

4 Q. Mr. Richardson, some of them are
5 gulls and some of them aren't but for the purposes of
6 this study at this point we've assumed they are all
7 gulls. You can't have it both ways so let us just
8 assume for the moment that those that are specifically
9 identified on this chart would you agree with me 11.7
10 per cent are not gulls, that is 19 over 162 times a
11 hundred?

12 A. I will agree with that.

13 Q. Now, assuming our worst case
14 again which is that all 67, trying to lower our worst
15 case slightly let us now take that 11.7 per cent and
16 apply that to 67. Would you agree with me that 11.7
17 per cent of 67, that is to say 67 divided by a hundred
18 times 11.7 indicates 17.5. Do you agree with that?

19 A. I would need to do it on my
20 calculator but I will take your word for it.

21 Q. So then what you do is you
22 subtract 17 from the 67 which gives you 50; do you
23 agree with that?

24 A. Yes.

25 Q. So now what we have trying to make



1 our worst case a little more realistic, not perfect but
2 as you said some of these 67 may be identified. We have
3 50 now that are gulls based on the assumptions we are
4 making in this particular case; do you agree?

5 A. You sort of lose me here and also
6 I can't confirm from other information in this report
7 that I think seven of those 67 are in fact gulls. So
8 as I said, given that we have better information than
9 what we are working with here I find this whole exercise
10 to be somewhat frustrating.

11 Q. Unfortunately for you,
12 Mr. Richardson, you are in a kind of difficult position
13 here and let me concede that. You have to answer my
14 questions and you may find them difficult but you
15 understand I have a serious job to do here, don't you?

16 A. Yes, indeed.

17 MR. ESTRIN: Just a moment, please,
18 Mr. Chairman, I would like to address that. If
19 Mr. Lederer's last comment implies that the witness is
20 not trying to be responsive to the questions and he is
21 acting in some sort of irresponsible manner there is
22 certainly nothing we have heard from Dr. Richardson
23 which would give any inference of that. I think
24 throughout he is trying to be as helpful and frank as
25 he can. When he goes on to say that contrary to what



1 bird size, you see the one, that is the third one on
2 the right. If we then go down and see one of the
3 categories for splitting out these birds is bird size,
4 large, medium and small. If we go to NE1 can we agree
5 that one gull is depicted as being large, one gull is
6 depicted as being small and 143 are depicted as being
7 medium?

8 A. Right.

9 Q. That would lead us to the conclu-
10 sion that the vast majority of gulls turn out to be
11 medium-sized birds?

12 A. That is how they are categorized,
13 yes.

14 Q. Then what I did is I went to the
15 word "other" at the very end. Do you see that?

16 A. On the same page?

17 Q. That is the very last column under
18 size.

19 A. Right.

20 Q. There you have 22 as being large,
21 67 as being medium and 168 as being small?

22 A. Yes.

23 Q. I am not suggesting for a moment
24 that this is perfect but just as an indicator would you
25 agree then that if you want to take the worst-case



1 situation what you might do is assume that all 67 of
2 the medium birds were gulls?

3 A. That would be a reasonable
4 estimate of the worst case situation? Yes.

5
6 Q. Let us do that and let us go back
7 now to the chart that we were on a moment ago. If you
8 do that, the first thing you need to do presumably is
9 to change the number of birds you have as gulls so then
10 you have 151 plus 67; do you agree? That is 151
11 specifically identified, plus the 67 we have defined
12 for the purpose of this exercise as being gulls; correct?

13 A. Yes.

14 Q. That gives you 218?

15 A. If you say so.

16 Q. Help me out on this one. One
17 hundred and sixty-seven and 51 is 218?

18 A. Sounds right, yes.

19 Q. Now to change the bottom of the equation
19 and since we are including all gulls that could be gulls,
20 we have to include the total number of bird strikes;
21 correct?

22 A. Yes.

23 Q. That total is 661, do you agree?

24 A. Yes.

25 Q. You get that from page 5, the



1 Mr. Lederer's numbers are that there is other informa-
2 tion that has more accurate numbers, Mr. Lederer simply
3 wishes to ignore that and go at him again on the basis
4 of numbers that are not pertaining to the report, I think
5 we are approaching a level of cross-examination which is,
6 as the witness says, futile. Now, if Mr. Lederer wants
7 to put his questions "Assume this" and "Assume that",
8 okay, but let us not have Mr. Lederer trying to harass
9 the witness with numbers that the witness says he can't
10 agree with.

11 MR. LEDERER: I don't think I am
12 harassing the witness, sir, I am just asking the witness
13 to respond to my questions in a serious fashion. I
14 don't need and I don't think it's appropriate and I am
15 pointing out to the witness it's not helpful to tell me
16 how futile and frustrating it is. That's the Board's
17 decision. I don't think I'm doing anything wrong.

18 MR. LANCASTER: If you ask him to assume
19 certain things as you go along.

20 MR. LEDERER: Q. Mr. Richardson, let me
21 see if I understand correctly. Are you telling me
22 that out of those 67 birds you think seven are identified
23 as being gulls?

24 A. Yes. Of the birds that are listed
25 in the other column of which there are 67 classed as



1 medium and the other numbers classed as large and small
2 and we expect that the gulls are in the medium category,
3 as you pointed out we know that there must be, if I am
4 interpreting these statistics correctly, a minimum.
5 There must be seven specifically-identified gulls based
6 on numbers that appear in another table which is in
7 this same document on page 6.

8 Q. I'm sorry, what page are you on?

9 A. Page 6. As you have already
10 referred to that page, we see that there is a total of
11 144 generic gull incidents. That is the group that
12 gets categorized under that column, NE1, that gull
13 column and then there are seven additions specifically
14 identified gulls that will turn up because there is no
15 other gull column, specific gull column on that computer
16 printout, the second-last page. Those other seven gulls
17 will be thrown into the other column. The other column
18 is not just unidentified birds.

19 Q. To be entirely fair about it it
20 wouldn't actually be seven, it would be six, wouldn't
21 it, because you have got one large and one small? One
22 of those would be included in the general category of
23 the gulls because it's 144, so small and large in fact
24 would make up those seven so in fact it is six that
25 would appear in the 67, not seven?



1 A. You have lost me in the details.
2 The point is that there is much better information
3 available than one can get from looking just at this
4 computer printout. I don't have access to the details
5 of that information and if I'm going to try and answer
6 this as best I can but we do have another witness coming
7 who is specifically responsible.

8 Q. You are the one who has made the
9 reference to 50 per cent being caused by gulls and that's
10 why I want to go through this with you. Let us look at
11 the six of 67. You are not suggesting that those are
12 the only birds in those 67 that are gulls, are you?

13 A. No.

14 Q. Then, sir, again in a worst case
15 situation, just trying to apply some logic to all of
16 this, will you agree with me and I agree it is not
17 perfect, will you agree with me going back to the
18 calculations that you were doing that if you try to
19 work the comparison here between the 67 and the 151
20 other -- sorry -- 162 other birds, that if 11.7 per
21 cent of the 162 are not gulls and if you apply that
22 11.7 per cent to the 67 that what you discover is that
23 approximately 17 birds on the same ratio will not be
24 gulls. Do you agree?

25 A. Seventeen will not be gulls or 17



1 .will be?

2 Q. Seventeen will not be. Fifty
3 will be gulls and 17 will not be.

4 A. Yes.

5 Q. Will you agree with me that that
6 is a worst case because, as you said yourself, gulls are
7 easier to identify and tend not to fall into this same
8 ratio that we are assuming; correct?

9 A. Close if not exact.

10 Q. If you then take that number 50
11 and try and apply the same percentages that we were
12 doing before going back now to the table and add the
13 50 to 151, you said yourself that actually to be fair
14 what we should be doing is not adding 50, we should be
15 adding 44 because we are double-counting six of them;
16 correct?

17 A. There is a problem with those
18 numbers, yes.

19 Q. So let us add 44 then to the 151.
20 That gives you, according to me, 196, 195; do you agree?

21 A. I agree that's what the arithmetic
22 says.

23 Q. Then what you do and I haven't
24 done this, would you just put 195 over 661, that is
25 the total and multiply that by a hundred?



1 A. That comes to 30 per cent.

2 Q. So, sir, when we do this what we
3 discover here is pretty much no matter how we turn it
4 around, that we don't get 40 or 50 per cent of these
5 accidents being caused or involving gulls; we get 30
6 per cent or less because if we include the unidentified
7 as the CATA appears to do in its chart on page 5 it goes
8 down to 20 per cent. That is the range that we are
9 at, isn't it, 20 to 30 per cent involving gulls no
10 matter how we play with these numbers; do you agree?

11 A. Not quite but I would agree that
12 one can come up with, depending on the assumptions, 20
13 to 35 or so per cent. Again I refer you to the graph
14 on page 5 where the gull percentage of the identified
15 birds ranged up to 35 per cent in 1982 and 39 per cent in 1983
16 -- 33 per cent in 1984. I think to be fair -- the
17 various methods of doing it, you have to deal with the
18 range from about 20 per cent up to 39 per cent.

19 Q. That is if you take out the
20 unidentified and just apply the 1983 data ?

21 A. That is correct.

22 Q. If you take 20 of 61 is ...

23 A. Twenty-two of 61 in 1983, it was
24 160 birds identified as gulls out of a total of 406
25 identified birds.



1 Q. So that is the range, can we agree,
2 20 per cent, if you want to go back to 1983, 39 per cent
3 and if we look at the 1984 data, 20 to 30 per cent?

4 A. Twenty to 33 per cent.

5 Q. Okay. Will you agree with me
6 then what all of this demonstrates since we are not at
7 50 per cent is that first of all, as I think you have
8 already agreed, when we come to look at unidentified
9 birds we have to recognize the fact they are turning out
10 as things develop not on the whole to be gulls; do you
11 agree?

12 A. Not as large a proportion of them
13 as gulls than are gulls of the unidentified birds.

14 Q. Secondly, since we have a lower
15 percentage, what it indicates is that either our efforts
16 to mitigate against these kinds of collisions insofar
17 as they involve gulls are being successful because they
18 were lower than the averages that were seen or that in
19 fact gulls simply don't demonstrate the kind of risk
20 that was identified at some earlier time. Do you
21 agree?

22 A. I agree there are mitigating
23 measures that are responsible for part of this reduction
24 and of course the reason that that is the case is the
25 mitigating measures are directly targetted largely



1 towards gulls given we recognize they consistute such a
2 disproportionate hazard. I think it is worth pointing
3 out that there are something in the order of 10,000
4 species of birds in the world. There are several
5 hundred in Canada, 600 or something like that, say 300
6 that occur in Ontario. In Ontario we have basically
7 two species of gulls that constitute essentially all of
8 the gull hazards, herring gulls and ring-billed gulls.
9 Those two species of gulls in Ontario out of a few
10 hundred species that actually occur here are accounting
11 for something in the order of a third depending on how
12 we -- on which set of specifics we deal with. So it
13 is obvious that the gulls are still accounting for an
14 extremely disproportionately high fraction of the bird
15 hazard in Ontario or in Canada and in the world,
16 depending on how you look at it.

17 Q. Sir, what all of this indicates
18 is that when this Board comes to evaluate the degree
19 of risk, one of the things you have to consider is the
20 fact that our mitigation measures are beginning to
21 show some success; isn't that right?

22 A. Well, yes, if you can say that
23 still having a third of our identified bird strikes are
24 gulls given how small the number of gulls-- the species
25 there are in relation to the total number, there is some



1 .degree of success there.

2 Q. Sir, you agreed with me yesterday
3 that this whole matter poses something of a problem at
4 the Trenton Air Force Base. Do you recall?

5 A. Yes.

6 Q. You have referred to the Board's
7 decision, not only to Dr. Solman's evidence now but to
8 the Board's decision and if you need to know where I
9 will tell you it is at tab 1 of your witness statement
10 in reference to the material you have provided with
11 respect to that airport on page 2. You talk about a
12 hundred, the annual cost, the annual cost of the bird
13 control program is \$133,000 which is borne entirely by
14 the DND and you quoted the decision of the Board in
15 October of 1987. Do you see that?

16 A. Yes, I do.

17 Q. I want to refer you to another
18 part of that same page of the decision, page 37. Do
19 you have that with you, sir?

20 A. I do not believe that I do.

21 Q. Then -- Mr. Estrin appears to
22 have a copy. I am reading from the third paragraph on
23 that page and you will see just above it is the number
24 you quoted:

25 "The statistics presented at the hearing



1 indicate the success of the bird control program.
2 From 1979 to the present time there has been a
3 total of 91 bird strikes in the Trenton
4 area, 13 of which have involved gulls.
5 This is only 14.28 per cent of the total.
6 Dr. Solman's figures for Canadian airports
7 is 15 to 20 per cent and up to 50 per cent
8 in the U.S.A. It should be remembered
9 that at Trenton, as well as at other
10 airports there is a percentage of uni-
11 identified birds involved. So the figures
12 are valid to the extent the identification
13 of birds has been established."

14 Will you agree with me then that based on the data that
15 was presented at that hearing in this particular case,
16 we now see a situation where we have reduced ourselves
17 even below the 20 per cent to 14.3 per cent?

18 A. Yes, the Trenton situation is one
19 where gulls have been recognized as a serious problem
20 for many, many years and very intensive efforts have
21 been undertaken at Trenton to discourage the use of that
22 landfill site adjacent to the runway by gulls. As
23 Mr. Lederer quoted, there is \$133,000 a year that is
24 being spent as a contract aside from any money that the
25 Department of Defence expends.

Q. Oh, no, sir. I am with you until
then, excuse me, but I would suggest to you that the
contract is a DND contract for \$133,000 and in fact
that covers the efforts of both the landfill and the
airport. If you want me to demonstrate that to you I



1 will read the paragraph immediately preceding.

2 A. I don't doubt that but what I was
3 referring to was DND I am sure is spending additional
4 monies through the use of their staff independent of
5 the value of the contract.

6 Q. For what it is worth there is no
7 indication of that in any of this.

8 A. The general point is the gulls are
9 a major problem and have been a major problem for many
10 years at Trenton. Major efforts have been made to try
11 and reduce that problem. Indeed the major control
12 measures that have been applied have been apparently
13 quite successful to some extent as evidenced by the
14 fact that the proportion of bird strikes that were on
15 the Trenton Airport that were strikes with gulls is
16 lower than some of the other figures we have been
17 discussing.

18 Q. So can we agree then that what
19 this is is an indication, a further indication that
20 mitigation measures in the situation where gulls were
21 a serious problem can meet with some considerable
22 degree of success?

23 A. Mitigation measures can reduce
24 the number of collisions with whatever type of bird
25 one is targetting the mitigation measures at, yes.



1 Q. I would like to now go on and
2 just read the next paragraph of this, okay;

3 "Another indicator ..."

4 A. I should point out that I believe
5 the page of that I have seen is, the one page seen
6 previously today is the page that you quoted that number
7 from. I certainly have not seen all of it.

8 Q. Let me see if I understand this
9 correctly. You referred to this decision without having
10 read the whole decision?

11 A. That is correct.

12 Q. You referred to that one number
13 out of any context of understanding the full implications
14 of this issue before that Board; is that fair?

15 A. It is fair to say I was not
16 participating in that process, so it is fair to say I
17 don't fully understand all the implications.

18 Q. "Another indication of the
19 success of the bird control program is
20 that since 1979 only one strike can be
21 established as having occurred over the
22 landfill site and only four or five are
23 probables although these are very
24 probable. No one, however, should take
25 too large a measure of comfort from the



1 figures presented. One bird strike that
2 results in serious damage or injury or
3 worse is one too many."

4 Do you see that?

5 A. Yes, I do.

6 Q. Looking at the numbers, would you
7 agree with me then that if you try to assess the
8 success of this bird control program insofar as it
9 involves the landfill it appears to be even better than
10 just the 13 because now we find there is only one, only
11 one gull strike that can be specifically identified as
12 involving the landfill with four or five others that
13 are probable so we have a total essentially again to
14 pick the worst case of six since 1979 or to put it
15 differently, one per year over the landfill, the
16 landfills causing the problem?

17 A. As you pointed out yesterday it
18 is impossible to be sure what the specific cause is of
19 bringing any particular gull into an area. You have
20 landfills that attract them and various other things
21 that may attract them in various circumstances. Just
22 from that general viewpoint as well as from testimony
23 that was given by Dr. Solman at the Trenton hearing,
24 that point was made. We don't know what additional
25 number of the gulls strikes that occurred in the general



1 .Trenton area occurred as a result of the fact that gulls
2 were brought into the vicinity of the airport largely
3 through the presence of a landfill site. So I don't
4 think it is fair to say that just one or five out of a
5 total number of bird strikes in that area were caused
6 by the landfill and all the others were caused by some-
7 thing else. There is no way of saying that.

8 Q. Now, Mr. Richardson, we know first
9 of all that the total of gull strikes in the Trenton area
10 was 13 so it can't be more than that?

11 A. Yes.

12 Q. Now, we know -- we also know
13 because you have agreed that there are certain circum-
14 stances, the potential for birds to feed in areas
15 surrounding a landfill but on farmers' fields, so there
16 is some potential for the birds to be there for some
17 other reason; can we agree?

18 A. In whole or in part.

19 Q. So now we know that maybe 13 is
20 truly a worst case and it is something less than 13
21 that may have been there as a result of the landfill;
22 do you agree?

23 A. That is possible.

24 Q. Do you agree that now we have a
25 situation where we have got one bird strike actually



1 over the landfill of perhaps five or six; do you agree?

2 A. Yes.

3 Q. So when this Board comes to assess
4 the degree of risk caused by placing a landfill at Site
5 D and chooses to look at whether or not mitigation
6 measures with respect to landfills are successful, it
7 tends to look at the Trenton example and what they may
8 wish to consider is the fact that you get over that
9 period something less than 13 caused by a landfill; do
10 you agree?

11 MR. ESTRIN: Before he answers the
12 question, Mr. Chairman, I don't believe we have heard
13 from witnesses from the Region on this issue. Would
14 you excuse me, Mr. Lederer. You have heard all the
15 evidence. I haven't been here all the time but I have
16 read as much as I can and certainly it is my impression
17 that there is nothing in any report tendered by the
18 Region to date or any indication thus far by a witness
19 on behalf of the Region that mitigation measures in
20 terms of the scale that, for example Trenton, has even
21 been contemplated, let alone indicated that it is some-
22 thing the Region is prepared to undertake. Yesterday
23 Dr. Richardson pointed out that in the documents he
24 reviewed ...

25 MR. LEDERER: Sir, this isn't an objection.



1 This is argument. What are we doing here? I have a
2 right to cross-examine this witness with respect to the
3 information he has brought here. The Region's position
4 will be clear, is clear, will be clear in argument.
5 Mr. Estrin doesn't get to stand up and make this posi-
6 tion known now. This witness is giving evidence.
7 Mr. Estrin is now telling us about his ideas of the
8 scale of the program at Trenton. There is no indica-
9 tion of what the scale of that program is other than
10 the amount of money which this witness has referred to.
11 This is improper. There has to be a limit to this sort
12 of thing.

13 MR. ESTRIN: With respect, what is
14 improper and why I am rising is that he has implied in
15 his question that the Region has come to this hearing
16 ready to undertake some kind of mitigation measures
17 that we have heard essentially nothing about and
18 therefore my objection is this: let it be clear that if
19 he is asking the witness to comment on mitigation
20 measures and whether or not they can work, that is
21 fine. If he is asking, assuming the Region undertakes
22 mitigation measures such as may have been taken at
23 Trenton or any other place he wishes to give us some
24 information about, fine, the witness can comment but
25 let us not have an implication the Region has come to



1 this hearing saying that they understand the degree of
2 hazard and that they are prepared to commit the kind
3 of resources that have been committed in other places.

4 MR. LEDERER: Sir, I haven't implied
5 anything by that question. All I am doing is cross-
6 examining the simple fact and I hope it comes through
7 to the Board. If it doesn't I have not been very
8 successful. First of all, it is established that the
9 degree of risk as it appears to be depicted by this
10 witness, I say "appears" because in my submission it is
11 very subjectively put, is much less than he has
12 suggested.

13 Secondly, in the event that some problem
14 appears, it can be taken care of as it is being in other
15 places. So far as what I am undertaking to do, I am
16 not undertaking to do anything. The point is frankly
17 it is not as serious a problem as is being suggested.
18 There is nothing improper about that. It's entirely
19 within the proper realms of cross-examination. If at
20 the end of the day the Region wishes to say, look, in order
21 to accommodate this problem we are prepared to, and ask
22 the Board to put in a condition that if the problem
23 appears that some program of mitigation be undertaken.
24 I am within my rights to do that. Otherwise
25 when Mr. Estrin is implying that I come here and I can't



1 change my position when I come here. Let me finish,
2 please. That is not the essence of this kind of
3 hearing. This is not a list between two parties, it is
4 an enquiry. It broadens, it narrows as the issues
5 appear before this Board. There is nothing improper
6 about this. Mr. Estrin's objection is improper. He ought
7 not to be making these arguments now, they get made
8 later.

9 MR. LANCASTER: It is finally a matter
10 for the Board to determine the conditions necessary
11 from the evidence put before it.

12 MR. ESTRIN: That is correct, Mr. Chairman,
13 absolutely. What is important to be dealt with now
14 and I would be happy to have Mr. Lederer's client, if
15 it chooses, to indicate at a later date it is changing
16 its position, recognize there is some hazard here and
17 put in mitigation measures. I think that would be a
18 responsible thing for the Municipality to do, if it
19 wishes to do that. All I am raising right now is that
20 there was and we have to say read back the transcript.
21 It was clearly an inference or, if not, a statement in
22 Mr. Lederer's question that the Région is committed
23 to doing the kinds of things they are doing at Trenton.
24 He can ask the witness quite legitimately I say if the
25 things that were done at Trenton or any other place were



1 done would it mitigate the hazard. Fine, let the
2 witness respond. All I am saying is we shouldn't be
3 under any misapprehension about what the Region said
4 to date.

5 MR. LANCASTER: I don't think the Board
6 is, Mr. Estrin, in that regard.

7 I think, doctor, we will have a break.

8 --- Recess

9 MR. LANCASTER: Please be seated.

10 MR. LEDERER: Thank you, sir.

11 Mr. Chairman, I was reminded of something at the break
12 with reference to Mr. Estrin's comments. I think it's
13 important that the Board is aware of the Region's
14 position.

15 Q. Mr. Richardson, before we move on
16 I want to address one of the questions you raised this
17 morning with respect to whether or not or how the
18 earlier works of Dr. Solman and is it Mr. or Ms Seubert,
19 dealt with the issue of unidentified birds and develop-
20 ing the figures of 40 or 50 per cent. Could you just
21 turn with me to the report of Dr. Solman's which we
22 exhibited yesterday, the '73 report which you have
23 referred to on page 5 of your 1978 report? Do you have
24 that in front of you?

25 A. Is that H-401?



1 Q. I believe it is.

2 DR. KINGHAM: H-401 is the Solman report.

3 MR. LEDERER: Q. Could you read with me
4 the first full paragraph on that page:

5 "In our experience gulls are involved in
6 about half of all bird /aircraft impacts."

7 Do you see that?

8 A. Yes.

9 Q. That appears to make it clear that
10 what we are talking about is about half of all impacts,
11 include those which the specific species of bird cannot
12 be identified; would you agree?

13 A. I'm not sure you can conclude
14 that from the sentence.

15 Q. "All" doesn't mean "all" in your
16 opinion, is that it?

17 A. "All" ...

18 Q. Let us suppose for the moment the
19 Board is prepared to agree with me and I don't want to
20 appear flippant, but "all" means "all" which means all
21 those collisions, all those collisions of aircraft
22 which are identified as being collisions with birds
23 are what was considered here. Would you agree with me
24 then that when you come to compare that with the CATA
25 data, C-A-T-A data we referred to this morning, the



1 proper comparison would be to look at the 20 per cent
2 figure found on the chart on page 5 of the 1984 CATA report?

3 A. I would not agree that that
4 comparison is necessarily the correct one because I
5 think it is not clear from this what base it is they
6 are using which Solman is referring to here when he
7 quoted this half.

8 Q. I am asking you to assume with
9 me that the Board comes to interpret that sentence in
10 the way in which I have put to you. Do you understand?
11 Assume that my interpretation is correct. We understand
12 you are not certain. The Board may want to come to
13 some decision about this and I would like them to have
14 the advantage of your view assuming they come to my
15 interpretation; right? Let us assume I am right and
16 what that word means is that all aircraft collisions
17 with birds were considered. Would you agree with me
18 then that the correct comparison is the one that includes
19 the unidentified birds which means the 20 per cent
20 found on page 5 of the CATA report?

21 A. That is one of the two possible
22 interpretations, yes.

23 Q. Thank you, I am assuming that is
24 a yes. Now, have you had a chance to review
25 Dr. Solman's report?



1 A. This particular paper you are
2 referring to?

3 Q. Yes.

4 A. I have read it in the past. I did
5 not read it during the break.

6 Q. That's my point. I thought I had
7 asked you to do this. I asked you to review that
8 report and indicate any other sentence which might help
9 us with coming to an interpretation of whether or not
10 Dr. Solman withdrew unidentified birds from his calcu-
11 lation of 50 per cent.

12 A. I don't have any further informa-
13 tion.

14 Q. Will you review the report and
15 advise us some time in the course of the next couple
16 of days whether or not there is anything more in this
17 report that might assist us in coming to an understand-
18 ing of how unidentified birds were treated by this man
19 in his work?

20 A. Yes, I will do that.

21 Q. Would you do the same thing for
22 us with respect to the Seubert paper which I may say
23 I don't have a copy of.

24 A. If I can locate it here and I'm
25 not sure I can.



1 Q. Let us go on and we will review
2 that with you.

3 Now, what I would like to do now is to
4 try and look at this again. Again we are still looking
5 at the notion of risk and I would like to try and look
6 at this in a slightly different fashion. What I would
7 like to do now is turn to tab 4. This is the 1983 CATA
8 data and we have used this report for this work largely
9 because it is the one that you had. Would you turn to
10 page -- it is Table 2 which is found immediately after
11 page 4. Do you have that?

12 A. Yes.

13 Q. This is a chart entitled
14 "Canadian Civil Airports with Highest Bird Strike Totals";
15 do you see that?

16 A. Yes.

17 Q. Just to review the chart what we
18 have here is a list, first of all, of 15 airports with
19 the highest bird strike totals?

20 A. Yes.

21 Q. The first column after the column
22 of airports is the total bird strikes reported?

23 A. Yes.

24 Q. Then you have the total aircraft
25 movements?



1 A. Yes.

2 Q. Then you get quite a wide variation
3 in those numbers between those 15 airports?

4 A. Yes, a wide variation.

5 Q. As I understand it in order to
6 develop a directly comparative figure what has been done
7 here is to assess the bird strikes per 10,000 movements
8 to get a figure which gives you some direct way of
9 relating to these various airports?

10 A. That is what has been done in this
11 table. There is some debate as to whether or not this
12 is the best way of presenting such statistics, but that
13 is what has been done here.

14 Q. It's been done here and it's been
15 done for that purpose?

16 A. It's been done to develop compara-
17 tive statistics.

18 Q. What we have here for Vancouver
19 is 102 reported bird strikes. Having had 222,671 move-
20 ments which turns out to be 4.58 strikes per 10,000
21 movements?

22 A. That is what is in the table, yes.

23 Q. What we have done is to try and
24 assess this kind of calculation with respect to gulls
25 and I want you to follow along with me as to how this



1 works. Can you turn to page 0006 of this chart? This
2 is the computer printouts at the back. Would you agree
3 with me that this is where you get the total number of
4 bird strikes? For example, if you will look halfway
5 down -- I'm sorry, it's page 0005 through '7. I am
6 looking specifically at 0006 because that is the page
7 where you find Vancouver, I think about halfway down
8 the page. Just before halfway down the page you get
9 Vancouver; do you see that?

10 A. Yes.

11 Q. There you have 102; correct?

12 A. Correct.

13 Q. Here again we have the same
14 definition of gulls as NE1; correct?

15 A. Yes.

16 Q. What we have is 12 gulls?

17 A. Twelve that are in that generic
18 total.

19 Q. Looking at that then if you take
20 that number 12 as an indication of gulls, let us go
21 back now to the chart that we have and in effect then
22 what we have done and perhaps I will just show it to
23 you, it is the easiest way of doing it, is to create
24 a second column right next to total bird strikes which
25 we have called gull strikes and we put the number 12



1 directly against the 102; do you see that?

2 A. Yes.

3 Q. So now we have 12 gull strikes
4 for Vancouver per 222,671 total aircraft movements;
5 okay?

6 A. Yes.

7 Q. What we have also then tried to
8 do is to get some idea, again by way of comparison, of
9 the number of strikes per 10,000 movements which would
10 be caused by gulls. My understanding of the way to do
11 this and please correct me if my math isn't the greatest,
12 I have a lot of trouble understanding how they do this.
13 You divide 10,000 into 222,671 which in effect gives
14 you the number of units of 10,000 movements; okay?
15 Then you divide the answer to that from the division,
16 divide that into the number 12 which gives you the
17 number of strikes per 10,000 movements; do you agree?

18 A. That should work with the proviso
19 as I mentioned before that 12 includes only the gulls
20 that were not more specifically identified then there
21 may or may not be some additional gulls beyond the 12,
22 for example in Vancouver, that were gulls.

23 Q. Sir, if we go back to -- just give
24 me a moment to find it in this. If we go in this case
25 to page 8. Would you do that with me?



1 A. Computer printout 8?

2 Q. Page 8, Table 4. In this case we
3 get for this year, 1983 you get 158 gulls of the generic
4 type and one herring gull and one ring-billed gull;
5 correct?

6 A. That's right.

7 Q. The vast majority of gulls will
8 be covered by the generic heading, do we agree?

9 A. That's correct in this case.

10 Q. Taking it as an indicator, if you
11 do that equation as I have just said, 10,000 into
12 222,671 and the answer to that and divide it into 12,
13 the figure you get is 0.53 strikes, 0.53 gull strikes
14 per 10,000 movements. Will you accept my math or do
15 you want to double-check it later?

16 A. I will check it right now.

17 Q. It has been pointed out to me that
18 it isn't really my math but I will have to take the
19 responsibility.

20 A. I get 0.54.

21 Q. I get 0.53 but I am happy to
22 accept ...

23 A. It is 0.5389.

24 Q. I am happy to accept 0.54.

25 Now, what we have done -- I will give you



1 these numbers. Perhaps you can write them down and if
2 you want to check them later by reference to the table
3 on page 0005 through '7, for Vancouver International,
4 12 gulls. For Toronto Lester Pearson -- Lester B.
5 Pearson, 11 gulls. Montreal Dorval International, 10
6 gulls; Ottawa International, nine gull strikes;
7 Calgary International, 13 gull strikes; Winnipeg
8 International, no gull strikes; Sault Ste. Marie, 12
9 gull strikes; Edmonton International, five gull strikes;
10 Yellowknife, Northwest Territories, one gull strike;
11 St. John's, Newfoundland, five gull strikes; Halifax
12 International, one gull strike; Montreal Mirabel
13 International, four gull strikes; Thunder Bay, Ontario,
14 three gull strikes; Sudbury, Ontario, nine gull strikes;
15 Moncton, New Brunswick, two gull strikes. Okay? Let
16 me give you -- after doing the same calculation with
17 respect to each of those which would be dividing 10,000
18 into the total aircraft movements shown for that year,
19 1983 and then dividing that quotient into the number of
20 gull strikes which I have now given you, the answers
21 which we get -- what you should do here -- I think the
22 way to do this is to have a second column next to bird
23 strikes per 10,000 movements which would be gull strikes
24 per 10,000 movements and the answer is, you have given
25 us now for number 1, 0.54 and that would be for



1 Vancouver and for Toronto, 0.46; for Montreal Dorval
2 International, 0.66; for Ottawa International, 0.55;
3 for Calgary International, 0.69; for Winnipeg, zero;
4 for Sault Ste. Marie, 2.37; for Edmonton, 0.65; for
5 Yellowknife, 0.19; for St. John's, 0.95; for Halifax
6 International, 0.16; for Montreal Mirabel, 0.86; for
7 Thunder Bay, Ontario, 0.27; for Sudbury, Ontario, 0.99
8 and for Moncton, New Brunswick, 0.23. Do you see that?

9 A. I have all that.

10 Q. What I would like you to do is
11 over the break, over lunch, do whatever it is that you
12 need to do or feel that you need to do to come here and
13 say that these figures are correct or make any correc-
14 tions you think need to be made; okay?

15 A. (Witness nods head)

16 Q. If you nod your head unfortunately
17 the reporter can't pick it up.

18 If we want to get some idea then of the
19 risk of gull strikes, here we have some statistical
20 information which shows us the 15 worst airports in the
21 country for the year 1983 the risk of gull strikes per
22 10,000 movements; can we agree?

23 A. I would want to qualify that on
24 several accounts. First this is a list of the 15 air-
25 ports that are listed as the highest bird strike totals.



1 It is not necessarily the 15 airports with the highest
2 gull strikes.

3 Q. Fair enough.

4 A. Secondly as we just went through,
5 in fact there are a couple of more gulls that have to
6 be thrown in to some airports somewhere but that is
7 negligible. Furthermore, there are presumably additional
8 gulls in the unidentified category that are not counted
9 in these totals, so they presumably underestimate gull
10 strike rates slightly. On that count ...

11 Q. Will you agree with me it is an
12 indicator that uses some of the best data that is
13 presently available? We can't do anything with the
14 unidentified birds. That would appear to be a problem
15 you are overcoming, the decrease in percentage of
16 unidentified birds that we examined this morning. It's
17 an indicator of degree of risk, it's not perfect by any
18 means, I am not suggesting it is.

19 A. Right, it is an indicator for
20 these specific airports.

21 Q. The thing we also did because you
22 used the examples, we also tried to do a similar
23 calculation for Toronto Island, Trenton and North Bay.
24 This may perhaps overcome the difficulty you have just
25 mentioned. For Toronto Island, if you go to page --



1 that chart on page 0005 to page 0007 you will find that
2 there were two bird strikes both of which were gulls.
3 Do you want to take a moment and do that? That is for
4 1983.

5 A. Which page is Toronto Island on?
6 Oh, I've got it, it's on page 6.

7 Q. So two and two both of which were
8 gull strikes?

9 A. Yes.

10 Q. Then if you go to tab 1 of your
11 work you get the total number of movements for that year
12 at Toronto Island which is on the second page and is
13 194,195; do you see that?

14 A. Yes.

15 Q. If you then do the same kind of
16 calculation which I suggested to you before, that is
17 you divide 10,000 into the number of movements and then
18 take that quotient and divide it into the number too,
19 the answer you are going to get we believe and you can
20 check this again is 0.10?

21 A. I guess, yes, that is correct.
22 I have just checked it.

23 Q. So, you would agree with me
24 comparing that to what we see in these 15 worst total
25 bird strikes it fits into that range, in fact it would



1 be at the low end of that range, in fact it is the
2 lowest of all?

3 A. I would have to check those
4 numbers.

5 Q. Except Winnipeg which is zero?

6 A. It fits into that range but I
7 would also point out that the type of aircraft involved
8 in those airports and the effect of strikes is not the
9 same.

10 Q. If we compare this to the
11 Burlington AirPark and the kind of aircraft we see there
12 that would be even lower because there are more light
13 engine piston aircraft and less turbines and jets which
14 you find at these larger airports. Given the position
15 the Region takes that the risk here isn't that great,
16 that would just assist us?

17 A. The aircraft that use Toronto
18 Island Airport are in many respect similar to those at
19 Burlington AirPark than are those at the 15 airports we had
20 looked at.

21 Q. What we will see when we come to compare
22 these figures that Toronto Island takes you to the
23 bottom end of the range?

24 A. In that particular year and
25 with whatever bird control measures were in effect at
Toronto Island Airport at that time.



1 Q. Absolutely. Can we also do
2 North Bay and do the same thing here, go to that chart?
3 I believe you will find that there were five bird
4 strikes, one of which was a gull strike. Again if you
5 go to Table 1 -- I'm sorry -- to tab 1 and look for air
6 movements in 1983 you will see the number there is
7 100,826.

8 A. That is correct.

9 Q. North Bay is an airport, isn't it,
10 that has both military aircraft and civilian aircraft?

11 A. Yes, that is correct.

12 Q. If you do the same calculation
13 there I believe you are going to find the number is 0.09
14 gull strikes per 10,000 movements. I wonder if you
15 would check that for me and if you have any reason to
16 disagree with it advise me after lunch. Would you agree
17 with me that here again we find ourselves at the bottom
18 of the range?

19 A. I'm sorry, what was that rate
20 again?

21 Q. Point zero nine.

22 A. It's towards the bottom of that
23 range. Again I would point out we don't know for sure
24 there wasn't another gull which of course would double
25 that rate if it was identified at North Bay.



1 Q. With Trenton we have had a bit of
2 a problem because of a disagreement over the number of
3 movements.

4 We have basically done this two ways.
5 I guess it shows some of the problems with this kind of
6 data. First of all, if you take -- if we do it
7 precisely the same way we have done it before and just
8 go to the chart you will see that for 1983 there are
9 seven strikes, two of which were gulls?

10 A. Two of which were the generic
11 gull category, yes.

12 Q. If we go to the number of move-
13 ments shown at tab 1 it is 41,133?

14 A. Yes.

15 Q. There if you work out the calcu-
16 lation it turns out to be 0.48 gull strikes per 10,000
17 movements?

18 A. Yes.

19 Q. That we can agree falls into the
20 range that we have here?

21 A. It is within that range, yes.

22 Q. The other thing we did is that
23 I indicated to you and you accepted the advice given
24 another panel, the panel of the Environmental Assessment
25 Board this summer, of the flight air safety officer for



1 .Trenton, that is that in 1986 the number of movements
2 was 86,603. Do you recall my discussion of yesterday?

3 MR. ESTRIN: Before the witness answers
4 the question, he indicated he was prepared to assume
5 that is what the evidence was. I don't have that
6 transcript.

7 MR. LEDERER: Q. I did not raise the
8 matter of that hearing here. It was raised by Mr. Estrin
9 at tab 6. If you want me to take the time to take you
10 to -- it will take me a moment to find the specific
11 reference.

12 MR. ESTRIN: I would like to see the
13 cross-examination. In the absence of having a complete
14 copy of the evidence that Mr. Lederer has referred to
15 and I certainly don't, the fair thing to do is to say
16 it's there and that's all we can go on.

17 MR. LEDERER: I agree with that, save
18 and except for this: Mr. Estrin through this witness
19 brought us three pages of transcript of an entire seven-
20 week hearing. Then in his direct examination he put
21 that to the witness and he said "What does that all
22 mean?" He didn't bring the whole transcript. Having
23 done that, Mr. Estrin has said it is okay to come here
24 and refer to that evidence. I am not doing anything
25 more, sir, than he has done. It is too late for



1 Mr. Estrin to tell us it is not proper. If it is not
2 proper, it wasn't proper for him. I am not going to
3 argue whether in the greater scheme of things had this
4 issue been raised when Mr. Estrin first brought forward
5 this transcript what position we might have taken. What
6 we are dealing with now is the position as we find it
7 now. Mr. Estrin, you know, to be colloquial about it,
8 what is sauce for the goose is sauce for the gander.
9 In this case I get to be the gander. If Mr. Estrin
10 wants a specific reference I will take the time to find
11 it. Frankly, it doesn't make that much difference to me.

12 MR. LANCASTER: If he insists on it you
13 should.

14 MR. ESTRIN: May I reply, please? I
15 appreciate the Board's ruling. Mr. Lederer has been
16 very inconsistent and not very relevant in his comments
17 right now. When I put forward, as I did, about three
18 pages of transcript to the witness it dealt not on this
19 point at all. Second, Mr. Lederer had that witness
20 statement for a few weeks now, at least two or three.
21 Thirdly, it had nothing to do with numbers and I wasn't
22 trying to prove anything by putting in that matter. I
23 was simply doing it so that Mr. Lederer would have the
24 opportunity of seeing the exact words so that I could
25 get the witness to comment on it. It was only a question



1 of whether Dr. Richardson would agree or disagree with
2 that opinion. It wasn't an attempt to prove that that
3 is how Dr. Solman put it one way or another. So, as I
4 say, I don't want to be difficult. I don't think
5 Mr. Lederer has to call the flight officer to this
6 hearing to prove these statistics but if he takes
7 issue with the statistics that have been provided to
8 him by us several weeks ago then he knows certainly
9 the method of trying to follow those statistics. It's
10 not by saying I was at that hearing and reading the
11 transcript and now won't you accept that. He knows
12 that is not proper. So let me have the transcript,
13 let me review it and in the meantime if he wants to
14 put it to the witness, assume that this is the number,
15 I am happy.

16 MR. LANCASTER: I think the witness
17 should have it before him if that is the question. It
18 is only fair to the witness.

19 MR. LEDERER: You are going to have to
20 give me a few moments, sir.

21 THE WITNESS: Without trying to answer
22 the question now I might ask is the figure that is
23 going to be presented the figure on aircraft movements
24 for 1986 or 1983?

25 MR. LEDERER: Q. Eighty-six.



1 A. If the figure being presented is
2 a figure dealing with '86 I am not prepared to use that
3 figure as a base for calculating a rate dealing with
4 the number of gulls that were observed or the number
5 of strikes that were observed in an earlier year. We
6 would have to have the number of aircraft movements
7 in the year.

8 Q. I am going to give you those too,
9 if you will just bear with me. That I may have trouble
10 with I may say. I think what I am going to do is
11 indicate to you the source of the numbers with respect
12 to movements and we will leave it at that for the
13 moment.

14 Mr. Richardson, first of all, to give
15 you two sources, I am going to refer you to page 16 of
16 the Board's decision which, as I have indicated earlier,
17 you refer to in your statement:

18 "A total of 86,603 air movements were
19 recorded at CFB Trenton for 1986."

20 Do you see that?

21 A. I see that.

22 Q. Also now in the transcript this is
23 the evidence of the flight safety officer, a Colonel
24 Watkins -- sorry -- Major Watkins, at page 3821:

25 "O. I will just shut this off for a



1 moment. I will let you handle that,
2 Major Watkins. Can you describe what
3 an air movement is?

4 A. An air movement is recorded in
5 the air traffic control tower every time
6 an aircraft either lands or takes off.

7 Q. Approximately how many of these
8 air movements were there at CFB Trenton
9 last year?

10 A. In 1986 the statistics from the
11 control tower show that there were 86,603
12 aircraft movements in the area."

13 When we go on to work that out it's 237 per day. Would
14 you agree with me then or are you prepared to assume
15 with me then that based on that that the number of air
16 movements at CFB Trenton in 1986 was 86,603 or almost
17 double the figure that you have shown for 1983?

18 A. I will agree that is what those
19 figures show, yes.

20 Q. The distinction I think -- I think
21 one of the distinctions here, as you point out, is the
22 year, it is 1983 against 1986. There is another dis-
23 tinction I suppose which is the data source, one is the
24 control tower records and the other appears to be from
25 Transport Canada. Are you prepared to agree with me



1 or can you give us any explanation which would account for
2 a doubling in air movements, in aircraft movements
3 between 1983 and '86?

4 A. I really can't discuss that. You
5 would have to discuss that with someone more familiar
6 with the situation than I am.

7 Q. You just don't know?

8 A. That's right.

9 Q. Well, just looking -- you would
10 agree with me I think, this is self-evident, if you look
11 at page 2 dealing with Trenton at tab 1 of Exhibit M-389
12 of your witness statement you will see that 1981
13 through 1985 the numbers you have shown were consistent,
14 the movements were consistent in the area of 40,000.
15 Eighty-one seems to have been high at 46,000.

16 A. Yes.

17 Q. Sir, will you agree with me then
18 the calculations that we have gone through with respect
19 to the table found at page -- I believe it is page 5
20 of tab 4, the 1983 CATA report gives this Board an
21 indication at some specific airports as to the number
22 of gull strikes per 10,000 movements?

23 A. At those specific airports, yes.

24 Q. Will you agree with me that we
25 have also provided now the calculation of the number



1 .of bird strikes that one finds at the airports you have
2 chosen to use as examples for the purpose of your
3 evidence before this Board being Toronto Island, CFB
4 Trenton and North Bay?

5 A. For one specific year, yes.

6 Q. Which fall into the same range,
7 would you agree?

8 A. Yes, that is correct.

9 Q. So, if the Board wants to
10 establish -- can we agree that what this shows is just
11 the numbers of strikes? These have got nothing to do
12 with the number of strikes that cause accidents, dents,
13 damage of any kind, these are just birds colliding with
14 aircraft, can we agree?

15 A. Yes.

16 Q. Can we agree then that if the
17 Board wants to assess the degree of risk involved here
18 one of the things it may want to do is to look at these
19 airports, many of which are larger -- all of which are
20 larger than the Burlington AirPark and the conclusion
21 it will come to is that it indicates there is not one
22 gull strike per 10,000 movements?

23 A. Sorry, there were more than that
24 at some of the 15 airports.

25 Q. With the exception of Sault Ste.



1 Marie, Sault Ste. Marie is the one exception, will you
2 agree with me that all of those airports -- Sault Ste.
3 Marie is 2.37?

4 A. I will go to my list again and
5 check through it.

6 Q. Take your time.

7 A. What page is that?

8 Q. Page 5.

9 A. Correct, with the exception of
10 Sault Ste. Marie, all those 15 are below, at least
11 marginally, one.

12 Q. Now, you said yesterday that there
13 were about, you thought, approximately 56,000 air move-
14 ments at the Burlington AirPark?

15 A. I did not express it in that
16 fashion. What I said was that I had seen figures based
17 that were very definitely estimates that in a Transport
18 Canada publication of movements that suggested that in
19 1983 there had been in that order of movements and a
20 larger number in 1986. The accuracy of those numbers
21 is not known to me.

22 Q. I see. Okay. Can we then -- I
23 want to look at this notion of the degree of risk in
24 yet another way. What I would like you to do now is
25 to turn to tab 1 of your witness statement Exhibit M-389.



1 Now, you have used here three airports as a means of
2 comparison, Toronto Island Airport, Trenton Airport
3 and North Bay Airport, would you agree?

4 A. We presented statistics for these
5 three airports, yes.

6 Q. Can we -- will you just turn with
7 me with respect to Toronto Island Airport? First of
8 all, will you agree with me that Toronto Island Airport
9 has many more movements, it would appear in the vague-
10 ness of the information we have with respect to
11 Burlington AirPark, it would appear to have many more
12 air movements per year than the Burlington AirPark?

13 A. Yes, that is correct.

14 Q. Would you agree with me that in
15 this case there are large gull colonies living in quite
16 close proximity to that airport?

17 A. One large gull colony, one medium-
18 sized gull colony very close to it and one large gull
19 colony some five kilometres away.

20 Q. Which is considerably closer than
21 the gull colonies would be to this site if anything
22 were built here; would you agree?

23 A. Yes, that is correct.

24 Q. Can we agree as well that there
25 are many more turbine-powered aircraft and some pure



1 .jets using Toronto Island Airport?

2 A. There are certainly many more
3 turbine-powered aircraft. I don't know about the
4 frequency of pure jet aircraft at Toronto Island.

5 Q. So, would you agree with me that
6 what we have got is an aircraft, many more aircraft
7 which are more susceptible to this kind of collision,
8 more birds and more birds close to the airport? That
9 is all true, isn't it?

10 A. In terms of birds, most of that
11 is true with the proviso that we are talking about
12 birds in colonies here as opposed to birds that will
13 be transiting through the flight paths to a landfill
14 site inland from the airport in the case of Burlington
15 AirPark and landfill Site D.

16 Q. Would you agree with me, sir, that
17 there are many more birds in this area that are closer
18 to the Toronto Island Airport?

19 A. Many more birds than -- well,
20 than what? There are not as many birds in the colony
21 one kilometre from Toronto Island Airport as there are
22 in the colony in Hamilton Harbour, less than a third as
23 many. Furthermore, the colony at Toronto Island
24 Airport is being seriously harassed. There are more
25 birds, more gulls in total in that colony plus the one



1 five kilometres away.

2 Q. Well, sir, if we compare the five
3 kilometres to the 20 kilometres, if we took a compass
4 and went to a map and put the compass, centred it on
5 the Toronto Island Airport and drew a circle that
6 depicted five kilometres and did the same thing at the
7 Burlington AirPark would you agree with me you would
8 find many more birds living within five kilometres of
9 the Toronto Island Airport than the Burlington AirPark?

10 A. Living in the sense of colonies,
11 very definitely so. There is no colony now within
12 five kilometres of Burlington AirPark.

13 Q. Would you also agree with me that
14 in the area of Toronto Harbour there are many land uses
15 which will provide food for gulls? For example, there
16 is Ontario Place. Would you agree that provides a food
17 source for gulls?

18 A. To some extent although control
19 measures are being taken there.

20 Q. Have you ever been to a baseball
21 game down at the CNE?

22 A. Yes, I have.

23 Q. Dave Winfield made quite a
24 reputation for himself as a result of a gull feeding
25 there. Would you agree with me that when you go to baseball
games you find gulls around?



1
2 A. Yes, you do.

3 Q. Would you agree with me that when
4 the Canadian National Exhibition is on we have a
5 wonderful source of food for gulls?

6 A. To some extent.

7 Q. Would you agree with me that we
8 have a lot of activity on the Harbourfront generally
9 which provides food sources for gulls?

10 A. Some of the activities at
11 Harbourfront do provide food for gulls, yes.

12 Q. Would you agree with me that in
13 many cases in those land uses we find that the Toronto
14 Island Airport intervenes between these gull colonies
15 and those uses? It certainly intervenes between
16 Ontario Place, Canadian National Exhibition and the
17 baseball stadium and all that?

18 A. I agree with that geographic layout.
19 However, as I testified yesterday, gulls do not
20 normally commute to the inland destinations during a
21 time when they are concentrated at their colonies
22 during breeding season.

23 Q. If that were true at Toronto it
24 would be true at Hamilton as well, wouldn't it?

25 A. That is correct. We don't expect



1 many gulls to come inland during the breeding season.

2 Q. They are going to get their food.
3 They have got to feed, don't they, sir?

4 A. Certainly.

5 Q. They have got to be close to food
6 sources?

7 A. Not necessarily, depending on
8 the quality of the food sources.

9 Q. They are going to pick the better
10 sources. They pick the better steak house just like
11 us?

12 A. A good steak house will definitely
13 be used.

14 Q. The whole point is, sir, that
15 there are good food sources on the lakeshore for these
16 birds and it is going to, given the geographic location
17 which you have agreed with, birds are going to fly from
18 these colonies across to Toronto Island Airport?

19 A. There is no question that some
20 birds from the colonies near Toronto waterfront will fly
21 across Toronto Island Airport.

22 Q. It's also true, isn't it, that
23 the further birds fly for their food, the more they tend
24 to disperse? That is the result of your Toronto Island
25 work where the interior sites have far fewer birds --



1 sorry -- Pickering Airport where the interior sites have
2 far fewer birds than the intermediate sites which turn
3 out to be fewer birds than the waterfront sites; isn't
4 that true?

5 A. Well, we didn't make a direct
6 comparison with the waterfront sites because there
7 weren't landfills. But, your statement is correct with
8 regard to the comparison between the interior versus
9 intermediate sites.

10 Q. So what we have got is more gulls
11 within five kilometres of the Toronto Island Airport
12 with food sources that are closer than Site D will be
13 to the Hamilton Harbour gulls. Can we agree that there
14 is some risk, some considerable risk of gulls flying
15 from these colonies through the paths of the planes
16 from the Toronto Island Airport?

17 A. There is no question that that is
18 very much a concern and that is why control measures
19 have been taken at Toronto Island Airport to try and
20 reduce the number of gulls. I might point out also
21 that for all three of these airports that we have used
22 as examples and for which we have just gone through
23 the detailed calculation of the gull strike rate per
24 10,000 movements, control measures directed specifically
25 at gulls are being taken at each of those airports for



1 the strike rates that we have calculated are in part a
2 function of the fact -- we must take allowance for the
3 fact that we get those strike rates after control
4 measures have been applied. Higher strike rates would
5 be expected in the absence of control measures.

6 Q. I understand all of that, sir.
7 We will come back to that. For the moment would you
8 agree that there is a considerable risk?

9 Can I assume, sir, that you put all of
10 this here at tab 1 because you thought it was an example,
11 some statistics that would help the Board in dealing
12 with this information?

13 A. This information was put here
14 because we were sure that other airports that have gull
15 problems in the Southern Ontario area were going to be
16 a source, a point of discussion at this hearing and we
17 should have the statistics in a readily available
18 fashion.

19 Q. That is the first one. Can I just
20 have a moment, sir?

21 Sir, just with respect to the impact
22 of gull control we can assume, can't we, sir, that gull
23 control is used at many airports? They use it at
24 Vancouver Airport, don't they?

25 A. Yes.



1 Q. None the less they have problems
2 there, can we agree?

3 A. Yes.

4 Q. They use them at many airports in
5 that top 15, don't they?

6 A. Very definitely.

7 Q. Can we now look at, in the same
8 generic fashion, at the North Bay Airport? North Bay,
9 I think you have agreed, first of all has both commercial
10 flights and military aircraft, it is a shared operation?

11 A. Yes, that's right.

12 Q. There is a landfill as I understand
13 it, immediately at the end of the runway at North Bay?

14 A. One point three kilometres, I
15 understand.

16 Q. It is directly in the flight path
17 of the airplanes taking off from that runway?

18 A. Yes.

19 Q. There are commercial jets that
20 land at that airport?

21 A. Yes.

22 Q. And military planes?

23 A. Yes.

24 Q. By the way, sir, can we agree
25 that these aircraft, commercial jets, military aircraft



1 are much larger than the kinds of aircraft, physically
2 larger than the aircraft that land at Burlington
3 AirPark?

4 A. Almost all of them, yes.

5 Q. They are much harder to manoeuvre,
6 is that fair?

7 A. Well, I wouldn't want to say that
8 as a blanket statement. Certainly some military jets
9 are highly manoeuvrable.

10 Q. Can we agree that the kind of
11 transport aircraft we referred to yesterday, Hercules,
12 Buffalo, all that kind of stuff, they are not as
13 manoeuvrable as the aircraft that use the Burlington
14 AirPark?

15 A. I really don't think I should
16 try and comment on that.

17 MR. LANCASTER: He is getting a little
18 out of his expertise.

19 MR. LEDERER: Let me just explain the
20 problem, Mr. Chairman. Yesterday this witness indicated
21 that in his view the risks at the Burlington AirPark
22 were as great as they were at the Trenton, Canadian
23 Forces Base at Trenton which I confess struck me as
24 a rather surprising operation. If he is going to do
25 that surely one of the things he must be aware of is



1 the manoeuverability of the planes that are landing at
2 these bases because if you don't know that then you
3 lack one of the really important factors in coming to
4 that conclusion. I am happy to have him tell me he
5 doesn't know but he should understand the implication
6 is he hasn't got all the information he needs to make
7 a judgement which he made here yesterday.

8 Q. So with that in mind, do you want
9 to answer my question, Mr. Richardson, or leave it
10 unanswered?

11 A. First I am a little unclear that
12 I actually said, what you just quoted me saying.

13 Q. I would be happy to have you
14 change it but if you didn't, would you re-advise me?

15 A. I believe you just quoted me as
16 saying comparing relative risks at Burlington AirPark
17 versus Trenton and North Bay.

18 Q. With the landfill in place?

19 A. With the landfill in place.
20 I am not clear what I said that caused you to make that
21 summary statement.

22 Q. Who do you think this guy is
23 looking for? I'm sorry, that's very unfair.

24 I understood you to say that you weren't
25 in fact prepared to say that the risk at the Canadian



1 .Air Force Base in Trenton was any greater as a result of a
2 landfill situated there which I put to you is half a
mile or one or two kilometres from...

3 It is not quite, as you pointed out, directly at the end
4 of a runway at Trenton. I asked you, given the number
5 of movements there and everything else, whether you
6 would agree with me that the risk of a collision between
7 a bird and a plane was greater and you wouldn't agree
8 with that.

9 A. The risk ...

10 Q. Whether there is a higher risk of
11 collision at Trenton than there is here.

12 A. I don't recall that specific
13 question.

14 Q. Well, answer it now. I am quite
15 sure I asked you that and I'm sure I actually repeated
16 your answer but I am happy to have you answer it again.

17 A. Could you rephrase the question
18 for me, restate it?

19 Q. Let us go back. I am sorry to
20 take so much time on this, Mr. Chairman, but it may be
21 better for me to re-lay the groundwork.

22 Do you agree with me first of all, you
23 accept that in 1986 there were 86,603 movements of planes
24 at Trenton; do you recall that?

25 A. I have seen those figures, yes.



1 Q. You also agreed with me that the
2 pictures which I put to you this morning of the aircraft
3 which I first referred to you yesterday are typical of
4 the kind of aircraft that use the Canadian Forces Base
5 Trenton?

6 A. The major kinds of aircraft, yes.

7 Q. I asked you yesterday whether
8 you were aware and I don't recall now whether you were
9 personally aware of the fact that Air Canada, I am told,
10 uses Canadian Forces Base Trenton to train their pilots
11 for landing in commercial jets.

12 A. I have heard that. I have seen it
13 myself.

14 Q. Then I also asked you if you were
15 aware of the location of the landfill relative to the
16 runways, do you recall that?

17 A. Yes.

18 Q. I think you agreed with me it was,
19 as I say, approximately a point half a mile or one to
20 two kilometres, not quite directly but just off the
21 direct line following the line of the major runway?

22 A. Right.

23 Q. I also asked you if you were aware
24 of the fact -- I may not have asked you but are you aware
25 of how long the landfill has been there?



1 A. I know the landfill has been there
2 for many years. I don't know specifically.

3 Q. Then I asked you with all of that
4 in mind and comparing it to what we are going to have
5 at Site D, let us look at that for a moment. First of
6 all, we have a landfill which is further away?

7 A. Yes.

8 Q. We have aircraft which are not
9 as susceptible to air movements, to collisions with
10 birds?

11 A. The majority of the aircraft, yes.

12 Q. And we have, even it would appear
13 with the fairly inaccurate estimation we have, we have
14 an airport which has fewer movements; do you recall?

15 A. That -- well, it depends on whose
16 figures you are using and what year.

17 Q. Or how accurately, but using the
18 86,000 movements you have an airport with fewer move-
19 ments?

20 A. The Burlington AirPark estimate from
21 Transport Canada for '86 was also about 80,000, so
22 given the uncertainties associated with that...

23 Q. Can we agree that the air move-
24 ments -- I did not do this with you yesterday. It
25 occurred to me last night but since we are back on it,
I will review it. Can we agree that birds tend to move



1 .at rather specific times of the day? They come to
2 eat in the mornings, they go back to the water at night?

3 A. That is the predominant pattern
4 with some exceptions.

5 Q. So there are large periods of the
6 day when you won't get this movement of birds, you
7 won't get the predominant movement of birds?

8 A. There are more birds moving along,
9 commuting along these lake to inland routes the first
10 half of the morning and the latter half of the after-
11 noon than at other times.

12 Q. Now, you also said yesterday that
13 the Burlington AirPark, a substantial part of the
14 operation of the Burlington AirPark arises as a result
15 of having a flight school and pilot training?

16 A. Yes.

17 Q. Now, when pilots train am I right
18 that one of the things that they do is they take off,
19 they do a circuit and they land and they take off again
20 and do another circuit and they land and they continue
21 doing that for some period of time?

22 A. That is one of the common
23 activities.

24 Q. Of course every time they take off
25 and land is another movement; do you agree?



1 A. Yes.

2 Q. So one of the reasons that you
3 may have the number of movements you appear to have at
4 Burlington AirPark is people just doing circuits and
5 landing and taking off, landing and taking off; do you
6 agree?

7 A. Yes, very definitely.

8 Q. If that is done in the larger part
9 of the day, sort of midday or mid-morning to mid-after-
10 noon, whatever, it is going to be done in a period of
11 time when there aren't this predominant number of birds
12 moving from the lake, assuming you are correct. Assuming
13 you are correct for the moment we are not going to have
14 this predominant movement of birds at the time those
15 movements are taking place; do you agree?

16 A. Excuse me, I don't know the
17 course of the training activities at the Burlington
18 AirPark so I am not prepared to say that the predominant
19 training activities do not overlap the predominant bird
20 movement pattern.

21 Q. Would you agree with me that it
22 is something that if it were a problem, it is something
23 that you could schedule? You could schedule your
24 training sessions for the middle of the day?

25 A. Well, I think there would be lots



1 of complications in trying to do that but that is not
2 my field so I will defer to another witness on that.

3 Q. My point of course is that if you
4 take all these factors into account and compare what is
5 going on -- just to go to Trenton, what is going on
6 there, would you agree that Trenton and if you don't
7 know just tell me and we will have to do without this
8 piece of information, that Trenton first of all does
9 not have -- it is not a base for jet fighter squadrons
10 or anything like that, it is a transport facility?

11 A. That is its primary function, yes.

12 Q. It tends to transport goods from
13 Canada to Canadian Forces Bases throughout the world?

14 A. Goods and people, yes.

15 Q. One of the bases which I gather
16 is to the base in Lahr, West Germany?

17 A. I don't have any information but
18 I expect you are correct.

19 Q. Those types of flights do not
20 entail the continuous ups and downs we were talking
21 about. There are planes coming in and taking off?

22 A. Yes.

23 Q. My point is that in making all of
24 these comparisons, the kinds of planes, the location
25 of the landfill, the proximity of the landfill to the



1 .airport, will you agree with me that there is a greater
2 risk, that Trenton is a higher risk airport than the
3 Burlington AirPark assuming Site D is built?

4 A. Well, my immediate answer is that,
5 no, I am not prepared to make that assumption right off
6 the top of my head without a detailed period of con-
7 sideration of all those factors.

8 There are large numbers of differences
9 between these two kinds of operations and situations,
10 the susceptibilities of the different types of aircraft
11 and the kinds of things they do. I think it would
12 require a considerable degree of review and analysis
13 to -- before I would be prepared to make any sort of
14 quantitative judgment.

15 Q. So where we are today is that you
16 are simply not prepared to answer the question is what
17 it comes down to?

18 A. In a quantitative sense, yes.

19 Q. That may be in fact consistent
20 but I think that's what you said yesterday.

21 Can I assume from that then that you are
22 not prepared similarly to make that kind of comparison
23 with respect to either the North Bay Airport or the
24 Toronto Island Airport?

25 A. I think the same principle holds.



1 .One other factor, since we have been discussing North
2 Bay, that should be borne in mind is that the landfill
3 site at North Bay is at the end, not at the primary
4 longest runway, but it is off the end of the secondary,
5 somewhat shorter runway. I don't know the relative
6 number of aircraft movements on those two runways but
7 I would assume that the longer runway is the more
8 heavily used one and therefore the runway that goes
9 straight out to the landfill site is probably the lesser
10 used of the two.

11 Q. Now, what you have provided us
12 with -- now, sir, what you have provided us with then
13 are these three examples of airports with bird problems;
14 correct?

15 A. Yes.

16 Q. You have obviously done it to
17 give the Board some indication of what happens at
18 airports that have these difficulties; correct?

19 A. And some numbers to use in these
20 kinds of decisions, yes.

21 Q. I think we have gone through the
22 comparisons but just to review quickly there is no
23 landfill associated with the Toronto Island Airport.
24 We have these two colonies we have just been through
25 and the food sources along the waterfront; correct?



1 A. No landfill in the immediate
2 vicinity.

3 Q. At Trenton we've been through the
4 comparison and we have a landfill here somewhat
5 closer to the base, more or less directly in line with
6 the runway?

7 A. Correct.

8 Q. And we've been through the kind
9 of aircraft and again at North Bay we have again a
10 landfill off, not the major runway, an airport that
11 uses really all and sundry kind of aircraft; would you
12 agree with me?

13 A. Turbo-prop types of aircraft, yes.

14 Q. With that in place can we look at
15 in fact -- and also you have been quick to point out, and
16 let me agree with you immediately, we have some forms
17 of mitigation at each of these airports; correct?

18 A. Yes.

19 Q. And the results that we get with
20 respect to gull strikes, if you just go to the Toronto
21 Island Airport, in 1982 there was one strike?

22 A. Those are the statistics.

23 Q. Let us just look at the number
24 of gull strikes, it may be an easier way to do it.

25 In total we have three gull strikes, one in 1982 and



1 .two in 1983?

2 A. Those are the data that are in
3 the Transport Canada -- in the ICAO data base.

4 Q. Then if we go to Trenton Airport
5 here we have eight strikes involving gulls; one in
6 1981, one in 1982, two in 1983, three in 1984, one in
7 1985?

8 A. Again that is correct from the
9 data.

10 Q. Then if we go to North Bay we
11 get the four gulls strikes; one in 1981 -- can I assume
12 there were no gull strikes in 1982?

13 A. Yes. No known gull strikes.

14 Q. One in 1983, none in 1984?

15 A. That would be correct.

16 Q. Two in 1985?

17 A. Yes.

18 Q. So in no year is there gull
19 strikes at any of these airports, more than three gull
20 strikes?

21 A. Those are the numbers in the data
22 base. Of course as we have discussed previously not all
23 bird strikes are recorded.

24 Q. This is the best data that is
25 available, isn't it, and that is why you brought it,



1 .that is the best you could find?

2 A. They are the best data that is
3 available and they are also known to be under estimate.

4 Q. What we have got is not more than
5 three recorded gull strikes, not more than three
6 recorded gull strikes at any of these airports; would
7 you agree?

8 A. Yes.

9 Q. These are in circumstances where
10 we have, mainly looking at the Toronto Island Airport,
11 has 208,000 movements in a year?

12 A. Yes.

13 Q. In fact in that year there was
14 exactly one gull strike; can we agree?

15 A. One reported gull strike at
16 Toronto Island Airport in that year.

17 Q. Sir, when this Board comes to
18 consider those aren't, I should say, strikes causing damage.
19 Some of them may cause damage and some of them may not;
20 can we agree?

21 A. That's right.

22 Q. So again when this Board comes to
23 look at the degree of risk and looks at this data, what
24 it is going to see is that these airports which are
25 examples of where this is a problem, because that is why



1 you brought them here, they are going to discover and
2 you want them to consider the fact that there is not
3 more than three gull strikes in any one year; do you
4 agree?

5 A. I agree that those numbers, the
6 numbers we have in front of us for airports that have
7 known gull problems and also major gull mitigation
8 programs. However, at the same time as the Board is
9 considering that fact I think that the Board should
10 also be aware in a sort of similar context that -- a
11 couple of other facts. It is recognized that the
12 frequency of bird strikes and in particular serious
13 bird strikes, is a relatively low ratio and I presented
14 some of those comments in my report and witness state-
15 ment and we have been through it in detail here. On
16 the other hand, it has been pointed out that the
17 frequency of all individual kinds of accidents to,
18 serious incidents to aircraft is low, thank goodness.
19 The frequency of problems caused by birds is not out of
20 line with the frequency of problems caused by quite a
21 variety of other kinds of hazards to aviation to which
22 a great deal of attention is paid.

23 If I might I could just read a very brief
24 quote, two or three sentences from a publication on that
25 particular point.



1 Q. Well now, just a minute. Before
2 you quote anything in a way which I must say is
3 directly in response to a question I have asked you, I
4 would like to know what the report is. Maybe you can
5 have a break over lunch and I'm happy to discuss that
6 with you with Mr. Estrin present and I want to know
7 what it is and I want to know if I have any objection
8 to you referring to it.

9 A. As indicated, without giving a
10 quote, yesterday and today you have asked me to agree
11 with you that the Board should consider the fact that
12 the frequency of bird strikes, according to various
13 measures, is low and I have agreed that is a fact that
14 needs to be considered. But, I think that there are a
15 bunch of other facts that the Board needs to consider
16 in that same context that are closely related to that.
17 This quote deals with one of them and there are a
18 couple of other related points.

19 Q. I'm not saying you shouldn't do it
20 or you can't do it. I just want to see what it is
21 before you do it so I can know what it is and determine
22 whether or not in fact it is something -- I think I
23 have the right and I appreciate what Mr. Estrin has
24 been doing here to object and I want to have that
25 option before you start reading it. If I don't have an



1 .objection I will let you know. Can we just set the
2 quote aside for the moment and look at what else you
3 said?

4 MR. ESTRIN: Just so we don't forget
5 this, maybe this is the appropriate point to take a
6 lunch break. I notice his voice is also in a relatively
7 weak state. So we don't forget the answer that
8 Mr. Lederer may or may not want to hear, perhaps we
9 should break at this point.

10 MR. LEDERER: I have a longer memory
11 than that and I'm quite happy to break for lunch in a
12 few moments but I just want to take what this man has
13 just said and use it to conclude this review of these
14 statistics.

15 MR. LANCASTER: When it is convenient
16 for you, Mr. Lederer.

17 MR. LEDERER: Thank you, sir, I appre-
18 ciate that.

19 Q. Sir, you have just said that it is
20 true that the number of bird strikes generally is a
21 hazard that is low?

22 A. As a percentage of the number of
23 aircraft movements.

24 Q. You have also said that as a
25 percentage of those, the ones which cause serious damage



1 are again low. Do we agree?

2 A. That is one of the other points
3 I would like to make.

4 Q. Do you agree with that?

5 A. As a blanket statement I would
6 prefer not to agree with that.

7 Q. What is the point you want to
8 make?

9 A. Well, I think in one of the
10 documents you brought to us yesterday from
11 Transport Canada which I will find momentarily it says,
12 the 1984 bird strike summary report, Exhibit H-402 ...

13 Q. Yes?

14 A. ... on page 13 of that:

15 "Operational effects of bird strikes to
16 aircraft."

17 This of course is dealing with Canadian statistics.
18 The particular years that are shown in the annual report
19 that you gave to us for 1984 and 1983, the 1982 and
20 1981 numbers are corresponding to the report in my
21 witness statement. I also have the 1985 numbers here.
22 I have added them up to give a five-year total, to give
23 a proper perspective instead of a one-year total. I
24 think it is interesting, if you just sort of follow
25 through with me, this list of various kinds of operational



1 effects that are listed in the table starting with
2 aborted take offs and so on. Over the five years,
3 1981 to 1985 there is reported in this report and its
4 parallel reports from other years that in the five years
5 there are 116 aborted take offs, 658 precautionary landings.

6 Q. Sorry, 658?

7 A. Six hundred and fifty-eight; 12
8 penetration of windshield; six penetration of air-frame;
9 35 vision obscured; 17 engine shut-downs and six forced
10 landings for a total of 850 bird strikes that caused
11 one of these kinds of operational effects. As I say,
12 this of course is just in Canada. We can perhaps say
13 that 658 precautionary landings in most cases may not
14 actually involve any significant hazard because they
15 are precautionary and nothing may have happened to the
16 aircraft. If we just even look at the other categories
17 leaving aside those precautionary landings, all of
18 which are fairly significant incidents, I think. An
19 aborted take off may be fairly insignificant if it
20 happens when the aircraft is still at a low speed but
21 it is very definitely not insignificant when the air-
22 craft is just about to rotate for take-off. Similarly
23 penetration of a windshield is a very severe operational
24 effect involving flying glass and fragments of birds,
25 obscured vision, wind blast and so on.



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1 Leaving aside the precautionary landings, there are
2 192 relatively severe incidents in five years based on
3 these kinds of statistics. I think the Board should
4 also be aware of these kinds of numbers and hazards,
5 potential hazards associated with all of those inci-
6 dents. I think, take that into account at the same
7 time they are taking into account the admittedly very
8 low history of aviation, total number of actual human
9 -- crashes that caused human fatalities.

10 Q. We will come back to that in a few
11 moments. I want to follow up. Did I also understand
12 you to say that in fact this was a hazard which was
13 the equivalent of many other hazards that airports and
14 aircraft pilots have to deal with in the course of
15 carrying out their responsibilities?

16 A. The quotation that I hope to
17 read to you indicates that the British Aviation
18 Authority ...

19 Q. Just a moment, I want to know what
20 you said a few moments ago. I just want to ask you did
21 I understand you correctly and we will go to the record
22 and find this out later anyway but I just want to
23 clarify for the purposes of my question, did you say that
24 this hazard was in effect the equivalent of many other
25 hazards that confront us as these people carry out their



1 responsibilities?

2 A. Comparable to orders of magnitude
3 of many other kinds of hazards to aviation to which a
4 great deal of attention was paid to aviation safety
5 by great engineering people.

6 Q. Let us just look at those
7 numbers you have given us. In order to understand the
8 significance of these numbers in part you have to total
9 up the total number of strikes for those years, for
10 those five years as well, don't you?

11 A. That would be a useful number
12 to have.

13 Q. Do you want to give us that
14 number?

15 A. I don't have the total. It is in
16 the order of eight hundred strikes a year in Canada in total.

17 MR. LEDERER: This is taking longer
18 than I thought. Perhaps it would be just as well, sir,
19 to adjourn for lunch. Perhaps you can figure that
20 out over lunch and before we break for lunch Mr. Estrin
21 and I will look at that quote.

22 MR. LANCASTER: We will adjourn until
23 a quarter to 2:00.

24 --- Luncheon recess at 12:20 p.m.

25



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

2 MR. LANCASTER: Please be seated.

3 MR. LEDERER: Mr. Chairman, a couple of
4 things.

5 Q. Firstly, Mr. Richardson, did you
6 have an opportunity to review the calculations and
7 information with respect to the 15 airports for the
8 bird strikes in the general category?

9 A. Yes, I've checked all of those.

10 Q. Any corrections you wish to make?

11 A. Well, aside from the limitations
12 and the numbers that we discussed earlier the calcula-
13 tions are correct except that in some cases the last
14 digit should be rounded up rather than down but they
15 are very close to being correct.

16 Q. Can we agree that it doesn't
17 change anything very much? If you wish to give us
18 those corrections I am happy to accept them.

19 A. I don't believe it is necessary.
20 It's just a digit rise in the last figure which makes
21 no appreciable difference.

22 Q. Thank you. I appreciate you not
23 taking us through that. At the time at which we broke
24 for lunch we were reviewing or I was attempting to
25 review with you some comments that you had made and this



1 all, as I understand, is an amplification in some sense
2 or modification if you like of your general comment,
3 your conclusion of the report even with the landfill at
4 Site D the chance of a serious accident is unlikely.
5 Do you recall that conclusion in your report?

6 A. Yes.

7 Q. Which you then said here and now
8 I put to you what you had said is that the chance of a
9 bird collision is low and I had begun to address with
10 you the notion that beyond that the possibility of a
11 collision causing any serious damage is low, do you recall
12 that? You had raised with me some calculations you
13 had undertaken with respect to the CATA 1984 work,
14 Exhibit 402 on page 13 under the heading "Operational
15 Effects of Bird Strikes to Aircraft"; do you recall
16 that?

17 A. Yes, we were discussing that.

18 Q. Now, you had said that there were
19 850 of these categories of impact or effect as a result
20 of bird strikes over a five-year period?

21 A. For a five-year period there were
22 850 strikes that were in the category of having an
23 operational effect of one of the seven types listed on
24 that table.

25 Q. One of the things I had a bit of



1 difficulty with you for five years, if you go to the
2 1983 version which is in your witness statement, in
3 that case one has to refer to page 9, there you have
4 1981, '82 and '83. Then on page 13 of Exhibit 402
5 you have 1983 again and 1984, so in effect you have
6 four years, 1981 to '84. Where is the fifth year?

7 A. The fifth year is 1985. As I
8 indicated yesterday we put in the 1983 report in my
9 witness statement because we had a clean copy of that.
10 I also had and still have a copy of the 1984 report
11 marked up by Transport Canada showing the numbers that
12 would be in all the same categories for 1985. It is
13 that marked up copy from which I have taken the 1985
14 numbers which I have added in to the previous four
15 years.

16 Q. So somebody has given you what
17 are in effect the unpublished figures of Transport
18 Canada?

19 A. They were unpublished at that
20 time. Whether the 1985 report has subsequently come
21 out, I do not know.

22 Q. Do you have that copy? That is
23 obviously something I haven't seen.

24 A. Yes, and I would be happy to go
25 over it if you wish. The 1985 numbers are very much



1 consistent with other years and we could do this based
2 on four years rather than five if that is what people
3 wish to do.

4 Q. Will you agree with me that the
5 conclusions will be the same, only because I have worked
6 it out on the four years or so that I have?

7 A. That's right, it will make no
8 difference to the conclusions whether we use four years
9 or five. We will find it here sooner or later.

10 Q. First of all, I observe this is
11 in handwriting; is that correct?

12 A. In Transport Canada's handwriting,
13 yes.

14 Q. I'm sorry, Transport Canada
15 doesn't have handwriting. Some official of Transport
16 Canada has written it in.

17 A. I got that copy from Mr. Paul
18 McDonald of Transport Canada.

19 Q. Mr. McDonald will tell us later
20 whether those numbers still remain Transport Canada's
21 view of where we were in 1985; is that fair?

22 A. Yes.

23 Q. If you are prepared to work with
24 the four years I prefer to do this only because I
25 didn't have those numbers. If you want to add them in



1 I can do that too.

2 A. I have them added up for five
3 years. I can subtract out the 1985 numbers and go that
4 way.

5 Q. Let me show you how I have done
6 it and see what we come up with. First of all, let
7 me just ask you this: looking at these seven categories,
8 these are operational effects. That can be assumed it
9 is different from something which causes damage, hurts
10 somebody or some thing in some kind of way that requires
11 repair?

12 A. That is correct. These are
13 effects on the operation of the flight and of the
14 various categories listed there.

15 Q. You have said yourself there that
16 a precautionary landing, that may be something that a
17 safe pilot does but in effect it is a discretionary
18 decision he makes and it's not necessarily dangerous.
19 It is a safety precaution that you would take in view
20 of any number of things that might happen on an airplane.

21 A. As I said this morning many of
22 those are cases where the fact later proves to be no
23 damage. That is why I gave you a number excluding that
24 as well as including.

25 Q. Is it also fair to say an aborted



1 take off, you said that could be a serious matter if
2 the speed was already so high you may have to stop.
3 An aborted take off could be a situation where there
4 is no damage, you turn around and take off again?

5 A. That is correct, it may or may not
6 involve damage.

7 Q. Penetration of a windshield we
8 can agree is damage because there is damage to a wind-
9 shield?

10 A. Indeed.

11 Q. Penetration to the airframe would
12 be some sort of damage to the airframe?

13 A. That is damage.

14 Q. We can agree those numbers are,
15 generally speaking, much lower than precautionary
16 landings and aborted take offs?

17 A. Yes, they are.

18 Q. Vision obscured, that means that
19 presumably for some period of time the pilot's vision
20 was obscured but may itself not result in any kind of
21 damage in the end. It would be pretty frightening,
22 I'm sure.

23 A. What it means is that the pilot
24 is unable to see out his window for some period of time
25 and that comes as an operational problem.



1 Q. Engine shut down, I suppose you
2 would be a lot happier to have an engine shut down on
3 the ground than in the air; are we agreed?

4 A. Yes.

5 Q. This engine shut down, does that
6 include the possibility of engine shut downs in the air?
7 I don't mean to be flippant about this, it is obviously
8 pretty serious.

9 A. Engine shut down I believe will
10 all be in the air, although I think Transport Canada
11 should be consulted about that.

12 Q. That doesn't mean the plane
13 crashes, that means you turn the engine off and fly with
14 one engine or three engines?

15 A. Something less than the optimal
16 number of engines.

17 Q. Can we agree that a forced landing
18 situation where there is no discretion as there was
19 with a precautionary landing, there would not necessarily
20 be damage arising out of that?

21 A. I think it is again -- Transport
22 Canada should be consulted. A forced landing means a
23 landing somewhere other than an airport.

24 Q. Somewhere other than an airport,
25 I understand. Again there would be a certain amount



1 of damage?

2 A. For -- well, it does not have to
3 cause damage but often a forced landing off an airport,
4 there would be damage.

5 Q. Can we agree that engine shut off
6 and forced landings, there are fewer of those?

7 A. That is correct.

8 Q. Okay. Now, what I did with these
9 four is to add up the total reports -- sorry -- the
10 total reported bird strikes for each of the four-year
11 periods and I got the total of 1,593.

12 A. Is that a line from this table
13 you are adding up?

14 Q. No, I did what I thought you did
15 although I did it for four years. I went to total
16 reports for each of the four-year periods, each year,
17 that's 554 for 1981, 518 for 1982, 640 for 1983 and
18 435 for 1984.

19 A. So you are -- I was looking at
20 a different line. You were looking at the line which
21 begins "Total Reports", "Effects Indicated"?

22 Q. Yes.

23 A. And those numbers for '81 on are
24 554, 518, 435 and 556 in 1985.

25 Q. The four years I added up the
totals are 1,593. If you want to add the fifth year



1 then I guess you would get up to 2,159?

2 A. There is a discrepancy here.
3 Working backwards from my number I say that the four
4 years that you have used would number 2,147.

5 Q. Just looking at this in common
6 sense ...

7 A. Two thousand, one hundred and
8 forty-seven for those four years.

9 Q. I apologize. I don't know what
10 I did but I did something wrong. So that is -- I'm
11 sorry, could you give me that again?

12 A. Two thousand, one hundred and
13 forty-seven cases in four years when there was a bird
14 strike and we know whether or not it had an operational
15 effect on the course of the flight.

16 Q. Two thousand, one hundred ...

17 A. ... and forty-seven.

18 Q. If you add the fifth year what
19 total do you get?

20 A. Two thousand, seven hundred and
21 thirteen.

22 Q. Okay. Now, what I then did was
23 to add up and you are going to want to check because
24 we have already made one mistake. I added up all of
25 the operational effects over all of the four-year period



1 .and I got 696.

2 A. That is correct.

3 Q. So, 696 of 2,171 -- sorry --

4 2,147?

5 A. That is correct.

6 Q. How many did you get for the five-
7 year period? Eight hundred and fifty, you said?

8 A. Eight hundred and fifty of 2,713
9 bird strikes. Eight hundred and fifty of those had
10 operational effects which is 31 per cent as opposed to
11 32 per cent based on your four-year figures.

12 Q. The next thing I did was to take
13 out precautionary landings because of your position this
14 morning and I got then 157 of 2,147 for the four-year
15 period.

16 A. One hundred and fifty-seven was
17 the number, I agree with that.

18 Q. I beg your pardon, sir?

19 A. I agree that in the four years
20 there were 157 of those bird strikes that have opera-
21 tional effects aside from precautionary landings.

22 Q. What about for the five-year
23 period?

24 A. For the five-year period it was
25 192, excluding precautionary landings.



1 Q. What percentage then of those
2 kinds of non-discretionary operational effects, if you
3 like, how many did you get?

4 A. For the five-year period seven
5 per cent of the bird strikes for which we know the
6 operational effects resulted in one of these more
7 serious categories, one category being excluded is the
8 precautionary landing. So seven per cent of the bird
9 strikes with an operational effect aside from a pre-
10 cautionary landing for the four-year period, the
11 percentage would be similar, it is also seven per cent.

12 Q. So, what we know then is that
13 if we want to look at -- we have got a situation where
14 the chance of any bird strike is low and if we want to
15 look at where you go from a bird strike to a bird
16 strike causing one of these non-discretionary operational
17 effects, not damage but an operational effect, it is in
18 the five to seven per cent category; that is where we
19 are, isn't it?

20 A. Seven per cent, yes.

21 Q. So, if the Board then, when it
22 comes to consider the degree of risk here, what is
23 unlikely, it is going to first of all, quite apart from
24 the idea of a serious accident being unlikely which is
25 your report, it is going to want to consider what you



1 have now said which is the chance of a bird strike is
2 low and the chance of a bird strike causing an opera-
3 tional effect is seven per cent of the low chance of
4 any strike occurring at all. Would you agree?

5 A. No, I think we are making an
6 unwarranted jump there. The probability of a bird
7 strike during any given flight is of course low as we
8 discussed at great length. The probability of a bird
9 strike occurring at an airport in a year is of course
10 quite high as we have also discussed. We have many
11 airports that have a good number of bird strikes
12 happening in a year. Therefore, what you would have to
13 take account of is the expected number of bird strikes
14 in a given situation, say a given airport in a given
15 year and then apply the seven per cent figure, meaning
16 that seven per cent of those bird strikes can be
17 expected to be ones that have relatively serious
18 operational consequences. So, if for example at a
19 major airport you expect to have 50 bird strikes a
20 year which is the case in some major airports then
21 seven per cent of that 50 or three-and-a-half bird
22 strikes on the average at that airport per year would
23 be expected to have fairly major operational conse-
24 quences.

25 Q. Sir, let us try and examine that



1 with some data that you have brought to this Board that
2 we went through before given the various efforts of
3 mitigation we went through before; how the airports
4 you brought here, Toronto Island, Trenton and North
5 Bay, the highest of the years which you provided this
6 information were three strikes per year, three gull
7 strikes per year, excuse me.

8 A. Yes, that was correct for the
9 years we talked about.

10 Q. Let us try and translate that
11 because that is the danger we are concerned about in
12 this kind of number. We are concerned you are going
13 to have to wait something over 30 years or 33 years,
14 assuming the worst, we have seen three gull strikes a
15 year, every 33 years we are going to have a hundred
16 gull strikes. Do you agree?

17 A. Yes, that would be correct
18 assuming those control measures are in effect, of course.

19 Q. I am assuming that the mitigation
20 to bring it down to those numbers is in effect,
21 absolutely. That means we are going to have a hundred
22 every 33 years. That means we are going to have seven
23 every 33 years that causes one of these operational
24 effects; do we agree?

25 A. That seems to follow, yes.



1 Q. To put it another way we are
2 going to have one every four to five years; correct?

3 A. Well, let me make sure of that.
4 Let's make sure we can get ...

5 Q. After all of this you don't
6 think I can divide seven into 33?

7 A. Yes, it works out to be one every
8 five years.

9 Q. So when we look at -- when the
10 Board wants to consider the degree of risk with
11 mitigation in place to bring it down to these levels
12 where we are going to be is at one -- one incident
13 every five years that causes not damage but an
14 operational effect; can we agree?

15 A. One incident every five years
16 or perhaps four over the lifetime of a 20-year landfill
17 operation that causes significant effects assuming
18 that major control measures of the types that have
19 been in effect at these airports we were using as an
20 example are maintained.

21 Q. That's not right, is it, sir?

22 A. Over the 20 years.

23 Q. That's not right, is it, sir?

24 Let's assume you have mitigation in place , whatever
25 mitigation is necessary to be in place to reduce any



1 risk to the kind of numbers that we see in the three
2 airports that you have brought. It might be the same
3 mitigation, it might be more, it might be less and in
4 theory it might be more. It is the mitigation to bring
5 it to those numbers that is what we are talking about,
6 isn't it?

7 A. Yes. I am not sure how that is
8 inconsistent with what I just said.

9 Q. It might be less, it might be
10 considerably less; isn't that right?

11 A. What might be less?

12 Q. The cost of mitigation to reduce
13 the risk to the kind of numbers you see at these three
14 airports you have referred to?

15 A. I wasn't talking about the cost
16 at all.

17 Q. Now, sir, you have correctly said
18 this landfill is going to have a 20-year life?

19 A. That is what the design and
20 operations report says.

21 Q. So based on these figures what we
22 are talking about here is one of -- is four, maybe
23 five of these kinds of operational effects over the
24 entire life of this landfill; right?

25 A. If the strike rate for gulls does



1 turn out to be comparable to what it has been at these
2 other airports that we have been discussing.

3 Q. Sir, you brought those numbers
4 here presumably to give the Board some idea of what can
5 be achieved at airports where these problems exist,
6 that's why they are here, that's why you put them in
7 this evidence.

8 A. I brought them here for these
9 kinds of reasons, yes.

10 Q. So when this Board comes to
11 determine the degree of risk that we are really talking
12 about here in terms of this issue that you have raised
13 here, operational effects, what it is going to be
14 looking at is four of these -- four to five of these
15 occurrences over the entire life of the site based on
16 the calculations we have just finished doing.

17 A. And if the Burlington AirPark
18 Site D situation turns out to have a similar array of
19 bird strikes as in the examples we have used. I would
20 remind you, however, that one of these airports that we
21 have used as an example, Toronto Island, does not have
22 a landfill just inland from it and of course the other
23 two do.

24 Q. We have been through that already.
25 I am not going to go through that again with you. What



1 .I am going to do now -- okay. Now, sir, I want to
2 refer you to this book that you raised before and I
3 don't want to forget nor will Mr. Estrin allow me to
4 forget I am sure that you have a quotation here that
5 you want to refer to. I actually want to refer you to
6 another part of it right now because I think it may
7 help us with what we are presently doing.

8 First of all, could you just identify
9 what this is for the Board, first of all? It is
10 entitled for the purposes of the record "Bird Strikes
11 to United Kingdom Civil Aircraft, 1966 to 1971", Civil
12 Aviation Authority, Air Worthiness, Technical Note No.
13 106, Issue 1.

14 A. That is correct.

15 Q. I take it the Civil Aviation
16 Authority is the British regulatory authority not unlike
17 Transport Canada in the Canadian experience?

18 A. It is a governmental authority.
19 I can't make exact parallels with Transport Canada's
20 various divisions.

21 Q. I take it a document such as
22 this is technical notes with respect to issues that
23 have arisen in the area of aviation?

24 A. This is the one I have in my
25 possession. I am not familiar with others.



1 Q. I guess I took that from
2 Technical Note No. 106 which would seem to suggest that
3 somewhere there are at least 105 technical notes?

4 A. Up to 1973 that would be true.

5 Q. This particular one was published
6 in May of 1973?

7 A. Yes.

8 Q. What I would like to do is refer
9 you to a paragraph under "Aircraft Type" on page 2 and
10 this is something we have talked about at length here,
11 that is the fact that ...

12 MR. ESTRIN: You had it all lunch hour
13 and you could have had it duplicated.

14 MR. LEDERER: Mr. Chairman, I really
15 don't think, with great respect, that that kind of
16 remark has any place in a hearing like this. This is
17 a document which this witness raised, not in direct
18 examination, not in his witness statement with all the
19 others, not to me before he chose to refer to it but
20 in the course of giving evidence this morning. Yes, I
21 had it over lunch hour. It took us lunch hour to
22 review it, to determine what to do with it and you can
23 appreciate, sir, I'm sure that frankly it is a pretty
24 superficial kind of review, just looking at the length
25 of the document.



1 MR. ESTRIN: Mr. Lederer, would you
2 stop giving evidence?

3 MR. LEDERER: I do not think it is
4 appropriate. I can't think of anything to call it other
5 than a catty remark to put on the record.

6 MR. ESTRIN: Mr. Chairman, I fundamentally
7 object to Mr. Lederer using this document at this time
8 until he provides me with a copy of it. I haven't seen
9 it. I have seen one page the witness wanted to refer
10 to to answer a question to which Mr. Lederer has
11 consistently, so far, not allowed him that opportunity.

12
13 If he wants to cross-examine on this document, give me
14 the basic courtesy he demanded of me and everyone else
15 in this hearing and have him provide me and everyone
16 else who wants with a full copy of the document. Allow
17 me to look at it over night and then finally he can
18 come back and examine on it.

19 MR. LEDERER: Sir, the idea that I should
20 produce to Mr. Estrin a copy of a document his witness
21 brought to this hearing is just preposterous. I am
22 sorry to use that kind of terminology, it's just
23 ridiculous. If Mr. Estrin had wanted a copy of it he
24 could have got a copy from his own witness. If he
25 didn't know his witness was going to refer to it, it has



1 nothing to do with me.

2 MR. ESTRIN: The fact is he is referring
3 to something else. I don't know what it is he is
4 looking at.

5 MR. LEDERER: When you put in a document,
6 you put in the whole document. I'm sorry, this is
7 silly. I am embarrassed to even be a part of this.
8 I leave the matter now and take your instructions.

9 MR. LANCASTER: It was introduced by the
10 witness. I think you might ask the question you wish
11 to do and then Mr. Estrin can have a look at the
12 document.

13 MR. LEDERER: Q. I want to refer you to
14 this paragraph "Aircraft Type":

15 "The overall rate for the six-year
16 period is 3.2 strikes per 10,000 movements.
17 This rate having varied from year to
18 year by quite a considerable margin.
19 This shows that one year should not
20 necessarily be treated as a representa-
21 tive sample. The rate of piston engine
22 aeroplanes is 1.55 which is very much
23 lower than the overall rate. The turbo
24 prop rate is slightly lower at 3.22 than
25 the overall rate. This is to be expected



1 as the slower piston engine airplanes with
2 lower take off speeds provide the birds
3 with more chance of avoiding aeroplanes.
4 The rate of helicopters, in spite of
5 their low altitude of operation, is
6 extremely good. Possibly the high noise
7 level combined with low speed has contributed
8 to this. However, the new generation of
9 helicopters is considerably faster and
10 quieter and there is evidence from RAF
11 and Canadian sources that a much higher
12 strike rate than in recent years has
13 been experienced. General strength
14 requirements are being introduced and it
15 is possible that more specific heli-
16 copter requirements may have to be
17 introduced in the future."

18 Do you see all that?

19 A. Yes.

20 Q. I am interested in the first half
21 of the paragraph as I am sure you can appreciate. This
22 would take you over the six-year period of 3.22 strikes
23 per 10,000 movements. First of all, will you agree
24 with me that that is in the general range we find at
25 the 15 worst airports for bird strikes on page 5 of



1 tab 4 of your witness statement?

2 A. In the same general range, yes.

3 Q. Will you agree with me that what
4 this indicates is something which is entirely consis-
5 tent with your evidence that if you were looking at
6 this in terms of piston engine airplanes only the
7 rate would be a good deal less, it is in fact 1.55?

8 A. The reported rate is 1.55 which
9 is about half of the overall rate.

10 Q. Now, if we accept this then as
11 an indication of the relationship, a potential for
12 strikes between jet aircraft and turbo prop aircraft
13 which the report says is only slightly lower, it is
14 3.22 and this one is 1.55, would you agree with me that
15 so long as -- I think you said this -- the majority of
16 the airplanes which use the Burlington AirPark are the
17 piston engine type? It would appear that we can expect
18 the rate of strikes per 10,000 to be approximately half?

19 A. Well, I testified yesterday that
20 we would expect the rate to be lower for small piston
21 engine aircraft than for turbine powered faster aircraft.
22 I think that saying it would be half is a considerable
23 oversimplification. One thing that should be mentioned
24 in relation to those rates if we are going to talk about
25 them in a quantitative sense is that particularly in



1 those days and to some extent now when the statistics
2 are better, the reporting rate for light aircraft was
3 much poorer. The reported rate for bird strikes on
4 light aircraft is poorer than that on commercial
5 aircraft and the faster turbo powered aircraft.
6 Therefore, it is a bit misleading to compare the 1.55
7 and the 3.22 was it?

8 Q. Three point two two. Can we --
9 I'm not suggesting this is some sort of fixed number,
10 obviously it can't be, but would you agree with me it
11 gives us an indication of the relationship of the
12 susceptibility of piston engine aircraft for bird
13 strikes as compared to jet turbo prop aircraft?

14 A. The general principle is consis-
15 tent as I've said before.

16 Q. Will you agree with me then that
17 what that is an indicator of is that in fact it will
18 be easier, if you like, to achieve the kinds of numbers
19 of bird strikes found at the Toronto Island Airport,
20 the North Bay Airport and CFB Trenton than perhaps it
21 is at those airports where these airplanes that are
22 more susceptible to this kind of occurrence are used
23 in greater numbers, as a general practice?

24 A. The type of aircraft involved at
25 these different airports varies widely. It is certainly



1 a consideration in making that comparison. However,
2 the more general comparison you just made also depends
3 on a lot of other factors like control measures and so
4 on.

5 Q. I am saying that it is going to
6 be easier and may very well be easier in terms of
7 control measures to meet these numbers, to achieve
8 these results than it has been in the three airports
9 which you referred to. This is an indicator of that
10 fact.

11 A. Well, there are a lot of things
12 involved in that statement and I think rather than just
13 saying yes or no, I think ...

14 Q. Mr. Richardson, you haven't
15 answered yes or no to anything I've asked you.

16 A. Oh, I think there have been
17 questions that have been straightforward where I have.
18 I agree that the reported strike rate for the types
19 of aircraft that predominate the Burlington AirPark
20 is indeed lower than for the types of aircraft that
21 predominate at Trenton and at North Bay and to a much
22 lesser degree of distinction at Toronto Harbour.

23 Q. Does that translate then into
24 the notion it should be easier in effect to mitigate,
25 if mitigation is necessary at all, to the point of



1 getting down to the numbers shown in your tables at
2 tab 1 of your witness statement?

3 A. It does not indicate that
4 directly. Just as one factor that comes to mind, we
5 have already talked about the experience level of
6 pilots using these various airports. That is another
7 factor that has to be taken into account in determining
8 what the strike rate at a given airport is going to be.
9 Of course, the geographic and other situations of these
10 airports are different.

11 Q. I agree with you that there are
12 a large number of different factors and I have put a
13 number of them to you. Looking at this factor alone
14 do you agree with me that as a single factor looked at
15 on its own it is an indication it may be easier in
16 this situation to meet these numbers than elsewhere?

17 A. The type of craft as a single
18 factor alone...

19 Q. Yes.

20 A. ... does mean that there will
21 tend to be a lower strike rate, yes.

22 Q. Just to show you another chart
23 and another sort of indication of how these -- how
24 the relationship of the impact of piston aircraft to
25 strikes, I am going to show you the chart which appears



1 at page 1-2 of this document. It is just another
2 indicator of how this all seems to work.

3 This is a chart which is entitled
4 "Aircraft Type" and what it has got is a series of
5 years, 1966, '67 through to 1971 across the top.

6 A. Yes.

7 Q. Then it has "Total Incidents",
8 "Total Movements" and "Incidents per 10,000"?

9 A. Yes.

10 Q. This incidents per 10,000 seems
11 to be a fairly common way of trying to quantify the
12 risk?

13 A. It has been but it is no longer
14 favoured by Transport Canada.

15 Q. Then what we've got is different
16 kind of aircraft down the vertical axis, piston, turbo
17 prop, jet, helicopter?

18 A. Yes.

19 Q. Looking at 1971 -- sorry -- looking
20 at the total incidents for the years 1966 to '71 of the
21 total strikes was 1,682?

22 A. Yes, the total reported strikes.

23 Q. Total reported strikes to piston
24 aircraft was 88?

25 A. Yes.



1 Q. So that gives you again a sense
2 of the relative risk, if you like, the relative
3 incidence at least of the number of piston engine
4 aircraft as compared to the total numbers of aircraft
5 that become involved in these kinds of instances?

6 A. For the United Kingdom in those
7 particular years. I would not want to conclude that
8 the proportion of aircraft movements in Canada at the
9 present time or over the next 20 years involves light
10 aircraft versus -- it's all the same

11 Q. If I understand you correctly
12 to make these series of numbers comparable you would
13 have to know how many piston air movements, how many
14 piston powered aircraft movements compared to jet turbo
15 prop and you would have to compare those in Canada and
16 you would have to look at the geographic relationship
17 of all of them?

18 A. All of those things would enter
19 into it.

20 Q. It would be a very large,
21 difficult kind of analysis, can we agree?

22 A. It would involve more information,
23 require more information than we have here right now.

24 Q. So as limited as all this is the
25 understanding with respect to England in those particular



1 .years as published by a government agency in that
2 country with respect to that material, it is an indicator
3 of the relationship one can find, do we agree?

4 A. In those circumstances, yes.

5 Q. Can we agree then that in deter-
6 mining the degree of risk, all of these things can be
7 looked at and considered by this Board?

8 A. All of which things?

9 Q. All of the things that we have
10 reviewed, the relationship of piston aircraft incidents
11 to total air strikes both in terms of incidents per
12 10,000, that is 3.22 to 1.55, the numbers in total for
13 those years, 88, for piston aircraft to a total of
14 1,682, the CATA results which show us when you work
15 out all the way through we are talking about four to
16 five operational, not damage but operational effects
17 over the 20-year life of the site, that all of these
18 things in evaluating the degree of risk are things
19 which the Board may want to consider and can consider?

20 A. All of those things are things
21 we have discussed and have some relevance. There
22 are interpretational problems involved in dealing with
23 almost all of those.

24 Q. In order to avoid that you would
25 have to have something we can't have which is this



1 airport and this landfill and everything operational?
2 You couldn't have perfect data in this situation. It
3 is always going to have to be qualified in some fashion,
4 isn't that correct?

5 A. Yes.

6 Q. So we are going to have to take
7 what we've got; correct?

8 A. There are more data available
9 than we have discussed here which perhaps should be
10 brought to bear. You will never have perfect data.

11 Q. We will certainly take all the
12 data that you have brought here and use it as we can;
13 would you agree?

14 A. No. There are a lot of other
15 things we could discuss.

16 Q. We will have to find out.

17 Having said all of that, can we now look
18 at the situation -- sorry, no, there is one other thing
19 I would like to do. Let us look at the Maple
20 information which you have brought to us now and see
21 if that helps us with the same kind of analysis. That
22 would be tab 3 -- sorry -- tab 2 of the witness state-
23 ment that you brought here, M-389. Can we -- the way
24 to do this may be to start at page 2 which is where you
25 find the description of the methods. As I understand



1 .it what was done here was a series of observations
2 were made in and around a landfill that then existed
3 at Maple and took into consideration there was a
4 proposed landfill there as well?

5 A. Yes, that is correct.

6 Q. In looking at the method you just
7 learn a little bit about how the observations were made:
8 "Observations of gulls were made from a
9 car parked on the north side of Major
10 Mackenzie Drive at the end of one of the
11 Maple Airport's runways. The actual
12 pull-off spot was a Bell Canada cable
13 station a few metres west of Shur-Gain's
14 driveway."

15 Can we agree that Shur-Gain was the company that owned
16 the farming field to the north of the airport?

17 A. Yes, that is correct. It is
18 shown on the map on the following page.

19 Q. "The study area was a rectangle
20 defined by Jane Street on the west, the
21 first fenceline north of Major Mackenzie
22 Drive, the trees along the head waters
23 of the Don River on the east and the bush
24 south of the airport."

25 You can see all of that if you refer to Figure 1 which



1 is, as you said yourself, just over the page?

2 A. I see all that, yes.

3 Q. "All gulls seen within this
4 rectangle were recorded as was the time
5 the number of gulls in each flock, their
6 approximate altitude and direction of
7 flight. For ease in the field it was
8 assumed that roads ran east-west and
9 north-south. When it could be deter-
10 mined, their origin and destination
11 were recorded as were any other
12 behavioural features that were of
13 significance."

14 Correct?

15 A. Yes.

16 Q. In effect what they did was to
17 park in this one spot and if you turn over the page
18 you can see the asterisks which depicts the spot...

19 A. Yes.

20 Q. ... to the north again of the
21 airport. That is the observation point?

22 A. According to this description,
23 yes.

24 Q. If we could just go over the page
25 because that doesn't appear to be the only way the



1 birds were recorded. I am reading now the paragraph
2 on page 4:

3 "After the morning observations were made
4 the surrounding area was driven around
5 and any gulls seen were recorded. Notes
6 were made on the number of gulls landed
7 in each area and their foraging behaviour.
8 The direction of flight of overhead gulls
9 was noted. The study area as shown in
10 Figure 3 was bounded by Teston Road on
11 the north, Bathurst Street on the east,
12 Rutherford Road on the south and Jane
13 Street on the west."

14 Do you see that?

15 A. Yes.

16 Q. So that is a broader area and in
17 effect the area was driven around to locate birds in
18 other areas beyond the study area shown in Figure 1?

19 A. That is what it states, yes.

20 Q. Then if you will go with me to
21 Figure 7 -- I'm sorry -- to page 7 which is just really
22 a map, really the same map we just looked at. It shows
23 a little bit different data in terms of flight direction
24 and such but that is again a depiction of the boundary
25 of the observation point and the observation point; do you



1 . agree?

2 A. Yes, it is the same map with
3 different information overlain on it.

4 Q. Then if you go to page 9 you see
5 Figure 3 and it shows the broader area?

6 A. Yes.

7 Q. Here you have certain numbers,
8 do you see all of that, which were location points where
9 gulls were seen?

10 A. They are location points that are
11 referenced elsewhere. I don't recall gulls being seen
12 in all of them.

13 Q. Stick with me. If you go to page
14 25 you will see the chart which really is the total of
15 all the observations and there you will see the same
16 numbers?

17 A. Right.

18 Q. Number one, for example, is
19 Canada's Wonderland?

20 A. Yes.

21 Q. The birds in and around the
22 airport itself were observed at the observation point
23 and then at these other locations by driving around?

24 A. That is what the method says,
25 yes.



1 Q. What we see then on page 25 in
2 effect is really a series, a totalling of other charts
3 which show you the results of these various operations?

4 A. Yes, it is.

5 Q. Now, the first thing that I want
6 to point out to you is that there is nothing here, can
7 we agree, showing specifically the observations on the
8 Shur-Gain field itself immediately north of the airport?
9 It is simply not one of the listed items on that chart?

10 A. No, it is not listed as such
11 there.

12 Q. What I want you to do is just
13 work with me to add it because I don't think it is that
14 hard to do. If you go with me to page 7 -- I'm sorry,
15 that is just a repeat locating where the Shur-Gain farm
16 is. Do you see that?

17 A. That is what 7 is, yes.

18 Q. If you will just go with me to
19 page 5 for a minute and it will become evident in a
20 moment why it is necessary to do this. You see there
21 the fourth paragraph:

22 "The Shur-Gain hayfields ..."

23 A. Yes.

24 Q. "The Shur-Gain hayfields just
25 north of Major Mackenzie Drive were a



1 favourite foraging spot, particularly shortly
2 after the hay had been cut. They landed
3 during five of the morning observation
4 periods with a maximum of 243 being
5 present at the site. None was seen in
6 the fields on August 27."

7 Do you see that?

8 A. Yes.

9 Q. The reason I am doing that is you
10 can see the number 243 to make it clear how this works.
11 Can we then go to page 13? These are, I believe, the
12 observations from the observation point and you see the
13 maximum number of gulls in the field, July 10th?

14 A. Yes.

15 Q. If we go to July 23rd you will
16 see that the maximum number of gulls in the field is
17 243?

18 A. Yes.

19 Q. What I am suggesting to you is
20 that what this demonstrates is when you see this heading,
21 the maximum number of gulls in the field, what you are
22 seeing is the number seen in the Shur-Gain fields at the
23 observation point?

24 A. It appears to be the maximum seen
25 from the observation point. I guess you are correct



1 but as I say it is not clear.

2 Q. That is the way we read it and
3 that's going to be the assumption in my questions. You
4 have no way of disagreeing with this as to where all
5 this comes from?

6 A. No, I have no reason to disagree
7 with it.

8 Q. If on reviewing this over the
9 course of the night you feel that we are wrong in that
10 analysis would you advise me in the morning?

11 A. Yes.

12 Q. What will happen then is if you
13 look at the charts from page 13 through I think to page
14 24 but maybe I am wrong -- page 21, you get the record
15 of those observations. What we have done is just to
16 get Shur-Gain on this chart is to add No. 10, Shur-Gain
17 field. If you will just follow along with me I will
18 give you the numbers. For July 10th it is the number 112.
19 These are of course the maximum numbers we discussed.
20 Two hundred and forty-three for July 23rd, 27 for
21 July 30th ...

22 A. I might interrupt to speed this
23 up a bit. It seems to me that what you are giving me
24 is the grand total of the numbers in the morning plus
25 the numbers in the evening rather than the maximum



1 .number ever seen.

2 Q. When I say "maximum" I meant
3 everything. I just misused the word and I apologize.

4 A. I think it would be more relevant
5 to know what the maximum number was at any one time,
6 since of course the same birds may be present in the
7 morning and the afternoon.

8 Q. That would be correct except I
9 think if you regard -- look at the other numbers in
10 this chart, we consistently have to have I think the total.
11 You may be right about that. Maybe we can use this
12 for the moment and understand

13
14 what I want to do is add Shur-Gain to the considera-
15 tion and we will do that later on.

16 What I would like to do with you now is
17 to have a look at some of the numbers that you see
18 on this chart at page 25. First of all, I would like
19 to examine Canada's Wonderland for a moment. Now, will
20 you agree with me that you get high numbers, comparatively
21 speaking, compared to at Canada's Wonderland through to September

22 A. Compared with other numbers on
23 the table, yes.

24 Q. Will you agree with me that if
25 you turn to page 10, I believe, of this report, this is

175A



1 the last sentence of the second paragraph. Actually will
2 you agree with me that paragraph deals with Canada's
3 Wonderland and table 10 indicates the number of gulls
counted before dawn in Canada's Wonderland parking lots?

4 A. Yes.

5 Q. I'm looking at the last sentence:

6 "Once the Park was open only weekends
7 or closed for the season the gulls abandoned
8 the parking lots as a roosting site."

9 A. Yes.

10 Q. The proposition there is that the
11 parks at Canada's Wonderland are used as roosting sites?

12 A. That is what the report contains.

13 Q. One other thing we should do is
14 just check page 27 with you as well and here we see
15 what appears to have happened at Canada's Wonderland
16 is that it was open daily until around September the
17 6th and then it was open for a couple of weekends and
18 around the end of September closed for the season?

19 A. That's what it seems to indicate
20 and I think that is the normal procedure.

21 Q. So what happens is if you try to
22 compare those dates with the dates on page 25 you would
23 discover it changes around the time that Canada's
24 Wonderland closed?

25 A. Yes.



1 Q. What interested me about this is
2 what it is that changes about Canada's Wonderland when
3 it closes. Can we agree -- again I don't mean to sound
4 simplistic or flippant but I want to establish what I
5 guess is the obvious starting point. The parking lots
6 of Canada's Wonderland after it closes are still there
7 and available for roosting; would you agree?

8 A. The parking lot is still there.
9 Whether they had water on them, I don't recall what the
10 report says.

11 Q. I'm sorry, water on the parking
12 lot?

13 A. If we can backtrack a bit here.
14 When we talk about roosting we are talking about birds
15 staying over night. Normally gulls roost overnight on
16 water, being lakes normally. This report indicates
17 that a number of birds, as many as 228 is the maximum
18 we counted, actually roosted overnight at an inland
19 location, namely Canada's Wonderland at certain times
20 in this year of 1981 which is a somewhat unusual event
21 and of course does not involve very many birds compared
22 with major roosts on the lakes. Normally -- well, the
23 point I was raising in response to the question is that
24 I don't know whether the amount of water that was
25 available in ponds or pools on the parking lot might



1 .have changed at the same time.

2 Q. Let us just first of all -- for
3 the total number, can you turn to page 27 and will you
4 agree with me that on August 6th it appears in the
5 pre-dawn count that there were 570 gulls and that
6 appears to be the highest count?

7 A. Yes, you are right on the pre-
8 dawn counts.

9 Q. Would you agree with me that
10 there are also counts which are not pre-dawn counts,
11 that is obvious?

12 A. What I was looking at when I
13 quoted the 228 was Table 18 which apparently is some
14 other time.

15 Q. That's my point and what I am
16 getting to is that these counts on Table 18 would appear
17 to be some other time of the day than the pre-dawn
18 counts?

19 A. Yes.

20 Q. The report indicates it was only
21 partway through the study that this phenomenon of
22 roosting overnight at Canada's Wonderland was appre-
23 ciated by the study team?

24 A. That's right.

25 Q. So what I am interested in is not



1 the roosting but these numbers that you see at other
2 times of the day. My point is that the parking lots
3 are still there for the birds to land on; can we agree?

4 A. Certainly.

5 Q. Can we agree that what changes
6 about Canada's Wonderland between it being open and
7 being closed is the availability of food for gulls,
8 that when it is open, you know, you get hotdogs thrown
9 around and whatever else it is they sell at a place
10 like this and as a result it loses its attractiveness
11 for the birds because the food supply is in effect
12 closed up?

13 A. I'm sure factors change, whether
14 there are others like the availability of water, I
15 don't know.

16 Q. Can we agree that the operations
17 change the attractiveness of the site for birds, the
18 operations of Canada's Wonderland?

19 A. Well, I can be reasonably confi-
20 dent that is correct. I would draw your attention
21 though to a point you brought out earlier today that at
22 an interior site in the Toronto area which this one
23 would be classified as in terms of distance from the
24 lake, numbers of gulls coming to those interior sites
25 during our study in 1973 also started to drop off quite



1 dramatically at this time. So, while I would agree
2 that the increase in the availability of food at
3 Canada's Wonderland at the time they stopped
4 operating probably had something to do with this.

5 Q. Can we -- whatever the change is,
6 what I would like you to do with me now is compare
7 Canada's Wonderland as an attractor for birds with the
8 existing landfill from July 10 through to September the
9 3rd. I think if you add up the numbers you will discover
10 the total shown just using these numbers which I think
11 you are going to discover the high point on a particular
12 operating day is 873 at Canada's Wonderland and 736 for
13 the existing landfill.

14 A. I'm not sure. I don't know which
15 table you are getting at.

16 Q. Page 25, I am adding up for
17 Canada's Wonderland, 228, 45, 150, 25, 90, 71 and 40.
18 Those are the figures shown for July 10th through to
19 September the 3rd.

20 A. Yes.

21 Q. Then I am adding up the same
22 figures for the same -- not the same figures but the
23 same observation points for the existing landfill which
24 is 75, 150, 95, 150, 127, 60, 15 and four.

25 A. Those are the numbers, yes.



1 Q. The totals are 736 for the exist-
2 ing landfill site and 873 for the Canada's Wonderland
3 site.

4 A. I will take your word for that.

5 Q. What I am suggesting to you is,
6 I am also suggesting that if you look at certain days
7 you will see that there are days on which Canada's
8 Wonderland is higher than the existing landfill and
9 I think it's only fair to say there are some days when
10 the reverse is also true. Do you agree?

11 A. Yes, that is correct.

12 Q. What I am suggesting to you is
13 that in this particular situation you see that there
14 is, and I can see an immediately similar attractant for
15 birds which is the equivalent when it is operating of
16 the existing landfill?

17 A. That is correct, yes.

18 Q. Now, what I would like to do is
19 take the same -- take those figures for the existing
20 landfill and look at it with respect to the fields.
21 What I would like you to do now is look at -- ask you
22 whether you would agree with me with respect to this
23 and that is if you total up what we are seeing on the
24 fields in this area and compare it to the landfill site
25 you will in fact get more birds on the fields in the



1 ..area than on the landfill; do you agree?

2 A. Are you referring to the fields
3 as listed in which table?

4 Q. I am still on page 25.

5 A. Well, I have not added up the
6 numbers on this table.

7 Q. I also added in Canada's
8 Wonderland.

9 A. The sum of all the fields on that
10 table does not exceed the sum for the existing landfill
11 site.

12 Q. Quite so. Can we agree it would
13 be approximately the same, reasonably close? As I say,
14 that is not an addition I have done.

15 A. It would be something in the order
16 of half, a little more than half.

17 Q. Sorry, don't you have ...
18 I'm sorry, excuse me. You are
19 quite right.

20 Can we agree that if we add into
21 that then of Canada's Wonderland we are going to get
22 a situation where -- now, sir, to make this complete,
23 first of all, with respect to the Shur-Gain field if
24 we just add that on now and I think the numbers, that
25 you need to get, the comparable numbers, the maximum



1 number for each day, for July the 10th would be 111?

2 A. Yes.

3 Q. For July the 23rd would be 243?

4 A. I am just writing them down.

5 Q. For July 30th would be 23.

6 August the six would be the number one, August the 13th
7 the zero and August 20th is zero. August 27th is 27--
8 August 27th is 18 -- excuse me -- and all the remaining
9 dates are zero for a total of 396. Now, with that
10 totalled up the number of birds that are found in the
11 field, the number I think is 908.

12 A. What was your total again?

13 Q. Sorry, I am just double-checking.

14 I am sorry.

15 A. I would confirm those numbers
16 that you have given for each of the days and their
17 total is 396.

18 Q. So the total found as I add up
19 all the fields now is 908?

20 A. That's right.

21 Q. So it's 908 on the fields as a total
22 as opposed to 1,099 on the landfill. That is what I
23 meant it to be.

24 A. That is right.

25 Q. Will you agree with me then and



1 again this is just a general indicator, it seems to be
2 the best we've got, that all of these months and
3 certainly when fields are being ploughed seems to be
4 one, or harvested which appears to be the general periods
5 when the fields attract the largest number of gulls,
6 that the fields as attractors for birds, these fields
7 are in the same order of magnitude as the landfill?

8 A. These totals are in the same
9 order of magnitude as the total for this landfill. I
10 would draw your attention to the fact that the landfill
11 that was present near Maple Airport, the one that is
12 referred to here in 1981 was a small, local landfill
13 that was active at that time. The very large Keele
14 Valley Landfill that is used by Toronto as one of its
15 main landfill sites was not present at that time. I
16 don't know what the tonnage of garbage going into that
17 site in 1981 was. I know that the tonnage going into
18 that Maple site, the small, local Maple site back in
19 1973 when we did our work in the Toronto area was quite
20 low. It is referred to in the report that has been
21 borrowed by someone. I believe it was 150 tons a day
22 in 1973. In 1981 I can't say.

23 Q. You made much the same point
24 yesterday and you agreed with me that in order to make
25 this kind of comparison you would have to know about



1 the amount of waste that was exposed as food for the
2 birds and you would have to know the operation of the
3 landfill to make that direct comparison. Would you
4 agree with me again you are lacking some information
5 to make a direct comparison but as an indicator in
6 this particular comparison we see the birds in these
7 particular fields in the area of this landfill are an
8 equivalent attractor in the same order of magnitude as
9 the landfill present in this particular situation?

10 A. That is true for what appears to
11 be a small landfill site, yes.

12 Q. If I were to suggest to you there
13 was no mitigation with respect to bird control at the
14 Maple landfill are you in a position to agree or
15 disagree with that?

16 A. I don't have any information
17 about that. I suspect that you are correct.

18 Q. Assuming I am correct would you
19 agree with me we have the ability to compare the kinds
20 of results we are seeing at Trenton and North Bay and
21 the Island Airport to reduce the landfill as an
22 attractor and the fields of course being fields and
23 active as they are; would you agree?

24 A. I would not agree.

25 Q. You don't agree that potential is



1 .there to reduce the landfill as an attractor by means
2 of bird control?

3 A. I agree the potential is there
4 to reduce the number of birds attracted to a landfill
5 below the numbers that would come there in the
6 absence of control measures. I do not agree with the
7 particular kind and perhaps I misunderstood, it would
8 be possible in the case of Burlington AirPark to reduce
9 the number of gulls. I think it does not necessarily
10 follow in the case of Burlington AirPark and Site D
11 that you could reduce the number of gulls that would
12 be attracted to that considerably larger landfill site
13 much closer to the main roosting area on Lake Ontario
14 to numbers less than would occur in the totality of
15 all fields in the area. That is the inference you
16 can make.

17 Q. I haven't got -- I don't think I
18 even mentioned the situation here at Burlington AirPark.
19 The question hadn't got to that yet. Let us just talk
20 about Maple for the moment. In this particular case
21 would you agree with me that with mitigation in place
22 it might be possible to make the landfill less attrac-
23 tive than the fields in the neighbourhood?

24 A. I guess it might be for the small
25 landfill.



1 Q. In this particular situation we
2 see a case where in fact, contrary to what you said
3 this morning, and let us just deal with this case,
4 there is a case where in fact the fields within the
5 area presumably as the fact of there being a larger
6 area covered by fields could be the more important
7 attractor of birds than the landfill; do you agree?

8 A. In this case, yes.

9 Q. Now, will you agree with me as
10 I think you did a few moments ago, that one of the
11 things that will be important in determining the
12 attractiveness of the landfill for birds is the way in
13 which it is operated, the amount of food that is left
14 exposed, the amount of cover and all those kinds of
15 issues?

16 A. Yes.

17 Q. So, will you agree with me then
18 that it is at least possible that if this site, Site D
19 is operated properly and material is covered, everything
20 else, that we may be able to reduce its attractiveness
21 to birds to where it is a comparable hazard, a comparable
22 attractant to what we see in the fields in that area?

23 A. You are referring to Site D?

24 Q. Yes.

25 A. No, I don't agree with that.



1 Q. Have you studied the field
2 operations in the case?

3 A. Let me talk about that last
4 comment. I assumed you were talking about the normal
5 practices of a sanitary landfill as the measures that
6 would be taken.

7 Q. No, no, I am saying with mitigation
8 measures directed specifically to bird control, for a
9 bird control problem you could cause that kind of
10 reduction. I am not limiting myself to the landfill
11 operations.

12 A. Assuming the money was spent
13 on it over the 20-year lifetime of the landfill site
14 then there are techniques that can greatly reduce the
15 number of gulls that would come to that landfill site
16 as I have indicated earlier. I have demonstrated the
17 likelihood that that could happen. I feel it is
18 possible.

19 MR. LEDERER: Mr. Chairman, this is
20 going to take me a moment.

21 THE CHAIRMAN: I think we will take a
22 break. It is 3:00 o'clock.

23 --- Recess

24 MR. LANCASTER: Please be seated.

25 MR. LEDERER: Q. Sir, just before the



- 1 break the question had been raised, we were discussing
2 the Maple site, we were discussing the attractiveness
3 again of fields as opposed to landfill and whether or
4 not or what the impacts of mitigation might have with
5 respect to that and I have given to Mr. Estrin and
6 Mr. Richardson a copy of a document. Perhaps the best
7 thing for us to do, Mr. Richardson, would be to identify
8 what this is. In your 1987 report you have, within
9 the literature cited, referred to a paper by Blokpoel
10 and Risley. Do you recall the paper I am discussing?
11 A. By Risley and Blokpoel, I believe.
12 Q. That is a paper which deals with
13 some work which actually Mr. Risley undertook at the
14 Quinte Sanitation Site at the end of the runway at
15 CFB Trenton?
16 A. There and elsewhere in that area,
17 yes.
18 Q. What was done with respect to
19 that work was to look at the effectiveness of bird
20 control and by making certain observations about birds
21 and then to compare what was seen at the Quinte
22 Sanitation Site to two other landfills in that area,
23 one located at Cobourg and one located at Brighton,
24 Ontario?
25 A. That is what they ended up doing,



1 although that was not the original experimental design
2 or plan.

3 Q. The original plan was to test
4 the results of -- the use of mono filament wire to
5 obstruct the gulls coming on to the landfill.

6 A. That is correct.

7 Q. It turned out that wire was not
8 put in place for whatever reason?

9 A. Yes.

10 Q. And therefore -- I'm not sure
11 whether this is a correct term. As a scientist you
12 will know. The new study design then was to make this
13 comparison with the bird control as it was actually
14 underway with respect to those two control sites at
15 Cobourg and Brighton?

16 A. That is right. It was a sort
17 of ad hoc design and they switched to in the absence of
18 being able to do what they had originally planned.

19 Q. The paper which you originally
20 referred to was given at a symposium in South Carolina
21 in 1984?

22 A. That is correct.

23 Q. As I understand it that was a
24 symposium in which everybody of importance in this
25 field attended and a series of papers were given by a
number of people who were referred to in the course of



1 this evidence?

2 A. A fair number of specialists
3 were there, not all.

4 Q. Can we agree that the document
5 I have given you is a report which was prepared by
6 Mr. Risley for the Airport Facilities Branch of
7 Transport Canada and the Canadian Wildlife Services
8 and really demonstrates the base work upon which the
9 paper given at the symposium was founded?

10 A. The report was prepared for those
11 agencies by Mr. Risley and it is certainly my under-
12 standing that is its purpose, although as I have
13 indicated, I have not seen this report, this specific
14 report before the break today.

15 Q. I'm sorry, I understood you had
16 seen it before but in any event you will agree with me
17 it is the basis for the paper which you had referred
18 to in your literature, cited in your literature?

19 A. That is certainly my understanding
20 but as I wanted to make clear I have not read this
21 report.

22 Q. Now ...

23 THE CHAIRMAN: That will be H-404.

24 --- EXHIBIT NO. H-404: Report prepared by Mr. Risley
25 for Transport Canada and
Canadian Wildlife Services



1 MR. LEDERER: Q. Could we, first of all,
2 look at page 40 of this report by way of identifying
3 some of the major areas of study? That is a map of
4 the area on which that Quinte Landfill Site is
5 located?

6 A. Yes, it is a map of that area.

7 Q. You see there is a T which
8 indicated CFB Trenton on that map?

9 A. Yes, that is the indication.

10 Q. And a Q representing the Quinte
11 Sanitation Landfill Site?

12 A. Yes.

13 Q. And a G just offright indicating
14 a gull colony in that area?

15 A. Yes.

16 Q. Now, would you turn with me to
17 page 32? That is the chart entitled "Selected
18 Observations of Ring-Billed Gull Concentrations at
19 Locations other than Sanitary Landfill Sites"; do you
20 see that?

21 A. Yes.

22 Q. You see several locations, all of
23 them being pastures or fields?

24 A. I am just looking through to see
25 where they actually came from. I haven't studied this



1 .in detail before.

2 Q. Take your time.

3 A. Yes, you are correct.

4 Q. What you see is a varying number
5 of birds sighted from 89 in a field near the Quinte
6 Sanitation Landfill up to 700 which is a field north
7 of CFB Trenton?

8 A. That is the range, yes.

9 Q. Would you agree these are the
10 kinds of numbers you might see in fields as you travel
11 around? You would yourself have seen these kinds of
12 numbers in the course of your work?

13 A. I have seen numbers on -- in the
14 upper limits of this range in the six and 700 area. I
15 have seen that many gulls on fields that are particularly
16 attractive to gulls, like fields where ploughing is
17 being carried out.

18 Q. With that in mind could we also
19 turn now to page 37 and here we have a chart, Table 11
20 which indicates the maximum number of gulls observed
21 at each sanitary landfill site during each week, that
22 is each week in which the observations were undertaken.
23 Do you see that?

24 A. I see that table, yes.

25 Q. So that would be the highest count



1 .in the week noted?

2 A. That is what the heading indicates,
3 yes.

4 Q. Here we have a landfill range in
5 the highest count ranging from zero for the week ending
6 the 27th of May of zero up to 492 for the first week of
7 April?

8 A. That is the range, yes.

9 Q. Would you agree with me -- I want
10 you to assume with me and I will show you the evidence
11 if we need to. I assume the evidence before the Board
12 at the Quinte site was there was a change in the bird
13 control program after the first week. Do you see that?

14 A. I am not aware of that occurring.

15 Q. Should that come up, that
16 distinction -- I want you to assume that for the
17 moment. I don't think it's a matter of any great
18 importance but the numbers are zero to 492. What I am
19 suggesting to you is that those numbers, those same
20 numbers are well within the range found at the selected
21 observations at page 32.

22 A. The range of numbers at the Quinte
23 Landfill ...

24 Q. Compared with the range of numbers
25 at the selected observations on page 32.



1 A. Where the bird control measures
2 were in effect through much or not all of that period
3 are within the range of the numbers shown on Table 6,
4 page 32 which are some selected observations of ring-
5 billed gulls in fields. We don't know whether these
6 are the highest representative or whatever.

7 Q. I take it that two of them the
8 dates are the same, the 15th of April, I take it the
9 same week. Take this 15th of April at the field north
10 of CFB Trenton and compare it to the highest for that
11 week at the sanitary landfill, it is 700 as opposed
12 to 90, do you agree?

13 A. Well, arithmetically I agree
14 those are the numbers that appear on those two tables
15 but I don't know, I don't know the basis for the numbers
16 on Table 6 under the selected observations in the fields.
17 All this seems to say is that in at least one field
18 some time around the 15th of April they saw as many as
19 700 gulls as opposed to a maximum of 90 at the Quinte
20 Landfill during that period.

21 Q. So what we know is that at that
22 one selected observation of 700 as opposed to a maximum
23 over a week, to a maximum of 90 for the entire week?

24 A. That seems to be, yes.

25 Q. They make exactly the same kind of



1 comparison with respect to the 22nd of April, the
2 number is 600 compared to a maximum of 110 at the
3 landfill for that week?

4 A. The same type of comparison, yes.

5 Q. Sir, all I am really trying to
6 suggest to you is that this is an indication, isn't it,
7 that with the mitigation in place, yes, it is certainly
8 from the 8th of April anyway, with bird control, bird
9 control in place there is an indication here, and it is
10 only an indication, an indication that these fields in
11 this area may have been more attractive to birds than
12 the landfill?

13 A. I think that is a bit of an over-
14 statement based on the evidence that we have reviewed
15 here so far. We don't know how many fields were looked
16 at and how frequently the numbers of gulls reached
17 these admittedly 600 to 700 levels that were quoted in
18 the fields. So, it is a kind of a difficult comparison.
19 The average numbers of gulls in any one or all fields,
20 I would be very confident are a great deal less than
21 the average -- than the peak, the possible peak numbers
22 that I quoted in that Table No. 6, is it?

23 Q. Sir, what we know is -- I am not
24 suggesting we can take it any further than this, that
25 -- sorry -- that at 5:26 on the 15th of April there were



1 more gulls, seven times more gulls at the field north
2 of CFB Trenton than at any time observed during that
3 week at the Quinte Sanitation Landfill? Isn't that
4 what we know?

5 A. That appears to be correct. I
6 think in fairness ...

7 Q. We know in fairness ...

8 MR. ESTRIN: Mr. Lederer, this is the
9 second time you have prevented the witness finishing
10 his answer to your question.

11 MR. LANCASTER: Let him finish.

12 THE WITNESS: I think in fairness I
13 should also point out as I discussed yesterday and
14 showed you in an exhibit, it was an overhead, a copy
15 of which has been marked as Exhibit 396. Unfortunately
16 I seem to have lost my copy of the overhead but it is
17 this diagram which I think all of you should have. I
18 should point out that this study that we have been
19 discussing here in the Trenton area was conducted from,
20 I believe late March -- or the first of March up to
21 some time in June. That is the time that most of
22 that period, this time of year when gulls come inland
23 to landfill sites and other inland feeding locations
24 in apparently low numbers with respect to other times
25 of the year. The early April period is the time when



1 the gulls do come inland to some extent. Once you get
2 beyond mid-April the numbers coming inland are extremely
3 low. So, I think one has to be very cautious in
4 generalizing these observations in the spring at a time
5 when gulls are not particularly -- the time of year
6 when they are least attracted to landfill sites to
7 any much broader kind of conclusion.

8 Q. It is not just less attracted to
9 landfill sites, it is less attracted to all food sources
10 that are inland; isn't it?

11 A. I think that is a fair statement,
12 yes.

13 Q. Again then, all we can say is
14 that at that one particular moment, 26 minutes after
15 5:00 on April the 15th this field was a minimum of
16 seven times more attractive to gulls than at any point
17 observed in that entire week at the landfill; do you
18 agree?

19 A. At one landfill where intensive
20 control measures were underway, yes.

21 Q. So with those control measures
22 underway at that moment can we not agree that the field
23 was more attractive to the birds than was the landfill?

24 A. In general, yes.

25 Q. So here we have an indication that



1 at least at one moment in time, if you like, fields can
2 be more attractive than landfills for birds; would you
3 agree, at least at that one moment?

4 A. Than landfills with extensive
5 control measures.

6 Q. The control measures that were
7 in place. Now, if we make the same comparison then
8 for the week of April the 22nd and look at the observa-
9 tions at the field three kilometres west of Trenton,
10 can we agree in the same fashion that at nine minutes
11 after 6:00 on the 22nd of April, 1983 that field was
12 more attractive to birds, something less than six
13 times more attractive to birds than was the Quinte
14 Sanitation Landfill at any time observed during the
15 week of April 22nd?

16 A. There were almost six times as
17 many birds at that field at that particular time than
18 the average at the controlled landfill during that
19 period when of course gulls are not particularly
20 attracted to landfills.

21 Q. So at that moment then not
22 particularly attracted to landfills, not particularly
23 attracted inland, that is what I asked you a moment ago
24 and you agreed with me?

25 A. I did.



1 Q. Can we agree then that at least
2 at that moment in time with mitigation in place the
3 field was more attractive to the birds than the landfill?

4 A. More attractive in the sense of
5 more birds being there, yes.

6 Q. Can we agree that at least at
7 these two moments in time there was an indication that
8 with mitigation landfills could be made less attractive
9 to birds than fields?

10 A. That one particular landfill at
11 that season could be made less attractive than what may
12 or may not be a peak field that at the time they con-
13 centrated in some undefined area that Table 6 was
14 selected for.

15 Q. Let us look at the mitigation
16 measures, in other words, a comparison of landfills
17 with and without mitigation that exists in this parti-
18 cular case just to get an idea of mitigation. Can you
19 look with me at page 21 of this report? I am reading
20 the last paragraph on that page:

21 "The comparison of weekly gull numbers
22 averaged for the entire study period at
23 Quinte Sanitary Landfill Site with the
24 other sites demonstrates the effective-
25 ness of bird control measures. It shows



1 differences among landfill sites by
2 comparing average gull numbers for all
3 weekly periods combined for each six
4 possible pairs of sites experimental
5 versus control. In all cases a reduction
6 in gull numbers is quoted ranging from
7 minus 73.4 to minus 99.8 per cent."

8 Do you see that?

9 A. Yes.

10 Q. In the comparison then between
11 the control sites at Cobourg and Brighton with the
12 Quinte site this is the range of success of the mitiga-
13 tion. That is the reduction, not 73 per cent of the
14 birds disappeared. It is the comparison between the
15 two sites being cited?

16 A. Those are the relative numbers
17 at those sites. I quite agree that that is as you have
18 just qualified, that does not indicate necessarily that
19 the mitigative measures can have that major an effect
20 because there are many other factors to be taken into
21 account.

22 Q. Just to show how that works if
23 you would go to Table 12 on page 38 you see an explana-
24 tion of that calculation.

25 A. I am on page 38, yes.



1 Q. Would you indicate that is what
2 the calculation is?

3 A. Yes.

4 Q. If you would go to Table 9 --
5 I'm sorry -- Figure 6 which is page 45 of the report?
6 Here you have a direct comparison of the number of
7 gulls seen at the various sites?

8 A. Yes.

9 Q. What you get at the Cobourg and
10 Brighton sites is something ranging from roughly 200
11 up to a high of over 600 and Quinte, a high of a hundred
12 down?

13 A. Right.

14 Q. Never more than a hundred at the
15 Quinte site with mitigation; right?

16 A. During that period, yes.
17 Actually that is not necessarily quite correct. Those
18 are average numbers. That doesn't necessarily mean
19 there wasn't more than a hundred at some particular
20 time.

21 Q. By all means on average. Looking
22 at this data, looking at those without mitigation for
23 a moment, that is Cobourg and Brighton and also the
24 figure that we reviewed on the Maple site, will you
25 agree with me that in the circumstances what you seem



1 to get at any one time on these landfills is -- well,
2 at the Maple site there is really never more than 150
3 and here at Cobourg and Brighton we are up to over 600.
4 Do you see all of that?

5 A. The Maple site never more than 150
6 during those observations and, I'm sorry, what was the
7 last point?

8 Q. At Cobourg and Brighton we have
9 just over 600.

10 A. Was the maximum.

11 Q. The difference, just to put it
12 into a lexicon, you have developed in your 1973 study,
13 can we agree that the difference is that the Maple site
14 at 30 kilometres away from water is an interior site?

15 A. The Maple site is an interior
16 site and a small site. I don't know what the amounts
17 of material coming to any of these sites in the Trenton
18 area was.

19 Q. Can we agree that the Cobourg and
20 Brighton sites are intermediate sites or are they
21 waterfront? I think they are intermediate.

22 A. They are certainly closer to the
23 water than Maple.

24 Q. One of the reasons for the
25 differences for Maple and these two sites would be the



1 .proximity of water?

2 A. That is correct.

3 Q. Sir, my point here is that even
4 when you get these two sites close to the water, you
5 don't get thousands of birds, you get hundreds. Do
6 you agree?

7 A. Well, again I would draw your
8 attention to the fact that again this is the spring and
9 we are getting birds at these sites during the time of
10 year when gulls are least attracted to landfill sites.

11 Q. On these figures you said yourself
12 in April. It is interesting, isn't it, that these
13 figures in June are higher than in April which you said
14 was a time when you would expect to see these numbers.
15 Do you notice that?

16 A. I notice the June numbers there
17 are higher than April and what was the last point?

18 Q. That seems to be somewhat incon-
19 sistent with what you had said earlier. You would
20 expect to see high numbers some time in April. If you
21 check your charts, Exhibit -- I am sorry I have forgotten
22 the exhibit number -- you see in June you are both
23 interior and intermediate sites very low. There were
24 no increases shown in that sense in June as shown in
25 the Risley work and in that sense the two documents are



1 somewhat inconsistent?

2 A. The trend in early April was the
3 same in that it involved the study of many landfill
4 sites in the Toronto area and this had apparently two
5 landfillsites at that particular time. The numbers
6 coming to landfills during the early parts of April
7 were decreasing. The trend in June seemed to be in a
8 proportional sense more of a peak than the figures for
9 the Trenton area.

10 Q. If we look at interior sites,
11 the peak interior sites, would you agree with me that
12 first of all the peak in August is quite short? It is
13 not a matter of great duration over time?

14 A. Well, yes, there is a period of
15 approximately a month when there are comparatively high
16 numbers at the interior sites during the month of
17 August and then they start to diminish as the ring-billed
18 gulls ...

19 Q. It would be fair to say there
20 appears to be a period of half a month when it climbs
21 to a peak and it immediately turns around in half a
22 month and descends again?

23 A. The numbers are relevant figures.
24 You can see low numbers at various times.

25 Q. Sir, what I am suggesting to you is



1 that there is some indication here that at interior
2 sites you really don't nor should one anticipate if
3 mitigation were in place particularly that you should
4 have thousands of birds, you might have hundreds?

5 A. At interior sites that is, I
6 think, a reasonable statement. I would draw your
7 attention to the fact that we previously discussed
8 that Site D would be in this categorization an inter-
9 mediary site, not an interior site with respect to the
10 closest part of Lake Ontario waterfront.

11 Q. Except, sir, if you take it as a
12 measure of not where it is in relation to the waterfront,
13 where it is in relation to the bird colony, it concerns
14 you, it becomes an interior site, doesn't it?

15 A. In terms of distance from the
16 Hamilton Harbour colony, that is correct, but you will
17 also recall I pointed out earlier that the gulls don't
18 come inland at the time they are concentrated in the
19 colony. Once they leave the colony they spread out
20 along the whole waterfront and therefore into the area
21 which would be, in terms of distance, an interior, an
22 intermediate type.

23 Q. We will come back to that point,
24 all right? I want to just come back to the Maple site
25 for a moment. Looking at the Maple site and all the



1 .birds that were found there the fact of the matter is
2 that there were no reported strikes, can we agree, no
3 reported strikes?

4 A. During the 1981 to 1985 period
5 the ICAO and Transport Canada statistics do not show
6 any bird strikes although this report that we are
7 discussing does report a direct observation of a bird
8 killed.

9 Q. It also refers to the evasive
10 action that was taken. Would you just go to page 24
11 of the report for a moment, that is tab 2 of your
12 witness statement?

13 A. This is page 24 of the Maple
14 report?

15 Q. Yes. Do you have that?

16 A. Yes.

17 Q. "August 6, 1981, while taking off
18 a plane had to take evasive action to
19 avoid a flock of mallards." Do you see that?

20 A. Yes, I do.

21 Q. The evasive action isn't taken to
22 avoid gulls, do you agree?

23 A. Yes.

24 Q. August 13, while landing a Twin Aztec
25 strikes a gull that is slow in getting off
the runway. The gull was killed but the
plane landed safely."



1 Do you see that?

2 A. Yes.

3 Q. I think you agreed with me yester-
4 day that the airports themselves can be an attractor of
5 gulls.

6 A. Gulls can be attracted to airports,
7 yes.

8 Q. This gull occurred on an airport,
9 not a landfill; do you agree?

10 A. Certainly.

11 Q. So, at Maple then if we now work
12 Maple into the degree of risk and add it to Toronto
13 Island, Trenton and North Bay, here we have a situation
14 where there is a landfill in close proximity and no
15 strikes at all and evaluate the degree of risk, can we
16 agree that that is something else the Board might want
17 to consider?

18 A. There are several points to that.
19 I agree the Board will want to consider all of this
20 evidence. There in fact was at least one strike at
21 Maple during the five-year period we are discussing,
22 not no strikes.

23 Q. In the Maple case of course we
24 have a landfill at which it would appear there is no
25 mitigation?



1 A. At this time, as far as I know.
2 I suspect that you are right. That was in 1981.

3 Q. Sir, I don't know if I asked you
4 this yet but if I haven't, I should have. Do you know
5 exactly how many turbine aircraft have been landing at
6 the Burlington AirPark?

7 A. Certainly I do not know that
8 exactly. The airport operator would have to give you
9 his information on that.

10 Q. Can we -- you indicated to the
11 Board -- I will change tack now. I do want to try and
12 get to the end of this. You indicated to the Board
13 that there were two changes since 1978 when you did
14 your original work. First of all, there was the matter
15 the Hamilton Harbour colony and the introduc-
16 tion of turbo aircraft to this area?

17 A. Certainly more changes that are
18 relevant than that.

19 Q. What other changes? I thought
20 from your report those were the principal changes. What
21 other changes are there?

22 A. With respect to the birds one of
23 the main changes is the Hamilton Harbour colony
24 which was not present in 1978. The changes in fact
25 of the gull population in the overall area has been



1 .increasing by approximately 11 per cent from the year.
2 There are far more gulls in the Great Lakes area now
3 than there were ten years ago. I of course pointed out
4 that the flight lines to Site D would be somewhat
5 different than those to the site proposed in 1978.

6 Q. I am sorry, I assumed that.

7 A. So those are changes. On the
8 aircraft side of it, not only do we now have turbine
9 aircraft using Burlington AirPark but they did not do
10 so to anywhere near that extent in 1978. Further there
11 are more aircraft of other types by a considerable
12 margin at Burlington AirPark now.

13 Q. That being of the piston type?

14 A. That is correct. Of course the
15 runway has been lengthened and paved since 1978.

16 Q. Let us look at these two points
17 I have referred to and I will leave the others. I
18 would like to look at the Hamilton Harbour colony.
19 As I understood your evidence an example of -- there
20 was a peak of 80,000 nests in that colony?

21 A. In round numbers, yes.

22 Q. That was in 1984, I gather?

23 A. In the early eighties. I would
24 have to check the number.

25 Q. As a result of control measures



1 that have been undertaken there are now something
2 around 40,000 nests?

3 A. The number for 1987 from the
4 Canadian Wildlife service was 45,000 nests.

5 Q. So we see a reduction as a result
6 of control measures at the source of the birds, if you like?

7 A. At one of the sources.

8 Q. If it was possible, further
9 control measures could be taken in Hamilton Harbour?

10 A. In general I would expect so, yes.

11 Q. In fact I understand it -- if you
12 don't know this, would you please tell me? I under-
13 stand that the birds have made an effort to extend the
14 colony further into the harbour onto land owned by
15 Dofasco, are you aware of that?

16 A. I was aware of gull-nesting
17 attempts on land owned by Stelco. I don't know about
18 Dofasco.

19 Q. Stelco, if you like or Dofasco,
20 is making an effort to see that those nests are not
21 established?

22 A. That is correct.

23 Q. To this point they have been
24 successful?

25 A. The gulls have certainly built
nests which are being destroyed.



1 Q. Would you like to stop and take
2 a break?

3 A. A couple of minutes.

4 MR. LEDERER: I think it is pretty clear
5 at this point ...

6 MR. LANCASTER: We will take a few moments.
7 Will five minutes be enough?

8 --- Recess

9 MR. LANCASTER: Please be seated.

10 MR. LEDERER: Q. Now, Mr. Richardson,
11 let me say that I personally am intent on getting this
12 finished today. If you haven't had enough of me, I am
13 prepared to tell you I have had enough of the situation
14 myself. However, if you have any difficulty, if you
15 want to adjourn as a result of your voice, please say
16 so and I am sure the Board will accommodate you and
17 certainly I will, so long as the Board permits me to.

18 Now, sir, we had started to talk about
19 the Hamilton Harbour colony. I had asked you whether
20 or not it was possible to control them and much has
21 been done and whether or not you agree that Stelco,
22 you say Stelco, I say Dofasco, is making some effort
23 to control in Hamilton. You would agree that efforts
24 are being made. That's as far as you've gone.

25 A. Bird control techniques have been



1 . applied at Stelco to my knowledge in at least one and
2 I believe two years. As far as I know no bird control
3 techniques have applied at the main Hamilton Harbour
4 colony and of course the evidence of that is that it
5 is increasing very rapidly, even in 1987 with respect
6 to 1986 would suggest it is not being controlled.

7 Q. I meant the notion of extension
8 into this land at Dofasco, that efforts are being made
9 to control that?

9 A. Yes.

10 Q. What I would like you to do now
11 is to return with me, please, to your 1978 report.
12 When you were undertaking this report, this study, as
13 I understand one of the things that you did was to go
14 to the landfill that was then operating at Oakville?

15 A. Yes, that's right.

16 Q. You made some observations there?

17 A. On -- yes, I think I went there
18 once and one of my co-workers went there as part of this
19 project as well.

20 Q. What appears to have happened --
21 maybe you could go with me to page 8 of this report.

22 A. Yes.

23 Q. I am reading from the bottom of
24 the page:

25 "The Oakville Landfill Site five miles



1 inland was used by at least 750 gulls on
2 the 17th of October, 1978 and 900 gulls
3 on the 15th of October, 1978."

4 Do you see that?

5 A. Yes. The 18th of November, 1978.

6 Q. I'm sorry.

7 "The majority of those gulls arrived from
8 the southeast, south or southwest, the
9 directions of Lake Ontario in the morning
10 and departed towards those directions in
11 the afternoon."

12 Do you see that?

13 A. Yes.

14 Q. It appears then at the time of
15 your 1978 study looking at Oakville as a location
16 which I believe we agree is somewhere to the east of
17 Milton between Toronto and Hamilton?

18 A. Yes.

19 Q. What you have got is gulls flying
20 to this landfill from all directions, including the
21 southwest direction of Hamilton?

22 A. Not from all directions, from a
23 quadrant 90 degrees wide.

24 Q. From all directions from Lake
25 Ontario south? Sorry, I should have used that as the



1 base.

2 A. Right.

3 Q. Including it would appear some-
4 thing in the direction from Hamilton, generally
5 speaking, that is the southwest?

6 A. Yes.

7 Q. So even then, in 1978, there were
8 observations of gulls coming from that general location?

9 A. Coming from that range of
10 directions including southwest, yes.

11 Q. So the idea of there not being
12 gulls coming from the southwest, it's not that the
13 Hamilton colony which you have mentioned here is the
14 indication of the beginning of birds coming from that
15 direction. Birds were coming from that direction even in
16 1978 without that colony being present?

17 A. Yes.

18 Q. Just to give some idea of the
19 sources for that, I think if we can just go back now
20 to page 8 there is a discussion here of the fact that
21 -- just looking at page 8:

22 "In June and early July adults began to use
23 these sites and young of the year from
24 various Great Lake colonies not just Toronto,
25 began to use these sites in late July."



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That's an indication that there were sources other than Toronto for these gulls?

A. For the gulls in western Lake Ontario area in 1978, yes.

Q. So again then this isn't an entirely new phenomenon. What I would like to do now is take that and look at the figure that you brought us which shows the overlay that has the flight direction and the flight path and the Hamilton Harbour on it. Do you have that exhibit available?

Now, first of all, sir, again then we had in 1978 birds coming from the direction that is shown, although you are looking at a site more over in this area from each of these paths as depicted on this exhibit?

A. In general from all parts of the lakefront in that general area.

Q. If you take what we have been calling here old Site F or in the context of this study as shown on Exhibit 274 to which you referred to E and shift the path from the southwest to that proposed site you will agree with me that what happens is you move the birds directly over the airport; isn't that right?

A. Yes, that is correct.



1 Q. So to the extent there were birds
2 moving from the southwest they would be as or equiva-
3 lently dangerous in the sense that now the business of
4 the Burlington AirPark intervening between the landfill
5 and the water becomes absolutely direct; do you agree?

6 A. In 1978 it was absolutely direct.
7 Yes, I made that point in my report.

8 Q. The other thing that interests me
9 about this notion of flight paths is that the bird
10 colony is, if I understood you correctly -- I don't
11 know how to describe this. It may be necessary in
12 some fashion to mark it on the exhibit that in this
13 location, sort of on the eastern side, if you like, of
14 the fan or triangle that demonstrates the flight path?

15 A. That is correct, in the southeast
16 corner of Hamilton Harbour.

17 Q. So if we look at this flight path
18 as you depicted it which in fact has broadened out
19 towards the west right into covering most of Hamilton
20 Harbour ...

21 A. Yes.

22 Q. ... by moving in that direction you
23 tended to bring the flight path of those birds closer to
24 the airpark?

25 A. Yes, I did that very intentionally.



1 Q. Would you agree with me now that
2 if efforts are being made to restrict the nesting at
3 least at the moment to its present location as you
4 suggested a few moments ago ...

5 A. Yes.

6 Q. ... what you have really done and
7 I don't use this word in any kind of sinister or
8 malevolent sense but you tend to bias what you see here
9 in the sense that you move it closer to the airport
10 than may be fair or accurate?

11 A. I don't agree with that. The
12 reason the corridor is drawn the way it is is that gulls
13 would come to that landfill site primarily after they
14 dispersed from the colony as we discussed previously,
15 at which time they are distributed all along the lake-
16 front and particularly early and soon after they have
17 left the colony there will be concentrations of them
18 in the most western part of Lake Ontario, including
19 Hamilton Harbour. As evidence of this tendency we
20 have just had pointed out to us that earlier observa-
21 tions of the local landfill site showed gulls approaching
22 the landfill site from a wide variety of directions
23 representing the whole lakefront.

24 Q. I was going to come to this point.
25 When you talk about birds dispersing, they are going to



1 .disperse to the east as well as the west, aren't they,
2 sir?

3 A. That is correct.

4 Q. If you really wanted to demonstrate
5 this fairly what you would have to do is widen the fan
6 considerably and have these little dots of the entire
7 fan, wouldn't you?

8 A. Well, it would be fair to say
9 that, yes, particularly that you could put the dots
10 further to the east but at some point you should stop
11 putting the dots. It is a subjective decision as to
12 where that should occur.

13 Q. My point there is in considering
14 this Hamilton gull colony the first thing you need to
15 consider is that this is not an entirely new path
16 because we know that birds were coming in this direction
17 in 1978, that is the first thing; correct?

18 A. Correct.

19 Q. So in evaluating the different
20 site from 1978 you have to consider that again you are
21 not starting at ground zero, there are already birds
22 taking this path at this time?

23 A. A smaller number.

24 Q. The second thing you need to
25 consider as you look on this path as you said is the



1 .birds will actually disperse and broaden out and not
2 come in this kind of narrow, direct line as might be
3 depicted if you look only at the colony itself?

4 A. Yes.

5 Q. They will, for example, spread
6 out to the east as well as to the west; correct?

7 A. They will spread out to the west
8 and in fact beyond the western boundary that is shown
9 there.

10 Q. But that means that again the
11 birds are spread out, some of them will spread them-
12 selves outside the circuit that you depicted on this
13 exhibit when you gave your evidence originally, this
14 circuit of aircraft flight?

15 A. I agree if what you are saying
16 is that birds that had nested in Hamilton Harbour,
17 some of them will have dispersed sufficiently far to
18 the east by the late summer that they would approach
19 the landfill site from a direction that would not bring
20 them through the circuit. Others would not have
21 dispersed sufficiently far to the east for that to
22 occur.

23 Q. When we look at this colony, it's
24 not the colony itself that is the complete source. The
25 colony will disperse and the total numbers that would



1 create the risk will be somewhat less than the total of
2 the colony itself?

3 A. I think it is actually the other
4 way around. The total numbers that create the risk are
5 much greater than the total numbers of the colony
6 because gulls that are dispersed will disperse west-
7 ward and gulls of the Toronto area will disperse
8 westward. We have evidence of marking individual
9 gulls of various colonies around Southern Ontario. The
10 gulls that occur in the western Lake Ontario area during
11 the late summer and fall come from a wide variety of
12 colonies, not just whatever colony happens to be closest
13 to any given location.

14 Q. When we evaluate the nature of
15 the change occurring as a result of the creation of
16 the Hamilton Harbour colony and look at it in that
17 restricted fashion do you agree that it is not that
18 this new harbour colony creates on its own an entrance
19 of now 41,000 nests or whatever it is because those
20 were dispersed to other locations themselves. We are
21 looking at the degree of change as you suggested it
22 from the creation of this new colony in the intervening
23 years. In that sense they spread out and will not all
24 become a part of the danger or the risk?

25 A. Certainly not all of the adult



1 .gulls and all of the young which they produce which is
2 not included in the 42,000 figure will go to site D.

3 Q. Can we agree that evaluating the
4 nature of the risk is something you want to consider,
5 the fact that birds from this colony do tend to disperse?

6 A. We would certainly consider that
7 as well as the rate that other birds from other colonies
8 will disperse into this area.

9 Q. As they would have in 1978?

10 A. Of course there are now more
11 birds in the other colonies as well.

12 Q. There are now efforts to control
13 them?

14 A. At some of the other colonies,
15 only a minority of the other colonies.

16 Q. Sir, I showed you this at the
17 last break and I want -- Mr. Chairman, this will have
18 to be subject to proof and frankly I have discussed
19 it with Mr. Tzekas and he will attempt to prove it
20 through one of his witnesses. I have reviewed it with
21 the witness. This, Mr. Richardson, would you assume
22 with me -- I just want to put this in a place where
23 people can see it -- is a map which shows the Hamilton
24 Harbour. Can you see that?

25 A. Yes.



1 Q. Do you see here proposed Site D
2 located with the green dot sort of to the north of the
3 map?

4 A. Yes, I do.

5 Q. What has been done here is that
6 the bird colony has also been located; do you see that?

7 A. Yes.

8 Q. In fact a compass has been placed
9 at the proposed Site D and a circle drawn. Do you
10 see the circle?

11 A. Yes.

12 Q. An effort made to locate major
13 landfills in that area?

14 A. I see other sites marked. I have
15 no personal familiarity with some of them.

16 MR. LEDERER: This is where the assuming
17 comes in, Mr. Chairman, and the proof will have to come
18 of course.

19 Q. First of all, the first green dot
20 is the Burlington Landfill Site. I want you to assume
21 for the purposes of this that if Site D is approved this
22 site will be closed, that there is a landfill at
23 Ancaster, the Ancaster Landfill?

24 A. I see that marked on the map.

25 Q. And assume with me as well that



1 there is the Glanbrook Landfill?

2 A. I see that marked as well.

3 Q. I want you to assume with me, if
4 you will, that they will continue to be operated. Now,
5 sir, will you agree with me as depicted on that map
6 that the landfills, the two that will remain open are
7 approximately equidistant from the Hamilton Harbour
8 colony as the proposed Site D?

9 A. Yes, that is what the map shows.

10 Q. Would you agree with me that there
11 is no reason to anticipate that those landfills will
12 have any effect other than to draw some birds to them
13 if landfills in fact are attractive to birds and there
14 is no mitigation?

15 A. I would expect that, yes.

16 Q. In fact if we were to take the
17 work done by Mr. Risley at Quinte as an example and
18 if there were no mitigation at those two sites which
19 exist one might anticipate more birds to go to those
20 landfills than to the proposed Site D if there was some
21 form of mitigation in place at that site?

22 A. I wouldn't make that generalization
23 without knowing more about the nature of the operations
24 at each of the landfill sites.

25 Q. When you come to consider the



1 impact of the Hamilton Harbour colony on all of this
2 would you agree with me you need to consider the fact
3 that there are two other landfills and if landfill
4 has the effect that you suggest then they will be a
5 factor in how that colony behaves?

6 A. Yes.

7 MR. LEDERER: Thank you. Sir, I don't know
8 how you want to deal with that. In other hearings I
9 have had exhibits marked for identification and in other
10 cases they have just been marked as material or just
11 left.

12 MR. LANCASTER: Is that a Burlington
13 exhibit?

14 MR. LEDERER : Let me be candid. I
15 asked for it to be produced by some consultants. My
16 object is to prove it, if necessary. I don't think it
17 is controversial in any way and I have spoken to
18 Mr. Tzekas about this and I propose to have it put to
19 one of his witnesses in advance of his appearing here
20 and to have him confirm it, also that he can prove it
21 so that the Region won't have to call the witness.

22 MR. LANCASTER: We will accept it now as
23 Exhibit H-405.

24 --- EXHIBIT NO. H-405: Map of Hamilton Harbour with
25 adjacent landfill sites



1 MR. LEDERER: Q. So when we come to
2 consider the impact of this gull colony, this is another
3 thing that we look at, can we agree, the Hamilton Harbour
4 colony?

5 A. Some gulls from that area will
6 presumably go to other landfill sites, aside from Site D.

7 Q. Now, sir, doesn't all of this
8 suggest that what we have got is birds that have been
9 coming from all directions, from the south, from the
10 lake, they have been coming from -- if you look at the
11 lake as a starting point, from a wide variety of points.
12 That there are a wide variety of possible routes that
13 they make take into this area and that they have been
14 doing this for some time and that there is no real
15 change?

16 A. Well, do you want a yes or no
17 answer to all that? I would say, no, I certainly
18 don't agree with all of that. I think probably you
19 should break it down into individual points.

20 Q. First of all, do you agree with
21 me that they do come from all directions, from the
22 south for some time, certainly since 1978?

23 A. Birds will come to a landfill
24 site in this general area from a wide variety of
25 southerly directions, yes, that is correct.



1 Q. And they have been coming from --
2 they would come, have for some years been coming from
3 a wide variety of directions?

4 A. To landfill sites in that area.

5 Q. I am thinking particularly of the
6 Oakville situation.

7 A. That is correct, gulls from a
8 wide variety of places along the lakefront will
9 converge in a gradually concentrating stream towards
10 the landfill site.

11 Q. If there were a landfill site
12 here they would and if they do attract birds as you
13 said, there are a wide variety of routes they would
14 take to get to this landfill?

15 A. They would start off, yes, in a
16 wide variety of places and converge into a narrower
17 and narrower stream as they got closer to the landfill
18 site.

19 Q. What I am suggesting to you then
20 is that the existence of the Hamilton Harbour colony
21 doesn't really then create much of a change between
22 what exists now and what existed in 1978?

23 A. No, that is not correct. There
24 are many more gulls in the area and particularly
25 shortly after the gulls leave the colony in the early



1 summer period, the gulls will be especially concentrated
2 in the westernmost part of Lake Ontario, Hamilton
3 Harbour, because of the presence of that colony and
4 there was no reason for such a sharp concentration on
5 the westernmost part of Lake Ontario back in 1978 and
6 of course the number of gulls overall are high.

7 Q. Now, sir, can we agree that --
8 I think we have agreed that if a problem develops here
9 or exists as a result of the creation of this landfill
10 then mitigation measures do exist and are available
11 and have been tried in other locations?

12 A. Mitigation measures are, yes,
13 all that is true. Though mitigation measures have
14 limitations.

15 Q. If we refer to page 14 of your
16 1987 report you will see a list of possible mitigation
17 measures; correct?

18 A. Yes, that is correct.

19 Q. In discussing this with you
20 Mr. Estrin referred you to your witness statement, to
21 page 6, to the 1973 article of Dr. Solman. Do you
22 recall?

23 A. Page 6 in my witness statement?

24 Q. Yes.

25 A. Yes.



1 Q. I just want to try and find where
2 in this paper you find the various quotes. First of
3 all, you see the quote, the beginning one which says:

4 "To improve air safety we must keep
5 birds and aircraft from using the same
6 airspace."

7 Do you see all that?

8 A. Yes.

9 Q. You find that, do you agree, on
10 page 2 of the report, of the article?

11 A. Yes.

12 DR. KINGHAM: I am just trying to find
13 where you are.

14 MR. LEDERER: What I am doing, sir, is
15 just trying to locate for the Board where in the paper
16 you find these quotes and then I am going to refer to
17 some other parts of the paper.

18 DR. KINGHAM: You started off with
19 M-390, the 1987 study with the mitigative measures and
20 then you have moved to what?

21 MR. LEDERER: By doing that I have
22 simply identified some of the basic mitigative measures.
23 Now I want to refer to the evidence which this gentle-
24 man gave in response to Mr. Estrin which starts with
25 his reference to the paper which is now marked as



1 Exhibit -- no, sir, this is the paper of Dr. Solman
2 which is referred to on page 6 "Influence of Garbage
3 Dumps Near Airports on the Bird Hazard" which I think
4 is 401. If you just see now in the witness statement,
5 you will see on page 6 that the first quotation is the
6 paragraph which begins: "To improve air safety...", at
7 the witness statement now, page 6.

8 DR. KINGHAM: Yes.

9 MR. LEDERER: If you just try to locate
10 that. What I would like to do is locate that paragraph
11 in the article itself, Exhibit 401. You will find it
12 on the second page.

13 Q. Then, sir, you have to skip a
14 paragraph to get to the next quote:

15 "The pattern involves the necessities..."
16 Do you see that as you compare the witness statement
17 and the paper itself?

18 A. Yes, I see that.

19 Q. Then the next one:

20 "In the associate committee..."
21 You have to jump all the way over to paragraph 5, just
22 about the middle of the page.

23 A. I'm sorry, which page are you on?

24 Q. Page 5 of the report, article.

25 A. Correct.



1 Q. What I want to do is review some
2 of the material that is between page 2 and page 5.
3 Again I don't want to mislead you or trick you in any
4 way about this. I asked Dr. Solman himself about these
5 quotations at the hearing at Quinte and we can do it
6 in two ways, I can either ask you what you think he
7 meant or read you what he said. It seems to me it
8 would make more sense to do it the latter way.

9 The first quotation, so you can find the
10 starting point when we get to it, I am just going to
11 give you some of the lead-in questions. The quotation
12 which begins on page 3, if you would just go to page 3
13 and you see the words:

14 "Here much of our garbage goes into
15 sanitary landfill sites..."

16 Do you see that?

17 A. Yes.

18 Q. "Here..." it's at the beginning
19 of the line:

20 "Here much of our garbage goes into
21 sanitary landfill sites where in theory
22 at least edible material is frequently
23 covered by earth, sand or inert material
24 to render it unavailable to birds.

25 Experience with a number of landfill sites



1 near major cities have led me to conclude
2 that practice is not quite up to
3 theory."

4 Do you see that?

5 A. Yes.

6 Q. Let me ask you, would you agree
7 with me that what is really being said there is that the
8 idea is that you cover the material so it is not
9 available to birds but unhappily that just hasn't
10 consistently been done in past practice which has been a
11 contributory problem?

12 A. Right, that is correct. Many
13 people in the bird hazard field have made that comment
14 that it does not seem to be technically feasible to
15 cover the garbage fast enough in essentially -- almost
16 every landfill operation that the people have looked
17 at in order to prevent gulls from gaining access to
18 them.

19 Q. I don't know that it says any-
20 thing there about not being technically feasible but
21 would you agree with me that what it says for the
22 moment, that it simply says that in fact practice has
23 not been up to theory, that is, people have not been
24 covering it in a way that has been fast enough to
25 cover it?



1 A. That is correct.

2 Q. We then go on in the paper to
3 page 4. Would you do that with me, please:

4 "From the airport operator ..."

5 I am reading the last paragraph:

6 "From the airport operator and airline
7 point of view, open disposal of edible
8 garbage is a bad thing. It should be
9 avoided if at all possible. Sanitary
10 landfills should not create the problem
11 but, in my experience, they often do."

12 Do you see that?

13 A. I do see that.

14 Q. What I am suggesting to you is
15 being said there is that in fact you could avoid the
16 problem if only practice was up to theory. That is what
17 is being said there, do you agree?

18 A. If practice was up to theory of
19 covering garbage fast enough the gulls could not gain
20 access to it.

21 Q. What it says is:

22 "Landfills should not create the problem."

23 But it implies that if you could cover properly you
24 wouldn't have a problem.

25 A. I think that what it implies there



1 and actually says outright is that if you could cover
2 the garbage fast enough the gulls cannot gain access
3 to it then you would not have the problem but I am
4 also sure that the so-called standard practice of sani-
5 tary landfilling as referred to, for example, in the
6 design and operations report are nowhere near adequate
7 to cover the garbage rapidly enough to prevent gulls
8 gaining access to it.

9 Q. So what you are saying is --
10 perhaps I will just read you. I am not sure it's
11 entirely consistent. I want to read you what Dr. Solman
12 said after I read in that quote. It is page 4100.
13 If you go to page 4104 through to 4107. Actually
14 perhaps it will be best if I read all of those pages.
15 I apologize, Mr. Chairman, this will take time. Will
16 you just accept for me that Exhibit 111 is in fact the
17 article we have been referring to?

18 A. Fine.

19 Q. " Now, I would like to take you
20 back to one of the documents that I
21 referred you to this morning. This is
22 the 1973 article that we discussed. Do
23 you recall that?

24 A. Is that Exhibit 111?

25 Q. Yes, it is Exhibit 111, that is correct.



1 I was interested in something you said
2 this morning and that was that in fact if
3 you properly cover you can control birds
4 that way. Isn't that correct? You assist
5 in controlling the birds that way because
6 you deny them the food?

7 A. Yes, if you do it in such a way that
8 it actually does deny them the food.

9 Q. In fairness to you you discussed
10 this in this paper. Do you have page 3
11 of the paper?

12 A. I do.

13 Q. All right. Reading a sentence which
14 begins about halfway down the page, starting
15 with the words, "Here much of our garbage..."

16 This is the quote I read in here.

17 "Here much of our garbage goes into
18 sanitary land fill sites where, in theory at
19 least, the edible material is frequently
20 covered by earth, sand or other inert
21 material to render it unavailable to birds."

22 The Chairman at that point had some trouble in following
23 where I was reading from and we went back and started
24 again. It continues:

25 "Experience with a number of land fill
sites near major cities has led me to
conclude that practice is not quite



1 up to theory."

2 That is really what you said here?

3 A. That is correct, yes.

4 Q. As the Chairman put it to you
5 earlier this was written in 1973?

6 A. Yes.

7 Q. It is entirely conceivable
8 covering practices have improved since
9 that period?

10 A. It is conceivable."

11 Do you agree with that first of all, that since 1973
12 covering practices may have improved?

13 A. Yes.

14 Q. That may have lessened in fact
15 the nature of the problem as it was when Dr. Solman
16 wrote this paper in 1973?

17 A. To some degree.

18 Q. "Q. In fact the effectiveness is
19 discussed on page 4 if you turn over the page
20 and the potential effectiveness. Reading the last
21 paragraph on the page, do you have that sir?

22 A. Page 4, last paragraph.

23

24 Q. Now I am reading the second
25 quote which I read to you:



1 'From the airport operator and airline point
2 of view, open disposal of edible garbage
3 is a bad thing. It should be avoided if at
4 all possible.. Sanitary land fills should not
5 create the problem but, in my experience,
6 they often do.'

7 You are saying there a properly operated
8 landfill would not create a problem with
9 respect to this, is this fair?

10 A. That is correct."

11 And this goes on to read what follows in the article
12 which I haven't read to you yet:

13 "'I have only seen one operation and that on a
14 military base, where the covering material
15 was placed over the garbage quickly
16 enough to prevent use by birds.'

17 A. Right.

18 Q. So first of all landfills don't
19 need to cause a problem because if they are
20 properly covered, they won't, and secondly
21 you have seen an example where that has
22 happened?

23 A. That is correct."

24 Do you see all of that? Would you agree with me that
25 if you cover properly which was done in at least one



1 case that Dr. Solman was aware of you eradicate the
2 problem?

3 A. I saw all that in the transcript,
4 yes. As I think I indicated earlier, I would agree that
5 if you can cover rapidly enough and completely enough
6 it is in theory possible to avoid or virtually avoid
7 the problem. I also though point out that Dr. Solman
8 says that he has only seen that happen once in a very
9 specialized circumstance which you haven't read out yet.

10 Q. Sure I read it out. It's the
11 military base.

12 A. There is more information about it
13 than that in the transcript. Dr. Solman of course has
14 visited an extremely large number of landfills over
15 his lengthy experience in this field and one that he
16 did mention as the exception is operated differently
17 from any standard, even modern sanitary landfill
18 operation.

19 Q. Sir, what this means is that if
20 we cover better and you say it is conceivable that we
21 have been doing that since 1973, we can lessen the
22 problem; do you agree?

23 A. To some slight extent and I should
24 perhaps indicate some degree of quantification on that
25 because there is some information available. One study



1 . that has looked into this question of modern sanitary
2 landfill practices versus open dumps which are the
3 extreme, indicate that you couldn't really make a
4 precise estimate of how much of a reduction in the
5 number of gulls there was at a sanitary landfill versus
6 open dumps but his estimate was that it was in the
7 order of 50 per cent more gulls at an open dump than
8 at a sanitary landfill which would mean, for example,
9 a reduction from 1,500 gulls to a thousand gulls.

10 Q. What study is that you are referring to?
11

12 A. This is a paper by a gentleman
13 by the name of Dennis Forsythe who has studied gull
14 and landfill interactions and bird hazards to aircraft
15 in the Charleston, South Carolina Region for many years.

16 Q. Sir, you cited that in your
17 literature search?

18 A. I am pretty sure I cited some of
19 his papers. Whether I cited that specific one I would
20 have to check.

21 Q. There are two from Mr. Forsythe,
22 it would appear, one in 1974 and one in 1976. Would
23 it be one of those two?

24 A. Which report of mine are you
25 looking at?



1 Q. I'm looking at your latest one,
2 the 1987. I'm sorry, it is pointed out to me that is
3 the literature search for the 1978 report.

4 A. I suspect that is in fact the
5 right place to look for this quotation.

6 Q. There is only one referred to in
7 1984, that is Forsythe and Austin, "The Effectiveness
8 of an Overhead Wire Barrier System." I presume it is
9 not that one, it must be one of the two earlier ones if
10 it is cited here at all.

11 A. It is definitely one of the earlier
12 ones and I am afraid I cannot locate any reference to
13 that 50 per cent figure now but I certainly recall very
14 clearly seeing that figure in one of Dr. Forsythe's
15 publications on that study.

16 Q. I would like you to bring that
17 report with you tomorrow because I would like to see it.
18 Could you do that for me?

19 A. I will try, sir. I may have to go
20 to Toronto to do it.

21 Q. In any event, sir, we have learned
22 that this would be from work done in 1974 and '76;
23 correct?

24 A. Up to that time, yes.

25 Q. You have already agreed with me



1 . that from 1973 to the present it is conceivable that
2 cover practices have improved?

3 A. That is conceivable, I agree with
4 that.

5 Q. It would stand to reason,
6 therefore, that it would be conceivable that cover
7 practices have improved since Mr. Forsythe did his
8 work?

9 A. That is conceivable.

10 Q. That being the case then it is
11 entirely conceivable that more work may have been done,
12 that we may now be more successful in using cover to
13 decrease this problem?

14 A. That is quite possible.

15 Q. Thank you, and in fact, because
16 you say it is, if you take this to an extreme, and I
17 am prepared to concede with you it is an extreme, the
18 sort of extreme that occurred on the military base, you
19 can use it to eradicate the problem?

20 A. If I recall the testimony it was
21 that every truck full of garbage as it was dumped was
22 covered individually, immediately on the orders of the
23 base commander who insisted that this be done.

24 Q. So if you take that extreme case
25 you can use this practice to eradicate the problem and



1 as close as you get to it, it may not be practical to
2 do it that way anywhere other than on a military base
3 is what you are saying and I would be happy to agree
4 with you, you can get closer to dealing with the
5 problem?

6 A. You could. If it were possible
7 to achieve in a large sanitary landfill operation you
8 could certainly get closer to solving the problem.

9 Q. Thank you. Will you also agree
10 with me, sir, that covering garbage is a standard
11 landfill practice? It is something that people do as
12 a matter of standard practice? Certainly we are all
13 seeking to have people do it as a matter of standard
14 practice?

15 A. Yes, some form of it, some form
16 of cover with clean fill at some interval is certainly
17 standard practice.

18 Q. Now, can we agree that you may be
19 able to use this practice within the practical limits
20 available at a municipal landfill which I concede to you
21 from our discussion it is conceded there is some prac-
22 tical limitation. Would you agree with me that you
23 may become effective enough to reduce the problem in a
24 significant way?

25 A. If by a significant way you are



1 . referring to figures like reducing it -- a 50 per cent
2 reduction, 1,500 to 1,000 that Dennis Forsythe referred
3 to, I would agree that that is very likely possible.

4 Q. Would you agree with me then that
5 we may reduce it down into the hundreds of gulls?

6 A. From a starting point of 1,500 at
7 an open dump, yes, I would agree that is possible.

8 Q. Would you agree with me that if
9 you reduced it to a hundred you are no longer attracting
10 what might be called a large number of gulls?

11 A. Yes, but we are starting with a
12 base of 1,500 at an open dump which is not necessarily
13 -- is not what we would expect at Site D. It's not an
14 open dump.

15 Q. The point is you have used these
16 kinds of terminology in your report and if I refer you
17 to page 9 you say that:

18 "However, Bird and Hale in 1986 indicated
19 special measures to deter birds may be
20 necessary not just standard sets of
21 practice of landfill control Hydrology
22 Consultants, 1986 proposed based on our
23 literature at other landfill sites in
24 Southern Ontario we could state with
25 assurance that large numbers of gulls



1 will be attracted to Site D if only
2 standard practices of landfill are
3 followed."

4 What I am suggesting to you is that this says standard
5 practices followed and cover applied in optimal fashion
6 practical for municipal landfill, we may in fact use
7 the standard practice not to eradicate the problem but
8 to reduce it so that we aren't getting large numbers
9 of gulls, thousands of gulls.

10 A. I can only agree with part of that.
11 If standard cover techniques, for example, covering at
12 the end of the day are applied, then the exposed
13 garbage during the course of the day will certainly
14 attract large numbers of gulls as it has at a number
15 of sites that I visited in my practice.

16 Q. So that would depend, wouldn't
17 it, on the amount of exposed garbage, the area of the
18 cell that was being developed at that point?

19 A. To some extent.

20 Q. Now, I also want to refer you to
21 another paper of Dr. Solman's which unfortunately I
22 don't have copied but I don't want to -- I don't want
23 to refer to it at any great length. This is another
24 paper which you referred to in your work. Sir, this
25 is a paper that, as I say, you referred to. It's a very



1 brief reference. It is called "Reducing Gull Use of
2 Some Attractions Near Airports." It's also quoted in
3 your witness statement. Do you have a copy of it?

4 A. That I believe is the one. I
5 have the quotes here. I believe I have the text for
6 that.

7 Q. If you could find that -- I don't
8 think, Mr. Chairman, it will be necessary to exhibit
9 this.

10 A. Do you have a page number?

11 Q. Two hundred and nine. This is
12 the various papers given at a symposium in North
13 Carolina or South Carolina.

14 A. Yes, I have that.

15 Q. Now, am I right, sir, that what
16 this paper does, first of all it is quite brief but
17 if you look on the second page of it which is page
18 210 you see there the quotes that you referred to in
19 your witness statement.

20 A. Can you give me some guidance
21 as to locations here?

22 Q. "In the past we have been lucky."
23 It's at the bottom of page 7 of the witness statement,
24 the second paragraph on 210 of the document itself.

25 A. Right.



1 Q. In effect what happened here is
2 you've run two paragraphs together. The last four words
3 on page 7 of your witness statement:

4 "We have tried several methods ...", begin
5 a new paragraph in the article itself.

6 A. Yes.

7 Q. That continues over the page.
8 The words "exploders" and we have another paragraph
9 which follows immediately thereafter.

10 A. Yes.

11 Q. After that there is a following
12 paragraph I would like to read with you:

13 "One method of reducing gull problems is
14 to prevent large groups of gulls from
15 using nearby attractive areas including
16 edible waste disposal facilities sometimes
17 called sanitary landfills or more
18 correctly garbage dumps. Many of the
19 scaring devices including the use of
20 live falcons can work as effectively as
21 at airports. One must overlies human
22 activity and motivation with their
23 shortcomings."

24 Do you see that?

25 A. Yes, I do.



1 Q. So what is being said is that
2 these measures are available and they may be as
3 effective on the landfill site as at the airport.

4 A. That is what that paragraph says.

5 Q. Do you disagree with it?

6 A. I agree they have some degree of
7 effectiveness at a landfill site. The amount of
8 testing that has been done at a landfill site, most of
9 the deterring measures is very limited, so I would want
10 to be a little cautious as to comparing relative ranks.

11 Q. I understand Mr. Risley's work
12 may be the only work presently existing demonstrating
13 that kind of relationship?

14 A. That is one of two studies that
15 I am aware of for some conventional active scaring
16 techniques at landfills. Both of those studies have
17 significant design problems and there are other studies
18 involving other kinds of deterrent measures at landfill
19 sites.

20 Q. Now, this study then goes on to
21 discuss the possibility of using mono filament wire
22 over the top of the landfill at certain spacings to
23 move the birds away?

24 A. Yes.

25 Q. Then on the second page, page 211,



1 the third page, it discusses the fact that this is a
2 technique that might be worth further investigation?

3 A. Yes.

4 Q. Sir, it is correct, isn't it,
5 that what that demonstrates first of all is that we are
6 still in an exploratory area here and we have a lot to
7 learn about how we might be able to further reduce this
8 problem?

9 A. The problem of gulls with land-
10 fill sites, yes, that is correct.

11 Q. You in fact have done some work
12 in Niagara Falls, New York, concerning the use of
13 mono filament wire, haven't you?

14 A. Yes, that is correct.

15 Q. In fact your reports have been
16 reviewed. You would agree with me that you had great
17 success with that, didn't you?

18 A. We had some success with it. We
19 certainly were not able to keep anywhere near all of
20 the gulls off the landfill site with the passive wire
21 system alone.

22 Q. So your answer is you had some
23 success, is that it?

24 A. Partial success.

25 Q. I guess if we really wanted to



1 . look at the potential for success the best material
2 that we have before us here would be in terms of the
3 particular problem we are dealing with, the best thing
4 to look at would be the kinds of -- the numbers of
5 strikes we see at the Quinte Landfill Site at Trenton,
6 the North Bay site and the Island Airport site; agreed?

7 A. Those are some of the main pieces
8 of evidence.

176A 9 Q. I accept that, thank you. Just
10 with respect to the matter of cover if I could refer
11 you to the Trenton situation, are you aware of the fact
12 that cover was considered to be a major problem in the
13 operation of that site?

14 A. No, I am not aware of that.

15 Q. What I would like to do is read
16 you another paragraph of that decision on page 41:

17 "Be that as it may, the Board concludes
18 that the bird control program operated
19 and financed solely by DND is effective
20 and has reduced the risk of air strikes
21 by birds to a percentage that is at the
22 lowest end of identified gull strikes
23 for airports in Canada. As such, without
24 any further consideration, the Board
25 would have been willing to recommend the
continued operation of the site with the



1 present control program. However, as
2 low as the gull strike figure may be, it
3 is never the less the duty of the operator
4 to do everything in his power and control
5 to further reduce the possibility of bird
6 strikes while carrying on a viable operation.
7 The applicant's failure to carry out
8 acceptable cover procedures, as hereinafter
9 described, not only creates a nuisance in
10 terms of odour and appearance but also
11 increase the attractiveness of the site
12 to seagulls and thereby failed to
13 minimize the hazard to (which) aircraft
14 in the area are exposed."

15
16
17 Do you see that?

18 A. Yes, I do.

19 Q. Can we agree then that as low as
20 the figures of strikes are at that particular situation
21 that had cover practices been better based on the
22 evidence you have given us the figures might have been
23 lower?

24 A. I agree that if the cover practice
25 had been better the figures might have been lower. I



1 would not necessarily agree that the strike rate was
2 low to begin with.

3 Q. We have the strike rate with bird
4 control, we have those figures. I don't want to quibble
5 with you whether it's low or high. The numbers are
6 there, those are the numbers that were produced.

7 A. We have seen those numbers.

8 Q. Now, sir, would you agree with
9 me then that -- I am not going to review it all with
10 you -- that what we have done over the course of the
11 last day-and-a-half is review the evidence that you
12 have produced, some of the statistics and all of this
13 information needs to be used in determining the actual
14 degree of risk, what it is that we are risking if this
15 landfill is constructed and operated properly?

16 A. I would agree we have been through
17 all that, yes.

18 Q. Would you agree with me again
19 that if in fact a problem appears there are mitigation
20 measures which are available which will decrease the
21 risk?

22 A. There are measures that are
23 available that if applied consistently over 20 years
24 or whatever the lifetime of the landfill site is will
25 reduce the risk.



1 Q. Will you agree with me that in
2 the absence of the landfill there will still be some
3 degree of risk because of the presence of other
4 attractants in the area, agricultural practices?

5 A. Gulls and other birds occur.
6 Birds occur virtually everywhere and bird strikes are
7 possible virtually anywhere. However, in a quantitative
8 sense we would expect there to be a considerable
9 increase in the frequency of strikes at the Burlington
10 AirPark if this landfill site is put there.

11 Q. With all of that, sir, your
12 conclusion is none the less that the risk of an air
13 strike with serious damage is unlikely with the land-
14 fill in place?

15 A. Yes, I have stated that in the
16 report.

17 Q. Finally, sir, with respect to
18 this standard of eight kilometres or -- I'm sorry --
19 five miles or eight kilometres or 3.2 kilometres, my
20 understanding is and please correct me if I am wrong
21 but that number when the regulation was -- perhaps I
22 will leave that for Mr. McDonald and just ask you this.
23 You have also provided an appendix to your '78 report,
24 the standards which are being used -- the guidelines,
25 I'm sorry -- which have been used in the United States,



1 10,000 metres in one situation and 5,000 in the other?
2 Sorry -- 10,000 feet and 5,000 feet?

3 A. There are additional guidelines
4 that cause the situation to go beyond, the limitations
5 to go beyond 10,000 feet in some cases including those
6 guidelines where applied in this case. That is in a
7 1980 report.

8 Q. If we applied -- I'm sorry, you
9 had better refer me to that.

10 A. I think I am right. One of the
11 appendices to my 1987 report.

12 MR. ESTRIN: Page 44.

13 MR. LEDERER: Q. Page 44 is a policy by
14 a biologist to the Federal Aviation Administration.
15 That is not a guideline published by that organization.

16 A. Let me guide you through it here.
17 It's at page 43. It tells you what Appendix 3 is.
18 FAA policy regarding solid waste disposal facilities,
19 FAA guidance concerning sanitary landfills on or near
20 airports. If you look through that appendix you will
21 come on page 49, to a summary of the specific part.

22 Q. Here is the problem. I don't
23 have a page 49.

24 DR. KINGHAM: Page 49 should be the last
25 page.



1 MR. LEDERER: Q. So the criteria that
2 are applied are those four criteria under paragraph 5?

3 A. That is a summary of some of the
4 main considerations, yes.

5 Q. Criteria:

6 "Sanitary landfills will be considered
7 as an incompatible use if located within
8 areas established for the airport
9 through the application of the following
10 criteria:

11 (a) landfills located within 10,000 feet
12 of any runway used or planned to be used
13 by turbo jet aircraft."

14 A. Yes, that is item (a), yes.

15 Q. Can we agree that this landfill
16 is more than 10,000 feet away from this proposed land-
17 fill, from the Burlington AirPark?

18 A. It is almost exactly 10,000 feet
19 as I recall.

20 Q. I think it's very close but I
21 think it is in fact somewhat over. Do you want to do
22 the calculation?

23 A. It may also -- I think it also
24 depends on what part of the landfill you are talking
25 about.



1 Q. "Landfills located within 5,000
2 feet of any runway used only by piston
3 type aircraft."

4 So to the extent that the majority of aircraft using
5 this airport are piston aircraft there is no question
6 on that?

7 A. That is correct.

8 Q. "At landfills outside of the
9 above perimeters but within the conical
10 surfaces described by FAR, Part 77 and
11 applied to an airport will be reviewed
12 on a case-by-case basis."

13 Now, this suggests, doesn't it, that there is some sort
14 of case-by-case analysis that has to be undertaken here?

15 A. That is correct.

16 Q. Would you agree, sir, that every
17 situation is different? I mean North Bay is different
18 from Trenton which is different from the Island which
19 is different from this situation which is different
20 from Maple; would you agree with all of that?

21 A. Yes.

22 Q. So that in effect it is right,
23 isn't it, there has to be some sort of case-by-case
24 analysis; isn't that correct?

25 A. According to these FAA guidelines



1 and also on general principle, that is true.

2 Q. That may very well be why we've
3 got a guideline, not a standard applied to the Canadian
4 situation?

5 A. I think I defer to the Department
6 of Transport on that.

7 Q. Finally, No. (d):

8 "Any landfill located such that it places
9 the runways and/or approach and departure
10 patterns of an airport between bird
11 feeding, water, or roosting areas."

12 And that one I presume would cause you some concern in
13 this case?

14 A. Yes, that is the last of the FAA's
15 four criteria and by that criterion Burlington AirPark
16 would fall within the hazardous zone by the U.S.
17 material.

18 MR. LEDERER: Thank you.

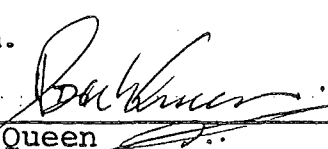
19 MR. LANCASTER: That completes your
20 examination?

21 MR. LEDERER: Yes, sir.

22 MR. LANCASTER: We will adjourn until
23 9:30 tomorrow morning.

24 --- Adjournment at 4:50 p.m.

25 CERTIFIED CORRECT

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