

PUBLIC HEARING

SYDNEY TAR PONDS AND COKE OVENS SITES

REMEDIATION PROJECT

JOINT REVIEW PANEL

V O L U M E 10

HELD BEFORE: Ms. Lesley Griffiths, MCIP (Chair)
Mr. William H.R. Charles, QC (Member)
Dr. Louis LaPierre, Ph.D (Member)

PLACE HEARD: Sydney, Nova Scotia

DATE HEARD: Tuesday, May 9, 2006

PRESENTERS: Cape Breton Save Our Health Care Committee:
Mr. Mary-Ruth MacLellan
Mr. Ada Hearne
Dr. James Argo

Cape Breton Development Corporation:
Mr. Merrill Buchanan
Mr. Bob MacDonald

Cement Association of Canada:
Mr. Colin Dickson
Mr. Wayne Adaska (Portland Cement - filling
in for Mr. Conner)

Portland Cement Association:
Mr. Charles Wilk

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1 --- Upon commencing at 1:34 p.m.

2 THE CHAIRPERSON: Ladies and gentlemen,
3 we'll begin the afternoon session of the hearings.

4 This afternoon we have two presentations
5 and two more presentations this evening. But before we
6 move to our first presentation, I'm just going to ask if
7 the Sydney Tar Ponds Agency has any undertakings they
8 wish to present or, indeed, if any other participants
9 have any other undertakings.

10 MR. POTTER: Thank you, Madam Chair.

11 We do have one undertaking today. It's
12 unnumbered. It falls between No. 6 and No. 7 on your
13 list, regarding further information on a decision not to
14 permit residential uses on Mullins Bank. It's from April
15 29th, and I'll ask Mr. Kaiser to address it. Thank you.

16 MR. KAISER: Thank you, Mr. Potter, good
17 afternoon, Panel.

18 The minutes of the Remedial Options
19 Working Group of the Joint Action Group, dated Monday,
20 December 4, 2000, reflect that two members of CBRN's
21 planning department were in attendance, and those members
22 stated that the area of the Muggah Creek watershed is
23 zoned industrial, and that no other use is currently
24 planned. And I believe that reflects some of the basis
25 for the decision by government partners to determine that

1 there wouldn't be no residential development on the Coke
2 Oven Site. Thank you.

3 THE CHAIRPERSON: Thank you, Mr. Kaiser.

4 Are there any other undertakings that ---

5 MS. MACLELLAN: Thank you, Madam Chair. I
6 don't know if you can hear me or not.

7 THE CHAIRPERSON: We haven't got you yet.
8 So hang on a minute.

9 MS. MACLELLAN: Thank you, Madam Chair,
10 last evening Sydney Tar Ponds Agency asked you if we did
11 the undertaking regarding European dioxin monitors.

12 I wish to inform you that I have provided
13 your Secretariat with one such procedure and I wish --
14 and I also told her that they're easily accessible on the
15 internet. All you have to do is go on the dioxin home
16 page, and type in "Dioxin Monitors in Europe," and it
17 very quickly brings you up several pages, probably five
18 or six, with different places to access the information.

19 I have also -- we have an undertaking to
20 provide you with the petitions that we had with the
21 Commissioner of Sustainable Development with the Auditor
22 General.

23 They have been provided to the
24 Secretariat. The Tar Ponds Agency also had an
25 undertaking to provide us with a financial breakdown of

1 the monies spent to date, and also their annual budget.

2 Is that undertaking complete? Thank you.

3 THE CHAIRPERSON: Thank you very much for
4 the information you provided to the Secretariat.

5 Mr. Potter?

6 MR. POTTER: Yes, Madam Chair, we have a
7 few more undertakings we're working on and should have in
8 the next couple of days, some follow-up undertakings to
9 present.

10 THE CHAIRPERSON: Thank you very much. I
11 would now like to move to our first presentation of the
12 day and this is Save Our Health Care Committee.

13 So, you have 50 minutes and I will let you
14 know five minutes before the end of that, and I believe
15 you're going to show us a video for part of that time,
16 for 20 minutes of that time.

17 --- PRESENTATION BY CAPE BRETON SAVE OUR HEALTH CARE
18 COMMITTEE (MARY-RUTH MACLELLAN)

19 MS. MACLELLAN: Thank you, Madam Chair. I
20 wish to thank the Panel, all the members, for having
21 shown a great deal of tolerance and patience with
22 everybody in the room, from both sides of the fence.

23 I can tell you, coming from a community
24 where there's very little trust in the powers that be, at
25 least we feel that somebody is listening.

1 My name is Mary-Ruth MacLellan. To my
2 right is Ada Hearne and Dr. Argo, again.

3 This video is nearly 20 minutes of
4 excerpts from the whole video, which was provided to the
5 Panel. It speaks for people who cannot be here. Some
6 are ill, some will not speak in public. One has died
7 since the making of this video.

8 Although the video may appear to fall --
9 may appear not to fall within the guidelines of the
10 Panel's mandate, it reflects on a number of things that
11 must be considered.

12 The people who have a long history in this
13 area have a better knowledge of what we are dealing with
14 when -- than what they are given credit for.

15 For example, skimming the surface or
16 cleaning only the core area of the site will result in
17 remediation of only part of the problem.

18 As reflected in the video, the attempts at
19 remediation of properties adjacent to the Tar Ponds and
20 Coke Ovens has shown that there is a much larger or
21 widespread area affecting people that must be looked at,
22 ie, first, the precautionary principle to protect people.

23 Incineration with its questionable release
24 of even smaller amounts of contaminants, ie, dioxins can
25 have a further devastating effect as shown in Dr. Argo's

1 presentation. Encapsulation with its far reaching
2 effects on water tables, even in the long term, is
3 dangerous.

4 For these reasons we feel that the Panel
5 must give an extremely serious look at other alternatives
6 that may challenge the current proposed process of the
7 Sydney Tar Ponds Agency.

8 We cannot allow history to repeat itself.
9 We have to look at all the processes available. We
10 cannot afford to leave a job half done for future
11 generations to face.

12 Ada Hearne, who we first met in 1998 at
13 Tent City, will give a brief outline of the video. We've
14 cut that out because -- in the interest of time, but she
15 will speak to the issue afterwards.

16 While we have worked on many issues with
17 Ada, she was not a member of our Committee until about a
18 year ago. She recently has become co-chair.

19 Ada was born and raised on Frederick
20 Street.

21 After Ada's conclusion, Dr. Argo will
22 continue with his slides and presentation.

23 Once again, we thank you for your extreme
24 patience and understanding. Go ahead, Ada. The video.

25 Please bear in mind that the quality of

1 the video is not necessarily very good. It's actually
2 about three years since either of us picked up a video
3 camera, and last night when I went home, I edited that
4 whole tape down to 20 minutes, thanks to my husband, who
5 has shown remarkable patience the last couple of days.

6 --- PRESENTATION BY CAPE BRETON SAVE OUR HEALTH COMMITTEE

7 (MS. ADA HEARNE)

8 (VIDEO BEING PLAYED)

9 MS. HEARNE: Thank you. It's kind of
10 difficult to speak, especially after seeing that video.
11 My stepfather, who just recently passed away, April 15th.
12 Also, after reading our local newspaper yesterday, and
13 seeing a friend I grew up with had passed away with
14 cancer. She was the third woman from my community to die
15 of cancer in only a few weeks.

16 The three were around the same age of 46
17 years, all mothers of young children. It is a
18 frightening thing to carry in my heart, thinking I could
19 be next, and fearful that my children, after losing their
20 father, and my husband, Larry, only two years ago, could
21 be in the same situation.

22 I was born and raised in Whitney Pier,
23 less than a block from the Coke Ovens Site. I am one of
24 eight children.

25 As I got older, I lived on Frederick

1 Street. The Coke Ovens was directly across the street.
2 From my younger years, I recall the sickness, the death,
3 and the dying and wondered what was going wrong.

4 While some may lead you to believe it was
5 our lifestyle that caused all of the illness, we have to
6 beg to differ. Our mothers and fathers worked hard to
7 keep our home clean and to keep us fed properly.

8 There is no such thing as sitting in front
9 of the television with its two channels. We were always
10 outside summer and winter. We remained active, but not
11 always healthy.

12 I have lost so many family members and
13 friends to cancer, and many of them did not smoke
14 cigarettes. I had my grandparents, that both died from
15 cancer. My grandfather actually fell into the Tar Ponds
16 on his way home from work one night, while walking the
17 tracks.

18 He was found the next morning by fellow
19 workers on their way to work, and I remember my
20 grandmother talking of the difficult time to get the tar
21 off that covered his whole body.

22 I lost uncles, aunts with cancer. They
23 died as young as four years old to 48 years old.

24 My aunt's two sisters never seen their 50
25 birthday, and left behind 21 children between them. All

1 of these children, and their children suffered from
2 health problems today.

3 I had cousins die in their 30s. One
4 cousin, Ronnie, who grew up in Curry's Lane, did not
5 smoke. He moved to Ontario, had children of his own, his
6 son was born with eye cancer, his daughter with eye
7 cancer, and mentally challenged as well.

8 He died just a few years ago with cancer
9 himself, leaving his wife with a plateful of financial
10 difficulty and heavy hearts.

11 I visited him near his end, and all he
12 wanted to do was to come home to Cape Breton. All he
13 worried about was what would become of his children and
14 his wife. They are doing okay, and Ronnie is home now
15 buried at East Mount Cemetery.

16 My father, Thomas, worked at the Steel
17 Plant. He was a veteran of World War II. He was
18 diagnosed with lung disease from working on the Coke
19 Ovens. The cancer ravaged his whole body. I nursed him
20 at home in the makeshift bedroom we had set up in the
21 livingroom until he took his last breath.

22 I remember so clearly that morning, of
23 March 27, 1998, I looked out of the livingroom window and
24 the view was the usual, the Coke Oven Site. The same
25 view my dad had to his day of death.

1 I thought to myself, "He worked it, he
2 lived it, he breathed it, all of his life to provide for
3 his family." And then I cursed it for what it did to him
4 and to us, and then sadly looking further past the site,
5 I realized that that was where the funeral home was, and
6 that's where he would go next.

7 I remember how oddly quiet it was, the
8 dead silence in the house.

9 My mother, Mary, she's here with us today,
10 had ovarian cancer in 1968. My father was told then that
11 she would not make it. She had a breast removed from
12 cancer in 1998, and in 2002 she had most of one lung
13 removed and some of the lining of her heart.

14 It was then that the doctors told her that
15 she had a cancer called "small cell cancer." It was real
16 bad and she would have three to six months to live.
17 Thanks to God, she is still here and the cancer has given
18 her a rest.

19 My mother says that she has too much to
20 live for, and she is not going anywhere but back home
21 where she belongs. She, like my father, stands behind me
22 and continuously tells me to keep fighting for our health
23 and not to give up.

24 My whole family has had their share of
25 health problems. Some more serious when we were younger,

1 like excessive nose bleeds, stomach problems, air
2 problems. Later in our age it turned into thyroid cysts,
3 skin disease, and ulcers.

4 But our health problems are not just ours,
5 most of our friends and their family had even worse. It
6 was normal. No one was unique to sickness.

7 I have wondered why that in a two-block
8 radius in my neighbourhood that we have up to 30 mentally
9 and physically challenged people in our community.

10 My sister, Josie, being one of them
11 afflicted with Cerebral Palsy. I have lived in many
12 other communities in Canada, and have not seen such
13 numbers in such small areas.

14 These are people I know. Then I think
15 about the people who I don't know, who are afflicted, and
16 it -- to me it just doesn't seem right. It's just not
17 normal.

18 I really -- the fact that I moved back
19 here in 1998, I ask myself if I did the right thing by
20 bringing my children back home. While living on
21 Frederick Street, they seem to always have nose bleeds
22 and complained of headaches. Then one day my husband had
23 come home and asked me, what was going on over at the
24 Coke Ovens Site. I went outside to see men dressed in
25 white suits and masked, and my family and I are just

1 across the street wondering what was going on.

2 During the next short while, we started
3 getting more information on what was going on and we
4 started to be fearful. My husband and I started to
5 leave our home on Frederick Street, and get our children
6 to safety. We left before the buy-out was offered, but
7 it was this time that we started to fight back alone with
8 Mr. DeLeskie, Mary-Ruth and Debbie Ouelette, to name a
9 few, and that is to protect the health of the children.

10 My husband and I were able to pack up and
11 leave. My neighbours could not. Those poor souls had
12 mortgages. They could not just pay -- they could not pay
13 that, and then pay rent in another place of safety.

14 It was such a terrible sad time. But we
15 fought endlessly together to move the people. Mary-Ruth
16 MacLellan had pushed a motion through JAG calling on the
17 government to move the people by June 30th, and that was
18 approximately '99/2000. The government response to our
19 fight was that they would move the people for
20 compassionate reasons, which we did not agree, because
21 there were more important reasons and they would not
22 admit it.

23 While they moved residents on Frederick
24 Street in the end -- we did get moved -- they failed to
25 protect residents who were only a fence away.

1 Around this time, I, with the help of
2 others did a protest camp as well, in front of -- the
3 former city hospital site, directly across from our
4 former premier's house, Russell MacLellan. Our goal was
5 to encourage government to protect the help of our
6 people. Our children being priority.

7 We needed to get our story out, and it was
8 at that time that Steve MacInnis from the Post, dubbed us
9 the name "Tent City," and then the heart of our city
10 began to beat. I held my ground and literally slept on
11 the ground for about a month, to show government how
12 important our children were to us. Slowly, but surely,
13 others came to the camp and at the site to support the
14 cause.

15 Sadly to say, we got flack, not only from
16 government, but from some of Russell's neighbours as
17 well, and some of our own.

18 Some perceived us to be on a lunacy fringe
19 and we wished -- that was pretty wild -- we wished to
20 advised them that Jesus Christ was called a mad man, and
21 looked what happened to him.

22 Government gave our community new names,
23 like, the north of Coke Ovens and Tar Ponds' people,
24 showing us that we were nameless and faceless
25 inhabitants.

1 However, there were more neighbours that
2 helped than hindered, like, Revered Doug Pilsfer (sp) in
3 the First United Church and his parishioners who helped
4 us get a portable toilet -- had no toilet up there -- and
5 they put it in the church parking lot to find out that
6 the government told him that they owned the property and
7 we had to remove the port-a-potty.

8 So, we didn't want to cause any conflict,
9 so we did just that. Something good did come out of the
10 toilet disappointment, our Reverend Doug did informed us
11 that after the incident the church had bought the
12 property and now they are the rightful owners.

13 Travellers came to camp with us, visitors
14 came every day. Like Ron DeLeskie, his brother, Donnie,
15 and wife, Elsie, Peggy and Eric Brophy to name a few, who
16 kept me company each and every day of the protest and
17 actually -- kept me going, actually, and even the mail
18 person, who delivered mail, it was simply addressed "Tent
19 City."

20 People all over wanted to protect our
21 children and they showed it. People like Dr. David
22 Suzuki and many friends from Ontario would call my cell
23 phone with virtual support.

24 Tent City went international with the help
25 of media, who sent our story of the plight of our people

1 living around the Sydney Tar Ponds and Coke Ovens Site
2 out to the world.

3 I doubted it, myself, with the protest,
4 more times than once.

5 My husband and I were racking up huge
6 pocket expenses, out-of-pocket expenses, even with the
7 wonderful support of food donations to feed our campers
8 and a swimming pool for the children on those terribly
9 hot days, I wondered if we really mattered to the rest of
10 the world, if our children were just numbers, like they
11 were to government. But Larry kept my spirits up,
12 telling me what I truly felt in my heart, that we did
13 matter; the children did matter, even if it's only with
14 us in our community. Excuse me.

15 The government was finding so many ways to
16 waste our taxpaying dollars, like the first failed
17 cleanup; the wasted money to upkeep an incinerator that
18 would never do the job they were so sure of.

19 Like the dredge that was built by my
20 brothers for the company they were hired by. It was
21 dubbed a Blue Heron. It's the name of a bird. I don't
22 know if I'm saying it right.

23 But I remember my brothers saying, "It
24 will never fly."

25 It was supposed to suck up sludge from the

1 site and then be brought to the incinerator to be burned.
2 My brothers said the first time they used it, it sucked
3 up a lawn mower blade and jammed the auger. It had a
4 very short shelf life.

5 In keeping with our fights to protect
6 human health, we started to give our very own toxic
7 tours.

8 We wanted people to come and see what the
9 truth was, to see it with their own eyes and to show them
10 what government did not want them to see. This was
11 another task we did out of pocket expense.

12 Alarmed because we started to show people
13 the truth, the powers that be, just like this coverup,
14 started up a cleanup tour at the taxpayer's expense.
15 That should be a cleanup tour of their own.

16 Our tours attracted people from Scotland,
17 Germany, Holland, as well as off island college
18 professors and their students. People were interested.

19 When we talked about the tunnels, the
20 government denied that they were there, and somehow they
21 seemed to appear all of a sudden. They're free to talk
22 about them now.

23 I played in those tunnels as a child. I
24 can take you to all of them. Mary-Ruth MacLellan
25 actually drove her dad's car into them when she was a

1 young girl, playing this tag game with the radios.

2 When we mentioned the benzene bales buried
3 along with the after war dynamite that my parents would
4 talk about that was buried, the governments just declined
5 to listen. It was all in our head kind of thing.

6 We have intelligent toxic waste here. It
7 stops at the fences, it chooses which house it will
8 linger in, which house it will not. It knows what door
9 to use, be it the front door or the back.

10 The government told us that while it is
11 safe for our children to play outside, they were not
12 allowed to touch the dirt. So what were we to do? Hang
13 the children out on the clothesline with the morning
14 wash?

15 Dr. Richard Lewis came and did a risk
16 assessment using "Made in Sydney" standards, in the
17 winter, with short term 60 day exposure, a time of year
18 when most contaminants were frozen and not airborne.

19 When asked the question if he would move
20 here with his family, his answer was simple. It was,
21 "No."

22 However, he seemed to have disappeared,
23 and even having his phone number in the past for his home
24 phone, we were -- we are now unable to find him in the
25 whole United States of America today.

1 If we, as a society, failed to protect our
2 children, we would be up on child abuse charges with the
3 Children's Aid Society. They would come and remove the
4 children from our care. However, government has failed
5 to protect our children, and to date have not been
6 charged with the abuse of our children.

7 Katz and MacKay did a study in 1959, the
8 year of my birth. It showed the emissions coming from
9 the stacks were harmful and could cause cancer. This was
10 reaffirmed in Hickman's letter to Norena (sp) in 1985.
11 And these are documents that our government has.

12 Both of these reports -- most of these
13 reports were buried, and the people were not informed.
14 They told government to put emission controls -- I might
15 have that a little odd. It might be that they told
16 government to tell the owners of the steel plant, because
17 it went through so many names, it's hard to keep track.
18 But they were told to put emission controls on, and the
19 government refused to do this because of the cost factor.

20 It's so sad.

21 In conclusion, let me say that we are not
22 from an affluent society, but we were brought up with
23 principles, and we do not tolerate lies, and we will not
24 tolerate a cleanup before the people are moved safely
25 from the site.

1 They have wasted so much money so far that
2 this money could have been used to protect the people by
3 moving them.

4 We are not experts; I haven't got a PhD,
5 you know, just a Grade 12 education, a little bit of
6 stuff after that, myself. But we do not profess to have
7 a brain.

8 I'm sorry. I'm going to make myself look
9 bad here.

10 We do profess -- I should have -- I should
11 change that to government -- but we do profess to have a
12 brain, and a good deal of common sense. We are not as
13 stupid as we may look to the powers that be. We may
14 sound a little bit stupid sometimes, but we're not.

15 We are tired of being used as lab rats.
16 We are not brown rats, white rats, Scottish rats or
17 Norwegian rats. We are people, and therefore people must
18 be first in this process.

19 Although some people can be bought, there
20 are those of us who refuse to abandon the principles we
21 were brought up by.

22 Think about it. Have you ever seen a
23 hearse pull a U-Haul?

24 I just learned this myself over the years,
25 but did you know that there is a difference between a

1 risk assessment and a health assessment? Many did not
2 know, but Dr. Jim Argo will now speak to you on the
3 health assessment, and I thank you very much for your
4 time and putting up with my mistakes and my typos and all
5 that stuff. Thanks.

6 --- PRESENTATION BY CAPE BRETON SAVE OUR HEALTH CARE
7 COMMITTEE (DR. JAMES ARGO)

8 DR. ARGO: Madam Chair, I asked on
9 Saturday, and you gave me permission to show my slides,
10 but I didn't have -- well, on the basis of the time, we
11 just gave you the text at that time.

12 I wouldn't mind showing you, if you don't
13 mind, I'd like to show you some of the slides that I
14 would have shown you then.

15 THE CHAIRPERSON: Yes, Dr. Argo, you have
16 about ten minutes.

17 DR. ARGO: Thank you, Steve. Okay. Is
18 there any possibility of getting the lights -- the top
19 lights off? Okay. Thank you.

20 I'm prepared to accept any sort of
21 comments -- whoops.

22 I was commenting about the size of my text
23 -- the text and the difficulty to read on the earlier
24 ones, and I'll accept any criticism that you wish to
25 throw me.

1 the environmental degradation and
2 invest in a new cintering plant.
3 DOSCO refused, claiming the \$6
4 million dollar cost was prohibitive."

5 I would like -- there's a couple of slides
6 here that will show you the kind of things that were
7 coming out from -- they get progressively -- there we go.

8 In particular, I would like to raise this
9 one up a bit. This is a 1995 knowledge, but there were
10 -- this is a description of what was coming out, and
11 include polychlorinated dioxins. And there are many --
12 there's octachloro and dioxins, many others. The dioxins
13 then were known as -- to be a product from burning the
14 fuel.

15 In 1972, there was a report by Choquette,
16 and he reported this. He was telling the people:

17 "In these different stages of the
18 process, this is what was released."

19 And that's what he was telling people was
20 coming out. Not very informative.

21 At the same time, he wrote an appendix,
22 and that's what he included. The appendix is very hard
23 to find, because I think a lot of people have -- maybe it
24 might have been suppressed, I don't know.

25 But there's an awful lot of chemicals

1 there, and none of them are particularly healthy. One is
2 -- rebutodanis (sp), is a carcinogen -- no, it isn't.
3 Sorry. But there's a lot of sulphides up here --
4 hydrogen cyanide, an asphyxiant -- an awful lot of stuff
5 that I wouldn't want to be breathing, or want anybody
6 else to be breathing.

7 I'm trying to show these, because I want
8 the -- I want to put sort of a face on the plant, because
9 I want people to understand that there was -- the kind of
10 soot that was coming out and affecting people. This
11 seems to have been ignored.

12 People -- the slide -- the video we've
13 heard today describes how people are being exposed, but
14 not to what -- not descriptive of what they're being
15 exposed to.

16 Now, this was from a report McMaster
17 University, the -- to the Ontario Ministry of Labour,
18 "Health Effects of Coal Tar Products and Bitumens" in
19 1986. They were looking at Hamilton.

20 These are metals, and the degree -- the
21 number of stars refer to the -- that they are
22 carcinogens. Benzoanthracene, these are all PAHs.

23 And the interesting thing about this
24 particular study is that there are 45 more PAHs. There's
25 an enormous range of PAHs. And these are all particular

1 -- are toxic. But there are an enormous range of all
2 these PAHs.

3 Down here, I want to draw your attention
4 -- from the -- from -- you're getting hydrogen sulphide.

5 Now, as a chemist, hydrogen sulphide forms
6 under what's called reducing conditions. Sulphur
7 dioxide, on the other hand, forms when you have oxidizing
8 conditions.

9 But you're getting both coming out from
10 the Coke Ovens.

11 That means that you have a condition of
12 some sort of -- well, the stuff that comes out is going
13 to be very active at the moment it comes out, because
14 it's going to form either one or other of those.

15 Now, I've analyzed the coal. The coal
16 from the current Lingan Mine has 18 parts per million of
17 chloride. From the 26th Colliery, that was old coal, has
18 20 -- has 7 parts per million. The Lingan -- the old
19 Lingan coal has 30, and a sample from Saskatchewan has
20 17. This would have been the coal that was probably
21 going into the Coke Ovens.

22 You can see, there's a lot of metals, but
23 in particular, I was interested to see if there was
24 chloride. Because if there is chloride, that's -- if you
25 are burning organic matter in the presence of chloride,

1 that is a necessary and sufficient condition to ensure
2 that dioxins form.

3 Now, this is a series of references that
4 I've dug out. This is the first one. It shows -- it was
5 a classic experiment.

6 He just -- he found that by combusting
7 newspapers in the presence of sodium chloride or
8 polyvinyl chloride, that he was producing dioxin. Very
9 simple.

10 And all of these other people have done
11 the same thing. They just continue to confirm it. And
12 that means that -- that just confirms that by burning
13 chloride -- burning organic matter in the presence of
14 chloride, you get dioxins.

15 Now, dioxins, among other things -- one of
16 the things that dioxins produce is a disease called
17 chloracne. Chloracne is a skin disease. Oh, I was
18 afraid of this.

19 Okay. I may not be able to show you too
20 well. This -- on this poor gentlemen, there are a lot --
21 all of these little white spots that are not showed --
22 focused too well. Things like that.

23 They're down inside of -- inside of his
24 ear, and they're down in the other side, just on the part
25 of the skull that is opposite that. They are tiny little

1 nodules, probably about a millimetre in diameter,
2 incredibly itchy. Now, that is called -- those are one
3 of the classic things for -- to describe chloracne.
4 Another has disappeared on the table here, it's sort of
5 -- they look sort of like blackheads. Sorry, I can't --
6 I've missed them.

7 Now, Phil O'Hearn, the person we heard on
8 the slide, the artist who did the fiddle, consented to
9 let me take pictures of him, and again in these black
10 circles there's a spot, a spot, another one here and
11 another one here, one there, several in this area, and
12 here we have a very large cavity almost. There's other
13 parts of his neck that show the blackheads that I
14 described.

15 Phil O'Hearn has classic signs of
16 chloracne. From this he should have had chloracne
17 because he was working around the Coke Ovens, he was
18 living around the Coke Ovens, he was constantly exposed
19 to the dioxins and he certainly should have.

20 The physicians in Sydney diagnosed him
21 with rosacea. I'm sorry ---

22 THE CHAIRPERSON: Dr. Argo, your time is
23 just about up, so if you'd like to sum this up.

24 DR. ARGO: Okay. I will, certainly. Now,
25 I've got two more slides. Will that be -- may I do that?

1 THE CHAIRPERSON: As briefly as possible,
2 please.

3 DR. ARGO: Yes, ma'am. Yes, ma'am.
4 Cancer in Nova Scotia in the same year, I think it was --
5 okay. There's an all cancer -- 365 was the rate in Nova
6 Scotia for women, 317 for a comparable type of location
7 -- environment in Alberta and 316 in BC. In the same
8 environment for all cancers from Nova Scotia, men 505,
9 423 and 426.

10 I ask you, please, to look at the CT --
11 that is connective tissue -- that is the part of the
12 joints. Connective tissue is a direct -- cancers are a
13 direct result of exposure to dioxins. This -- the fact
14 that there's any there indicates that there's dioxins.
15 CT -- here we have a large number in males in Cape
16 Breton, not so many in Alberta. The final slide, ma'am.
17 Thank you very much for your tolerance, I appreciate
18 that.

19 With the help of information that was
20 provided by the Health Authorities in this area I was
21 able to identify -- I'm comparing here the difference
22 between the rate of a particular heart disease with and
23 without dioxin present.

24 In Cape Breton -- this allows us to make a
25 decision on if Cape Breton -- is dioxin a factor in

1 disease in Cape Breton. In the case of coronary vascular
2 disease, yes. In the case of acute myocardial
3 infarction, no. Ischemic heart disease and strokes, yes.
4 Hypertension, no. Heart failure, perhaps. Nephropathy,
5 kidney disease, yes.

6 That will do. Thank you very much.

7 THE CHAIRPERSON: Thank you very much, Dr.
8 Argo. And, Ms. MacLellen, Ms. Hearne, thank you very
9 much for your presentation. I can see that you've put a
10 great deal of work into your -- the video, interviewing,
11 putting that together and then editing for today. We can
12 really appreciate that.

13 We also appreciate the participation of
14 the people that you interviewed on the video, and it was
15 informative to hear their voices. So, thank you for
16 that. I have just a question about the video. What --
17 who do you give the credit for the music?

18 MS. MACLELLAN: You'll have to give the
19 credit to my husband, because he indeed was editing that
20 whole tape while we were here last night. Thank you.

21 THE CHAIRPERSON: Oh, he added the music?
22 I just meant who was singing the song at the beginning.

23 MS. MACLELLAN: Oh, it's just a tape that
24 came out last year. It's an anniversary tape that's
25 available in certain areas, in certain stores, of the old

1 music that used to be played on a radio station here and
2 it has excerpts from some of the people that used to do
3 the talk shows and things.

4 THE CHAIRPERSON: Okay. Thank you.

5 CAPE BRETON SAVE OUR HEALTH COMMITTEE:

6 --- QUESTIONED BY THE JOINT REVIEW PANEL

7 THE CHAIRPERSON: I guess my question,
8 perhaps to both Ms. MacLellan and Ms. Hearne, from what
9 you've presented to us, is -- now you were talking,
10 obviously, a lot about some of the recent history, some
11 of the effects of -- health effects that you perceive of
12 coke ovens operations.

13 I wonder what is your key conclusion and
14 key message with respect to the proposed remediation,
15 which is, of course, the thing that the Panel is having
16 to assess. In terms of sort of effects on neighbouring
17 residential areas, what is your sort of key conclusion?

18 MS. MACLELLAN: I worry for the people on
19 a daily basis. I get calls on a daily basis from a lot
20 of people around Ashby area that we haven't done on the
21 video because they didn't want to talk about this to
22 anybody, but they have taken us and shown their anecdotal
23 history of them playing on the sites as children. And
24 one particular person has told us and, in fact, even
25 pointed out the spot where there are bales of benzene

1 buried.

2 There's also stories -- I asked why those
3 tunnels were there, having as an older teenager and young
4 adult actually driven cars into them, which -- most of
5 the people who I played that game with -- it was called
6 Fox and Hound and it was played with CB radios and you
7 had to hide and then the other people had to detect where
8 you were by signals.

9 Most of the people who played that game
10 and used the Coke Ovens because it was accessible, there
11 were never any fences, we were never told there was any
12 danger there, are no longer here to tell the tale.
13 They're dead.

14 I also heard stories from residents that
15 lived there. While I didn't live there, I had an aunt
16 that lived two doors from the steel plant on Victoria
17 Road, so I spent time here, and as I got older I probably
18 spent more time in Sydney.

19 They've also said that there's big sticks
20 of dynamite -- when the war was on they used the steel
21 plant to make ammunition and they said -- they tell me
22 that the tunnels were made then to carry the dynamite out
23 to the boats in the ocean.

24 I have no idea if that's true. While I've
25 been in the tunnels, I have never tried to drive to the

1 ocean in them, and I don't know how wide or how big they
2 are in certain areas. I know some areas underground are
3 certainly as large as living rooms.

4 I worry about what's going to happen if
5 they haven't found these things and don't know where they
6 are and they start to dig. I have no idea what happens
7 to dynamite when it's in the ground from the 1940s to
8 now, if it is indeed there. But could it blow up the
9 whole city? Could it blow up a neighbourhood block?
10 Could it blow up a street?

11 And when they do start digging with people
12 -- how can you work with protective clothing on this side
13 of the fence and forget that there's children playing on
14 the outside of the fence? In fact, I've got pictures
15 home where kids are still walking across that Coke Ovens
16 Site now.

17 THE CHAIRPERSON: Well, if I can just
18 follow up to that. If remediation of the site, the Coke
19 Ovens Site and the Tar Ponds -- if active remediation by
20 any method involves some disturbance of the soils and the
21 sediments, which seems inevitable, what is your
22 conclusion, therefore?

23 I mean, you're obviously concerned about
24 the effects of that no matter what method is used. Is
25 there something that you want to see happen in terms of

1 protection of neighbouring residents?

2 MS. MACLELLAN: As I said, I get calls on
3 a daily basis and most of the residents keep saying,
4 "What are you going to do about it?", "Well, I'm only one
5 person. What can I do about it?"

6 I sincerely believe that before they start
7 any operation they should move the people first, albeit
8 if it's a temporary move or a permanent move. Moving
9 from your home is certainly not an easy thing to do for
10 many people, especially if you've lived there your whole
11 life, but I think they have to be given the option. And
12 if it proves that it's, you know, really a danger, then
13 it should be made mandatory, I think.

14 You know, people's health has to be
15 protected first. I don't see how you can dig in an area
16 where there is so much contamination without moving the
17 people away first. We've already seen what happened on
18 Frederick Street when they tried to remediate the first
19 time. Millions of dollars were wasted.

20 So far in the first failed cleanup we
21 spent \$52 million dollars on an incinerator that never
22 worked, and I do have some newspaper clippings back to
23 the day when it failed. If anybody wants to see them, I
24 could probably dig them out. They're buried in a filing
25 cabinet somewhere but I still have them.

1 Having said that, they are saying \$52
2 million was wasted at that time. In actuality it's \$104
3 million. They failed to protect the people's health when
4 it happened on Frederick Street. Those people got very
5 sick. I was there.

6 We have a very black eye in the rest of
7 Canada because we get dubbed "stupid Cape Bretoners" for
8 letting this happen. I get calls from across Canada, you
9 know, "How could you let this happen?"

10 So, I really think that consideration has
11 to be given. We've spent enough money already that we
12 could have moved the whole city.

13 THE CHAIRPERSON: Okay. Thank you very
14 much.

15 MR. CHARLES: Dr. Argo, you mentioned that
16 Hamilton is also a steel-making city, and I don't know
17 whether they have steel-making operations that are
18 exactly the same as we've had in Sydney but I imagine
19 they're fairly similar.

20 Have any studies been done about the
21 health of people in the Hamilton area, and, you know,
22 have you yourself done any comparisons between the health
23 of the community there and the health in the Sydney area?

24 DR. ARGO: There's been quite a large
25 number of studies that have been worked on for over --

1 about Hamilton. The technology is pretty much the same
2 as we have here, though probably a steel maker would beg
3 to differ, but they have coke ovens, they have blast
4 furnaces and they have open hearths and they've got
5 electric furnaces and the rest, and they're doing much
6 the same kind of product.

7 They've got very high -- their rates are
8 getting down. Part of the cleanup operations that they
9 made was Hamilton Harbour, and Hamilton Harbour was -- is
10 certainly springing back from an ecological -- in an
11 ecological sense. There's -- it used to be a very smelly
12 pool when you drove past it and now it's much more
13 remediated.

14 I'm planning to do -- after I finish
15 Sydney -- I'm here looking at Sydney because I've made a
16 promise to people in this room that I would do it first.
17 My intent is to be able to look in the same way at
18 Hamilton, and I'll be glad to pass that to you when I get
19 it done but I haven't got it done yet.

20 MR. CHARLES: So, off the top of your head
21 you wouldn't know how the cancer rates for the two areas
22 would compare?

23 DR. ARGO: I think the cancer rates here
24 are much higher, which, I think, will be explained in
25 terms -- part of the Hamilton physical location is that

1 the steel mills are right against Lake Ontario and then
2 there's a small amount of land relatively -- maybe a mile
3 at -- no, it wouldn't be more than half a mile perhaps,
4 and you're right against the Niagara Escarpment.

5 So that the city doesn't progress -- the
6 winds are quite different in Hamilton, 185 feet for the
7 Niagara Escarpment. That means that most of the winds
8 are going to just catch the top of the stacks.

9 MR. CHARLES: Thanks, Dr. Argo.

10 DR. LAPIERRE: Good afternoon and thank
11 you for the presentations. I'd like to ask a question
12 regarding the bunkers or the underground tunnels. How
13 deep do you think those are, and what were they used for?

14 MS. MACLELLAN: You mean how deep
15 underground?

16 DR. LAPIERRE: Yes.

17 MS. MACLELLAN: Anecdotal history has it
18 they were used during the war to store the dynamite and
19 transport it underground as opposed to overland in
20 through the city.

21 I can tell you they are more than six feet
22 deep, but I don't know -- I've never actually measured
23 it. They're certainly deep enough and large enough that
24 they'd fit my father's big car in there when I was young.

25 DR. LAPIERRE: So there was a -- they were

1 used for communication along the city, and they were used
2 to store dynamite during the war.

3 MS. MACLELLAN: That's what I'm told. I
4 have -- only from people in Ashby that have told me the
5 story. I don't know anybody else that's alive that could
6 tell you the story. My father would probably know, if he
7 was still alive, because he -- when he was sent home from
8 overseas, he was stationed in Sydney until the war was
9 over, but I can't tell you. I could probably try and
10 track down a veteran that might know, but most of those
11 are dead, too.

12 DR. LAPIERRE: And to your knowledge they
13 were never destroyed, never taken apart.

14 MS. MACLELLAN: Pardon me?

15 THE CHAIRPERSON: To your knowledge, they
16 were never destroyed, taken apart, or ---

17 MS. MACLELLAN: Well, Ada might be able to
18 answer more about it. I've been told that they've just
19 buried the dynamite underground. Go ahead, Ada.

20 MS. HEARNE: Are you asking if the tunnels
21 were taken apart?

22 DR. LAPIERRE: Yes.

23 MS. HEARNE: Okay. No, the tunnels -- a
24 lot of them are grown over that you can't see because of
25 fields, it's all grass and stuff, but there is some that

1 are exposed.

2 There's one that's exposed directly across
3 from my home that was formerly on Frederick Street, that
4 we would literally walk right through it, you know. It's
5 there, it's open. Well, they've got a fence there now,
6 but it's open on -- when you come onto the new Starr
7 Road, the children can still get in there because there's
8 no fence blocking them from getting in the other side of
9 it.

10 You'll have to see it, it's locked up on
11 this side but completely open on that side, and there's
12 one further, and there's a few that I know exactly where
13 they are, but there's a lot you have to be very careful
14 for, because, if you're walking out there, you could go
15 down and not even -- nobody'd ever find you. They'd
16 never -- if you're alone, you're just going to go down.
17 There's holes over there completely covered with grass
18 that we would use a big stick to feel our way as we
19 walked so that we wouldn't fall in them.

20 DR. ARGO: Dr. LaPierre, Ada showed me
21 last December the one that was near her house, and I
22 would estimate that it looked, from what my -- from
23 examination of it, that it was at least 10 feet deep.

24 DR. LAPIERRE: Okay. Thank you.

25 THE CHAIRPERSON: We'll now provide an

1 opportunity for other participants to ask questions.

2 I will turn first to the proponents. Now,
3 Mr. McGrath (sic), you were -- I don't remember which
4 day, but when the Save Our Healthcare Committee made
5 their first presentation, you were beginning some
6 questions to Dr. Argo and I cut you off because of time
7 concerns. So I don't know whether you wish to -- you
8 still wish to pursue those questions or if you have
9 different questions, I'll leave that entirely up to you.

10 I'm going to say -- I'm going to ask you
11 to start 5 minutes, please, if that's all right.

12 MR. POTTER: Sorry, I didn't ---

13 THE CHAIRPERSON: I'm just giving 5
14 minutes for questions at the moment, and then I will ask
15 for other participants.

16 --- QUESTIONED BY THE SYDNEY TAR PONDS AGENCY:

17 MR. POTTER: Perhaps I'll just respond
18 with some general comments.

19 We do share the concern that the panel
20 members have for the health of people in Sydney, and
21 that's something we are very much concerned about.
22 That's the driving force behind the project we are here
23 talking about today, to try to improve the situation in
24 Sydney and make Sydney a better place for the future.

25 And it is why we do work with the health

1 officials, John Malcolm's group at the District Health
2 Authority, provincial and federal officials, as well.

3 I would encourage Dr. Argo to share his
4 information with those health officials. We don't have
5 the expertise to address some of the issues or points
6 that he's raised, and it's not really our forte or our
7 mandate, I guess, and, like I say, I would encourage Dr.
8 Argo to share his information with those health
9 officials.

10 I would like to talk just briefly a bit
11 about the tunnels. They keep coming up and we've
12 addressed underground infrastructure. For the most part,
13 I think, the tunnels, as they're being described -- if
14 you wish to use the proper engineering term, I guess,
15 they're box culverts -- they're large concrete under-
16 drains for carrying water across a site.

17 We do have -- going back to the old
18 records within the Coke Oven property, have quite a good
19 understanding of where they're at, what depth they are,
20 what size they are.

21 I've walked in some of them myself, and
22 yes, they are large because they did convey a large
23 amount of water across the site at different times.

24 Yes, some of them do have screens on one
25 end to contain debris so they don't get plugged up part

1 way down, but they are just that, they are box culverts
2 for the purposes of conveying drain water, storm water.

3 There are some deeper sumps in the
4 property that go deeper than 10 feet. They were part of
5 some of the building structures that had lower
6 foundations and, you know, some of those probably go down
7 -- perhaps 15 feet would be the deepest I can recall
8 seeing, and perhaps even deeper than that. But we are
9 aware of where they are at, and some have been filled --
10 as we became aware of them, if there were safety
11 features, safety concerns with them, with open holes, we
12 did make sure that those holes were filled.

13 The issue of dynamite came up quite a
14 number of years ago on the site, and we did go back and
15 consulted with the previous operators of the Coke Ovens
16 Site, reviewed all of the drawings that we could avail
17 ourselves of, and, as well, talked to regulators that
18 would have dealt with dynamite storage.

19 The very clear message we got back was
20 several things. One, there's no record of dynamite ever
21 being on the site. The regulations going back a very
22 long time would never allow you to store dynamite on a
23 coking facility. Not hard to figure out why. With the
24 amount of fires and coking operations going there, not a
25 good place to store dynamite.

1 None of our investigation, whether it be
2 soil sampling or geophysical work we've done, has
3 detected any sign or any trace of dynamite or buried
4 containers of benzene. I think that's come up as well.

5 We have investigated that site extensively
6 and feel quite confident that those issues have been
7 addressed. They've been raised in the past and we're
8 quite confident that we do not have to worry about those
9 issues as we proceed to the cleanup.

10 I do have one question for Dr. Argo. You
11 made reference, Dr. Argo, to the Hamilton cleanup and
12 you'd like to see our cleanup proceed in the same way as
13 they're doing in Hamilton. Could you explain a bit of
14 your understanding of what they're doing in Hamilton
15 Harbour?

16 DR. ARGO: My knowledge of Hamilton
17 Harbour -- that was perhaps misunderstood. I was trying
18 to make a generality because I know that the Hamilton
19 Harbour and the Hamilton cleanup has progressed
20 considerably. I would like to see the cleanup progress
21 in Sydney, as well. I would like to see the Sydney lands
22 remediated, and I would like to see the harbour and all
23 of the water remediated.

24 I'm very much in favour of cleaning it up.
25 I'm not particularly in favour about the way it's being

1 proposed.

2 MR. POTTER: If I could, I guess, provide
3 information to Dr. Argo, Hamilton Harbour cleanup is
4 under way, a portion of it, a small portion. They have a
5 very, very large area, much -- somewhat like ours.

6 Their solution is to excavate the sediment
7 and take it to one area of the harbour and it's called
8 Randall Reef. The sludge is placed in one area near the
9 shore and it's capped over and covered, and that is the
10 cleanup plan for Hamilton Harbour that's been undertaken
11 to date. So I just wanted to pass that information
12 along.

13 That's it, thank you.

14 DR. ARGO: Mr. Potter, I think I made it
15 clear on Saturday when I was testifying that I don't have
16 the expertise to choose a method. I do have the
17 expertise to look for -- to assess how a method will
18 affect people. I do not have any -- the civil
19 engineering expertise that you attest to. I just want it
20 cleaned up for people.

21 THE CHAIRPERSON: Okay. Thank you, Mr.
22 Potter.

23 Dr. LaPierre has a follow-up question.

24 DR. LAPIERRE: Just a question, Frank. On
25 the Coke Ovens Site, these underground tunnels must have

1 rebar and iron structure of some sort.

2 Did you conduct a scan of the area which
3 would be -- in which you would be able to identify -- was
4 the area scanned?

5 MR. POTTER: We have -- the Coke Oven
6 operations had -- SYSCO had kept very good records of the
7 SYSCO property, and it's quite easy to go back and see
8 where the various drainage water courses or drainage
9 structures that were installed.

10 We did do geophysical work on the site
11 which would pick up some of those anomalies. We used
12 electromagnetic resonance imaging, we used ground
13 penetrating radar, and we're pretty confident that, you
14 know, we've detected and are aware of where most of the
15 infrastructure is on the site.

16 I know we've addressed it previously in
17 questions that, you know, we don't feel it's going to --
18 our perimeter containment system is not going to be
19 compromised by the on-site infrastructure that's
20 underground.

21 We're quite confident that the containment
22 system we've developed, as we've spoken about the other
23 day, will adequately take into consideration all of the
24 various structures that are on the site.

25 DR. LAPIERRE: So you did conduct an

1 electromagnetic scan of the entire area?

2 MR. POTTER: Yes, we did. We actually did
3 a fair bit of experimenting to find out what was the best
4 type of equipment to use, and once we found the optimum
5 one, I think it was the ME61 model that we used on the
6 site, and we used that extensively, as well as ground
7 penetrating radar mainly looks for voids. It doesn't
8 detect metal. It will detect a void space such as a tank
9 or a drum. We used the GPR, ground penetrating radar,
10 for that purpose.

11 So we have -- and certainly all of the
12 reports are available on the geophysical work we've done
13 there. It's quite extensive, and it did assist us quite
14 a bit on the site in terms of understanding the problem
15 we had to deal with.

16 DR. LAPIERRE: Thank you.

17 MS. HEARNE: Excuse me, can I say
18 something to that? Okay. And it's kind of a little bit
19 of a question, too, because I don't know if I heard you
20 right.

21 You have said earlier that the tunnels
22 were made of concrete and you took safety features,
23 there's some kind of safety features there on the
24 tunnels?

25 MR. POTTER: I was probably referring to

1 the screens that you mentioned. There are screens on the
2 upstream end of the tunnel. It's primarily a structure
3 to keep debris out. Better to catch the debris at the
4 start of the tunnel, as opposed to something catching
5 3,000 feet down.

6 MS. HEARNE: So does it keep people out,
7 too, as well? Does it keep children out of the tunnels,
8 or just debris?

9 MR. POTTER: Some of the screens I've seen
10 would keep children out, but it wouldn't be difficult to
11 -- if somebody really wanted to get in there, there are
12 -- you know, if you go onto the property, there are
13 openings where it is possible to access the tunnel ---

14 MS. HEARNE: So you didn't do safety
15 features on all of the tunnels then is what my question
16 is. And especially the concrete ones, because what about
17 the wooden ones, I think the safety feature I found last
18 was a piece of concrete partially closing it off that I
19 was able to move myself to get in.

20 I guess I'm a little puzzled, Frank,
21 because, you know, you're always saying "No tunnels,
22 there's no tunnels, there's never been any tunnels." And
23 now you're sitting here telling us and the panel that
24 you've actually scanned them and you've got all this
25 information. And I'm wondering why that you didn't

1 acknowledge that all these years that we've told you so
2 many times about the tunnels, "Come and see them, we'll
3 show you." And you always looked at us like we were a
4 bunch of coots, you know, and now you're sitting here
5 telling us that you've been scanning these all along, you
6 have all this information.

7 And you still didn't do the job because
8 there's tunnels down there that are not screened off, or
9 do not have safety features on them. So I'm wondering
10 where that money went. Thank you.

11 THE CHAIRPERSON: If you'd just -- just a
12 brief reply, please, Mr. Potter, because I feel some of
13 this is an issue that's possibly outside our scope of
14 reference, though I understand your interest in pursuing
15 this. But a brief reply, and then I must ask for
16 questions from other people.

17 MR. POTTER: Certainly, thank you, Madam
18 Chair.

19 We've never -- I've never denied the
20 existence of underground infrastructure on the Coke Ovens
21 Site.

22 The terminology "tunnel" is not the
23 terminology we would use, as I've clarified today, and
24 we've indicated in the past, there are numerous box
25 culverts that crisscross the site for storm water

1 drainage purposes, and some processed water. I think I
2 should clarify that.

3 The information, the fiscal work we've
4 done, we often refer to 950 Joint Action Group meetings
5 that were held. I think I've probably gone to about 750
6 of those, and, I don't know, there's probably about 50 of
7 those that would have involved discussions regarding, you
8 know, the geophysical work we were doing through the
9 Edgar, the Edgar Working Group and the Remedial Action
10 Working Group.

11 There's been extensive discussion on
12 everything else we've talked about today.

13 Thank you.

14 THE CHAIRPERSON: Okay. Thank you.

15 As most of you who have been sitting here
16 for session after session know, the process we use for
17 questioning is that I'm going to ask for an invitation as
18 to how many people have questions.

19 I will then take the people who are
20 registered participants, who are registered to make
21 either -- either have made a presentation or have
22 registered to make one in the next few days. I will take
23 them first, and then I will invite an opportunity for
24 questions from other people in the room.

25 I am going to ask you for one question and

1 a follow-up since we're getting very close to when our
2 next presenter has to come forward.

3 So could I first ask, perhaps, a show of
4 hands how many people have a question for the Save Our
5 Healthcare Committee. Ms. Ouelette. Ms. Ouelette, you
6 can have a whole five minutes.

7 --- QUESTIONED BY MS. DEBBIE OUELETTE:

8 MS. OUELETTE: Hi, my name is Debbie
9 Ouelette, and I have to say I did not know Ada when I
10 first lived on Frederick Street, and we stood together, I
11 would say it was April of 1999, and watched our homes
12 tumble to the ground with big bulldozers. It was a very
13 sad day for us. We both had many tears and we cried on
14 each other's shoulder, eh, Ada? We just couldn't believe
15 that in 1998 the property that we lived on came back
16 highly contaminated. We had no idea what we were moving
17 next to.

18 And, Ada, I don't know if you can remember
19 why we got moved off Frederick Street. Can you -- do you
20 know why?

21 MS. HEARNE: Oh, yeah, that was for
22 compassionate reasons, if you can figure that one out.

23 MS. OUELETTE: Yeah. They didn't realize
24 that the high levels of arsenic in my home was the reason
25 why, they kept saying it was some compassionate reasons,

1 and that was really hard to take from government when we
2 took a whole year trying to prove to them -- every time
3 we stepped into an area of concern we were pushed aside
4 by Environment Canada.

5 I mean, they came and took results, it
6 proved that the contamination was there and they really
7 put us through a hard year of failure, I have to say.
8 And I really appreciate Ada being here today telling her
9 story, because I certainly have one -- to tell one also.
10 Thank you.

11 THE CHAIRPERSON: Thank you very much, Ms.
12 Ouelette. Is there anybody who is not a registered
13 presenter who has a question? Well, if not, again I want
14 to thank all three of you for your presentation.

15 Just a moment, please.

16 DR. LAPIERRE: I guess my question is to
17 Mr Potter. I wonder if it would be possible to get a
18 copy of the electromagnetic scan report, because I've
19 just glanced through the documents and I just couldn't
20 pick it up, so ---

21 THE CHAIRPERSON: So, we'll enter that in
22 as an undertaking. [u]

23 I'm sorry, I was in full flight of
24 thanking you and -- that's all right. So, thank you very
25 much to the three of you. We appreciate you making this

1 presentation, bringing in the video and giving us your
2 personal perspective on the whole issue. So, the Panel
3 is very appreciative of that. Thank you very much.

4 It is now 3 o'clock. We are going to take
5 -- I think we're going to take a 15-minute break and then
6 we will come back with our next presenter, who's the Cape
7 Breton Development Corporation.

8 MS. MACLELLAN: Thank you very much, Madam
9 Chair and Panel. I thank you for your patience and your
10 tolerance once again.

11 --- RECESS: 3:04 P.M.

12 --- RESUME: 3:22 P.M.

13 THE CHAIRPERSON: Ladies and gentlemen,
14 I'd like to begin the afternoon session with our next
15 presenter. We have -- our presenters are from the Cape
16 Breton Development Corporation.

17 If you need it, you have 40 minutes for
18 your presentation and I'll give you an indication five
19 minutes before the end.

20 --- PRESENTATION BY CAPE BRETON DEVELOPMENT CORPORATION

21 (MR. MERRILL BUCHANAN)

22 MR. BUCHANAN: Thank you, Madam Chair. On
23 behalf of the Cape Breton Development Corporation I wish
24 to acknowledge the invitation of the Joint Review Panel
25 to the Corporation to appear at this hearing. We hope

1 that our participation will help in some way with your
2 deliberations.

3 By way of introduction, my name is Merrill
4 Buchanan, I am a chartered accountant and have worked for
5 the Cape Breton Development Corporation for more than 30
6 years, and for the past six years I am the president of
7 the Corporation.

8 With me is my colleague, Bob MacDonald,
9 who also has an extensive background with the Corporation
10 as a professional mining engineer, as a former colliery
11 general manager and currently the director general of
12 property and environment.

13 With the concurrence of the Panel, our
14 approach today will be to provide a very brief overview
15 of what Cape Breton Development Corporation was and what
16 it is today, to explain the Victoria Junction land in
17 terms of past and present activity, and to try to answer
18 questions which may be posed by the Panel or others.

19 Dealing first with the Corporation, the
20 Cape Breton Development Corporation -- "CBDC" I'll refer
21 to it as, although it's also commonly referred to as
22 "DEVCO" -- the Corporation was formed by an act of
23 Parliament in 1967. The act established a federal crown
24 corporation with a mandate, among other things, to
25 operate the coal industry in the Sydney Coal Field of

1 Cape Breton.

2 Over the following 34 years to 2001, CBDC
3 operate a fully-integrated coal mining activity involving
4 several mines, a railway track and port transportation
5 system, a coal preparation and storage facility, the
6 Victoria Junction Site, and it also marketed its coal
7 products both in Canada and internationally.

8 Between 1999 and 2001 the Government of
9 Canada and the Corporation announced decisions to close
10 certain of its mining operations and to sell those assets
11 which could be marketed, such that by December of 2001
12 the operating activity of the Corporation had ceased.

13 The authority for this course of action
14 was provided by Parliament enacting in June of 2000 the
15 Cape Breton Development Corporation Divestiture
16 Authorization and Dissolution Act.

17 Since the closure of operations in 2001
18 the focus has been -- and continues to be -- directed to
19 addressing the liabilities and the residual activities,
20 and those items fall under three broad categories.

21 They're the obligations to the former
22 employees in terms of pensions and early retirement
23 benefits and other benefits to the former employees;
24 secondly, the obligations in respect of environmental
25 remediation, requirements resulting from past mining

1 activity in some of the land holdings of the Corporation;
2 and, thirdly, the disposal of its remaining assets, such
3 as used equipment and land holdings.

4 I will now ask Mr. MacDonald to provide an
5 overview explanation of the -- in respect of the Victoria
6 Junction site.

7 --- PRESENTATION BY THE CAPE BRETON DEVELOPMENT
8 CORPORATION (MR. BOB MACDONALD)

9 MR. MACDONALD: Thank you, Merrill. I'll
10 just give a brief overview, Madam Chair, of the site.
11 You see an aerial photo of the site on the screen.

12 The construction of the Victoria Junction
13 Site began in 1970. The site consists of approximately
14 550 acres of real estate and about 400 acres of that site
15 actually consumed the activities that were considered to
16 be the Victoria Junction Coal Preparation Plant
17 activities.

18 The facility operated and processed
19 various coal products for the domestic and international
20 markets from 1976 to 1998. The site was maintained in a
21 state of care and maintenance from 1998 to about 2003,
22 and during that period site drainage was directed to
23 collection ponds for storage and subsequent pumping to an
24 on-site water treatment facility.

25 As part of a service agreement that CBDC,

1 or DEVCO, has with Public Works and Government Services
2 Canada we began the site assessment process back in, I
3 guess, 2003/2004 and the site assessment or the phased
4 environmental site assessment was done as per the CCME
5 Guidelines.

6 Also in 2004 the majority of the site's
7 physical plant infrastructure was removed through
8 mechanical demolition and there were -- several of the
9 buildings, as Mr. Buchanan indicated, were sold as part
10 of our asset disposal program.

11 Also, I guess, in 2004 the portion of the
12 site called the lifting and banking centre was also
13 cleaned off. There was some coal remaining on that site
14 following the activity that we had going on with Nova
15 Scotia Power Corporation and all of that was removed from
16 the site and that was cleaned and the site drainage was
17 tested and now reports directly to the environment
18 without treatment.

19 Currently there are four buildings
20 remaining on the site and these house the staff -- these
21 house our staff and are used in the water treatment and
22 other remedial activities on the site.

23 In 2004/2005 consultants were engaged,
24 again through Public Works and Government Services
25 Canada, to develop a conceptual closure plan for the

1 site. In early 2005 the final design for the closure of
2 the large coarse waste pile was completed.

3 Later that year a contract was awarded for
4 the installation of an engineered cover which included a
5 high-density polyethylene liner on the coarse waste pile.
6 The expected completion of that project is late fall of
7 2006.

8 Also, a contract was awarded in 2005 for
9 the removal of contaminated material from two coal
10 storage areas on the site, named "H" Track and "C" Track,
11 so all the contaminated material -- following removal to
12 another area of the property, the area was clean --
13 covered with clean fill and a vegetative cover was
14 applied to the site. That was completed in January of
15 2006, so we expect to see some vegetative growth on that
16 area this year.

17 The final design for the remediation of
18 the remainder of the site is expected to be completed
19 within the next few weeks, and again that is under the
20 direction of Public Works and Government Services Canada,
21 and contract for the remediation of the remainder of the
22 site is expected to be awarded within the next four weeks
23 and we're looking at a scheduled completion of activities
24 on that site again by the fall of 2006, so that's this
25 year.

1 The objective is to have the entire site
2 remediated and all surface drainage separated from the
3 contaminated waste, and that again would all be done by
4 the fall of this year or early 2007.

5 The current water treatment system will
6 continue to treat contaminated ground water and leachate
7 from the large coarse waste pile, there will be a
8 leachate collection system installed beneath or around
9 the perimeter of that pile, and that water will continue
10 to be treated until it's determined through further
11 monitoring what the appropriate residual treatment
12 requirements are going to be for the site.

13 A care and maintenance program will be
14 developed to address the longer term performance of the
15 cover as well as the monitoring of the receptors adjacent
16 to the site.

17 With that, Madam Chair, I hand it over to
18 Mr. Buchanan, and now he'll comment on what the possible
19 disposal options are for the property.

20 MR. BUCHANAN: Just a couple of brief
21 comments in regard to that. As you are aware, the Sydney
22 Tar Ponds Agency has investigated the property as a
23 possible location for a proposed incineration facility
24 and CBDC has provided the Agency with information in
25 respect of the conditions on this site.

1 In discussions with the Tar Ponds Agency
2 officials we informed them about the remediation work
3 being undertaken by the Corporation on the property over
4 time, as Mr. MacDonald has described.

5 The Agency in 2005 gave CBDC formal
6 notification of its interest in acquiring the VJ
7 property, with that interest being subject to the site
8 remaining a viable location for an incineration facility.

9 When the Agency indicated its interest,
10 the timing was such that CBDC faced a couple of years of
11 major remediation work on the site and concurrently the
12 Agency expected about a similar amount of time before its
13 requirement for the site would be finalized. So, to this
14 point that's the situation regarding the VJ Site.

15 Obviously, as both parties move forward
16 circumstances at the time will really determine if there
17 is a land transaction to occur between CBDC and the
18 Agency.

19 That really concludes, Madam Chairman, our
20 remarks. We'd be willing to try to answer your
21 questions.

22 CAPE BRETON DEVELOPMENT CORPORATION:

23 --- QUESTIONED FROM THE JOINT REVIEW PANEL

24 THE CHAIRPERSON: Mr. Buchanan, Mr.

25 MacDonald, thank you very much for your presentation.

1 So, I understand that CBDC has received --
2 you've indicated that you've received a letter of intent,
3 and we've been told by the Agency that they've sent you a
4 letter of intent regarding the sale or transfer of the
5 property.

6 Now, is that something that in fact you,
7 in conjunction with the STPA, could share with the Panel?

8 MR. BUCHANAN: The letter came from the
9 Agency, so I'd probably defer to them but ---

10 MR. POTTER: We can certainly provide that
11 as an undertaking. We'll get a copy.

12 THE CHAIRPERSON: Thank you very much.
13 We'll enter that on the record as an undertaking. [u]

14 And, again, maybe this question should be
15 answered by Mr. Potter, but did the -- given that in the
16 Environmental Assessment the Tar Ponds Agency has
17 indicated that they consider that the Phalen property is
18 also -- could be a viable location for the incinerator,
19 the VJ Site was their preferred option but they have put
20 forward Phalen as an alternative means of carrying out
21 that portion of the project.

22 I just wondered, did the -- have they, in
23 fact, been -- let me back up. My understanding is that
24 the site at Phalen that was indicated in the
25 Environmental Impact Statement as an alternative

1 location, that is also CBDC's property. Is that correct?

2 MR. BUCHANAN: The Phalen site is a
3 property that's owned by the Cape Breton Development
4 Corporation, that's correct.

5 THE CHAIRPERSON: And did the letter --
6 are you talking with the Agency about the possibility of
7 Phalen, or your discussions and the letter of intent is
8 only referring to the VJ Site at the moment?

9 MR. BUCHANAN: The letter of interest was
10 referring specifically to the VJ Site property.

11 THE CHAIRPERSON: Can you tell me -- oh,
12 all right. Is the -- are you discussing the possibility
13 of the transfer of the whole of the VJ Site or a portion
14 of the VJ Site for this purpose?

15 MR. BUCHANAN: The discussions didn't --
16 haven't progressed to the point of how much of the site
17 would be involved.

18 THE CHAIRPERSON: Can you tell me, or tell
19 the Panel, a little bit more about what mechanisms there
20 are in place that govern how CBDC disposes of surface
21 assets, including the -- including real estate. Is there
22 -- now you did mention -- I tried to write it down --
23 that you're governed in this regard by an act, a specific
24 act.

25 Perhaps you could tell me a little bit

1 more about that and how and how might it affect your
2 decision-making with respect to possibly transferring
3 this site and what kinds of things would you need to
4 accomplish in order to do that.

5 MR. BUCHANAN: The activities and mandate
6 of the Corporation are primarily set by the Cape Breton
7 Development Corporation Act, which still exists and has
8 been amended a number of times, was amended in 2000 when
9 the -- but had been amended before that as well during
10 years of operation. So, that's the first item.

11 The second one I referred to was the Cape
12 Breton Development Corporation Divestiture Authorization
13 and Dissolution Act, and that one was put in place
14 primarily to deal with the closure activity of the site.

15 There are also aspects of the Financial
16 Administration Act, the Federal Government Financial
17 Administration Act, that come into play particularly in
18 terms of disposal of real property.

19 Those would be the primary -- and both the
20 acts, the CBDC Act originally and the Dissolution Act,
21 both provide for powers for the Corporation to acquire
22 and dispose of property. We had the authority from the
23 original act to purchase land and also to sell land.

24 As an example of that, in 2001 when the
25 operations were closing down we did have a transaction

1 that involved both land, structures on the land and
2 equipment. Probably our most major transaction to date
3 was in the disposal of the -- it involved the
4 international pier and the railway and associated railway
5 equipment, and there was land involved in that
6 transaction as well.

7 That was by -- there had been a sale
8 process going on and various parties made proposals
9 regarding assets and we negotiated ultimately with the
10 party that was selected on that.

11 We also have since 2001 been -- or I guess
12 in 2002 we've been involved with a sister crown
13 corporation, Enterprise Cape Breton, in respect of some
14 of our property and -- as well as with other parties.

15 So, there's a variety of mechanisms that
16 we would use to dispose of property and those are
17 authorized by our act and policies that would be in place
18 for disposal of assets.

19 THE CHAIRPERSON: Now, for example, are
20 you required to get -- seek full market value for your
21 properties, or have you got some leeway?

22 MR. BUCHANAN: Generally speaking the
23 guideline that's there is to full market -- to seek
24 market -- "fair market value" is the term that we refer
25 to, and there's a number of ways that you can do that.

1 You can do it through a tendering process,
2 you can do it through an appraisal process, but the
3 general norm would be to seek fair market value for a
4 property.

5 THE CHAIRPERSON: And this would be the
6 case even if the property were transferring between
7 governments?

8 MR. BUCHANAN: And certainly in the terms
9 of the transaction that we might envisage with another
10 agency of another level of government, that would be the
11 basis for a transaction. I -- in terms of a transaction
12 within the Federal Government, if we were talking another
13 part of the Federal Government there's some room there
14 for other processes, I would say.

15 THE CHAIRPERSON: In terms of the
16 environmental liabilities associated with the VJ site or
17 the remediation responsibilities, is there -- are there
18 some requirements on CBDC in terms of completing
19 remediation before land is -- title to the land is
20 transferred? Or what about such things as requirements
21 for ongoing monitoring and as you indicated, water
22 treatments? That is likely to go on for a number of
23 years to come, is that right Mr. MacDonald?

24 MR. MACDONALD: That's correct, Madam
25 Chair, yes. We don't know the duration but again that

1 can only be determined through further assessment and
2 evaluation over the next number of years.

3 THE CHAIRPERSON: I'm sorry, I can't quite
4 hear you.

5 MR. MACDONALD: That'll only be determined
6 through further evaluation over the next number of years
7 as we see what benefits that we are realizing from the
8 capping initiative.

9 THE CHAIRPERSON: Um-hmm. Is that -- how
10 do you deal with that issue when you are considering
11 transferring a property or selling a property?

12 MR. BUCHANAN: Well, the -- in terms of
13 the remediation itself I'll use the VJ property as the
14 example. There the decision was made that we were going
15 to undertake an appropriate level of remediation on the
16 site before we would consider disposal of it.

17 If there was a property that had some
18 aspect of remediation identified and there was a buyer
19 that wanted that property, then we follow a full
20 disclosure of the conditions on the site. It's not
21 dictated to us that we have to do the remediation before
22 transfer. There may be an opportunity where they --
23 where the party acquiring a property is willing to take
24 the property in the state that it's in and in that case,
25 we would disclose the assessment information that we

1 would have in respect of the property.

2 THE CHAIRPERSON: So in the case of the VJ
3 site, if you were to sell the entire site would the
4 responsibilities for monitoring and for water treatment
5 then be taken on by the new owner or would you retain
6 those?

7 MR. BUCHANAN: It's difficult to speculate
8 on what might be arranged at the time. We're not clear
9 at this stage what degree of monitoring, care and
10 maintenance will be required on this date, on that
11 particular property. And we certainly haven't had that
12 type of discussion with the agency at this stage as to
13 what could be worked out in that regard.

14 THE CHAIRPERSON: I'll ask just one more
15 question. I know my colleagues have got questions. Now,
16 it's our understanding that because of revisions to the
17 Canadian Environmental Assessment Act, Crown corporations
18 such as CBDC are going to become subject to the Act in
19 respect of potentially being able to be designated as a
20 responsible authority under the Act. I understand that
21 this has not been the case before. And our information
22 says that in fact, this change would take place on June
23 the 11th of this year. I'm sure you're thoroughly
24 familiar with this.

25 Now, do you see this having any affect on

1 the transaction? Do you -- are you anticipating that it
2 was possible that the transaction might occur before June
3 11th? Or is that far too soon? And if so, are you
4 expecting to become a responsible authority with respect
5 to this environmental assessment at that point?

6 MR. BUCHANAN: Well, if I can, to a couple
7 of points in your question. The -- your information is
8 correct, the corporation as with a number of other Crown
9 corporations effective June 11th of 2006 will be drawn
10 under the umbrella of the Environmental Assessment Act.

11 The ramifications of that in terms of the
12 possible transaction that we're talking about today, I
13 think have -- there's certainly more investigative work
14 that would have to be done to determine the ramifications
15 of being brought under that Act and specific to this
16 transaction. Certainly, there's no expectation on CBDC's
17 part. I can't -- because we have at least a number of
18 months to a year's work to do in terms of the remediation
19 activity on the property. So we're not anticipating a
20 transaction with the agency. And certainly not before
21 June the 11th. And so it'll be post that if there is to
22 be a transaction.

23 THE CHAIRPERSON: Thank you, Mr. Buchanan.

24 DR. LAPIERRE: Good afternoon. Thank you.

25 A few questions related to -- that relate to Mullins

1 Bank. You own most of the property on Mullins Bank?

2 MR. BUCHANAN: We do own some of the
3 Mullins Bank property. I don't know how much the acreage
4 is off hand but we do own some of that.

5 DR. LAPIERRE: Do you have any idea of the
6 condition of that property. Is it polluted -- is there
7 any pollution? Is there any remnants of pollution on
8 this site?

9 MR. MACDONALD: Yeah, that property has
10 been assessed. Back in the early 2000 it's been assessed
11 and it has been identified as having contaminants in
12 regards to the coal laydown activities of the Cape Breton
13 Development Corporation.

14 DR. LAPIERRE: So what kind of
15 contaminants might be there?

16 MR. MACDONALD: We're talking metals and I
17 believe some PAHs.

18 DR. LAPIERRE: And what's your liability
19 and do you have any future use restriction on that site?

20 MR. MACDONALD: At this point in time, no,
21 it's just vacant land that we monitor. But there's no
22 intended future use. There's been some discussions with
23 the Sydney Tar Ponds Agency about their interests in the
24 property.

25 DR. LAPIERRE: So again you have some

1 liability associated with the land that you own?

2 MR. MACDONALD: That is correct.

3 DR. LAPIERRE: And if I understand
4 correctly, your previous comment is you have the
5 possibility to transfer your liability.

6 MR. MACDONALD: That is correct, yes.

7 DR. LAPIERRE: I guess just one question
8 on the VJ site. How would you classify the VJ site? Is
9 it a heavily polluted site, moderate polluted site?

10 MR. MACDONALD: The VJ site, I mean, the
11 predominant contaminant concern at the site is actually
12 mine drainage. I mean, we have a site, an extensive
13 piece of real estate whereby there were coal handling
14 activities carried out. And for the most part, the
15 result of that is when water comes in contact with the
16 pyritic base materials we end up with an acid mine
17 drainage discharging off the property. So that is a
18 predominant issue on that site.

19 DR. LAPIERRE: So the acid mine drainage
20 or the acid drainage does migrate off site?

21 MR. MACDONALD: That is correct, yes.

22 DR. LAPIERRE: And then it transfers to
23 wetlands or brooks or ---

24 MR. MACDONALD: To wetlands. I mean,
25 currently on the site we do have a system of drainage

1 collection that captures all of the surface runoff and
2 brings it back to a water treatment facility on the site.
3 There is groundwater contamination that exists on the
4 site and continues to exist.

5 The effort that we are looking at to
6 address that situation is basically to consolidate where
7 possible all the acid mine drainage or acid generating
8 material and cover that with a HDPE liner. And the two
9 main areas, I mean as I talked about earlier in the
10 presentation, is the large coarse waste pile. That would
11 be the -- this area right here. It's about, I guess, a
12 46 hectare portion of the site.

13 And in the plant site are right here -- if
14 you see where I'm moving around the cursor, there would
15 be some material. All of that material in this area here
16 is going to be consolidated right into an area here and
17 that's where, as I talked about in my presentation, there
18 were two laydown areas, C track and H track. All the
19 contaminated soils from those two areas were brought to
20 this portion of the site. They will all be taken there
21 and again a HDPE liner will be placed over that.

22 The objective, again, is to create a
23 barrier or separation between the precipitation runoff
24 and the contaminated material or the acid generated
25 material.

1 DR. LAPIERRE: Across the road, there's a
2 lake. Is that a pond ---

3 MR. MACDONALD: Across -- oh, you're
4 talking across Lingan Road or -- this is Grand Lake here.

5 DR. LAPIERRE: That big body of water, is
6 that a pond or is it a lake?

7 MR. MACDONALD: That is Grand Lake that
8 we're looking at here. That is upgrading at the site.

9 DR. LAPIERRE: So does the pond drain --
10 does the VJ site drain -- is the drainage towards the
11 lake or away from the lake?

12 MR. MACDONALD: The majority of the
13 drainage is away from the site. There's a small portion
14 of the site -- if you see where I'm moving the cursor,
15 part of the LBC would drain in this direction here. Most
16 of it drains off in this direction. Now we know that
17 it's a clean portion of the site since we removed all the
18 coal. And there's a small area right here that is a sort
19 of a higher contour than the rest of the site, it drains
20 in that direction into Northwest Brook. But the majority
21 of the drainage from this, I guess, this area right
22 across the site all goes in this direction kind of north,
23 northeast towards the Northwest Brook wetland.

24 DR. LAPIERRE: And to the north that you
25 would say, that looks like a swamp with a little brook

1 contamination going into the wetland through -- mostly
2 through groundwater drainage. All the surface water is
3 captured and taken back to our treatment facility. So
4 the objective here is to just -- the surface water and by
5 putting the substantial high density polyethylene liners
6 over those areas where the acid mine drainage would
7 originate. We expect to reduce significantly the
8 contribution of acid mine drainage to the wetland. That
9 is the overall objective.

10 DR. LAPIERRE: So you have some
11 significant work for some time to clean up that site?

12 MR. MACDONALD: No, I mean, basically we
13 -- again, we've been -- it's been characterized back in
14 2003/2004. We've had some aggressive design engineering
15 to Public Works and Government Services Canada and the
16 consultant that they've engaged on our behalf to come up
17 with a strategy to remediate that site and the impacts on
18 that site. We would expect again by late fall, early
19 winter of this fiscal year, we will have -- essentially
20 remediate that site and all service drainage will leave
21 the site clean with the exception of having to manage the
22 total suspended solids because you still will not have a
23 strong vegetative cover on the property.

24 And the remaining component would be a
25 leachate collection system around -- I'll go again to the

1 -- around this large course waste pile there'll be a
2 leachate collection system, collecting the leachate, the
3 residual leachate in the pile because the HDPE liner will
4 now prevent any infiltration. So that will come to this
5 point here and be taken back to the serge pond and be
6 treated. There's also a nest of wells along this north
7 side of the pile prior to the groundwater going into the
8 wetland. We're capturing that deep groundwater and
9 taking it back to our treatment facility.

10 Those will be the two residual sources of
11 contamination that we will be managing, today, as we know
12 it. That could change but again, today as we know it,
13 based on, you know, our work with the consultants.

14 DR. LAPIERRE: Okay, thank you.

15 THE CHAIRPERSON: I'd just like to put in
16 a little plea for a little more volume. I don't know who
17 I have to ask or what -- I'm just finding it a little bit
18 hard to -- and I don't know if people in the hall -- yes,
19 I see some nodding so I don't know whether you have to
20 move closer, somebody has to turn you up or ---

21 MR. MACDONALD: I've brought it closer.
22 How does that sound?

23 THE CHAIRPERSON: That sounds good.

24 MR. MACDONALD: Sorry.

25 THE CHAIRPERSON: It's all right. I'm

1 told quite often that I'm quite -- I'm too loud so the
2 other way.

3 MR. CHARLES: Mr. Buchanan, my -- Madam
4 Chair has already asked you about the Letter of Intent
5 and Mr. Potter has agreed we're going to get a copy of
6 it. I guess my question is, when was the Letter of
7 Intent signed for the VJ site transfer? Potential
8 transfer of property?

9 MR. BUCHANAN: The letter is dated April,
10 2005 I believe.

11 MR. CHARLES: Besides the Letter of Intent
12 itself, have you had any other discussions with the
13 agency about the transfer of the property, either
14 detailed or otherwise?

15 MR. BUCHANAN: No, we had discussions
16 prior to the letter and they had discussed with us the --
17 their -- that they had identified the site. We had
18 provided information regarding the Victoria Junction site
19 as well and Phalen. You had mentioned earlier on Phalen.
20 But the -- that was really the basis for the letter being
21 ---

22 MR. CHARLES: Nothing since?

23 MR. BUCHANAN: No, because at that time we
24 had indicated that we were going to undertake the work
25 between 2005 and the end of this year on the site. And

1 the agency was indicating that they were going to have to
2 go through a process, partly what we're involved with
3 right here to -- so that's why I referred to it as a
4 "Subject to". And you'll see that in the letter that
5 they're -- they were expressing an interest in the
6 property subject to them having to do things and
7 similarly for CBDC, subject to us having to do activity
8 on the site as well because we had entered into the
9 remediation activity at that time.

10 MR. CHARLES: Okay, thank you. Now, going
11 to the Phalen site, does that site require extensive
12 remediation and can you compare the VJ site and the
13 Phalen site in terms of remediation difficulties?

14 MR. BUCHANAN: Perhaps I'll ask Mr.
15 MacDonald to refer to that. The Phalen site was one of
16 our mine sites. We still -- our offices are actually
17 still there in the former administration building. There
18 are a number of structures on that site in terms of
19 buildings. But I'll get Bob to refer to actually the
20 site conditions itself from a remediation point of view.

21 MR. MACDONALD: No, I mean that site has
22 very little contamination. There was a very small coal
23 laydown area on that site. Other than that, I mean,
24 typical administration building, mine administration
25 building. Bank heads that would support moving many

1 material underground. And we had I guess what we would
2 call a mechanical electrical shop facility on the site.
3 We're doing some maintenance and overhauling equipment.
4 Compared to VJ, insignificant as far as impacts.

5 MR. CHARLES: What about underground
6 working. Do they pose any kind of a problem for a
7 facility like an incinerator.

8 MR. MACDONALD: In 2001 -- 2000/2001, with
9 -- working with Public Works and Government Services
10 Canada, all the openings to the underground workings were
11 sealed so basically at Bodling (sp) and the Phalen site,
12 so both sites had concrete portals leaving the surface
13 and extending for about 300 feet below the surface and
14 then from that point the underground mine workings
15 actually were established. So those concrete portals are
16 actually sealed with a concrete bulkhead and pushed in
17 and back-filled. So there is no access to those.

18 MR. CHARLES: And you're not concerned
19 about subsidence or anything like that?

20 MR. MACDONALD: I mean, there's always a
21 concern about subsidence. I mean, when you think about
22 the fact that once you created an underground opening at
23 some point in time and depending on many factors, there
24 will be, you know, some level of subsidence that develop.
25 We know where those workings are. The infrastructure on

1 the site as it exists today is nowhere near those
2 workings, the remaining infrastructure.

3 MR. CHARLES: In terms of time frame,
4 would you anticipate the remediation at Phalen to be --
5 to take less time than the VJ site? Or are they about
6 the same -- would they take about the same time or can
7 you tell?

8 MR. MACDONALD: We haven't progressed to
9 the same level at the Phalen site as we have at the VJ
10 site in regards to the removal of the infrastructure.
11 There's still a significant component to the
12 infrastructure on the site, some larger buildings that
13 housed some of the coal mining facilities. Again, those
14 if we wanted to be or needed to be, they could probably
15 remove within a, you know, one year time frame. The
16 other residual, you know, contaminants of concern, again
17 they could probably be addressed in parallel. But I
18 guess that's just my opinion based on what we've been
19 able to achieve thus far in working with Public Works and
20 Government Services Canada.

21 MR. CHARLES: But you say that you've done
22 more work sort of assessing the need for remediation at
23 the VJ site than you have at the Phalen site?

24 MR. MACDONALD: Well, both sites -- I
25 mean, basically we're assessed to a Phase 3 level of

1 assessment. As far as looking forward to developing a
2 remedial action plan we've gone much further on the VJ
3 site because that was a priority site because ---

4 MR. CHARLES: A priority site, yes.

5 MR. MACDONALD: Yes.

6 MR. CHARLES: Okay, thank you very much.

7 MR. MACDONALD: You're welcome.

8 THE CHAIRPERSON: Just before I invite
9 questions from other participants, I've just got a couple
10 of more questions.

11 Just to follow up on Mr. Charles'
12 questions about Phalen, I had forgotten that the CBDC's
13 offices are at that site.

14 Now, how long is CBDC going to be in
15 operation, or how long will those offices be in use? Do
16 you have a time when you think that that building will be
17 vacated and turned over?

18 MR. BUCHANAN: The -- specific to that
19 site, we will have a requirement for certain aspects of
20 our operation on there for -- in terms of use of the
21 existing buildings for at least another year.

22 The -- some of the buildings that are on
23 the site certainly offer some potential for future
24 economic development activity, and that will have to be
25 looked at in terms of our disposal.

1 To go the broader question of how long
2 CBDC will be around ---

3 THE CHAIRPERSON: No, I don't really need
4 to know that.

5 I was more interested in your use of that
6 building and the fact that I don't know how big the --
7 I'm just trying to get a sense of the actual feasibility
8 of Phalen's sites being potential alternative sites for
9 the incinerator as it appears in the EIS.

10 Now, I mean, were the incinerator to be --
11 were you to negotiate -- I mean, are you interested in
12 negotiating the transfer of the Phalen property for this
13 purpose, or have you even considered this, at this stage?

14 MR. BUCHANAN: It's -- we're working on
15 our entire property holdings in terms of disposal,
16 because the corporation can't be dissolved until our
17 properties are disposed of, and we have initiatives going
18 on a number of fronts in that regard. So ---

19 THE CHAIRPERSON: But your office -- your
20 use of that building as offices would have to finish
21 before you'd want to transfer the property and have some
22 other use, particularly an incinerator, located there, is
23 that correct?

24 MR. BUCHANAN: Well, we really haven't
25 looked at it in terms of whether -- you know, whether any

1 of our people would be on the site at such time as other
2 activity would be there, where -- some of our activity
3 will be elsewhere and until we finish with those
4 buildings, some of it will be there.

5 THE CHAIRPERSON: And then my other
6 question relates to the VJ site and the potential for
7 future use.

8 When I look at that -- well, when I look
9 at the actual waste pile from the road and when I look at
10 that aerial shot, I'm a little hard pressed to envisage
11 some alternative use of that remediated waste pile.

12 But is there one, or is it going to be a
13 big block with a green cover for a very long time to
14 come?

15 MR. BUCHANAN: Well, I'd be getting into
16 the realm of speculation regarding the future use of the
17 waste pile itself, but it is a large -- there is a large
18 acreage of land there. I think it would be safe to
19 assume that some of that property does have potential
20 future use.

21 If not the waste pile, there would be many
22 acres outside of that that will be remediated and -- it
23 -- you know, it's in an area where there's good road
24 access to, there's rail access. The property is not
25 without its features.

1 THE CHAIRPERSON: And the total area of
2 the property is ---

3 MR. BUCHANAN: Total area is, I think,
4 around 550 acres, and the area that you're looking at
5 there right now is probably in the order of four ---

6 MR. MACDONALD: Total area?

7 MR. BUCHANAN: Total?

8 MR. MACDONALD: Yeah, that area right --
9 oh.

10 The area you're looking at in the aerial
11 is probably about a little over 400 of that 550 acres.

12 There's some more acreage to the left here
13 that -- between this -- the rail line and Grand Lake
14 Road, or Sydney Glace Bay Highway. Yeah, it's probably
15 about 420, 450 acres there.

16 THE CHAIRPERSON: But it's fair to say
17 that that waste pile is likely to remain a very prominent
18 feature and not likely to support some other use for
19 quite some time to come?

20 Is that a -- I know you don't like to
21 speculate, but I'm just really talking about the capacity
22 to support future use, and I'm wondering if that's going
23 to remain a sort of permanent feature for quite some
24 time?

25 MR. MACDONALD: That is the plan. I mean,

1 once the cover has been applied, I mean, that feature
2 would, you know, sit on the landscape for many years to
3 come. Yeah.

4 THE CHAIRPERSON: Thank you very much.

5 I would like to now provide opportunities
6 for other people to put questions to CBDC, focusing on
7 the -- particularly on the issues before the Panel. I
8 will turn first to the Sydney Tar Ponds Agency. Do you
9 have any questions for Mr. Buchanan or Mr. MacDonald?

10 MR. POTTER: Thank you, Madam Chair.

11 Not at this point.

12 Just to clarify, the -- I guess the status
13 of the letter of intent.

14 As Mr. Buchanan indicated, there's been no
15 discussion since the letter has been submitted.

16 We anticipate, pending the outcome of the
17 assessment review and a final decision by government by
18 some time late this fall, we will have a better
19 appreciation for the final description of the project,
20 and we would then be entertaining further discussions at
21 that point in time if we were proceeding with the VJ
22 site, or potentially the Phalen site, again, depending on
23 the outcome, so we'd be at least a year from that point
24 in time even entertaining an incinerator showing up on
25 the site.

1 There's a substantial design period and
2 tendering period to acquire an incinerator, so it would
3 be well into 2008, 2009, based on our schedule, that we'd
4 be looking at arriving on the property.

5 There would be some preparation work
6 necessary, but it would be -- the schedule shows us
7 around 2008, 2009 with the start of incineration.

8 THE CHAIRPERSON: Thank you, Mr. Potter.

9 So, can I get an indication, please, of
10 the registered participants, who has questions for CBDC?

11 Just hold on, please. I've got Mr. Brophy
12 at the back. I've got Mr. Marman. I've got Ms.
13 Ouellette, Dr. Argo and Ms. MacLellan.

14 Let's start with a question, then a follow
15 up question, and then we can go around for a second round
16 as things go.

17 Let's start with Mr. Brophy.

18 --- QUESTIONED BY ERIC BROPHY

19 MR. BROPHY: Thank you, Madam Chair. Good
20 afternoon, gentlemen.

21 At the start, we haven't -- at the start
22 of your presentation -- I don't think -- testing,
23 testing. It's not working, Madam. Thank you very much.

24 THE CHAIRPERSON: It's not that we don't
25 want to hear from you, Mr. Brophy. It will get fixed in

1 a minute.

2 MR. BROPHY: Coming from this area, Madam
3 Chair, I thought maybe there was a conspiracy at foot.

4 At the start of your presentation,
5 gentlemen, you mentioned you're following the CCME
6 guidelines in remediating the site. I take it these
7 guidelines are current and applicable?

8 MR. MACDONALD: Yeah, they would be 1997
9 version. Is that what you're talking about?

10 MR. BROPHY: I would take it, yeah.

11 MR. MACDONALD: Yes.

12 MR. BROPHY: In 1997, if that's the
13 latest?

14 MR. MACDONALD: That's correct. We ---

15 MR. BROPHY: And the reason -- the reason
16 I ask this question, last week there was some controversy
17 over the validity of certain guidelines, and those were
18 published also in the '90s, the early '90s.

19 I just hope that throughout this project,
20 we're not selectively choosing which guidelines we'll
21 follow.

22 Having said that, I thank you very much
23 for the opportunity, Madam Chair.

24 THE CHAIRPERSON: Thank you, Mr. Brophy.

25 Mr. Marman?

1 --- QUESTIONED BY GRAND LAKE ROAD RESIDENTS (RON MARMAN)

2 MR. MARMAN: Thank you, Madam Chair.

3 Through you, Madam Chair, to Mr. Buchanan
4 and Mr. MacDonald, just so you know, I'm a resident that
5 lives across the site from your VJ site, so I've taken a
6 keen interest in that site since it was built, and I'm
7 pretty well familiar with different things that happen
8 down there.

9 But would you agree that the area around
10 the VJ site is mostly wetlands, whether that be lakes or
11 brooks or swamps?

12 MR. MACDONALD: Yes.

13 MR. MARMAN: And during your time of
14 operation, just as a second part of that question, did
15 you have any problem with flooding in that area with your
16 operation, especially when the beavers dammed off the
17 brook? Did you guys have to go down there and actually
18 remove some of the dams and ---

19 MR. MACDONALD: In the brook itself?

20 MR. MARMAN: Yeah.

21 MR. MACDONALD: That was -- at that time,
22 during the operation, those activities did take place,
23 yes. And that was through discussions with, I believe,
24 the Nova Scotia Department of Environment.

25 MR. MARMAN: Yes.

1 MR. MACDONALD: Yes.

2 MR. MARMAN: May I ask one more, Madam
3 Chair?

4 When you talk about your continuous
5 monitoring and, in particular, some concern with the
6 runoff from your waste pile, and a concern about the
7 waterways and what have you in the area, if, at a later
8 date, this incinerator is put in that area, and there are
9 problems, say we -- the monitor shows some problems or
10 whatever, how would you be able to define if the problem
11 is the incinerator or that particular waste pile on the
12 site?

13 MR. MACDONALD: I guess all I could say is
14 that we'd have to go back on historical data that existed
15 prior to an incinerator being placed on the site. If
16 there was a difference in that data, then we would have
17 to look at is that difference, you know, a contributor to
18 some other source, ie. the incinerator, if that's what
19 you're indicating.

20 MR. MARMAN: But it would be very
21 difficult. I mean, at some point in time, like -- I
22 don't know if this is another question. It's just a
23 continuation, so with your permission, Madam Chair.

24 Like, the houses around the area all rely
25 on wells for water.

1 So if we ever did determine that we had a
2 problem with our well, we're a bit concerned that, you
3 know, we would look to you fellows and say, "It's your
4 stone pile", and you would say, "Nope. Not us. You'd
5 better go talk to the boys running the incinerator." And
6 we would go to them and they would say, "Well, you know,
7 you guys know there was problem with this site that goes
8 back for years, so why are you blaming us now? We just
9 started running here a year ago."

10 And I know you can't really, given the --
11 but would you believe that, you know, that would cause
12 some difficulty, especially if, you know, the Province
13 denies it, you fellows denies, you know, and everybody
14 believes that they're right, it's not them.

15 How would it -- how would you ever manage
16 to find the cause and be able to tell the people there,
17 "Well, yes, here's what it's from"?

18 MR. MACDONALD: Madam Chair, I don't think
19 I'm in a position to answer that.

20 I mean, basically we will be doing our
21 monitoring, given, you know, our activities on the site
22 and what would be required, you know, from a post-
23 monitoring program.

24 This goes beyond what, I guess, I would be
25 at liberty to discuss here today, I believe.

1 THE CHAIRPERSON: Well, I do see that Mr.
2 Marman's question is pertinent to what the Panel is
3 looking at, but I guess I will ask a kind of follow-up
4 question, is that I assume that when, if you did
5 negotiate a transfer of land, there would be some fairly
6 detailed negotiations and agreements about the whole
7 question of liabilities.

8 And given that you would, presumably,
9 still hold some liability, would you, on that land?
10 Especially if you were still -- well, I'm not sure who's
11 going to be doing the monitoring, if you did sell the
12 land.

13 It does seem like a very complicated
14 matter where you have a piece of land that does have some
15 environmental liabilities still attached to it. Maybe
16 it's not complicated for the people who do it every day,
17 but I'm curious.

18 MR. BUCHANAN: It's difficult for me to
19 comment on.

20 There would -- as Mr. MacDonald indicates,
21 there would be base line information as to what the
22 circumstances were that -- that's -- and that's fairly
23 common, in terms of having that for a buyer in terms of
24 what the circumstances are at present.

25 What takes place beyond that, or what's

1 negotiated as part of a transaction, in terms of the
2 ongoing requirements, it -- I'm really not in a position
3 to comment or -- it would be speculating on what would be
4 developed in terms of a negotiated arrangement on the
5 property.

6 THE CHAIRPERSON: Thank you, Mr. Marman,
7 for raising that question.

8 MR. MARMAN: Thank you, Madam Chair.

9 I'm just glad that the present owners
10 acknowledge that it is a wetland all around that area.

11 THE CHAIRPERSON: Ms. Ouellette.

12 --- QUESTIONED BY MS. DEBBIE OUELETTE

13 MS. OUELLETTE: I thought I heard him say,
14 and I'm not sure if this is right, that the Tar Ponds
15 Agency, they are interested in property. Are you talking
16 about the Mullins Creek or the Mullins Bank?

17 You mentioned some property. Which one
18 would that be?

19 MR. BUCHANAN: There was -- there -- I
20 think there's been reference ---

21 THE CHAIRPERSON: I believe -- do you mean
22 at the beginning?

23 MS. OUELLETTE: Yeah, he ---

24 THE CHAIRPERSON: We were discussing at
25 some length the fact that the Tar Ponds Agency has

1 indicated by means of a letter of intent that they are
2 interested in possibly negotiating the transfer of the VJ
3 property.

4 MS. OUELLETTE: Oh, it's that property.
5 Oh, I wasn't sure ---

6 THE CHAIRPERSON: But then we also -- Dr.
7 LaPierre asked some questions about CBDC's ownership of
8 Mullins Bank on the Coke Oven site.

9 MS. OUELLETTE: The V ---

10 THE CHAIRPERSON: Did you discuss the
11 transfer of that? I can't remember.

12 MR. BUCHANAN: We indicated that ---

13 THE CHAIRPERSON: In that exchange?

14 MR. BUCHANAN: We indicated that there was
15 activity on that with the Agency as well.

16 THE CHAIRPERSON: Yes.

17 MS. OUELLETTE: So the ST -- Tar Pond
18 Agency wants that land, they tell you, for what -- or
19 what use?

20 THE CHAIRPERSON: Which land are we
21 talking about now?

22 MS. OUELLETTE: I'm not sure if it's the
23 VJ site or the Mullins Bay.

24 THE CHAIRPERSON: The VJ site is being
25 indicated in the EIS as a potential location for the

1 incinerator.

2 MS. OUELLETTE: Right. But I'm just
3 saying, is it the STPA that wants that site? Is it --
4 you know, like I'm not sure ---

5 THE CHAIRPERSON: Yes.

6 MS. OUELLETTE: Okay. That's good. Thank
7 you.

8 THE CHAIRPERSON: Dr. Argo.

9 --- QUESTIONED BY CAPE BRETON SAVE OUR HEALTH CARE
10 COMMITTEE (DR. JAMES ARGO)

11 DR. ARGO: Thank you, Madam Chair.

12 I was very interested in the presentation
13 to hear them using the term acid mine drainage, and for
14 the purposes of this room, I'm wondering if the gentlemen
15 could describe what acid mine drainage is?

16 MR. MACDONALD: With regard to this
17 particular site, what acid mine drainage is, is when we
18 have the precipitation coming in contact with the pyretic
19 rocks on the site, which is a byproduct of the coal
20 processing activity, you end up with, you know, a low PH
21 effluent, which is also high in metals.

22 DR. ARGO: What -- slightly afraid to
23 touch it.

24 What sort of metals?

25 MR. MACDONALD: I mean, we're talking your

1 typical arsenic, copper, lead, or getting selenium.

2 There's a whole array of metals. I mean, I couldn't go
3 down through the whole list.

4 DR. ARGO: That's fine. I showed -- okay.
5 Then -- one short?

6 Would -- are these the metals that you're
7 monitoring?

8 MR. MACDONALD: Yes, we do have a ---

9 DR. ARGO: You talk about monitoring ---

10 MR. MACDONALD: Yes, we do have a
11 monitoring program around the site and the wetland
12 itself. We also have a monitoring program that monitors
13 -- there's the effluent that is leaving the water shoot
14 of that facility, and that effluent has to meet the metal
15 mine effluent guidelines.

16 DR. ARGO: And those, then -- have you
17 detected any arsenic?

18 MR. MACDONALD: There has been some
19 arsenic, yes.

20 DR. ARGO: Off -- away from the site?

21 MR. MACDONALD: Yes.

22 DR. ARGO: For instance, in the lakes or
23 in the ponds?

24 MR. MACDONALD: I can't specifically say
25 where, but there has been some detection, and it's that

1 information that has lead to the decision to cap the
2 site.

3 DR. ARGO: Do you know what those lakes
4 eventually are used for? Are you aware that those
5 eventually go to ---

6 MR. MACDONALD: This -- the -- I'm talking
7 about the wetland, not into the lakes. It's into the
8 wetland, basically, I guess, in this area right here.

9 DR. ARGO: Did you -- are you aware that
10 those -- that runoff eventually gets into the lakes to
11 become the watershed for -- the water supply for New
12 Waterford?

13 MR. MACDONALD: Not that particular
14 runoff. That does not go in that direction.

15 DR. ARGO: It doesn't go?

16 MR. MACDONALD: No, not to my knowledge.

17 DR. ARGO: Thank you.

18 MR. MACDONALD: Okay.

19 THE CHAIRPERSON: Thank you, Dr. Argo.

20 Ms. MacLellan?

21 --- QUESTIONED BY CAPE BRETON SAVE OUR HEALTH CARE

22 COMMITTEE (MARY-RUTH MACLELLAN)

23 MS. MACLELLAN: I just have a couple of
24 quick questions but before I do, you talked about the
25 environmental assessment that DEVCO had conducted itself.

1 Madam Chair, is there an undertaking for them to provide
2 that environmental assessment?

3 THE CHAIRPERSON: This is the
4 environmental assessment ---

5 MS. MACLELLAN: On the VJ site and the
6 Mullins Coal Bank as well.

7 THE CHAIRPERSON: Could you before I --
8 Mr. MacDonald please clarify for me.

9 MR. MACDONALD: That information is with
10 the Sydney Tar Ponds Agency. We provided all the
11 information to them for their project.

12 MS. MACLELLAN: But I'm asking Madam
13 Chair, could you ask DEVCO to provide it since the Sydney
14 Tar Ponds Agency said they would not at a prior Panel
15 discussion?

16 THE CHAIRPERSON: Mr. Potter, could you
17 remind me. I'm finding it hard to keep track of
18 everything that was said or not said.

19 MR. POTTER: You're asking the wrong
20 person but having the same trouble but I believe the
21 discussion was in relation to the DEVCO work that was
22 done on -- around the VJ property that we indicated. In
23 the EIS report we referenced all of their documents. Our
24 consultant did review all the information that they had
25 undertaken on the site. We've made reference to it.

1 I don't remember being asked to provide
2 the actual reports. I don't recall that. Normally we
3 wouldn't provide a third party report. We'd direct the
4 person requesting it to go back to the -- you know, the
5 holder or the originator of the report such -- normally
6 the procedure we follow in a situation such as that.

7 THE CHAIRPERSON: Ms. MacLellan, I think
8 what we'll do is the Panel will just give that some
9 consideration. I'm going to ask the Secretariat to
10 remind us that I've made that undertaking -- not a
11 undertaking, not a capital "U" undertaking, no. That the
12 Panel will consider that and will decide whether we feel
13 that it's important to request those documents as an
14 undertaking. I don't feel comfortable doing it right
15 now.

16 MS. MACLELLAN: Well, then could DEVCO
17 provide me with a name and an address where I can write
18 for them for myself?

19 THE CHAIRPERSON: Sorry, where you can
20 what? You want to get them yourself?

21 MS. MACLELLAN: Yes.

22 THE CHAIRPERSON: Well, I can relay that
23 question to the CBDC. That's up to you and perhaps, in
24 fact, that's something that you should speak with --
25 well, do you have any trouble doing that?

1 MR. BUCHANAN: We can provide the name and
2 address to address the request to.

3 MS. MACLELLAN: Fine, thank you. I will
4 talk to you after the questioning. The other question I
5 have is the potential for the VJ site to be -- the
6 ownership turned to Sydney Tar Ponds Agency. If the
7 residents of indeed Grand Lake and New Waterford and
8 Lingan and River Ryan, etc., etc. called a mass meeting
9 and asked DEVCO not to turn that ownership over, what
10 would you do?

11 MR. BUCHANAN: Well, it's -- it would be
12 up to the corporation to consider what requests came
13 forward. I don't have a position in regard to that at
14 this time. It would have to be considered. Anything
15 that comes in to the corporation has to be considered by
16 them and responded to.

17 MS. MACLELLAN: So if we call such a
18 meeting would you send a representative, at least to the
19 meeting?

20 MR. BUCHANAN: I'd need to know more about
21 it before I'd agree to have any representative
22 participate.

23 MS. MACLELLAN: My other question is
24 regarding the Phalen site. And why it hasn't been
25 assessed. Is there a possibility that Phalen site will

1 be -- the ownership turned over to the new corporation
2 that's taking ahold of the Donkin mine because they
3 expressed interest in possibly using some other old mine
4 sites to reopen them. And is that why you haven't
5 considered -- they haven't considered or you can't answer
6 those questions the Panel asked about the Phalen site?

7 THE CHAIRPERSON: I think to clarify, my
8 understanding from the questions that I asked CBDC, they
9 have indicated that they have not received -- they've not
10 had any indication from the Tar Ponds Agency of interest
11 in that property. Is that right or am I not -- the
12 Phalen property?

13 MR. BUCHANAN: That's correct. We -- the
14 letter that I referred to from the Tar Ponds Agency
15 expressing an interest was specific to the VJ site.
16 There was no reference. I did also indicate that
17 information regarding the conditions on the Phalen site,
18 I believe have also been provided to the Tar Ponds Agency
19 but specific to the letter there was no reference to any
20 site other than the VJ site.

21 THE CHAIRPERSON: With reference to Ms.
22 MacLellan's question, though, are there some other --
23 have you received some other expressions of interest in
24 use of that site that you're also concurrently -- or
25 sorry, Phalen site that you are maybe considering in the

1 future.

2 MR. BUCHANAN: I do know that other
3 parties have looked at the Phalen site. But there's --
4 that's the extent of it. There's parties have looked at
5 many of our sites.

6 THE CHAIRPERSON: Okay, thank you. One
7 more question.

8 MS. MACLELLAN: One more question and
9 that's regarding the Mullins Coal Bank, are you planning
10 to remediate the Mullins Coal Bank before it's turned
11 over to -- or if it is turned over to the Tar Ponds
12 Agency beforehand. We did some tests on the water there
13 and they're pretty bad. The leachate from that bank. In
14 fact, I've provided the testing to the Panel.

15 MR. BUCHANAN: There's no plan that we
16 have currently for remediation activity on the Mullins
17 Bank.

18 MS. MACLELLAN: I think the Panel -- when
19 I asked the Panel to give consideration to what happens
20 to the Mullins Coal Bank, specifically since it's not in
21 the mandate but it impacts on the Tar -- Coke Oven site.
22 Before ownership is assumed by the Tar Ponds Agency
23 shouldn't it be cleaned up?

24 THE CHAIRPERSON: Thank you, Ms.
25 MacLellan. Is there anybody who is not a registered

1 presenter who has a question before we break? I don't
2 see anyone so Mr. MacDonald, Mr. Buchanan, thank you very
3 much for your presentation and for answering questions,
4 our questions and others questions. We will now take a
5 break and we will resume at 6:00. Thank you.

6 MR. BUCHANAN: Thank you, Madam Chair.

7
8 --- Upon recessing at 4:28 p.m.

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1 --- Upon resuming at 6:02 p.m.

2 THE CHAIRPERSON: Well, good evening,
3 ladies and gentlemen. I'd like to resume the evening
4 session of the Environmental Assessment Hearing. We have
5 two presenters this evening, we have the Cement
6 Association of Canada seated already at the table, and we
7 also have the Portland Cement Association.

8 Because of the connection between the two
9 presentations, the fact they're addressing very similar
10 issues, we've decided that in fact we will have the
11 presentations back-to-back, we will then take a break and
12 then when we come back we can begin questioning of both
13 parties. I guess we'll have to fit you all in on the
14 table at that point.

15 So, right now -- so as each association
16 has 40 minutes maximum for their presentation, I'm going
17 to make that an 80-minute allotment, because I understand
18 one might be a little shorter and one might be a little
19 longer.

20 I will -- unless you want me to give an
21 indication towards the end of the first 40 minutes, I
22 will basically let you use that 80 minutes and indicate
23 as you come towards the end of the 80 minutes five
24 minutes before that.

25 Sorry, that seems like a rather

1 complicated way of putting it but I'm sure you understand
2 what I'm trying to say. So, we welcome you and look
3 forward to your presentation.

4 --- PRESENTATION BY THE CEMENT ASSOCIATION OF CANADA
5 (MR. COLIN DICKSON)

6 MR. DICKSON: Thank you, Madam Chair. My
7 name is Colin Dickson and I'm with the Cement Association
8 of Canada, the director of business development here in
9 the Atlantic Region. I'd like to firstly introduce the
10 folks to my left.

11 Mr. Wayne Adaska, to my immediate left,
12 will be making the presentation on behalf of the Cement
13 Association of Canada. He's the -- he's responsible for
14 public works with respect to solidification and
15 stabilization and other technologies on the public works
16 side. And to his immediate left is Mr. Chuck Wilk, and
17 he's the program manager responsible for waste treatment
18 at the Portland Cement Association.

19 So, Mr. Adaska will be making the Cement
20 Association of Canada's presentation on behalf of Mr.
21 Conner, and Mr. Wilk will be making the Portland Cement
22 Association's presentation.

23 Just our little bit of housekeeping
24 business, Madam Chair. Mr. Conner, unfortunately, who
25 was scheduled to make a presentation this evening, is

1 ill, he's at the Delta Hotel and he sends his regrets,
2 and we've entered into record his text on solidification
3 and stabilization, a 700-plus page document written in
4 1990, and we had invited Mr. Conner to present as he is
5 an authority on the subject.

6 So, I hope you enjoy his presentation, and
7 we'll endeavour to respond to questions related to this
8 presentation. If we can't, Mr. Conner will in writing
9 respond to those questions.

10 So, just a brief piece of information on
11 the Cement Association of Canada. We're a not-for-profit
12 organization. We're not a vendor and we don't have a
13 financial interest in the Sydney Tar Ponds/Coke Ovens
14 Site project. We represent approximately a hundred
15 percent of all the cement producers in Canada.

16 We regularly provide technical support to
17 clients and owners of projects similar to the Sydney Tar
18 Ponds Project, and when they're interested in technology
19 similar to solidification and stabilization we respond by
20 providing technical documentation and providing
21 presentations, introducing them to folks who have had a
22 similar experience or, in fact, contractors and engineers
23 who are experts in the field.

24 Also a role of the Cement Association of
25 Canada is to work with the universities and the community

1 colleges to educate the youth on this technology and
2 other technologies related to cement. And lastly, and
3 important to this project, we regularly work with
4 governments on large scale projects.

5 So, in the presentations this evening Mr.
6 Adaska will discuss the science and engineering behind
7 solidification and stabilization technology and Mr. Wilk
8 will present projects of a similar nature to the Sydney
9 Tar Ponds project. We note that these two particular
10 issues have been of interest in the Panel hearings to
11 date and we believe these presentations will respond to
12 those issues.

13 Thank you very much, and we look forward
14 to your questions following these presentations.

15 --- PRESENTATION BY THE CEMENT ASSOCIATION OF CANADA (MR.
16 WAYNE ADASKA)

17 MR. ADASKA: Good evening, Madam Chair,
18 distinguished Members of the Panel. I appreciate the
19 opportunity to present this information to you this
20 evening. As Mr. Dickson said, Mr. Conner is not
21 available. I will take the role of making that
22 presentation.

23 A little about my background. I am a
24 professional engineer with the Portland Cement
25 Association. I've been with the Association for 28 years

1 and prior to that I was a geotechnical engineer for two
2 consulting firms, so a little there.

3 The information I'm going to present is
4 basically information on the basics of solidification and
5 stabilization with some of the chemicals and engineering
6 properties, and again as Mr. Dickson said, Mr. Wilk will
7 follow up with particular information on projects.

8 What we'd like to address this evening in
9 the presentation is several items. First off, what is
10 solidification and stabilization, how is solidification
11 and stabilization designed and implemented, when and
12 where has SS been employed, and, finally, why is SS a
13 viable solution for the Sydney Tar Ponds Project.

14 The first thing I'd like to do is to
15 define some the terms we'll be using this evening. The
16 first one is "stabilization." Stabilization is defined
17 as reducing the hazardous potential of the hazardous
18 waste by converting the contaminants into a less soluble
19 form, meaning it chemically stabilizes the material.

20 Solidification is the area where we talk
21 about taking and covering sludges and liquids and other
22 types of media into a physical -- non-stable hazardous
23 waste into the stable situation. So, in other words,
24 we're talking about a mass or some sort of a friable
25 material that is more solidified, not a liquid but a

1 solidified material.

2 What is solidification and stabilization?

3 It basically involves the mixing of Portland cement into
4 the contaminated media, such a soil, sludges, liquids.

5 The treatment is done to protect, of course, human
6 environment. We're looking at these hazardous
7 constituents to be treated.

8 Cement, of course, is one of the most
9 widely used materials for this and can treat a variety of
10 wastes. It is an established treatment technology, and
11 that's very important because there are a lot of
12 technologies that have been developed.

13 This particular technology of
14 solidification and stabilization has been around in the
15 industry for over 50 years with the nuclear industry and
16 over 35, as I'll point out, with some of the commercial
17 work. So, it is an established technology.

18 It has been selected by the United States
19 Environmental Protection Agency for 24 percent of the
20 Superfund sites, and Mr. Wilk will go into detail as to
21 that application and how it's used for the Superfund
22 sites. Again, it's a proven technology.

23 One of the areas in the US is something
24 known as brownfields where we remediate industrial sites
25 and make them usable for industrial use, and we will show

1 where at a particular brownfield site this application
2 has been used quite successfully. And because it's a
3 non-proprietary application in the case of cement, it is
4 a cost-effective way of treating these types of
5 materials.

6 This pie chart was developed by the
7 Environmental Protection Agency and it basically will
8 give you information on the applications on Superfund
9 sites, the different types of remediation techniques that
10 have been used. I will briefly discuss this item, but
11 again Mr. Wilk in his presentation will talk in more
12 detail about these particular remediation projects as far
13 as where SS has been used.

14 But just briefly on material ex-situ,
15 which is a type of treatment where you mix the material
16 and then you mix it not in place but basically mix it and
17 move it through a pug mill of some sort and then either
18 dispose of it on site or off site.

19 That is one way, and we'll discuss the
20 definition of that in a bit, but in that case we have
21 about 18 percent of the cement -- or solidification and
22 stabilization is used for that type of technology.

23 In-situ, which we will be talking about a
24 great deal, is use of this material where it's mixed in
25 place, and again we're looking at about six percent of

1 the Superfund sites for that type of application.

2 Okay. I want to briefly go over some of
3 the basics with regards to cement and concrete, how we
4 relate that to the solidification and stabilization
5 aspect.

6 Of course, in concrete what we have in our
7 raw materials are the cement, water, fine aggregate and
8 coarse aggregate. The water and the cement, of course,
9 are the glue that holds these materials together.
10 Depending on the mix design will depend on the type of
11 properties you get from your concrete.

12 In solidification and stabilization waste
13 what we have is a very similar type of approach but what
14 we're doing here is we're mixing the water and the cement
15 with a contaminated sediment. What we're doing here is
16 making sure that the binder converts that material into
17 somewhat of a relatively immobile type of a species. In
18 a sense it encapsulates the material and makes the
19 material less viable to any type of waste streams. It's
20 a physical change as well as a chemical change.

21 Some of the basics of SS of cement -- or
22 solidification and stabilization, is there are a
23 multitude of reagents that can be used in this process,
24 cement being one of them. But as you can see, there is a
25 number of different types of reagents that can be used

1 and each one is dependent upon the uniqueness of the
2 project.

3 You will do bench sketch, as we will talk
4 about, to determine that optimum mix for your particular
5 site. Why use cement, however? And this is a case where
6 cement has been found to be the most widely used type of
7 material only because of the fact it can relate to a lot
8 of different contaminants.

9 So, we have an opportunity here to look at
10 a particular reagent that may be used for a wide variety
11 of materials, but again the process, the mix design, is
12 definitely dependent upon your waste constituents and
13 what you have and what your final results want to be.

14 But basically the solidification and
15 stabilization process ties up the water, it supplies the
16 alkali for pH control for your heavy metals, it forms a
17 low-soluble metal species and the matrix is -- end result
18 is durable, long-performance type material.

19 One of the things to keep in mind is it's
20 readily available. One thing we want to be careful about
21 is we want to make that it's an available material, a
22 reagent is a process that can be used by everyone, and
23 that's something that we have here, is something that is
24 used by everyone.

25 Okay. As far as the constituents that the

1 SS treats, what we have is two types we're looking at.
2 One is inorganic, and what we have here is we can make
3 the inorganic, which would be the metals in many cases --
4 we can form a stabilization, we make them less soluble,
5 we actually encapsulate them as well, and the final
6 property that we achieve is a hydraulic conductivity,
7 lowering the hydraulic conductivity of that stabilized
8 waste.

9 On the organic side what we are looking at
10 is principally to physically bond the material,
11 encapsulate the material, again looking at lowering the
12 hydraulic conductivity or permeability of that stabilized
13 material -- waste.

14 Looking at the mechanisms, when we look at
15 the inorganics, the metals, what we're looking at here is
16 looking at controlling the pH to minimize the solubility
17 of that waste, the metals, the leads, arsenic and so on,
18 the reactions become less soluble in form and, therefore,
19 become less toxic.

20 We also control the oxidation reduction
21 potential of those wastes, the materials are absorbed
22 into the binder surface, become less soluble, less mobile
23 within that system. The coating of the cement and paste
24 will coat the waste particles, reduce the water
25 infiltration to the waste so the water cannot react with

1 the waste material. And, finally, as we keep speaking,
2 it solidifies and causes the material to have a lower
3 permeability.

4 On the organic side what we find is there
5 are species where the cement can actually have some
6 chemical reaction that will cause a chemical
7 stabilization, and in those cases we're looking at
8 certain processes, hydrolysis, oxidation reduction.
9 These are some of the areas that some of the organics may
10 be stabilized, but in most cases of organics we're
11 looking at physical processes such as encapsulation for
12 our organics.

13 This table was developed by the
14 Environmental Protection Agency in 1993 and again
15 pointing out that we're looking at various types of waste
16 streams that can be effectively stabilized with cement
17 and in the stabilization process with other types of
18 reagents. So, we're looking at organics as well as
19 inorganics.

20 In summary, what we want to look at in
21 this area, just to briefly go over what the stabilization
22 system can provide, is it's a relatively low cost, being
23 an established technology, this has been used quite
24 widely throughout the US as well as Canada and all over
25 the world, it provides good long-term stability, as will

1 be pointed out by Mr. Wilk with some of the examples he
2 gives.

3 We have entered into the record a number
4 of documented cases where this has been used. It has the
5 ability to treat hazardous waste, incinerator waste,
6 other types of waste as part of the waste stream. We
7 also have increases as far as the volume of increase on
8 the waste itself so that putting cement in you will or
9 will not -- there might be an increase in the material
10 with the weight -- or with the additive.

11 We look at it is resistant to
12 biodegradation, it has a low water-solubility, so low
13 permeability, and also we'll talk a little bit about
14 those physical characteristics and how they will be
15 enhanced by the use of stabilization.

16 We go to the implementation, we look at
17 several things in this process. First of all we want to
18 look at treatability studies, what we will do as far as
19 developing the mix design. We have engineering design
20 which we want to -- which has to be done on a project to
21 ensure that we get the right mix design, right testing
22 during construction, and then finally we have the actual
23 construction of the project.

24 This gives you an idea of just some of the
25 basic tests that you would do in a bench scale study,

1 looking at the materials, mixing the materials, taking
2 tests, getting the samples ready for testing. These are
3 all standardized test procedures that are done during
4 bench scale and during mix design processes.

5 As far as the types of tests that you
6 would run, we usually look at two types, the chemical or
7 leachability tests and also the physical tests that are
8 run on the particular waste, stabilized waste. And here
9 I want to just go over briefly what the definitions of
10 some of these terms we will be referring to are.

11 Leaching is the removal of soluble
12 constituents from the waste by contact with liquid,
13 especially rain, surface or ground water. This process
14 is called leaching, the water is the leachant and the
15 contaminated water that has been contacted with the waste
16 is the leachate. The capacity, of course, of the waste
17 to leach is called the leachability.

18 And leachability is measured by exposing
19 the waste to a leachant and then how it simulates itself
20 to the disposal of the material, and also the tests that
21 are run are standardized materials under controlled
22 conditions that are used to simulate or look at what
23 would happen over a long-term situation. So, we're
24 trying to make some sort of an evaluation of the waste
25 and the stabilized waste over a long term based on these

1 tests.

2 There are a number of tests that are used
3 for the leaching. The tests that might be used during
4 construction or during the design stage would be the
5 extraction test -- just a few of them are listed here --
6 the synthetic precipitation leaching procedure, the SPLP,
7 is one such test, the toxicity characteristic leaching
8 procedure, TCLP, which is used down in the United States,
9 is another type of test, and again still another is a
10 multiple extraction procedure.

11 These tests can be run during the design
12 stage and also during the construction stage to monitor
13 the material and see if it's being properly treated.

14 Another type of testing is more of a
15 modelling testing and these types of tests again are
16 standardized tests that are listed here. So, we do have
17 two types of tests. One might be more towards the
18 control and the other might be more towards modelling
19 your studies and seeing how a long-term effect might be,
20 and it depends on the design which ones you would be
21 running.

22 As far as the test procedures, this gives
23 you a schematic of some of the testing that would be done
24 in this area. Basically it's taking the material, mixing
25 it and putting the leachant through there and then

1 testing whatever leachate comes out of the test.

2 Some of the equipment, just to show you
3 what it looks like. These are all standardized equipment
4 that is being used for the standardized test procedures.

5 Okay. The second phase of the testing
6 might be in the area of physical testing, what type of
7 physical tests we might be running on this material to
8 show its competency, and some of those tests might
9 include the hydraulic conductivity, the permeability of
10 the material, unconfined compressive strength.

11 We have tests for freeze/thaw, wet/dry
12 durability, if that be the case, if the engineer wants to
13 test that those are available. The paint filter test
14 which tests for free liquids and during the field testing
15 we might look at also moisture content and density of the
16 material.

17 So, these are all tests -- just a number
18 of tests that you might test for your contaminants so
19 that you have a good quality control of the material as
20 it's being produced.

21 Again just briefly to look at some of the
22 testing equipment, all standardized equipment. These are
23 tests that have been done before under standardized
24 conditions.

25 Okay. What about long-term durability?

1 This is a question that comes up and it's something that
2 needs to be addressed. There are a number of ways we
3 evaluate the long-term durability, one of which is to
4 look at the actual performance and experience on actual
5 sites, and Mr. Wilk will address that in his presentation
6 with regards to one such case where we have some long-
7 term durability.

8 It is an established technology, we have a
9 number of examples in the record that show the evidence
10 of its use. Physical testing, again we're looking at
11 things like compressive strength test, permeability test.
12 Those types of tests can be used to evaluate whether the
13 integrity of the material is still in place.

14 The mathematical modelling, this had to do
15 with some of the tests I mentioned earlier on the
16 leaching tests. And the structural determination, some
17 of the things we can actually look at, if necessary, from
18 a concrete perspective where we actually look at some
19 microscopic look at the material, and if that be the case
20 we can actually go into that phase of testing.

21 Again to repeat, this is a long
22 experience, this is an established technology with 35
23 years of experience in the industrial world and 50 years
24 of experience in treating nuclear waste. So, we are
25 looking at an established technology with standards in

1 which we can control the use and application.

2 Again repeating, some of the physical
3 tests we would look at is the unconfined compressive
4 strength test, hydraulic conductivity, permeability and
5 in cases if the engineer wishes he can actually look at
6 freeze/thaw, wet/dry tests as well.

7 As far as mathematical modelling goes, one
8 of the things that we're looking at is some of the
9 standardized tests that can be used to look to the future
10 and make some predictions as to what we would expect in
11 forms of future leaching of the material.

12 And some of the models that are listed
13 there are the sourced term model and the remedial options
14 assessment modelling, and in that last one Mr. Wilk again
15 -- I defer to him. He has a particular publication he'll
16 refer to in his presentation that will look at that as
17 far as modelling goes. So, I will defer that to Mr.
18 Wilk's presentation.

19 Under durability we're looking at the
20 ability to test our material in a more microscopic
21 structure where we're looking at microscopy or scanning
22 electron microscopy, something of the nature that we
23 might use with concrete, and if that be the case we can
24 actually evaluate our waste, stabilized waste with these
25 types of tests.

1 This gives you an idea of what we're
2 looking at as far as mixing goes. This would be
3 considered an ex-situ type of application, both of them,
4 and what I mean by "ex-situ" -- now, I'll go a little bit
5 over that -- is basically taking the waste stream,
6 placing it through a pug mill or some sort of a mixing
7 chamber, mixing device, and in this case it's placed, and
8 actually placed after it's been solidified, into a
9 disposal area either on site or it could be shipped and
10 taken off site. So, this would be an ex-situ type
11 operation.

12 The same with this one over here, which is
13 a schematic of a pug mill type of mixing where material
14 is placed into a pug mill and then mixed. And so these
15 are types of ex-situ type applications.

16 Here's a good example of both types of
17 applications, and what we have here is in terms of ex-
18 situ where we -- and this is a site in Massachusetts
19 where we took our waste, we put it through a portable pug
20 mill, treated the waste, it then had a holding period and
21 then that waste, once it was treated, was then used as a
22 base material for pavement. So, we actually used it but
23 it was ex-situ because it was used within the system, and
24 basically we used -- conveyors are used to do this type
25 of work.

1 In-situ is basically using the material
2 but it's in place, so the mixing and all is in place and
3 the material, the contaminated material, the treated
4 material, is then left in place, so there is no movement
5 of that material.

6 With in-situ stabilization there's no
7 excavation required, the original use -- originally used
8 for liquid pits, this type of material is not critical.
9 You can control a lot of the vapours that are emitted
10 very easily with the in-situ stabilization technique.

11 The techniques are proven and the auger --
12 some of the systems that have been actually developed can
13 go as far as 25 metres. As I mentioned, the fugitive
14 emissions can be controlled in this type of process very
15 easily.

16 This gives you an idea of some of the
17 methods that have been used as far as equipment for
18 mixing this, and I'll just point out a few here. Mr.
19 Wilk again in his presentation will discuss this in more
20 detail. But we have augers, we have a rotary -- rototill
21 type operation, jetting into the waste material, so
22 there's a whole assortment of machinery out there that
23 can do this very -- this type of work.

24 As far as labour goes, what we expect to
25 see on a project is that we'd have environmental

1 engineers preparing the testing, optimizing the mix
2 design, materials engineers doing that type of work,
3 civil engineers laying the material out, obviously
4 geotechnical engineers checking out the physical
5 properties of the material.

6 From the contractors' perspective, we will
7 have many contractors that are equipped to do this. As
8 far as that goes, it's a generally equipment-oriented
9 type operation. You will have QC/QA people out there
10 doing the testing during construction as well.

11 I'd like to finish on one project, and
12 this is something that has related to the Sydney Tar
13 Ponds Project. It's a project, Pepper Steel Mill and
14 Allied Company, in Medley, Florida. It was constructed
15 in 1998, treated in 1998. The site is a contaminated
16 soil that extends to the Biscayne Aquifer, a very -- this
17 is a drinking water aquifer for the community in
18 southeastern Florida. The contaminant levels are, with
19 PCBs, up to 116 parts per million, lead up to 17,000
20 parts per million and arsenic up to 76 parts per million.

21 This shows you the location of this
22 project, and as you can see by the photo here you have an
23 aquifer and you have a layer of soil, contaminated soil,
24 and then the aquifer. So, this was a very crucial area
25 that they needed to stabilize.

1 The project consisted of excavating the
2 contaminated soil, treating it and then returning it to
3 the excavated area as a structural fill. The material,
4 as I mentioned, is contaminated with heavy metals and
5 PCBs, the quantity of waste treated was 85,000 cubic
6 yards and the depth was from two to eight feet, and
7 cement based SS was used on this project.

8 This would be an example of ex-situ
9 operation where the material was excavated from the
10 location, placed in a mixing area where the cement was
11 added and then in this case it was more of a fluid type
12 material that was brought back to the excavated area and
13 placed back into the area.

14 And these are test results. These results
15 are in the record. Basically what we have is materials
16 that, once we did the testing according to this
17 particular requirement, that the EP toxicity test was
18 below detectible limits and that the leach test or leach
19 index was greater than 14. In this case the higher the
20 number the more beneficial the treatment, and again this
21 would mean that it was non-detectible. The physical
22 properties were specified at 50 psi and, in fact,
23 received 700 psi.

24 And let me just stop here to mention in
25 terms of relative terms the 50 psi is something -- 50 to

1 100 psi is something you could probably dig with a
2 shovel, if you need some relative terms as to how to
3 identify this, because we're always interested in
4 concrete and concrete is 3,000, 20 MPA, something of that
5 order.

6 So, we're talking about something that is
7 less than one MPA to actually be able to dig. Somewhere
8 between 100 and maybe 250 psi you can probably get in
9 there with a backhoe and dig it.

10 When you get above 300 psi it gets much
11 more difficult, you might need some sort of a jackhammer
12 or something else to get through it. So that just gives
13 you a relative term of what kind of a consistency those
14 type of straints would evaluate to.

15 And once it was placed, this is what it
16 looks like at the end. Basically we have a site that is
17 relatively clean. It has no detectable limits of PCBs or
18 lead, and it has straints that can be used quite
19 adequately for a base material or a foundation.

20 These are the references that we've --
21 just some of the references we've put on the record. It
22 gives you an idea of what type of materials that you have
23 available to you to look at.

24 Again, these have a whole assortment of
25 different types of treatments. We see here organic waste

1 being treated. Some of the things that we have, and
2 again, this is something if you're looking at this, you
3 see water in some of the other areas that we have, that
4 we have not addressed here in this presentation, but we
5 have materials available to address those issues.

6 And with that, I will turn this over to
7 Mr. Wilk, and let him ---

8 --- PRESENTATION BY THE PORTLAND CEMENT ASSOCIATION (MR.
9 CHARLES WILK)

10 MR. WILK: Madam Chair and distinguished
11 panel members, I'd like to thank you for the opportunity
12 to present to you some information on solidification and
13 stabilization.

14 My name is Charles Wilk, I'm with the
15 Portland Cement Association, again a non-profit industry
16 association. What we do for the industry is to provide
17 technical information on a variety of cement uses. My
18 specialty is in the use of cement for waste management
19 applications.

20 And I mentioned technical assistance.
21 What PCA does is provide opportunities for touring active
22 sites. We do seminars on the use of cement in waste
23 applications. We even have worked on technology transfer
24 with the UK Government on the use of solidification and
25 stabilization.

1 We've also reviewed and contributed to
2 publications, US Environmental Protection Agency
3 publications, on the subject of solidification and
4 stabilization.

5 I'm here today to present information on
6 projects. This is actually a good publication to take a
7 review at. We entered it into the docket earlier on the
8 hearing. It's a publication that EPA published in 2004.
9 It's an accounting of treatment technologies and a
10 selection rate for different treatment technologies for
11 different kinds of projects within the Superfund
12 programme.

13 Mr. Adaska had presented information about
14 this pie chart earlier, and we can see the selection
15 rate. Now, these are selection rates for projects where
16 the source of contamination have been addressed at
17 Superfund sites. So these are taking care of where
18 contamination is coming from at a site, and you can see
19 the combined -- the selection rate here for
20 solidification and stabilization, both in ex situ and in
21 situ is 24 percent.

22 This is actually a better and perhaps more
23 illustrative pie chart of that. You can see here on the
24 left solidification and stabilization, and some of the
25 other established treatment technologies that we've heard

1 about, including incineration.

2 On the right side, the 20 percent selected
3 pie slice, are the technologies that EPA considers to be
4 innovative technologies, and half of those sites are made
5 up by bio-remediation, and a 5 percent slice made up of
6 the other technologies that are used to control these
7 sorts of contamination. So again, solidification and
8 stabilization is an established treatment technology and
9 with quite a few projects under -- that have been
10 successfully completed.

11 This is, I'm sure, very difficult for
12 everyone to see, and perhaps the best way to see this is
13 to later refer to what we presented into the docket, but
14 what I wanted to point out here is this is a number --
15 these are actually groups of hazardous contaminants that
16 have been treated using the variety of technologies, and
17 solidification and stabilization has been used, it's the
18 second one here, for really all of those. And that's
19 actually a testament to the versatility of the treatment
20 technology for different -- for sites.

21 Usually at a Superfund site, you're going
22 to come across more than just one kind of contaminate,
23 and the reason why S/S is selected so often is that it
24 can treat this wide variety of hazardous constituents.

25 This, again I apologise, but we didn't

1 want to change the tables as they were actually published
2 by the US Environmental Protection Agency, but here is
3 the area where we look at in situ and in solidification
4 and stabilization.

5 You can see some of the average sizes of
6 sites that have been done. The average size of the
7 solidification and stabilization site in situ is almost
8 100,000 cubic yards, and the largest one is almost
9 2,000,000 cubic yards. So again, it's taken on projects
10 of a similar scale as here at Sydney.

11 In preparation for this presentation, what
12 we tried to do is pull out example projects that again
13 have similar conditions as we find here in Sydney, and I
14 think you have to bear in mind that every remediation
15 project is unique.

16 Each project that I've seen requires the
17 use -- the development of mixed designs that are specific
18 to the contaminates that are there, the contaminated
19 media that are there, the environmental conditions for
20 the disposal area of where the final treated material
21 will come to rest, the marine environments, and also I
22 was interested in pulling out projects where there was
23 in-situ treatment conducted at the site.

24 So the first one I want to present is the
25 site that occurred in Whiting, Indiana. Now, this is a

1 closure of a refinery sludge basin, and if you want to
2 read more about this project there's two papers that we
3 submitted into the record that describe this project in
4 greater detail.

5 So a little bit about the sludge basin.
6 It was the collection and settling basin for a refinery,
7 storm water and oily sludge. The area was 2.4 hectares.
8 The amount of material that was treated was over 80,000
9 cubic meters.

10 We had -- we keep saying "we". We're not
11 contractors. The contractor solidified over 3 meters of
12 oily sludge in depth that had a fluid over it of 1 to 2
13 meters in depth. The hazardous contaminants or hazardous
14 constituents at this site included heavy metals, which
15 include arsenic and lead, a number of different organic
16 compounds including volatiles, and semi-volatiles, and
17 very interesting that the oil and grease concentration of
18 these oily sludges were, on average, 12 percent.

19 So here again we see this photo, I can
20 describe to you the actual closure of the site. We have
21 here -- this is Lake Michigan. This is the actual -- the
22 basin was encompassed here.

23 The basin was surrounded by a cement
24 bentonite wall. In the area by the lake we actually see
25 a parallel row of sheet piling, and in between that

1 parallel row is insulation of cement bentonite grout.

2 And we see this train standing there, and
3 it's actually treating the contaminated sludge while the
4 sludge remains in place.

5 Now, this was an interesting schematic on
6 how that is done. We have here the business end of this
7 device is an auger system that has a jet on it which has
8 the ability to push cement grout into the contaminated
9 media that's being treated. So you have mixing devices
10 on this side. On this side of the schematic what we see
11 are air pollution control devices that are used to
12 capture any fugitive dust or volatiles that result from
13 the actual mixing of the -- in place of the material.

14 Well, how do they make sure that they
15 treat the entire mass? They use an overlapping pattern
16 of borings to make sure they do complete treatment.

17 Now, this is actually a closure of a
18 hazardous waste management unit under the US EPA
19 regulation of the Research Conservation & Recovery Act.
20 So that -- those regulations actually require a period of
21 post-closure monitoring.

22 This is a good photograph to actually show
23 you what some of the conditions are for treatment. So
24 this is untreated material, and the crane is standing on
25 treated material, and the hood is actually lifted here to

1 be able to expose the auger to view of the camera.

2 So the treatment performance standards at
3 this site were set at 35 psi. For an understanding of
4 what psi is, that's pounds per square inch, that's as if
5 you took a 1-inch cube and set a 35-lb weight on that
6 cube, and if it can support that weight then you have at
7 least 35 psi of compressive strength. And that converts
8 to the metric of 240 kPa.

9 Now, at this site, the standard was set at
10 35, and you can see that after the confirmatory tests or
11 after the treatment, they exceeded those, that
12 performance standard.

13 And this is the grading of the capped
14 material after it's been solidified and there's going to
15 be a cap placed on top of this area.

16 I mentioned post-closure monitoring. In
17 this case, the closure was completed in 1992.
18 Groundwater monitoring has been going on for 14 years.
19 That monitoring includes groundwater sampling, but also
20 taking a look at the capped material and the sheet pile
21 and cement bentonite wall to make sure that it continues
22 to perform.

23 Now, that is undertaken by the owner of
24 the facility, but the oversight is from the Indiana
25 Department of Environmental Management, and they report

1 no known issues on the post closure so far.

2 Some of the benefits of doing the work in
3 situ. Well, the biggest benefit, first of all, it's
4 protective of human health and the environment. Under US
5 EPA regulations, a generator of a waste is always
6 responsible for that waste, whether it remains on his
7 property or is taken off site, so he continues to have
8 liability. So many generators prefer to keep hold of
9 their waste and manage it on site.

10 In-place closure minimizes the risk to
11 workers there doing the closure, and also the community,
12 because you can imagine trucking over 80,000 cubic meters
13 of material through a neighbourhood and then having to
14 replace it with new fill. This minimizes the hazards
15 from that.

16 Also, in place closure can often times be
17 less expensive than off-site disposal. In this
18 particular case, off-site disposal was \$40 million, and
19 in place was \$9 million, and the S/S treatment portion of
20 that came out to be \$46 US per cubic meter.

21 This is an interesting site in that it's
22 treating marine sediments. The NY/NJ Harbour system is
23 continually silting in. To maintain the economic engine
24 of that port the harbour needs to be drudged to allow
25 ocean-going vessels. So what happens at the site, we can

1 no longer ocean dispose of these sediments because of the
2 contamination that exists in them.

3 You can see this is actually treatment
4 occurring inside this barge, and so the cement is being
5 mixed into the material in the barge by an in-situ
6 blender, and I'll show you the business end of that piece
7 of equipment. We're looking at marine sediments, 8
8 percent addition of portland cement is what's typically
9 used on this to form an engineered fill.

10 Now, an engineered fill is actually used
11 in upland locations in order to be able to reuse brown-
12 filled property and rehabilitate those. And actually,
13 there's millions of cubic meters that are treated in this
14 fashion from the New York/New Jersey Harbour system.

15 So this is the business end of that kind
16 of mixing equipment, and here we can see it's actually
17 being used inside the barge where the material is being
18 treated.

19 So what you have here is something that
20 looks like a rototiller on the end of an excavator stick.
21 It's actually the adaption of a stump grinder. So that
22 head turns, and if you look closely there's actually a
23 jet of cement grout being streamed in right here.

24 So the operator moves that through the
25 material. This material has actually already been mixed.

1 You can see it's starting to harden, and as it cures it
2 hardens to a state where that material can be excavated
3 from the barge and then reused at different locations.

4 One location where treated sediment has
5 been used in the area is to create this Links Golf Course
6 in Bayonne. You know, golfers want to golf, and they'll
7 golf on anything. So, in this case, they're golfing on
8 material that has been treated and set up.

9 This is another interesting site in that
10 it has contaminates close to what we see -- what we're
11 seeing here. This is the Columbus Georgia site. This is
12 historic photograph of a manufactured gas plant.

13 What a manufactured gas plant is, is
14 before the advent of distribution of natural gas,
15 localities would produce their own gas from heating coal,
16 and in that process they'd heat the coal in the absence
17 of oxygen, they'd drive off a gas which became known as
18 town gas, and that was used for light and cooking.

19 In that process, you'd also create this
20 material called coal tar. Now, coal tar is just a real
21 collection of polycyclic aromatic hydrocarbons, and they
22 weren't necessarily managed in the best way possible for
23 the time.

24 So this is actually along the
25 Chattahoochee River in Columbus, Georgia, and this area

1 was actually remediated. Now, let's see what that looks
2 like today. This is actually a park that's built on the
3 site, on the treated material, and it's part of the river
4 walk for the city.

5 And how did we get there. Well, let's
6 see, we used -- not we, the contractor used in-situ
7 treatment to treat the material. The hazardous
8 constituents were coal tar, as it's adjacent to a body of
9 water, and it was reused as a park.

10 This is a schematic that actually we took
11 from a public presentation that was made by Georgia
12 Power, which was the owner of this property.

13 What we have here is you can see a
14 schematic of the solidification in the material. They
15 actually use the contaminated soil to form a containment
16 wall around the site by an addition of 25 percent
17 portland cement. So that's a richer blend of cement to
18 create more of a structural-type wall. And on the
19 interior or the upland side of this was -- 10 percent
20 cement addition was added, and as we've seen before,
21 using an auger system, overlapping patterns, complete
22 treatment of the mass.

23 So these are photographs of the actual
24 construction phase of the site. This is an interesting
25 photograph in that you can see this is the 25 percent

1 portland cement columns, very structurally sound, and I
2 think you need to look at these sites, and point out
3 there are engineering controls that are used to take care
4 of the unique aspects of any kind of site. In this case,
5 there's actually booms here in the river to prevent
6 releases of any contaminates into the river while the
7 construction was going on.

8 This is a nice photograph to give you an
9 idea of the relative scale of an auger standing, you can
10 see the river in the background. This site is quite
11 interesting in that there was a long-term study that was
12 conducted on the site, going back and excavating material
13 from the site after 10 years of installation, to get an
14 idea of what that -- how that remedy is performing.

15 We've entered this, we've entered the
16 report of this. We've actually given you an original
17 copy of the printed report from the Electric Power
18 Research Institute.

19 So this is some slides that were developed
20 by Emilia that she presented at an Air and Waste
21 Management Association meeting.

22 Some of the advantages of using in-situ
23 solidification, we've gone over this before, the
24 treatment of contaminant in place, minimization of
25 occupational hazards and vapour exposure, cost savings,

1 and the goal is really to prevent the leaching of
2 contaminants, in this case leaching of contaminants into
3 the groundwater at the site.

4 Here's a photograph again of the completed
5 area, completed project. As I mentioned, this was a
6 study that was taken on after 10 years of -- since the
7 material was treated. They investigated the structural
8 integrity of the mass, the immobilization of the
9 hazardous constituents within the mass, and used
10 modelling to predict the future effectiveness, as far as
11 protection of human health and the environment as a
12 result of this treatment.

13 And this is the approach they took. They
14 took samples actually out of the treated material, and
15 they subjected those samples to a battery of laboratory
16 tests, including some geochemical solid phase work,
17 leachability, and from that leachability they were able
18 to run it through a model to get some idea of what would
19 be the -- what, if any, releases would happen from the
20 site in the long term.

21 This is actually a plan view of the
22 sampling locations, and is sort of illustrative and you
23 can see where the 25 percent material -- 25 percent
24 portland cement addition material is compared to the 10
25 percent.

1 This is a good photograph to show you what
2 a core sample from the site looked like. Now, this is
3 actually material taken from the area that had been
4 treated with a 10 percent addition of portland cement,
5 and you can see inclusions of bricks, some other wastes
6 that were at the site, slags, coal tar. You can see
7 they're quite competent cores that were able to be
8 removed from the treated material.

9 One thing about cement, when you work with
10 cement it actually gets stronger with age. So the cement
11 continues to harden and gain strength over time,
12 especially when it's in a below-grade situation, because
13 actually cement really likes -- hydrated cement likes
14 that environment because it can continue to hydrate and
15 gain strength.

16 These are the -- some of the permeability
17 results that were done. Now, the performance standards
18 for the site at the 10 percent cement mixture for 1×10 to
19 the minus 5 centimetres per second, and with the 25
20 percent mixture, an even more stringent standard of 1×10
21 to the minus 6 centimetres per second. And what we see
22 is they're -- actually the samples that they pulled out 8
23 years later are actually well exceeding the performance
24 standards.

25 Same is true of the unconfined compressive

1 strength. This is where I talked to you about what
2 pounds per square inch means. The performance standards
3 at this were 60 psi and they were achieving ranges
4 between 280 and 900 psi strength.

5 They did some modelling to predict what
6 would be the situation after 10,000 years of exposure,
7 and these are some of the -- these are the technical
8 conclusions that the investigators came to.

9 The groundwater has not penetrated the
10 solidified mass, the samples surpass the geotechnical
11 performance standard set, the solid phase geochemistry
12 did not show any physical or chemical deterioration, and
13 groundwater monitoring, and modelling as a result of that
14 monitoring demonstrated leaching is not occurring.

15 Another interesting part of this report is
16 they also looked at the synthetic liner -- actually,
17 synthetic material that was placed as a cover, I
18 understand, and that might be of some interest to the
19 panel as to how well that synthetic membrane holds up
20 over the course of time.

21 So, through the use of leachability
22 testing, groundwater monitoring and then modelling of
23 that, the investigators concluded that solidification and
24 stabilization continues to be an effective long-term
25 solution for this coal tar contaminated site.

1 I have a couple more public sites here. A
2 former wood preserving site in Renton, Washington. Now,
3 a lot of these sites that I'll be talking about from here
4 are included in the project information section of the
5 binder that we've entered into the record, so there's
6 quite a bit of detail in those, as well.

7 This is a nice panoramic view. Again, we
8 can see -- this is Renton, Washington State. This is a
9 marine environment. Here was have the in-situ treatment
10 of the material.

11 It's an interesting site, in that the
12 soils themselves had a very -- were quite organic. They
13 had a lot of peat in them, a lot of plant matter. The
14 contaminants were polycyclic aromatic hydrocarbons, and,
15 as you would expect, also, certain wood preservatives
16 have penta chlorophenal in them. In-situ treatment,
17 there was not a cap placed on this treated material when
18 it was finished.

19 This is a nice aerial view of
20 solidification and stabilization in situ. Now, this was
21 -- I believe it's 24-feet of depth that was treated, and
22 you can see some of the volume increase that you'd get
23 from that, and we'll get back to that in a moment.

24 This is the mobile plant that was brought
25 to the site to be able to mix the portland cement, and

1 that portland cement is then pumped with a hose to the
2 business end of this piece of equipment, which is this
3 auger system.

4 You might notice that this auger looks a
5 little different than what we've seen at the other
6 manufactured gas plants sites, that has this broader face
7 to it, and that's because it was running through this
8 very soft peaty soil, so they could get a better mixing
9 or production rate with that. And again, here you can
10 see that -- the overcharge by the addition of portland
11 cement to the material.

12 Here is another manufactured gas plant.
13 Why do we look at these so often. Well, because they are
14 organic sites, the hazardous constituents are organics,
15 and they're coal tars and they're a collection of a
16 number of different compounds.

17 So this is a historical photograph from
18 Augusta, George. This site's interesting. It was
19 contaminated cleanup within a residential neighbourhood,
20 and, as we'll see here in a moment, the solidification
21 and stabilization occurred within the water table. The
22 reason -- I'll give you the reason for that in a minute.

23 The coal tars were the hazardous
24 constituents of concern. It used two technologies. One
25 of them was in-situ S/S treatment, and another was the

1 excavation with off-site disposal of the material on tap.

2 This is an aerial view of the project.

3 You see this triangle area -- this is actually a canal
4 that runs along here through Augusta, George, and you
5 can, if you have great eyes, see the crane was working
6 right there doing the mixing. Well, here's a better shot
7 of that.

8 I want you to notice that this is a grade
9 level, and what you can see has been excavated. At this
10 site, what the owner wished to do, they looked at doing
11 an off-site removal, taking all the -- excavating all the
12 material and shipping it off site, but they quickly
13 realized that they would be looking at digging 20 feet
14 down into a water table. And to do that kind of
15 excavation takes some specialized work, like trying to
16 keep the area dry and not caving in.

17 So they elected to just take the top
18 material off, have that off-site disposal, and then do
19 in-situ solidification/stabilization through the
20 contaminated soil into -- down into the aquiclude that
21 was beneath the site.

22 For the material that was excavated, they
23 were concerned with volatile emissions which occur
24 whenever you do excavation in material that's
25 contaminated with volatiles. They tend to drive off into

1 the great landfill in the sky. So, what they did here to
2 prevent that, was to manage it within a negative pressure
3 building.

4 Obviously, it's not under negative
5 pressure right now, because the doors are open, but
6 that's one of the engineering controls that were used to
7 deal with that -- those huge emissions.

8 This is another wood preserving site,
9 again in a port area, soils that were contaminated with
10 creosote and arsenic. It's interesting because the
11 property was reused at the port facility with the
12 material remaining at the site.

13 This is the business end of the device
14 that was used to treat the contaminated soil. You can
15 see it operating here in the soils.

16 How this is actually conducted was there
17 was 15 feet of depth of contaminated soil. They took
18 that 15 feet and excavated it and staged it at the site
19 of the excavation. They put five feet back in, then ran
20 this tool through it, put the next five feet back in and
21 then the subsequent five feet.

22 We did withhold some of the contaminated
23 soil, because they ran that through a pugmill, which is
24 another way of doing a material that we know is soil
25 cement, which is a mixture of soil and cement, and it's

1 used with engineering properties of that.

2 So this material here that was treated in
3 place, treated and put back in place is about 50 psi
4 material. This material, this layer up here, is about
5 300 psi material, and it forms a very competent layer for
6 the construction of pavement, at this harbour facility.

7 And they use that, actually, for container
8 storage.

9 This is a manufactured gas plant site.
10 Again, a coal tar organic contaminated property in
11 downtown Cambridge, Massachusetts. And, again, using an
12 auger system to do the mixing we are -- it's in-situ
13 treatment downtown reuse of the property and coal tars
14 are the contaminants.

15 It's very interesting because this site is
16 now the site of a LEED Platinum Building for people who
17 know what that is.

18 It's a green building. It's very a high
19 standard to meet for occupancy and health of occupancy
20 and such. Yes, madam? No.

21 So, again a auger system, and you can see
22 a hood system placed to be able to collect any dust, and
23 this is the LEED Platinum Building constructed at the
24 site, and it's actually used -- it's actually the
25 cornerstone of a pedestrian mall, that's used in

1 Cambridge.

2 You've got your Starbucks here, you got
3 your Subway. What more do you want? Another site,
4 Marine Sediments New Bedford Harbour. This is a
5 Superfund site. The Agency wished to construct a waste
6 water treatment plant in this area, and they needed some
7 more bulkhead area, so they put in the sheet piles and
8 the material that they pulled out from within these sheet
9 piles were treated.

10 Obviously marine sediments were treated in
11 a pugmill system. You can see the clamshell here
12 delivering untreated sediment into the hopper, the
13 mixture comes out, here it is treated, and actually that
14 material is placed here in the foreground and compacted
15 on site. They're doing nuclear density testing of the
16 material right there.

17 This is a US EPA, US Environmental
18 Protection Agency, emergency response to two brothers who
19 decided to go into the transformer recycling business and
20 managed to contaminated this area, the soil area with
21 PCBs.

22 The material was removed, scraped up and
23 it was staged under this tarp. The contractor brought a
24 mobile mixing system onto the site, using Portland cement
25 in a pugmill. The material is a difficult one to see,

1 but this is actually the treated material placed back
2 down at the site.

3 This a very recent project, the Naval
4 Construction Battalion Centre in Gulf Port, Louisiana.
5 Gulf Port -- the battalion centre was -- they do storage
6 here of strategic materials, everything from bauxite to
7 sisal, and in this case a herbicide know as Herbicide
8 Orange.

9 During the storage of that material some
10 of the Herbicide Orange got away from the storage area
11 and contaminated some of the sediments both on base and
12 off base in these drainage ditches with dioxin, and what
13 would happen is with every storm event that dioxin
14 sediment would continue to migrate away from the base.

15 So the military decided, "That's not a
16 good thing. Let's collect it all up and bring it back to
17 the site." So that's what they did, and we see the
18 installation here or actually the treatment of the dioxin
19 contaminated sediments. They were put down in lifts at
20 this -- in this area, and this is actually what we know
21 in our industry as a road claimer. What it looks like it
22 is a big rototiller mounted on a truck chassis. It has
23 the ability to mix down to 18 inches, 20 inches of depth.

24 And so they put the material they wish to
25 treat down in lifts and they run this device over it, and

1 they mix cement in, and there you can see that it
2 actually goes back and forth over the area and -- mixing
3 cement into the dioxin contaminated sediments and this,
4 in turn, is covered with a concrete material and then
5 it's actually now a parking lot for military vehicles.

6 This was actually 80 percent complete when
7 Katrina, the Hurricane Katrina hit the area. So, they
8 were very fortunate to have been able to take and secure
9 that material before they'd have to deal with chasing it
10 around again.

11 And so after they were able to clean up
12 the area and get started, they found that the Hurricane
13 hadn't really moved -- hadn't moved the material that had
14 already been treated in place and they were able to start
15 the project back up again.

16 And Madam Chairman, that concludes my
17 presentation. Thank you.

18 MR. DICKSON: Thank you very much. That
19 concludes both presentations on -- from the Cement
20 Association of Canada and the Portland Cement
21 Association.

22 THE CHAIRPERSON: Well, thank you very
23 much to all three of you for your presentations.

24 We will -- as I indicated before we will
25 take a short break before we come back and then we will

1 begin with questions from the Panel, and then we'll have
2 questions from other participants.

3 So, it is now about 10 past 7:00. We'll
4 take a 15-minute break and start again at 7:25. Thank
5 you.

6 --- RECESS AT 7:11 P.M.

7 --- RESUME AT 7:30 P.M.

8 THE CEMENT ASSOCIATION OF CANADA/PORTLAND CEMENT
9 ASSOCIATION

10 --- QUESTIONED BY THE JOINT REVIEW PANEL

11 THE CHAIRPERSON: We'll get started again
12 if you would like to take your seats.

13 Well, Mr. Dickson, Mr. Adaska and Mr.
14 Wilk, thank you very much again for the two
15 presentations, much appreciated and for all the materials
16 that you have filed with the Secretariat. I guess we've
17 got some reading ahead of us.

18 I think I'd like to start by asking you to
19 give us a little bit more information or expand for us on
20 -- well, first of all, what would you say are the
21 critical parameters in selecting
22 stabilization/solidification against selecting other
23 methods of dealing with -- given a set of contaminants, a
24 certain -- a given contaminated situation? Especially --
25 obviously -- I don't know how much -- how familiar you

1 are with the Sydney Tar Ponds and Coke Ovens Project,
2 but, you know, if you wish to reflect on that.

3 How do you choose the technology for a
4 given ---

5 MR. WILK: Thank you, Madam Chair.

6 I have some familiarity with this Project,
7 in that I came and visited the Project back in 1999,
8 during a presentation that I made in Halifax and we did
9 -- there was a site tour here, and I've been here several
10 times since then to look at the Project.

11 Your question, as I understand it, is, how
12 does one select solidification/stabilization against
13 other technologies, or how do you -- what are the
14 critical factors as to what go in the decision making
15 train?

16 Sites that are solidified and stabilized
17 have some similarities in that they're usually quite a
18 blend of contaminants. And that's again why the
19 selection rate is so high in the Superfund Program,
20 because most contaminated sites have quite a variety of
21 contaminants in them, and we try to -- you'd like to be
22 able to use one technology in one fell swoop to take care
23 of the variety.

24 It's not applicable to a site that's just
25 volatile organics. You can see from the pie chart that

1 we presented before, soil vapour extraction is used for
2 contaminated sites where the contaminants are easily
3 volatilized and pushed out of the contaminated media.

4 But for, really, the great majority of
5 other contaminants, solidification/stabilization has been
6 effective as an application.

7 THE CHAIRPERSON: Now, for example, the --
8 I think it was the final example you presented, which was
9 -- the small site, I guess, in New Orleans, was that --
10 where the PCB contamination had occurred. I presume that
11 the -- it was a small site, but a fairly high level of
12 contamination, is that right, with PCBs?

13 MR. WILK: Madam Chair, the last project I
14 presented was the Naval Construction Battalion Centre.
15 That was a dioxin contaminated site.

16 The one that preceded that was the Yellow
17 Water Road Site. Is that the one you're referring to?

18 THE CHAIRPERSON: Well, I am referring to
19 the one that was -- yes, I'm getting the two confused,
20 that's right.

21 But the PCB contamination, the site that
22 was operated by the two brothers, that was my point of
23 reference.

24 Now, if you take that site, for an
25 example, where you have a site with a fairly high -- with

1 a high level of contamination by PCBs, so what would --
2 what is it -- I mean, I'll be looking at a different
3 situation in the US or in -- does it vary State by State
4 in terms of what policies and procedures are with respect
5 to the disposal or remediation of high levels of PCBs?

6 MR. WILK: Okay. My recollection of that
7 site, the levels of PCBs were in the order of 600 parts
8 per million.

9 That was a US Environmental Protection
10 Agency emergency response, and the EPA under its
11 statutes, the Comprehensive Environmental Response
12 Compensation Liability Act has very strong authority.

13 They can go in and take care of a site and
14 use what they believe to be the best treatment technology
15 for that site.

16 So, in this case, although the
17 contamination was greater than the usual 50 parts per
18 million, that would generally be required to be taken to
19 a landfill that's licensed under the Toxicity -- our
20 Toxic Substances Control Act, a licensed facility for
21 PCBs, under their emergency response authority, they were
22 able to treat that material and place it back at the
23 site, because they understood that
24 solidification/stabilization use at this site would be
25 protective of human health and the environment.

1 THE CHAIRPERSON: Could I ask you now to
2 perhaps give us a little more information about similar,
3 sort of, criteria used to choose between in-situ and ex-
4 situ applications of this technology?

5 Now, I see in the pie charts, US EPA --
6 the Superfund treatment choices pie chart that the -- ex-
7 situ applications were approximately three times the
8 number of in-situ applications.

9 Now, I presume that some of those ex-situ
10 applications, the contaminated material was treated and
11 then taken somewhere else, and in some cases it would be
12 replaced. I don't know whether you have any knowledge
13 about how that divided, but why -- would, in fact, that
14 account for most of the applications of ex-situ of the
15 material that was treated and taken somewhere else?

16 MR. WILK: I can't tell you the exact
17 numbers. You're right. What we tried to show -- what
18 Mr. Adaska showed in the beginning was trying to make a
19 distinction between ex-situ and in-situ.

20 Ex-situ involved treatment of material
21 after it's been excavated, and that material is often
22 either placed back where it came from or it goes for off-
23 site disposal.

24 In-situ means that the material is not
25 excavated at all, and the cement is blended into that

1 material while it exists in place.

2 The -- many wastes under our regulations
3 in the United States have to be treated before they're
4 land disposed, and the idea there is that materials that
5 are going to be placed in an engineered landfill -- you
6 want to minimize the risk posed by those materials, and
7 that relies solely on the engineered barrier of the
8 landfill.

9 So under our land disposal restrictions,
10 they need to be treated prior to placement. It's an
11 approach that adds a comfort level, say, a belt and
12 suspenders approach to the disposal of that material.

13 And so that's why you likely see that high
14 incidents of ex-situ treatment, because that material, if
15 it was disposed of off site would have to be treated to
16 some extent before it could be placed in an engineered
17 landfill.

18 So, again, it's minimizing the risk posed
19 by that material should the engineered barrier of the
20 landfill fail.

21 THE CHAIRPERSON: And typically, would
22 you think that where you had sediments or soils with
23 concentrations of PCBs over 50 parts per million in most
24 cases solidification and stabilization, a technology
25 would be applied -- if it were applied, it would then

1 involve off-site disposal.

2 MR. WILK: Madam Chair, I don't really
3 know an accurate answer to that. That would just be my
4 opinion.

5 I could say that from the projects that
6 I've seen and provided technical assistance on, there's
7 sort of -- there's kind of a -- say a spectrum. The 50
8 parts per million is a number.

9 What -- the influence of a higher
10 concentration of PCBs is, on the setting properties of
11 cement, the cement likely is able to tolerate higher
12 amounts of PCBs, and where that cut-off is really very
13 dependent on the actual project site and the contaminated
14 media, and the final resting place, the final disposal of
15 the material and site conditions, what the closure is
16 like, what other engineering controls are placed on the
17 area after it's been closed.

18 That's the best answer I can give you.

19 THE CHAIRPERSON: Thank you. So, PCBs, in
20 fact, do have an actual -- will have an effect on the
21 sitting -- on how the technology -- the results of the
22 technology. You have to adapt the mix for a high level
23 of PCBs? A higher concentration, sorry.

24 MR. WILK: At every waste site, if you're
25 going to do a solidification/stabilization project

1 correctly, you take a look to see whether it's first
2 feasible to treat the material with SS.

3 After you determine that it's feasible to
4 do some bench-scale studies, then you begin to fine tune
5 the mixed design for what you're trying to achieve.

6 And what Mr. Adaska had presented, cement
7 isn't the only binding reagent that's used in this
8 technology. There are very skilled treatability
9 laboratories with a lot of experience that can develop
10 mixed designs to achieve performance standards.

11 If they can't, well then it's not a good
12 site. But it's a very good indication, if in the
13 feasibility study you've been able to get your
14 performance standards met, and then it's just a matter
15 of, in the design phase, of fine tuning that mixed design
16 to really -- the idea is to economize on the reagents
17 that you add, and also make sure that the final material
18 is treated in a way that's protective of human health and
19 the environment.

20 THE CHAIRPERSON: I want to get back to
21 the ex-situ and in-situ for a minute.

22 But just while I think of it, two things
23 arising out of what you just said. One is, did I --
24 which example was it? I think it was the Columbus
25 Manufactured Gas Plant Site. You had a plan view. This

1 was the one where you had the -- the containment walls
2 were made from the sediments, but with a higher strength,
3 a higher mix of cement.

4 But did I also notice in that plan view
5 that, in fact, there were some -- that you treated some
6 hotspots differently within that, so that there -- was
7 that kind of fine tuning, or was that a
8 misinterpretation?

9 There was a reference to a cyanide
10 hotspot. So, does that happen in some cases, that you
11 have areas that you adapt the mix within the site, as
12 opposed to having one mix for the whole site?

13 MR. WILK: Madam Chair, that is correct.
14 Part of this is science, a lot of it is experience from a
15 contractor that does the work.

16 You'll see at jobs that they will be
17 looking at and sampling and changing a mix design as they
18 encounter different areas that have different
19 constituents and different levels of hazardous
20 constituents within an area that's being treated.

21 That goes to, again, the experience of a
22 contractor and the sampling frequency that's done during
23 quality control, quality assessment. You're correct.
24 They do adapt, as they go along through the site.

25 THE CHAIRPERSON: Well, then, if that's

1 right, my next question which was, with respect to the
2 use of field testing -- I mean the slide -- now, Mr.
3 Adaska I think this was your presentation, there was
4 kind of a three-step process or a three-and-a-half-step
5 process.

6 Do you know what I'm referring to?

7 MR. DICKSON: Madam Chair, should we bring
8 that slide up?

9 THE CHAIRPERSON: You know the one I'm
10 talking about? Treatability studies. If you wish to,
11 yeah. It's Slide 15.

12 MR. ADASKA: Is this the one, Madam Chair?

13 THE CHAIRPERSON: Yeah.

14 MR. ADASKA: Madam Chari, if you would
15 oblige me. I am not in the chemistry end of this, and
16 I'd ask that Mr. Wilk respond to that question, if
17 possible.

18 THE CHAIRPERSON: Oh, I don't think it's a
19 chemistry question.

20 MR. ADASKA: Okay. Then go ahead. What
21 was the question, please?

22 THE CHAIRPERSON: I don't ask too many
23 chemistry questions.

24 MR. ADASKA: Good. Then we're both in the
25 same boat. Sorry about that.

1 THE CHAIRPERSON: No, this is a simple
2 question of math. This would suggest when we look at it,
3 the three stages here, which is -- one is that you do --
4 the treatability studies refer to -- it looks to me like
5 it's bench-scaled.

6 MR. ADASKA: Correct.

7 THE CHAIRPERSON: And then you go -- the
8 next step is engineering design and then the next step is
9 implementation.

10 Now, I don't see a -- so, generally
11 speaking it's not deemed necessary to put some kind of a
12 field test or a pilot study in that phase or is it in
13 some circumstances.

14 This has been discussed in relation to
15 this project, where the bench-scale treatability studies
16 are, in fact, sufficient to know whether this would work,
17 and then Mr. Wilk's comments that there is a fair amount
18 of skilled contractors, there's a fair amount of adapting
19 and decision making right out there with the auger,
20 whatever you're using, I presume.

21 So, I'm curious about that.

22 MR. ADASKA: Yes, Madam Chair. I think
23 this oversimplifies this slide, what has to be done.

24 Again, all cases are unique. Obviously in
25 a case this size, a project this large, you have to take

1 the necessary steps to do the sampling, the technique, as
2 Mr. Wilk pointed out. There may be changes within the
3 site, so you make sure that you identify all those site
4 changes in the treatability study, so you get an array of
5 information.

6 Obviously, during the engineering stage
7 you want to make sure you have the necessary control test
8 during the work. Again, I'm not involved, particularly
9 with the project, but a site -- this Project you would
10 look at -- in my experience you would look at a test
11 site, some area where you would test the equipment, test
12 the quality control, test the contractor, make sure that
13 you are comfortable that the procedure will work before
14 you go into full scale production, so that you have a
15 good idea of what to expect before you actually go into
16 production.

17 So, this would be something, from our
18 experience, on some of the other types of civil
19 engineering projects, I've been on. Large projects like
20 this, they do test sections, they do test cells to not
21 only help the engineer in his analysis, but help the
22 contractor in his analysis in how he does the work.

23 So these are just practical things in
24 construction that you would do.

25 THE CHAIRPERSON: Well, it certainly

1 sounds like you really want a very skilled and
2 experienced contractor. Is that a fair assumption?
3 Not -- someone with a lot of experience in this work, not
4 simply someone who can operate an auger or whatever
5 device you're using.

6 MR. DICKSON: In my experience in touring
7 sites, that I've been made aware of through sort of
8 technology transfer and, in particular, for the Sydney
9 Tar Ponds Project, is to identify certainly project
10 managers who -- from these contracting companies that
11 have performed solidification/stabilization who would
12 partner with local, heavy civil contractors here in
13 Sydney, in Nova Scotia, that would be interested in
14 bidding this work.

15 So, it's a project management and
16 direction for the experience, but the mechanics, the work
17 that's done on site is something that is -- can be easily
18 trained of heavy civil contractors in the area.

19 THE CHAIRPERSON: Well, then, I just have
20 one more question and then I'll let my colleagues ask
21 questions, but -- and it's just coming back to the ex-
22 situ/in-situ issue.

23 And I guess now I'm referring to --
24 assuming that the ends -- the end point is on site --
25 there's no off-site disposal, so it's going to remain on

1 site, and in some cases the sediments of soil and cement
2 is mixed ex-situ, in some cases in-situ.

3 In situ, presumably is always cheaper than
4 ex-situ? Usually -- never mind -- it's usually cheaper
5 than ex-situ. I assume that's fair to say.

6 So, under what circumstances would you do
7 ex-situ and for what reasons -- why would ex-situ be
8 better than in-situ in some cases?

9 MR. WILK: To answer that question, I want
10 to make it clear that we are not environmental
11 contractors. But from what I've seen of projects that
12 have been done by others, the decision to do in-situ/ex-
13 situ is very specific to the site.

14 Mobilizing and ex-situ mixing machine,
15 like we see, a pugmill, which is actually -- I don't want
16 to say "common" -- but it is an available piece of mixing
17 equipment that's used in the construction industry.

18 They're mounted on trailers and they can
19 be brought to a site. So depending on the scale of the
20 site, that actually might be more cost effective than
21 mobilizing an auger or something that does the in-situ
22 treatment.

23 One of the reasons why we see in-situ
24 treatment is that you're not doing the excavation, so you
25 don't have those costs and oftentimes it just -- from an

1 application sense it makes sense to leave the material in
2 place, if you can mix it in place, and you don't -- you
3 may not have some of the hazards posed into excavating
4 it.

5 But -- I'd like to end there. Thank you.

6 THE CHAIRPERSON: Thank you.

7 DR. LAPIERRE: Thank you. I have a few
8 questions I'd like to explore with you regarding cement
9 and the stabilization and containment process.

10 The first one I would like to ask is, does
11 cement have any contaminants, itself? For example, could
12 you find chromium in cement?

13 MR. WILK: Dr. LaPierre, cement is used in
14 concrete and construction. We walk on it every day in
15 sidewalks. It's in foundations. It's in pipe that
16 convey drinking water.

17 Does cement have contaminates? Does it
18 have trace levels of metals? It can.

19 But as you see, in actual use, those do
20 not have -- they don't pose an endangerment by that. And
21 part of that has to do with when cement hydrates, that
22 reaction actually can address any of the trace metals
23 that are in there.

24 We have -- actually, the Portland Cement
25 Association has done work on analysis of cements, both

1 the total concentration of metal constituents in the
2 cement and the leachable levels of those. And they have
3 been -- all been below PCLP or drinking water standards
4 for that.

5 So I guess my short answer to your
6 question is, do they have elements in there that are
7 heavy metals? Yes, they may. Do they pose a problem?
8 No, they don't.

9 DR. LAPIERRE: Okay. Even -- when the
10 cement is -- comes in contact with the -- with water
11 during your mixing process, are there any opportunities
12 for these contaminants in cement to create either gases
13 and escape, or escape at that time?

14 MR. WILK: No.

15 DR. LAPIERRE: Okay. The next question I
16 have is -- relates to the stability of your mix.

17 And I guess I'd refer back to our EIS
18 here, which gives a compressive strength target of at
19 least 012 to 014 MPA.

20 And the EIS indicates that this is
21 consistent with industry standards for strength testing
22 on solidification projects.

23 If I look at the data that you had in your
24 presentation, it seems to be quite a bit -- your strength
25 seems to be a bit higher.

1 I guess the question -- I have two
2 questions related to it.

3 Could you relate to the industry standard
4 is one?

5 And secondly, you indicated that at 50
6 psi, it's something that you could shovel if you put
7 great, you know -- it's shovelable. At 14 or 19 psi, is
8 it like putting a shovel in sand?

9 MR. ADASKA: Dr. LaPierre, yes, I'll
10 answer that question.

11 First off, on the 50 psi, this is
12 something that is, as I understand it, it's the
13 Environmental Protection Agency for the solidified waste.

14 It's a standard that they use in many
15 applications. It has a relationship to, as I mentioned
16 before, like a bearing capacity of a soil which would be
17 -- again, I apologize. In my language, it's about 4
18 tonnes per cubic -- or per square foot.

19 So it's a type of support that would
20 provide enough support for a foundation of a building or
21 a mat foundation at even a 50 psi range.

22 However, as I mentioned before, when
23 you're looking at diggability, I was trying to give some
24 relationship between what the consistency of a 50 psi
25 would be versus a higher strain.

1 And yes, to answer your question, at 50
2 psi, yes, you could dig it with a shovel, but at lower
3 psis, you would still get some material, but it would be
4 more like a clay. It would be like a very soft clay, and
5 that would be the consistency you would have as you get
6 lower in strength.

7 You'd always have some cohesion in that
8 material, as long as you have a psi. Because keep in
9 mind, when you're doing that, it's an unconfined
10 compressive strength, where you're putting that sample,
11 without any confinement, in a testing apparatus.

12 So as long as there is some confinement to
13 stand on its own, there is a psi strength there when you
14 put the load on there. So that would be the case.

15 A sand -- in another case, they'd use what
16 they call a triaxial apparatus where you'd put a membrane
17 there and you support it in that fashion. You have
18 confining pressures before you put the load on. So ---

19 DR. LAPIERRE: I -- okay. I guess the
20 other part of my question was, the EIS gives us the 0.12
21 to 14 MPA, which is consistent with industry standard.

22 Would you have a comment to that?

23 MR. WILK: I'm sorry, could you repeat the
24 question?

25 DR. LAPIERRE: The question is, from the

1 EIS, and I'll just read it in quotation:

2 "An unconfined compressive strength target
3 of at least 0.12 to 014 MPA, which is
4 consistent with industry standard for
5 strength testing and solidification
6 projects."

7 I guess the question I ask is can you
8 comment on that, in relation to the data that you
9 provided seems to be above that.

10 MR. WILK: Thank you. Yes.

11 Wayne Adaska calculated that out in the
12 terms we understand, which is 17 psi, the -- it's
13 important, I think, to understand where that 50 psi comes
14 from.

15 That comes from the U.S. EPA. It's a
16 policy under the Research Conservation Recovery Act. And
17 it came from -- and the -- when Congress told the EPA,
18 "We want you to make sure that we're not disposing of
19 liquid wastes into a landfill. We want you to regulate
20 that."

21 And how the EPA addressed that was, "Okay.
22 We'll make sure that all materials that go into a
23 landfill are solids."

24 Now, if that material before had a liquid
25 component to it, a free liquid, that material would have

1 to be solidified.

2 And in past practices, people would use
3 things like corn husks, rice hulls, or sawdust to deal
4 with taking care of the liquid portion of that. And so,
5 those free liquids were merely absorbed.

6 So what EPA said, "We don't want mere
7 absorbtion. We want there to be chemical solidification.
8 We want that free liquid to be chemically bound within
9 the contaminated -- within the material that's going into
10 the landfill. And how we want you to demonstrate that a
11 liquid -- a material with free liquids has been -- the
12 liquids have been chemically bound, is we want you to
13 achieve 50 psi." That's where that comes from, from
14 Recra policy.

15 We've seen, actually, in my presentation,
16 projects where the performance standards were less than
17 50 psi.

18 Again, in a lot of the work we do in this
19 treatment technologies, we're adapting procedures,
20 testing and regulations into this technology.

21 So, it's -- it is likely that you can see
22 projects with less than a 50 psi standard.

23 DR. LAPIERRE: Okay. The slide that you
24 showed that was the last one that you had with that
25 LEED's Building Platinum, what psi would you have had

1 when that stabilization?

2 MR. DICKSON: We're just going to refer to
3 the project sheet that's in the binder that was submitted
4 for the details for that answer.

5 DR. LAPIERRE: While you're looking for
6 the project sheet, that -- because it's a very -- I have
7 another question.

8 And the other question relates to if you
9 have a large amount of organic content in the material
10 that you're solidifying, does it make a difference in the
11 process that you're applying? Does organic content pose
12 a challenge?

13 MR. WILK: Do you want me to take that?
14 Okay.

15 DR. LAPIERRE: I would say organic content
16 of say 50 plus.

17 MR. WILK: All right. Does organic
18 content pose a problem in solidification, is that the
19 question?

20 DR. LAPIERRE: A challenge.

21 MR. WILK: Yes.

22 DR. LAPIERRE: Does it pose a problem or a
23 challenge in ---

24 MR. WILK: When you go through the
25 literature on solidification stabilization, you'll often

1 see passages that say that for organic contaminated
2 materials, that this technology does not work.

3 And what we're actually finding in
4 actually the slides that I've shown here, these are
5 heavily organic contaminated sites. They do pose a
6 challenge, and one of the challenges is, take for
7 example, a puddle of oil, and you were to drop cement
8 powder through that puddle of oil. What happens is the
9 particles -- the cement particles become coated with the
10 oil.

11 Now, cement, you know -- not what most
12 people think. Cement doesn't just dry, it actually has a
13 chemical reaction with water. So, that cement particle
14 has to see water in order for it to go through the
15 reaction.

16 If it's coated with an oil or a grease, it
17 won't react with the water because it doesn't see the
18 water.

19 And how that's addressed in a site that
20 has organic contamination is simply introducing the
21 cement powder to water before it sees those organics.

22 So, to answer your question more briefly,
23 through engineering controls and techniques that are done
24 in the field, you can get over those -- hassle is not a
25 good word -- those problems that you might see with an

1 organic contaminated site.

2 And as I tried to show, that it's now in
3 the United States quite routinely done in a site that's
4 being remediated with this technology.

5 DR. LAPIERRE: Okay, so it's a challenge,
6 but its doable, is that it?

7 MR. WILK: It's a challenge, but it's not
8 insurmountable.

9 DR. LAPIERRE: But it's still a challenge?
10 Okay. I'll move on to my next question.

11 The next question I have is -- and I'll
12 come back to the one I asked you awhile ago, because I
13 think it's a very simple answer.

14 The next one has to do with salt water.

15 If you're -- if you have a monolith that's
16 solidified and it's in contact with salt water, would you
17 have chloride ingestion? Could you have salt water
18 moving in?

19 Because there is a permeability of the
20 monolith, and I would imagine that the less tensile
21 strength it has, the more permeable it is. If it's putty
22 versus sidewalk cement, to me, it should be different.

23 Now, does salt water in contact over time
24 have any effect on leachability of the contaminants that
25 might be contained, or the breakdown of the monolith?

1 And can it be enhanced using geopolymers, for example?

2 MR. WILK: One of the publications that we
3 submitted for the Panel is a copy of Cement Association
4 of Canada's publication called, "Design and Control of
5 Concrete Mixtures." And when you read through the
6 chapters, and I certainly don't expect the Panel to read
7 them all, but in that, it's everything you wanted to know
8 about concrete.

9 In there, there's a discussion of mix
10 water. And salt water is actually -- can be used in
11 mixing up concrete. So you're sort of saying, "Well, how
12 can that be? Why -- you know, everyone knows that salt
13 is terrible on concrete."

14 Well, actually, it's not terrible on
15 concrete, it's terrible on reinforcing steel that might
16 be in the concrete.

17 And since we don't use reinforcing steel
18 in a solidified and stabilized monolith or a treatment
19 area, the chloride is not -- does not pose a problem with
20 the cement.

21 In fact, the cement could have been mixed
22 with sea water to begin with, as the mix water in the mix
23 design.

24 DR. LAPIERRE: So you're saying sea water
25 has no corrosive action on cement?

1 MR. WILK: Correct. Sea water does not
2 corrode cement. Nor does -- it doesn't corrode concrete
3 either.

4 DR. LAPIERRE: Does the pH of the mass
5 that you're solidifying matter? Do you have to achieve a
6 certain pH to get optimum setting?

7 MR. WILK: I get all the fun.

8 The pH matters when we're treating heavy
9 metals. Because one of the phenomenons of when we treat
10 -- use this technology to treat heavy metals is we're
11 controlling the pH.

12 Take, for example, a site that is a lead
13 contaminated site. It has elemental lead in it.

14 What you do is you mix Portland cement
15 into that contaminant -- contaminated media. It will
16 convert the elemental lead to lead hydroxide. Lead
17 hydroxide has a lower solubility than elemental lead.
18 And you're controlling the solubility of the lead,
19 preventing it from migrating out of the material and
20 endangering human health and the environment by
21 controlling the pH of the solidified mass.

22 In the case of organics, that pH
23 phenomenon is of lower importance.

24 And so, the hydration of the cement
25 creates some calcium hydroxide. It can elevate the pH,

1 and that elevation is addressed by other components of
2 the remedy to keep any problems that might result from
3 that elevation of pH within the solidified mass.

4 DR. LAPIERRE: So, two questions.

5 The first one is, if you were to change
6 the pH, would you add lime? Is lime a process? Is lime
7 a process to balance the pH?

8 And the other question is, if you're
9 treating bottom ash from an incinerator, would metals not
10 be a -- one of the issues that you'd want to treat?

11 MR. WILK: All right. You've got a couple
12 of questions there. Let me answer the one on incinerator
13 ash first.

14 Solidification stabilization is actually
15 best demonstrated available technology for management of
16 incinerator ash prior to placement into a landfill.

17 Yes, by incinerating something, if there
18 are metals in the material that you're incinerating,
19 they're either volatile metals and they end up -- they
20 end up being collected in the air pollution control
21 devices, or they're refractory metals, and they end up in
22 the ash.

23 Either way, it's important to understand
24 that incineration does not treat a contaminated material
25 for metals content. They don't get destroyed. They

1 still need to be managed.

2 Solidification stabilization is actually
3 used to manage that metals component in the ash so that
4 it can be safely land disposed.

5 I think your first question, which I've
6 lost sight of now ---

7 DR. LAPIERRE: The pH would be -- pH --
8 managing your pH would be important when you're doing the
9 stabilization of a ---

10 MR. WILK: Yes. Part -- managing the pH,
11 and there are some other reactions that the cement
12 hydration takes care of.

13 When cement hydrates, it produces a
14 collection of cement hydration products.

15 Some of those metals can actually
16 substitute into the alumina that's in those cement
17 hydration products, so they are more tightly bound within
18 that solidified -- that treated mass, rather than merely
19 controlled with pH.

20 So you can actually see a neutralization,
21 if you will, of the pH, and you'll still see those metals
22 tightly bound in the solidified stabilized mass.

23 So at the beginning, yeah, you want to do
24 pH control, but it's a very robust system, and it's able
25 to hold onto the metals after any neutralization of the

1 pH has occurred.

2 DR. LAPIERRE: I guess the other question
3 I had, that you didn't answer, was would you use lime to
4 -- is lime a product that you could use to adjust the pH?

5 MR. WILK: Okay, I think -- we were here
6 last night, and I think it's important to clarify what
7 lime is, and what limestone is.

8 There are different grades of lime.

9 When -- in the cement industry, when we
10 talk about lime, we're talking about calcium oxide, okay?

11 There's also slaked lime, which are
12 hydrated lime, so calcium hydroxides.

13 And then there's limestone, which is
14 calcium carbonates.

15 All right, so -- actually, in my -- in the
16 project information sheets that we've provided, you'll --
17 there's actually a site that's spoken about there that
18 was a lead contaminated site, that limestone -- calcium
19 carbonate -- fines were mixed in as a buffer for the
20 system. And they found in certain practices that that
21 works in the field to do a better -- to do an additional
22 job of buffering with the addition of Portland cement.

23 And so, it's a good way, an inexpensive
24 additive to add, that in certain situations, can do a
25 good job in minimizing the leaching of certain heavy

1 metals.

2 DR. LAPIERRE: In the solidifying of --
3 and containment of bottom ash with metals, would it be
4 prudent to increase your psi in order to get a better
5 containment over time?

6 MR. WILK: If we look at psi as an
7 indication of treatment, and that might not be entirely
8 accurate, in that there is certainly some relationship in
9 the durability of a material that has a higher
10 compressive strength.

11 But you also have to look at perhaps
12 hydraulic conductivities -- and Wayne, you can correct me
13 on this if I'm wrong, but the hydraulic conductivities
14 aren't necessarily dictated by the compressive strength
15 of a material. For example, a clay can have a very low
16 compressive strength, but it can have a very, very low
17 hydraulic conductivity to it.

18 MR. ADASKA: Right. I think -- and one of
19 the comments -- and I didn't want to interrupt Mr. Wilk,
20 but you mentioned about the higher the strength, the
21 lower the conductivity or hydraulic conductivity. As Mr.
22 Wilk points out, very soft clays that have very little
23 strength have very low permeabilities.

24 We talk about the slurry wall that Mr.
25 Wilk talked about on one of the sites, the cement

1 bentonite slurry wall.

2 That had requirements of pi compressive
3 strengths in the order of what you're talking about, the
4 .12, yet the permeabilities were 10 to the minus 6 and
5 lower. So again, the strength and the permeabilities can
6 -- are not always relative, directly related. So you
7 could have very low strengths and have low
8 permeabilities, and at the same time you can have high
9 strengths and low permeabilities.

10 DR. LAPIERRE: Yeah, I understand that,
11 but if you're looking at mixing, you know, your slurry
12 and leaving it solidify to a certain strength level
13 versus using a -- you know, a very high grade clay, there
14 would be a difference, wouldn't there?

15 MR. WILK: Well, you have to look at all
16 aspects of permeability as well as the shrinkage and the
17 cracking and some of the other things that have to be
18 looked at.

19 To answer your question is -- again, the
20 mix design would dictate just what kind of permeabilities
21 you're looking at. If you have a very -- if you have a
22 clay material, and it's compacted in place as you would
23 with most clay liners, you would have relatively low
24 permeability.

25 But you could also have a low permeability

1 with a stabilized waste, as long as you provide enough
2 imperviousness to the material so you don't have flow
3 channels developed.

4 DR. LAPIERRE: So, am I to understand from
5 that, that leachability -- it doesn't matter on the
6 tensile strength that you might have? It would be just
7 as effective at 20 psi as it is at 400 psi?

8 MR. ADASKA: Well, I think a couple of
9 things on leachability.

10 Obviously you're talking about whether
11 it's stabilized or solidified. And in that case, you
12 want to make sure that the material, if you're just
13 counting on the solidification aspect of it, you have to
14 look at the material and the amount of gradient that
15 you're pushing through.

16 Once you have a criteria of a 10 and a
17 minus 6 and a minus 7, that is your criteria that you
18 would work with.

19 I'm not sure if that answers your
20 question, but there would be a criteria -- an engineering
21 criteria on your material that would -- if you're looking
22 strictly for stabilization -- or solidification purposes,
23 that you'd want to maintain some sort of a permeability
24 requirement.

25 DR. LAPIERRE: But if you have PCBs and

1 you don't want them to go anywheres, if you were to err
2 on the side of prudence, how would you do it? Would you
3 increase your psi, or would it matter?

4 MR. WILK: I'd like to refer the Panel to
5 an EPA publication on -- I believe the title is
6 Solidification Stabilization, the Physical and Chemical
7 -- where is it?

8 DR. LAPIERRE: Has a document been filed?

9 MR. WILK: Yes, it has. It's an EPA
10 publication. It goes into the chemical and physical
11 testing of solidifying stabilized wastes.

12 And as you go through that, you'll see
13 some numbers that are typically used for performance
14 standards for a material that's being solidified and
15 stabilized.

16 And one of those is, it's typically used
17 -- there's one times 10 to the minus 5th as usually what
18 you're looking at as a performance standard for
19 solidified and stabilized waste.

20 If these materials are not being used to
21 create liners, they're being used to lessen the
22 permeability of the material in an environment where the
23 surrounding area has a higher permeability.

24 So, the water likes to take the easiest
25 route, and it will go around the treated material rather

1 than through it.

2 That's one way in which the leaching of a
3 hazardous constituent from a treated material is dealt
4 with. There's a preferential path around the material
5 rather than through it.

6 I've been told that a rule of thumb is a
7 two order of magnitude difference between the surrounding
8 material and the treated material.

9 So, I think you're asking what are the
10 performance standards that are set? What's the preferred
11 performance standard that's set?

12 What we're trying to say is that
13 unconfined compressive strength and permeability, they do
14 have some relationship, but it's not one for one, and
15 it's different.

16 We tried to make the demonstration about
17 clay. Again, clay is material that's very soft and yet
18 has a very low hydraulic conductivity.

19 Usually what we see as far as performance
20 standards is pounds per square inch in the order of 50.

21 And as -- what I've tried to present here
22 is the EPA logic into how that came about, and the
23 dealing with liquids that are being placed in a landfill,
24 and the 10 to the minus 5th, which is the hydraulic
25 conductivity that's a performance standard for most of

1 the sites that EPA has written about in that publication.

2 Again, that's an EPA publication. It's
3 not -- I didn't write it, the EPA did, and it's based on
4 their experience on setting performance standards for
5 these kinds of sites.

6 DR. LAPIERRE: Okay. I just have a few
7 more questions and then I'll be finished.

8 But one of them relates to your slide --
9 I'll just bring you back to your slides on the cores that
10 you had, that you identified. Things were nice and
11 solid. I think those are pretty solid cores that you
12 showed up there. So, that's just a comment.

13 The other one is clay does absorb -- and
14 depending on the quality of the clay -- a pretty -- a
15 good volume of water before it does solidify and then
16 becomes impermeable, but it has the capacity to absorb
17 that water, and then it becomes impermeable, as you've
18 indicated. You may comment on that.

19 But I guess the last question I have is --
20 goes back to the strength of the building that you had,
21 in that Leeds platinum building?

22 MR. WILK: Yes. We reviewed that project
23 sheet, and that project sheet was written more about the
24 actual mix designs and such, and that performance
25 standard is not written about in that -- at the -- in

1 that publication.

2 But Mr. Adaska is actually -- he's a
3 professional engineer, and he's a soils engineer who
4 worked on siting and soil location, and locating nuclear
5 facilities. He knows his stuff.

6 And so, that building is actually
7 constructed on material that's been treated. It's a
8 multi-storey building.

9 Would you -- would -- Wayne, would you
10 hazard a guess on what something like that might require
11 as far as compressive strength?

12 MR. ADASKA: Not in oil loads. What I'd
13 prefer to do at this time is not to give you an opinion,
14 but possibly, if you would like, we could get that
15 information for you, and we could move on. [u]

16 DR. LAPIERRE: Okay. That would be fine.
17 I'd like to get it, but I'll ask you the final question
18 is, if you were going to build buildings on a site, or
19 prepare a site, you know, for future use, would you not
20 want to move beyond 14 to 19 psi as a load bearing
21 structure?

22 MR. ADASKA: It depends on the design, of
23 course.

24 I mean, basically if you're putting a
25 parking lot on it, you can get by with it.

1 You're putting on a three storey building,
2 this is definitely something -- the frost susceptibility.

3 There's a lot of factors going, but yes, I
4 mean, there's no question that you're looking at the
5 design of it and what you want.

6 I just gave you a general rule of thumb
7 that most slabs on grade might fit that requirement.

8 But if you're looking at footings and some
9 other types of designs, piling, foundations, there's all
10 types of different designs. So, yeah, depending on what
11 you're looking at, if you had a future use for this, that
12 would go into the design. You'd design for that, so that
13 you wouldn't have to do this twice.

14 So you'd make sure that if you had plans
15 to put some sort of a building on it, then either --
16 you'd take that in consideration in your feasibility
17 design.

18 DR. LAPIERRE: You would take that into
19 consideration during the solidification process?

20 MR. ADASKA: I think it would depend on
21 whether you wanted to do something there, or if you put
22 something on a foundation there.

23 Obviously, if you go back in and have to
24 put some sort of other footings there, you might have to
25 do some more treatment, either grout it -- there's other

1 types of methods you could do to solidify that type of
2 foundation.

3 You can actually go in there and basically
4 densify it. You could do some other things, if
5 necessary.

6 There are other types of foundation
7 treatments you could do to make that work for whatever
8 structure you want to put on there.

9 But you would treat it more or less like a
10 regular soil.

11 DR. LAPIERRE: I thank you very much.
12 Madam Chair, that's it for me.

13 MR. CHARLES: You gentlemen ready to
14 proceed with -- or do you want a break. Okay.

15 MR. ADASKA: We look forward to the next
16 question.

17 MR. CHARLES: Well, my questions won't be
18 quite as technical as my colleagues because I don't know
19 as much about the technical side of things. So -- but I
20 would like to draw your attention to Slide No. 36. This
21 is the Pepper Steel and Alloy site. My question is
22 what's the date when the remediation was done. I thought
23 somebody said it was 1998 and the slide says 1988. Is
24 that just a ---

25 MR. ADASKA: I apologize. That was a

1 senior moment on my part. I have -- I correct myself.

2 The slide is correct. It's 1988.

3 MR. CHARLES: 1988. When was the photo of
4 the site taken? Shortly after remediation or sometime
5 later? The reason I'm asking is it looks as if it's just
6 a flat site with not much on it except the material
7 that's been remediated and stabilized and so on. I'm not
8 sure what they were going to use it for. And I wondered
9 if -- you know, they done the remediation and then nobody
10 wanted to do anything with it.

11 MR. DICKSON: This project was added into
12 Mr. Conner's presentation and he was very familiar with
13 the actual remediation but it's not a project that we've
14 returned to since it was completed so we're not aware of
15 the reuse of the site at the present time.

16 MR. CHARLES: Well, I guess it ties into
17 another question I have about capping, which is, when
18 you're doing solidification and stabilization is it
19 always a requirement of the process that there be a cap?
20 What I got from some of your references to other sites
21 was that you didn't have a cap on some of them. They
22 just, you know, flattened the stuff out and left it.
23 When would a cap be needed for the process? Or is a cap
24 needed for the process? That is, stabilization and
25 solidification. Is there any reason to have a cap?

1 MR. DICKSON: Sir, I can't answer that
2 very well for you.

3 MR. CHARLES: Because the cap isn't ---

4 MR. WILK: Why is the cap necessary and
5 why is it not? I really couldn't give you the criteria
6 as to why the EPA requires a cap on some and not on
7 others.

8 MR. CHARLES: I'm just wondering, is --
9 and if you don't know, that's fine, but is there any
10 reason for having a cap over material that's been
11 solidified and stabilized? Do you want to keep the
12 surface water, the rain water from coming in contact with
13 the stabilized material? Or does it make any difference?

14 MR. WILK: It does make a difference.
15 Again, an engineered barrier like a cap is again, just a
16 belt and suspenders approach to keeping -- to minimizing
17 leaching. Leaching as we pointed out is a process where
18 a liquid moves through or against a contaminated media
19 and then moves the contaminants from that. If you can
20 add an engineered barrier to minimize that that adds some
21 comfort level to the remedy.

22 MR. CHARLES: So in some cases you're not
23 worried about a comfort level. You just leave the
24 material there?

25 MR. DICKSON: In some cases by the

1 engineering design the immediate reuse of the site might
2 be a parking lot for instance, so the cap may not
3 visually appear in the slides at present. It may be in
4 asphalt pavement for instance that will appear in a year
5 later. It's part of the engineering plan. But for the
6 design it's entirely up to the engineers discretion as to
7 whether or not there is a cap requirement.

8 MR. CHARLES: So the asphalt in essence
9 would be the cap?

10 MR. DICKSON: That's correct.

11 MR. CHARLES: Yeah.

12 MR. DICKSON: In that instance.

13 MR. CHARLES: In that situation. I also
14 noticed that in a lot of your Superfund site references
15 there were either augers used or pug mills that sort of
16 thing but not too many excavators. Our particular
17 project started off with augers being used in the Tar
18 Ponds and then it was decided to use an excavator and in
19 your experience is there any difference in the
20 performance of -- or in the efficiency or the effect that
21 you get using augers rather than excavators or the other
22 way around?

23 MR. DICKSON: I think there's probably --
24 there's a two part response to that question. The first
25 part of the response has to do with the availability of

1 equipment in the geographic area. So in instances in the
2 United States where augers are readily available and
3 therefore the most economical means of mixing. The
4 augers become the evident solution. And other areas
5 where augers aren't as readily available or there might
6 be increased mobilization costs based on the scale of the
7 project, it's more appropriate to bring in the excavator
8 with a mixing tool fixed to the stick of the excavator.

9 So on the first instance or the first part
10 of the response it has to do with economics. The quality
11 of the blending is regularly tested so auger or excavator
12 should be able to give you the same quality of mixing as
13 long as you have the engineering controls in place and
14 perform the QA on the mixing.

15 MR. CHARLES: Okay, thank you. I'd like
16 to draw your attention now to Slide 29.

17 MR. DICKSON: I'm sorry, which
18 presentation please.

19 MR. CHARLES: That's a good question. I
20 think it was the first one.

21 MR. DICKSON: Thank you.

22 MR. CHARLES: This has to do with long
23 term durability and mathematical modelling. And there's
24 reference in some of the text in relation to models. It
25 says:

1 "Based on the worst case hydrology for a
2 monolithic landfill immersed in moving groundwater."

3 Now we've had our site described as one
4 involving a lot of groundwater underneath so there is
5 some similarities. And I just wonder is this test,
6 particularly the dynamic leach test of Environment Canada
7 directed towards modelling for the effects of groundwater
8 moving underneath. Or is it a more general test of
9 leachability.

10 MR. WILK: I think I can best answer your
11 question by referring to some of the slides that were --
12 that preceded that slide. Let's see if I can do this
13 here. All right. And this is the slide I wanted to
14 present. I wanted to talk about. When we talk about
15 leaching tests or leaching and extraction tests in the
16 realm of solidification and stabilization, it's important
17 to understand what we're trying to do here. Extraction
18 tests are aimed at literally trying to extract everything
19 you can out of a contaminated media. And that's where
20 the Toxicity Characteristic Leaching Procedure come from.
21 And the Synthetic Precipitation Leaching Procedure come
22 from.

23 And if you look here, this is what we're
24 trying to do in this -- what Jesse Conner was trying to
25 do in this schematic -- is show that -- you started out

1 with a solidified mass and then it was ground up. And
2 you ran it through tests to extract what you could out of
3 that. And Mr. Conner's point here is let's look at a
4 different kind of test where the material remains as a
5 monolith and is run through leaching tests. In the
6 example above, you're trying to extract everything.

7 This material doesn't represent the
8 solidified material but it's really sort of an adaption
9 again from rec or regulation as to why Toxicity
10 Characteristic Leaching Procedure is used to begin with.
11 Most people in the field of solidification and
12 stabilization don't find that as the actual situation.
13 We're looking at a monolithic -- in many cases, a
14 monolithic waste. And if this is closer to what you're
15 doing, what you're doing is putting it through aggressive
16 baths to try to leach material out of that material.

17 So when we go -- when we look at this, the
18 extraction tests are quick tests. These can be run on
19 the order of days. And so they're appropriate for use
20 for quality assurance and quality control. But the
21 actual -- when you go to model groundwater conditions
22 worst case scenarios is you're actually modelling -- you
23 want to model the batch leaching -- the leaching tests.
24 So when we get to the slide that you referred to here, we
25 see for the mathematical modelling you're seeing the

1 leachability tests that treat -- that are leaching tests.
2 These are monolith tests. You have ANSI 16.1 that
3 actually comes from the nuclear field which is a very
4 stringent field in the use of solidification and
5 stabilization.

6 So again, we're looking at leachability
7 tests rather than extraction tests and it's from those
8 leachability tests that do you get the data to be able to
9 enter into a model that can then give you some prediction
10 about worst case scenario placement in the moving ground
11 water.

12 MR. CHARLES: When you're talking about
13 worst case scenario -- I'm looking at the heading right
14 at the top of the slide which says "Long term
15 durability". Now I gather that leachability and leaching
16 characteristics and leaching in general is a question
17 that goes to the durability of the mix that you've come
18 up with. You don't want leaching, I take it, to take
19 place, right? Is that right.

20 MR. WILK: Sorry.

21 MR. CHARLES: You don't want leaching to
22 take place because it affects the durability of the
23 material. So you're trying to provide a mixture and
24 conditions that will prevent leaching from taking place.
25 And these models are a way of predicting the extent of

1 the leaching that might take place and consequently any
2 effect on the material itself.

3 MR. WILK: I -- when we look at any given
4 site, we use these tests to predict the long term
5 durability because what we're doing is we're exposing the
6 treated material to an aggressive environment. That
7 which we think is the worst that it can see. In the
8 earlier slide to this, the idea is you're trying to
9 simulate the most aggressive situation and accelerate
10 leaching in the laboratory because that's the only way
11 you can really test it.

12 You can't do it in real time because by
13 the time you're done with your leaching tests you -- the
14 endangerment that an untreated has posed to people, it
15 doesn't make sense. You can't wait that long. You got
16 to do something. It's -- I think Mr. Conner is liking
17 that to having a heart attack. Well, you got to get
18 treated. You can't refuse it, right? I mean, you might
19 have to undergo surgery to get it done. And so the
20 accelerated tests in the laboratory are a way to do it in
21 accelerated situation. The leaching tests are used to
22 get the data to be able to put into models to simulate
23 the worst case scenario for the site.

24 MR. CHARLES: Good. Thank you very much.

25 MR. WILK: Thank you. I know it was a

1 long-winded question and ---

2 MR. CHARLES: Oh, no, that's fine. I'm
3 happy to have it.

4 MR. WILK: Not a long-winded question. A
5 long-winded answer.

6 DR. LAPIERRE: Could I have ---

7 MR. CHARLES: I guess you were right the
8 first time. That was a freudian slip was it.

9 DR. LAPIERRE: Could I have a short
10 question and a short answer. If you're doing the dynamic
11 leach test and you're trying to do exactly what you said
12 you wanted to do, you take material, you're trying to
13 give it the worst case scenario, would you get the same
14 results from a material that has a 500 psi or one that
15 has 19 psi? Would the leachability test give you the
16 same results?

17 MR. ADASKA: Again, I'm not saying this in
18 terms of chemistry but the analogy I would make is if you
19 have a pervious concrete that you make with 500 psi and
20 the water went right through it. Versus a tight material
21 that would be a clay material much lower strength and
22 you'd have less material go through there so I think --
23 again as we pointed out earlier that the compressive
24 strength aspect of it is just one aspect to deal with and
25 they may or may not be related to the permeability of the

1 material.

2 DR. LAPIERRE: But that's not really the
3 answer I was looking for.

4 MR. ADASKA: No, no. And it's longer,
5 yeah, but I'm not sure if ---

6 DR. LAPIERRE: Why would you waste time
7 and money putting 500 psi material in place then, if you
8 could do just as good with 19?

9 MR. WILK: You would definitely look at
10 this as what you want to do, optimize your mix. We get
11 back to the mix design if your criteria is to deal with
12 the leach test and it comes out at a certain strength
13 requirement and it meets that strength requirement that's
14 needed to get that leach test available then that would
15 be your criteria. And we can't really predict what that
16 strength would be until we do the testing.

17 DR. LAPIERRE: So if I ran the dynamic
18 leach test from Environment Canada on a monolith at 19
19 psi or one at 500 psi I would get the exact same
20 leachability result over time?

21 MR. WILK: I think you could look at
22 unconfined compressive strength. In some materials
23 perhaps the hydraulic conductivity of the finished
24 treated material has to do with the physical form and --
25 of the material. And unconfined compressive strength

1 could give you an idea of how durable that waste form is.
2 And so if that material, for example, in a clay, the clay
3 itself doesn't depend that much on the its ability to
4 maintain its shape.

5 Obviously clays usually occur in nature.
6 They're confined in some way so they maintain their shape
7 that way. In the case of solidified and stabilized
8 material, it could be said that the hydraulic
9 conductivity is dependent on the material holding its
10 shape. And usually when we look at an in situ site that
11 material is contained. And it is -- there's compression
12 around it and so it maintains its shape on its own. I
13 think the unconfined compressive strength gives you an
14 idea of its durability to see if it holds its shape.

15 DR. LAPIERRE: So the answer that you're
16 giving me is it makes no difference. It would get the
17 same results from your tests.

18 MR. DICKSON: Dr. LaPierre, with your
19 indulgence we would like to refer this question to Mr.
20 Conner and we'll provide a written response to your
21 question, sir.[u]

22 DR. LAPIERRE: Thank you.

23 MR. DICKSON: You're welcome.

24 THE CHAIRPERSON: I would just like to
25 note, I'm sorry, you made an earlier undertaking and I

1 had my finger on the button and I was about to say, you
2 know, enter that into the record that you've made that
3 undertaking and I don't know, I got swept away by the
4 questions and answers and I didn't do that. But I just
5 wanted to make that note. And now I can't tell you what
6 your earlier undertaking was but I hope you have the
7 note. Otherwise it will appear in the transcript.

8 MR. DICKSON: I believe, Madam Chair, the
9 earlier undertaking was the compressive strength in the
10 Cambridge site.

11 THE CHAIRPERSON: Sounds good. So we now
12 have two undertakings.

13 MR. DICKSON: We have two undertakings.
14 No problem, Madam Chair.

15 THE CHAIRPERSON: All right. Thank you.

16 MR. CHARLES: I just have one question and
17 I think it's an easy one to answer. In your Slide 10,
18 you say that contaminants are physically bound in the
19 cement mix. And I guess that's one of the reasons for
20 doing the cement mix. I guess my question is,
21 contaminants are already bound are they not to organic
22 compounds and are relatively immobile. Will the
23 stabilization change that mix and in so doing will it
24 lessen their mobility, increase their mobility or make no
25 change whatsoever? And I know what you hope will happen

1 that it will lessen their mobility. But is it possible
2 that something else will happen because you're changing
3 the matrix?

4 MR. WILK: Mr. Charles, I believe your --
5 I would like to get to that slide so I can follow your
6 question a little bit better.

7 MR. CHARLES: Slide 10.

8 MR. WILK: Here we are. So sir, you're
9 asking what's the difference really in the solidification
10 and stabilization treatment of inorganic hazardous
11 constituents and organic hazardous constituents. It's
12 been used for both of those broad chemical groups that we
13 know of from taking organic chemistry. In the case of
14 inorganic hazardous constituents the treatment includes
15 using chemistry to make the material less soluble. In
16 the case of organic -- a treatment of organic hazardous
17 constituent -- I'm sorry, let me back up there.

18 In the case of inorganic hazardous
19 constituents, you're relying on the changes to the
20 chemistry of the treated material and also changes to the
21 physical chemistry -- the physical properties of the
22 material. In organic hazardous constituents you are
23 relying on mostly the physical changes to the
24 contaminated material. And I think what you're referring
25 to is certain hazardous constituents that are organic

1 have an affinity for other particles. Is that where
2 you're going sir?

3 MR. CHARLES: Yeah, I mean if they're
4 already sort of bound and immobile in that sense, why do
5 you have to do more.

6 MR. WILK: Well, a couple of reasons. You
7 actually capitalize on that phenomenon. You can -- they
8 are bound -- say you have a particle that has an affinity
9 for a certain organic compound. It binds. It attaches
10 itself to that particle. And so it's happy there as long
11 as the particle doesn't move. But if that particle then
12 begins to move around the environment, there -- I guess
13 that's not really leaching. That's actual physical
14 movement of that contaminant attached to that particle.
15 And so we use solidification to fix that particle that
16 has this constituent attached to it in place. And
17 that's what prevents it from moving around the
18 environment and that's what protects human health and the
19 environment. It's breaking the chain or breaking the
20 migration or a potential of that contaminant that has
21 attached itself to another particle.

22 MR. CHARLES: And do all contaminants
23 behave the same way?

24 MR. WILK: No.

25 MR. CHARLES: So you'd have to know what

1 you're dealing with in order to determine how effective
2 the process is going to be?

3 MR. WILK: Yes.

4 MR. CHARLES: And this is my last
5 question. It's been said that solidification and
6 stabilization is a passe technique. It's yesterday's
7 child. Now other techniques are overtaking it. Yes,
8 it's -- history shows it's got 24 percent of use in
9 Superfund sites that have been remediated but if you're
10 looking at trends it's not the trend of the future. It's
11 the past that we're talking about. You got any -- I
12 should be -- you know, I know the answer I'm going to get
13 but -- I mean you can shoot yourself in the foot if you
14 like but an honest answer regardless of self-interest you
15 know, might be useful.

16 MR. WILK: I'm sorry.

17 MR. DICKSON: I'll take a run at this one
18 for you, Mr. Charles.

19 MR. CHARLES: Have you got armoured shoes
20 on.

21 MR. DICKSON: No, no I'm good. They're
22 not concrete shoes yet. The question as I understand it
23 is, from the pie chart that we presented in both
24 presentations in fact, do we anticipate that 24 percent
25 becoming 23, 22 and so on. In earlier publications

1 before technologies were advanced and the environmental
2 remediation industry was what it is today, fairly mature,
3 solidification and stabilization was like 30 percent.

4 Therefore, obviously from 30 to 24 we've
5 seen a six percent decrease. At that time, there were no
6 where near the number of technologies introduced
7 developed by proprietary companies, developed through
8 research with National Research Council for instance in
9 Canada. And therefore, the market share so to speak was
10 much higher. As you saw from the slide in both
11 presentations there are many, many more defined
12 remediation technologies now. And they carve up that
13 percentage ever more. But it's highly likely that will
14 maintain certainly 20ish percentage over a period of time
15 because it's an effective technology to treat those
16 combined wastes both inorganic, organic, combined waste.

17 MR. CHARLES: Thank you very much and I
18 think your feet are still in tact.

19 THE CHAIRPERSON: I'm awfully sorry
20 because that was a grand finale question that Mr. Charles
21 asked you and of course I've got one more question and
22 it's not a grand finale one. But -- and I'm trying to
23 find the reference and can't but it really doesn't
24 matter. I have a memory that somewhere in the
25 presentation there was a rather rapid reference to the

1 fact that fugitive emissions can be easily or readily
2 controlled. Did I imagine that but it doesn't matter if
3 I imagined it or not. How do you control fugitive
4 emissions in this process?

5 MR. WILK: As I said before, we're not
6 remediation contractors. But from my observation of
7 sites that are active and completed and talking with
8 solidification and stabilization contractors, I'm always
9 impressed by the creativity of contractors enable to
10 surmount challenges if you will of different aspects of
11 this site. And there are engineering controls and as
12 I've tried to point out in the examples that I've given
13 of the ability to deal with fugitive emissions. And that
14 comes from a wide range of different methods.

15 So everything from using plastic sheeting
16 to reduce the surface area and increase the vapour
17 pressure beneath a treated -- on top of a treated
18 material to keep down on any emissions. It's using air
19 pollution control treatment terrain attached to the
20 mixing devices to deal with those. There's even
21 suppressive foams that can be applied to keep down the
22 fugitive emissions. So there's a lot of techniques out
23 there and it's pretty amazing the creativity that we see
24 and contractors to be able to achieve those -- to be able
25 to achieve that.

1 THE CHAIRPERSON: Okay, thank you. What
2 I'm going to do because you've been sitting there a long
3 time and so has everybody else, I'm going to suggest we
4 take five minute break. We're not going to go anywhere
5 but just so people can stand up. Five minutes and then
6 we will resume and I will provide opportunities for other
7 people who have been sitting there so patiently to ask
8 you questions.

9

10 --- RECESS: 8:52 P.M.

11 --- RESUME: 8:57 P.M.

12 THE CHAIRPERSON: If you'd like to take
13 your seats, we'll begin again. Once again, thank you so
14 much for sitting there patiently. I know the Panel
15 questioning was somewhat longer than we have been in
16 other cases, but thank you for your patience.

17 I will now ask the Proponent, do you have
18 any questions for the presenters?

19 MR. POTTER: Yes, thank you, Madam Chair.
20 Just a general comment first of all. We seem to find
21 ourselves back into the topic of bearing strength and
22 capping and future use again, and I think we've talked
23 about this a number of times.

24 That's why we did request the additional
25 time that we've had for Thursday, May 11th, at 3 o'clock.

1 We're going to revisit that topic. Mr. Shosky is going
2 to be giving about an hour presentation on that with some
3 time for some questions, because I think it's important,
4 it's come up over and over again.

5 So, I'm going to ask Mr. Shosky just very
6 briefly to touch on the issue of the unconfined
7 compressive strength, and I'm also going to ask him to
8 just, as well briefly, talk about the difference between
9 why you would pick ex-situ versus in-situ.

10 One of the reasons we do have Earth Tech
11 on our team as one of our consultants is because they do
12 have extensive experience with solidification and
13 stabilization both as a designer and as a contractor.

14 So, I'll ask Don to just briefly, not take
15 too long -- I know it's getting very late and everybody
16 is getting a little tired right now, so -- I know I am.
17 Don?

18 MR. SHOSKY: Thank you, Mr. Potter. And I
19 just want to add that I personally have stabilized about
20 a million tonnes of material, anything from radioactive
21 material in Denver, PCBs in Alaska and tars in about ten
22 different states.

23 So, when we make a decision between in-
24 situ and ex-situ technologies we typically, and in this
25 case, went through a risk assessment and that risk

1 assessment included what's the potential for generating
2 odour, dust, emissions, and how does the handling of the
3 cement take place with the different sorts of
4 technologies, and then we did a cost model associated
5 with that. So, as a result of all those factors we ended
6 up with the in-situ technology using excavation.

7 Just so that the Panel may have a better
8 understanding of where the cost break point, based on my
9 experience, has been as the difference between
10 excavations and augers, is anything over a depth of about
11 eight metres the auger becomes a bit more cost-effective
12 than an excavator.

13 Since the majority of our material is well
14 -- well, all of our material is well under eight metres
15 in depth, we felt that the excavation -- traditional
16 excavation equipment for blending tools would suffice in
17 this project, as well as meeting the other analyses that
18 I had just mentioned.

19 The ex-situ technology using pug mills and
20 things like that in this case I felt was not cost-
21 effective because of the material handling problems with
22 the sediments, as evidenced by some of the handling
23 problems that had happened with the previous incineration
24 job where material was having difficulty getting to the
25 plant, and there are additional dust issues associated

1 with the amount of infrastructure involved with putting
2 in a pug mill.

3 Another question that came up frequently
4 was the unconfined compressive strength. Again, I worked
5 at EPA for nine years during the time when most of the
6 hazardous waste regulations and PCB regs were out. I was
7 an enforcement officer. It was my job to enforce those
8 laws. 50 psi is pretty much a landfill criteria for a
9 hazardous waste landfill.

10 The tactic we took when we designed our
11 unconfined compressive strength was the minimum amount
12 necessary to ensure that subsidence would not occur.

13 I'd like to answer very quickly a couple
14 of Dr. LaPierre's questions. There was a question that
15 came in to clarify the range of pH in relationship to
16 this project. We took a look at that.

17 One of the reasons our cement
18 concentrations are near 10 percent are because we were
19 hoping to achieve a pH between 9 and 10.5 in order to
20 make sure that our heavy metal concentrations within the
21 sediments maintained within that pH control so that
22 leaching would be minimized.

23 And as an added benefit -- we talked a lot
24 about mercury over the last couple days. Because of the
25 sulphur, mercury and cement content that we were

1 proposing, it also changes the mercury from more of an
2 elemental mercury to more like a mercury salt.

3 When would lime be used was another
4 question that was asked. Currently right now the only
5 time we would use lime, in my opinion, would be if we
6 were to try and do some sort of stabilization with the
7 tar cell. That right now is destined to be off for
8 incineration, but we would have some formulations in mind
9 if we were asked to go that direction.

10 pH control again for metals from the fly
11 ash, in my opinion -- and I think it's shared by the
12 witness -- the pH controls from the metal in the fly ash
13 is going to be the important characteristic there, to
14 make sure that it's immobile. We could add extra cements
15 to it but it's a delicate balance trying to maintain a pH
16 between 9 and 10 to immobilize that material.

17 Lastly, the question of PCBs came up
18 again. For those of you that don't know, it is illegal
19 to ship any levels of PCBs between the United States and
20 Canada. I had a job in Alaska two years ago where we had
21 to stabilize PCBs in lead material. From Alaska we could
22 not take it to the nearest spot, which was in Canada, we
23 couldn't ship it out of Alaska because of international
24 issues going over water with PCBs.

25 We were allowed and got a waiver from

1 USEPA to stabilize that material there and contain it in
2 a "Toskit (sp) type of facility" that was later turned
3 over into a large storage shed area for storage sheds in
4 Fairbanks.

5 So, there are some flexibility on the
6 amount of PCBs that you can stabilize and put in place
7 and it's based on a case-by-case condition with the
8 ability to have an engineered contained system around it
9 that would contain it.

10 Lastly, Dr. Charles asked a question about
11 whether or not a cap is necessary in order to maintain
12 durability of the stabilized monolith over time. From
13 our perspective a cap would be necessary for the extreme
14 climatic conditions in Cape Breton because of the freeze
15 and thawing that takes place.

16 All we have to do is look around at a lot
17 of rocks and mountains that are there that, because of
18 freeze/thaw, break and crack and things of that nature.
19 So, it was the opinion of myself and the Tar Ponds Agency
20 that having an adequate cap on top of the monolith would
21 protect it and add a buffer for those types of issues.

22 And with that, unless you have any
23 questions, that's the clarification we would like to
24 make.

25 MR. POTTER: I hope that was quick enough.

1 THE CHAIRPERSON: I think any questions
2 for you we will hold. Thank you very much, Mr. Shosky
3 and Mr. Potter.

4 All right. After long last I'm going to
5 ask -- first of all, I would like a show of hands how
6 many people have questions. Mr. Ignasiak, Ms. MacLellan.
7 Just the two. Mr. Ignasiak, would you like to come
8 forward, and I think 10 minutes for your questions.

9 MR. IGNASIAK: Ten minutes?

10 THE CHAIRPERSON: I know, unbelievable.

11 MR. IGNASIAK: Thank you very much. No,
12 that's much more than I thought.

13 THE CHAIRPERSON: Well, I feel that we
14 only have two questioners and we do have two
15 presentations, so I think that is reasonable.

16 MR. IGNASIAK: Thank you very much.

17 --- QUESTIONED BY MR. LES IGNASIAK

18 MR. IGNASIAK: My first question to the
19 presenters is, do you know what is the organic content --
20 average organic content of the Tar Ponds sediment? If
21 not, perhaps I can supply an answer.

22 MR. DICKSON: Please, sir.

23 MR. IGNASIAK: Yes. It is about 56
24 percent. Now, can I ask you a question.

25 You state -- in my opinion, a very

1 perfectly well and balanced prepared bulletin of the
2 Portland Cement Association, you state, page 12, "Wastes
3 Containing Organic Compounds":

4 "For hazardous organic wastes and
5 aqueous wastes with greater than one
6 percent hazardous organics, the land
7 ban regulations effectively prohibits
8 treatment by SS technique."

9 Do you know roughly what is the
10 concentration of hazardous organics in Tar Ponds?

11 Maybe I can come to next question. You
12 state in your bulletin:

13 "For non-hazardous oil wastes
14 techniques have been developed to
15 solidify these materials when the
16 organic content is below
17 approximately 25 percent."

18 And then you state:

19 "There is no concern about leaching
20 standards since these are non-
21 hazardous, and once solidified there
22 is no problem."

23 Well, I understand based on what Mr.
24 Shosky just said a few minutes ago that the pH will be
25 roughly between 9 - 10. Is that correct? What is

1 happening when the pH comes to about 9 - 10 with the
2 phenols? And the phenols are the major components of
3 coal tar. Could you tell me what is happening?

4 MR. DICKSON: Madam Chair, could I have
5 that question rephrased? There was about seven questions
6 perhaps in the statement. I wasn't sure what question
7 exactly we were being asked to address.

8 MR. IGNASIAK: I would be happy to repeat
9 this question. Could you tell me what is happening with
10 the phenols? And phenols are the major component of coal
11 tar when the pH comes to about 9 - 10.

12 THE CHAIRPERSON: Mr. Ignasiak, you're
13 asking questions about statements in which document? Is
14 that what your question ---

15 MR. IGNASIAK: I'm taking -- the questions
16 that I have been asking so far are taken based on
17 Portland Cement Association brochure entitled
18 "Solidification and Stabilization of Wastes Using
19 Portland Cement," Page 12.

20 This question that I'm asking right now is
21 related to the content of tar and phenols in the
22 sediment.

23 THE CHAIRPERSON: Are these questions ---

24 MR. IGNASIAK: Can I go to next question?

25 THE CHAIRPERSON: No, I think I need to

1 ask our presenters, first of all, do you understand the
2 question? You don't understand the question?

3 MR. DICKSON: No, Madam Chair, it is not
4 clear to us. We have the reference document that Mr. --
5 that the speaker is referring to, but we're not clear on
6 the question that he's asking about the brochure,
7 unfortunately. And this document has been entered into
8 the record.

9 THE CHAIRPERSON: Yes. Mr. Ignasiak, can
10 you -- you obviously want to -- this is a difficult line
11 of questioning, obviously.

12 MR. IGNASIAK: Madam Chair, I ask a simple
13 question. Do the presenters know what is the content of
14 phenols in the sediment that is supposed to be
15 solidified?

16 MR. DICKSON: No, Madam Chair, we do not
17 know the answer to that question.

18 MR. IGNASIAK: If they don't know, so
19 please tell me that.

20 THE CHAIRPERSON: Mr. Ignasiak, I wonder
21 if you could perhaps -- I feel the tone of the
22 questioning is getting a little ---

23 MR. IGNASIAK: I'm sorry. I'm sorry, I
24 will try to tone it down.

25 THE CHAIRPERSON: Yes, if you could just

1 take a breath.

2 MR. IGNASIAK: I will try to tone it down.

3 THE CHAIRPERSON: It's late in the evening
4 and I think ---

5 MR. IGNASIAK: Yeah, I understand. I
6 apologize for that. Anyway, I would like then to say
7 that those phenols will be solubilized, will turn into
8 phenolates, sodium phenolates, and if you look at
9 information that was provided on request of United States
10 Department of Energy by Oakridge National Laboratory you
11 will find out that essentially the phenols are one
12 hundred percent recovered from the stabilized material
13 during TCLP test.

14 Subsequently, the same source that I just
15 referred you to states clearly -- and I am now quoting:

16 "Supra et al, 1992 showed that the
17 leaching performance of phenol is
18 better when the queue time is
19 increased."

20 THE CHAIRPERSON: Mr. Ignasiak, I think
21 we've got a problem here. I think that what you're going
22 to need to do is to bring this information to us in your
23 presentation.

24 MR. IGNASIAK: Madam Chair ---

25 THE CHAIRPERSON: I know I've been saying

1 this to you a few times.

2 MR. IGNASIAK: --- I would rather prefer
3 to submit the information on the subject, because there
4 is a number of other issues that were presented today
5 that I do not agree with and I will raise them in my
6 presentation, if it's okay with you.

7 THE CHAIRPERSON: Absolutely.

8 MR. IGNASIAK: Thank you very much.

9 THE CHAIRPERSON: That's quite the right
10 approach. Thank you.

11 Ms. MacLellan, do you have some questions
12 for our presenters, please?

13 --- QUESTIONED BY CAPE BRETON SAVE OUR HEALTH CARE
14 COMMITTEE (MS. MARY-RUTH MACLELLAN)

15 MS. MACLELLAN: I've had questions since
16 the time I was born and could talk. Anyway, I'll try not
17 to be too long and I'll try to ask short questions.

18 Let's talk about the cement first. Is
19 there sand in your cement?

20 MR. DICKSON: The solidification and
21 stabilization process that we discussed today is a
22 cement-based process but there isn't a sand in the
23 cement. There'd be sand in concrete, as we presented in
24 earlier slides, and fine and coarse aggregates, the fine
25 being sand, but in the cement itself, no, there is no

1 sand.

2 MS. MACLELLAN: So, you mix it with sand,
3 though, correct?

4 MR. DICKSON: No, we, in fact, don't mix
5 it with sand unless that's part of the mix design that's
6 developed. The mix designs would have reagents added of
7 which cement is one of those reagents, but typically sand
8 is not a reagent and therefore it wouldn't be part of the
9 mixing process. It may be in place, there may be sand in
10 the ground where the cement is mixed, but it's not part
11 of the reagent that we've identified.

12 MS. MACLELLAN: So, are you telling me now
13 that you don't have developed what you're going to mix
14 with the cement?

15 THE CHAIRPERSON: I think the question as
16 to what's going to be used in the mix is actually one
17 that goes to the Agency but ---

18 MS. MACLELLAN: Where I'm going with this
19 is ---

20 THE CHAIRPERSON: Yes, that would help, I
21 think, for us to know where the question should go.

22 MS. MACLELLAN: --- it's been my
23 experience around the ocean to watch cement very quickly
24 and rapidly deteriorate when it's hit by the high waves
25 in storm surges with the salt.

1 So, I'm just wondering what kind of effect
2 proportionately if they're going to use sand it's going
3 to have, because a lot of the problem is the sand. It's
4 just like sandstones, they break down very quickly in the
5 salt water. I'll leave that question and I'll go on.

6 THE CHAIRPERSON: Well, just for a point
7 of clarification, I think it's been clearly stated that
8 there's no intent to add sand.

9 MS. MACLELLAN: I think what he said was
10 he wasn't sure yet.

11 THE CHAIRPERSON: No. Well ---

12 MR. DICKSON: Madam Chair, if I may? Part
13 of the -- and I apologize, it's been many hours ago that
14 the first presentation was presented, but in the earliest
15 of slides we defined the difference between cement and
16 concrete and then concrete and a solidified, stabilized
17 or treated waste.

18 And between cement and concrete there's
19 certainly sand as a fine aggregate, a stone as a coarse
20 aggregate and water to make it concrete, but we're not
21 making concrete, we're solidifying and stabilizing a
22 hazardous waste. So, there is no sand or rock, for that
23 matter, or coarse aggregate in the mix.

24 Now, that's not to say it's not in the
25 ground. There are all kinds of different things in the

1 ground. There will be perhaps sand, inorganics and
2 organics, maybe some stone -- who knows what else might
3 be in the ground -- but it's not the mix design to
4 incorporate those things. They're the in-place materials
5 that are being treated.

6 MS. MACLELLAN: How far down will the
7 auger actually go?

8 THE CHAIRPERSON: I think these questions
9 which are about the specific way that this project will
10 be -- would be carried out belong with the Agency rather
11 than the presenter.

12 I think the questions for the presenter
13 should probably focus perhaps on the -- the more general
14 information they provided or the examples they provided
15 would be the most appropriate.

16 MS. MACLELLAN: Okay. Well, I'll go back
17 to the areas that they referenced in the sites that they
18 cleaned up. Most of them, in fact all of them, were in
19 the US. The US has a drastic different climate than we
20 do.

21 Having spent -- I've been almost
22 everywhere in the Eastern Seaboard of the United States,
23 so I know a little bit about what I'm talking about,
24 climate-wise that is.

25 They don't have the frost we do, they have

1 two growing seasons, we don't. Is there anywhere in
2 Canada with a climate similar to ours that you have done
3 a monolith project?

4 MR. DICKSON: Madam Chair, we entered into
5 the record earlier this evening three Canadian projects,
6 a project in Brandon, Manitoba, one in Vancouver and
7 Burnaby. Burnaby is the third project.

8 So, we do have three Canadian examples,
9 the recent examples of solidification and stabilization
10 in Canada, and we've provided project sheets to represent
11 the use of the technology in Canada very recently.

12 MS. MACLELLAN: So, once again, you
13 haven't done anything in a climate similar to ours.

14 The next question is -- I think it was
15 Medley in Florida that you mentioned. Do you know the
16 name of the mayor that I could contact in that town?

17 MR. DICKSON: Madam Chair, we do not know
18 the mayor's name.

19 MS. MACLELLAN: Thank you.

20 THE CHAIRPERSON: Thank you, Ms.
21 MacLellan. Well, I think that does -- oh, no, I should
22 ask. Is there anybody else who's not a registered
23 presenter who has a question?

24 In which case I think we can -- we have
25 come to the end of this evening's session. Thank you

1 very much, Mr. Dickson, Mr. Adaska and Mr. Wilk, you've
2 been at the table a long time. Thank you for your
3 presentations and thank you for your answering of the
4 many questions that we've put to you.

5 And thank you all for sitting here through
6 this marathon session. We really appreciate your
7 patience and your attention.

8 Tomorrow -- I am madly looking through my
9 papers to find my -- here we are -- my schedule. We will
10 be returning -- you have the day, or the morning and the
11 afternoon free, and we will be returning and starting at
12 5:45 on Wednesday and we have two presentations tomorrow
13 evening, the Cape Breton University and Dr. Ron
14 MacCormick.

15 Thank you all very much, and we will see
16 you tomorrow.

17

18 (ADJOURNED TO WEDNESDAY, MAY 10, 2006 AT 5:45 P.M.)

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Lorrie Boylen, CCR

Tuesday, May 9, 2006 at Halifax, Nova Scotia