

1 The Notice of Public Hearing 2001
2 H-7 was published on March 6, 2001.

3 The presentations were made on Day
4 1 by both the Applicant, Cigar Lake Mining
5 Corporation under CMD 01-H14.1 and by Commission
6 staff under CMD document 01-H14. I note that the
7 staff of the Commission will present supplementary
8 information under CMD document 01-H14.A. I also
9 understand that Cigar Lake Mining Corporation
10 representatives, including the President and
11 General Manager, are with us today and are
12 prepared to answer questions from the Commission.
13 Is that correct?

14 MR. TOSNEY: Yes, Madam Chair.

15 THE CHAIRPERSON: Thank you very
16 much.

17 On that basis I will call for the
18 oral presentation by CNSC staff, as outlined in
19 document 01-H14.A, and I will call upon Mr.
20 Pereira.

21

22 **01-H14.A**

23 **Oral Presentation by CNSC Staff**

24 MR. PEREIRA: Good morning, Madam
25 Chair, members of the Commission. For the record

1 my name is Ken Pereira. I am the Director General
2 of the Directorate of Fuel Cycle and Materials
3 Regulation. With me for this hearing, I have on
4 my immediate left Mr. Barclay Howden, Director of
5 the Uranium Facilities Division, and on my far
6 left, Mr. Rick McCabe, Head of the Uranium Mines
7 Section.

8 The Cigar Lake Mining Corporation
9 has applied to the Canadian Nuclear Safety
10 Commission for a licence to continue to manage the
11 Cigar Lake underground mine in a care and
12 maintenance mode for a three-year period. CNSC
13 staff has submitted to the Commission CMD 01-H14.A
14 to address questions raised at the Day 1 hearing
15 regarding licensing under the Nuclear Safety and
16 Control Act, with reference specifically to the
17 application of the Canadian Environmental and
18 Assessment Act.

19 We are available to answer any
20 further questions the Commission may have
21 regarding the basis for our recommendation for
22 licensing of the Cigar Lake mine.

23 THE CHAIRPERSON: Thank you, Mr.
24 Pereira. I will now open the floor for questions
25 from the Commission Members on any of the

1 documents received on Day 1, the supplementary on
2 Day 2 from either the Applicant or the staff. Any
3 questions?

4 Dr. Barnes.

5 MEMBER BARNES: Could I just come
6 back to the proposed term, which is three years.
7 Could you remind me again, and perhaps the
8 Applicant would like to comment on this, on when
9 you see a significant change in development here?
10 I understand that you are testing out various
11 means of drilling and final mining here, but do
12 you see that there is not going to be much change
13 within a three-year period?

14 MR. TOSNEY: The development of
15 our project is market driven. The three-year
16 period would be perhaps an outside limit within
17 which a change should take place. It may take as
18 long as that. We are currently beginning to work
19 on detailed design, moving towards a construction
20 application, but the decision to submit that
21 remains to be made.

22 MEMBER BARNES: This is partly
23 technologically driven too, though, isn't it, in
24 this particular situation?

25 MR. TOSNEY: Yes. There are some

1 further things that we would like to test and
2 enhance to improve some of our methods. This
3 application will permit that to proceed.

4 THE CHAIRPERSON: Further
5 questions? Thank you very much, Mr. Pereira.

6 I would like to note for the
7 record that the Commission takes account of every
8 written submission, as well as those intervenors
9 who wish to make an oral submission. I would like
10 to take this opportunity to thank those people who
11 do take the time and the focus to put in written
12 submissions. They are very important to us and we
13 take them into full consideration in our
14 decision-making process.

15

16 **01-H14.2**

17 **Written Submission from Mrs. Maisie Shiell**

18 With that introduction, I am going
19 to go through the three submissions that we
20 received and I will be asking after each one of
21 those for any comments or questions from the
22 Commission Members. These questions will be
23 directed to the licence Applicant and to the staff
24 as the Commission Members wish.

25 I will start with document CMD

1 01-H14.2, which is a written submission from Ms
2 Maisie Shiell. I will ask the Commission Members
3 for any comments or questions.

4 Dr. Barnes.

5 MEMBER BARNES: Just a question to
6 staff and probably to Dr. Thompson.

7 The item that is in bold in the
8 third paragraph according to Maisie Shiell:

9 "However, no field tests have
10 ever been conducted to
11 attempt to find the genetic
12 and somatic effects from
13 Uranium decay, alpha-emitting
14 radionuclides, as have been
15 done for low-LET radiation."

16 Can you confirm that that is the
17 case?

18 DR. THOMPSON: When we have
19 reviewed the literature on the environmental
20 effects of radiation, there have been many
21 experimental set-ups using external gamma sources
22 to look at effects on communities and populations.

23 Similar experiments have not been
24 conducted with alpha emitters. However, for the
25 uranium mining sites in northern Saskatchewan, we

1 do have environmental effects monitoring data that
2 goes back to the early 1980s. So, essentially we
3 have about 20 years of data on effects of treated
4 effluent releases from mining operations that do
5 have alpha emitting components in it.

6 Although there has not been
7 specifically tests done for alpha emitters, we do
8 have biological data on the combined effects of
9 alpha-emitters, as well as metals.

10 THE CHAIRPERSON: Dr. Barnes.

11 MEMBER BARNES: The bold area that
12 I am referring to is quoting yourself, I guess, in
13 1996. It is one thing to have data. It is
14 another thing to actually interpret the data and
15 bring that together to draw some conclusions.

16 Am I correct in thinking that
17 there is data, but no one has ever, in a sense,
18 bothered to address the issue that Ms Shiell is
19 raising here?

20 DR. THOMPSON: No, the issue has
21 been addressed many times. All the assessments
22 that have been done in support of our review of
23 the Applicants, we do look at the biological
24 information. We do link it to what is being
25 released from the effluence.

1 What we have concluded is that
2 there are environmental effects in the near field
3 of the mining operations. Those effects are
4 probably due to a combination of contaminants
5 coming out of the facility. What we cannot do
6 very well is discriminate what proportion of those
7 effects are from radionuclides in comparison to
8 metals, for example, or some of the other
9 chemicals coming out.

10 We do know that metals like
11 arsenic and nickel also cause genetic damage, and
12 it would be very difficult to look at what
13 proportion of that genetic damage, for example,
14 are caused by alpha-emitters or metals.

15 What we do also look at, although
16 it is quite difficult to do studies on genetic
17 damage per se in wild populations, we do know and
18 there is data on this for both alpha emitters and
19 gamma emitters. We do know that genetic damage is
20 related to reproductive effects, and when genetic
21 damage becomes significant enough, then we do see
22 reproductive effects in organisms.

23 So, we have looked indirectly for
24 genetic damage in looking at reproductive effects
25 at mining operations. This information has been

1 reviewed and has been used in making the
2 conclusions on whether the facilities are likely
3 or not to cause significant harm to the
4 environment.

5 THE CHAIRPERSON: Dr. Barnes.

6 MEMBER BARNES: Just one follow-up
7 question, then, on this same point.

8 Ms Shiell is raising the issue
9 that 20 percent is high grade ore. Could you
10 comment on whether you think this is a significant
11 aspect for alpha-emitting radiation, given the
12 increase in a grade in this particular situation
13 compared to the data that you would have dealt
14 with before?

15 DR. THOMPSON: What we do have is
16 in the environmental impact statements for the
17 facilities, for example, that have not started
18 mining, such as Cigar Lake, the environmental
19 impacts were predicted based on projected effluent
20 concentrations. Those projected effluent
21 concentrations for radium, for example, are not
22 different from what we have seen at sites that
23 have been in operation, such as Key Lake.

24 We also have more recently the
25 experience at McClean Lake, where they have

1 experience with mining higher grade ore and the
2 treated effluent is quite well controlled, as well
3 as the radionuclides coming out of the facility.

4 So, we do have both past
5 experience and more recent experience with higher
6 grade ores being milled.

7 THE CHAIRPERSON: Further
8 questions?

9 I just wonder if the Applicant
10 would like to comment on that specific question.

11 MR. TOSNEY: Ms Shiell has been
12 interested in this topic for a number of years. I
13 have heard of various authorities' attempt to
14 offer reassurances on this matter over those years
15 through panel processes and public sessions
16 throughout Saskatchewan.

17 Our view of this is that there is
18 a lot of work available on this topic. There is a
19 legitimate debate perhaps between industry and
20 Commission staff on some of the factors that might
21 be applied to the influence of alpha emitters on
22 biota. But this is in the nature of a scientific
23 debate of considerable merit which continues, I
24 think.

25

1 **01-H14.3**

2 **Written Submission from Mrs. Mary Pyne**

3 THE CHAIRPERSON: Thank you very
4 much. We will now move to written submission from
5 Mrs. Mary Pyne, as outlined in CMD document
6 01-H14.3.

7 Are there any questions or
8 comments from the Commission Members? There is no
9 questions.

10

11 **01-H14.4**

12 **Written Submission from Mr. William Adamson**

13 I will now move to the written
14 submission from Mr. William Adamson, as outlined
15 in CMD document 01-H14.4. Are there any questions
16 from the Commission Members?

17 Dr. Giroux.

18 MEMBER GIROUX: Yes. There is a
19 question and may maybe both Applicant or staff
20 might answer.

21 Mr. Adamson discusses the process
22 that is going to be used and mentions the
23 possibility -- the pages are not numbered, but the
24 next to the last page, at the top -- that there is
25 no mention made of the plans or procedures if some

1 of the pipes become plugged.

2 Could both staff and Applicant
3 please discuss. Is that a real possibility and is
4 there a plan if this happens?

5 MR. SCHMITKE: Barry Schmitke,
6 Cigar Lake Mining.

7 Flush and drain points are part of
8 the design of the facility. If a pipe becomes
9 plugged, there is systematic drain points and
10 flush points that we can inject air and water to
11 clear the pipes.

12 Also, it is a very dilute slurry
13 so that if a pipe has to be taken apart, there is
14 a procedure that has to be followed to take the
15 pipe apart and address the issue. So, it is part
16 of the design.

17 MEMBER GIROUX: All of this with
18 acceptable doses to the workers involved?

19 MR. SCHMITKE: Yes. During the
20 mining test, the average effective dose was 0.4
21 milli-Sievert, which is roughly 30 times less than
22 the limit. So, it is a very low dose because it
23 is a very dilute slurry.

24 THE CHAIRPERSON: Mr. Graham.

25 MEMBER GRAHAM: Just on that same

1 subject, because it said it was going to be
2 addressed at the licensing process, the material
3 that would come out of those pipes when they were
4 flushed, how is that handled? It is handled as a
5 contaminated material also? Would you explain the
6 process of how you would clean the pipes? Are
7 they brought to another area or, if the pipe
8 plugs, is it done right on site with robots or
9 what is done with the material? I guess that is
10 what I am wondering.

11 MR. SCHMITKE: There is a
12 radiation work permit that is issued specifically
13 for cleaning the pipes, so that it is a very
14 controlled environment. It is cleaned in place.
15 We do not bring them to surface or any other
16 place. The area is cordoned off, and there is a
17 specific procedure to clean the pipes.

18 MEMBER GRAHAM: Thank you.

19 THE CHAIRPERSON: Just on those
20 two questions by Dr. Giroux and Mr. Graham, are
21 there any comments by staff before we move on to
22 further questions?

23 MR. PEREIRA: I will ask Mr.
24 McCabe to comment.

25 MR. McCABE: Just to confirm, the

1 clean up of the spills and the pipes, this was
2 part of the panel review. This type of question
3 came up in the panel review for Cigar Lake, and
4 there was a significant amount of effort put in to
5 determining the doses that would occur to the
6 workers and we confirmed that the doses to the
7 workers would be acceptable even those these type
8 of situations will naturally occur. There will be
9 plugs. There will be spills. Those were factored
10 in, and the doses to the workers were acceptable
11 on that.

12 THE CHAIRPERSON: Mr. Graham.

13 MEMBER GRAHAM: The only question
14 I have is then in the licensing application -- not
15 application, but in the licensing there is a
16 specific procedure now as being spelled out by
17 CNSC to deal with that, is there?

18 MR. McCABE: I would ask Mr.
19 Courtney if he could reply or Mr. Schmitke as to
20 the specific procedure.

21 MEMBER GRAHAM: I am not asking
22 for the specific one.

23 MR. McCABE: No, I am just
24 wondering if there is one.

25 THE CHAIRPERSON: I would like the

1 Applicant to address that, please.

2 MR. SCHMITKE: During the mining
3 test, we had specific procedures in place for
4 cleaning pipes and the like. These are called
5 radiation work permits, which were discussed in
6 advance and approved by CNSC as part of the
7 protocol for the test.

8 In future, that same sort of thing
9 will be in place to deal with plugged pipes.

10 THE CHAIRPERSON: Dr. Barnes.

11 MEMBER BARNES: I wonder if the
12 Applicant and possibly staff could just address
13 the issue that is being raised under item 4 by Mr.
14 Adamson. That is the change, metastable condition
15 of HFO to convert to goethite over time in
16 relatively short order and, therefore, I think he
17 is questioning the effectiveness of this waste
18 water treatment process. It is the first page,
19 item 4.

20 THE CHAIRPERSON: Do you have the
21 necessary documents?

22 MR. TOSNEY: We do, Madam Chair.

23 MEMBER BARNES: This is the letter
24 from Mr. Adamson under the comments in bolder
25 print, item 4.

1 MR. SCHMITKE: The process that we
2 use for the treatment of waste water is a very
3 standard process. It is commonly used in the
4 industry. We have not experienced any problems
5 over the years with that process.

6 That is the only comment that I
7 can make.

8 MEMBER BARNES: Mr. Adamson is
9 citing a staff comment in 1997 to this effect.
10 Perhaps staff could comment.

11 MR. PEREIRA: Yes, the assessment
12 for this particular was carried out by the Waste
13 and Decommissioning Division. I will seek out
14 advice from Mr. Flavelle of that division.

15 MR. FLAVELLE: My name is Peter
16 Flavelle. I am an assessment specialist with the
17 Waste and Decommissioning Division.

18 This issue that Mr. Adamson raises
19 has to do with treatment specifically designed for
20 the tailings management in the McClean Lake
21 project, in the JEB pit. The issue of HFO
22 conversion to goethite is part of an ongoing
23 scientific debate. It is a relatively slow
24 process, especially at these temperatures that the
25 tailings are subject to.

1 There is not a great deal of
2 indication that this will occur over time scales
3 of concern for these purposes.

4 MEMBER BARNES: The statement
5 there I take it is an actual quote from staff,
6 which says "will crystallize relatively rapidly
7 over time into goethite." There is no indication
8 of what "relatively rapidly" means. I am not sure
9 I am hearing from you what that means.

10 I could ask: Since this is a
11 slightly different treatment process probably in
12 this case, whether there would be any difference
13 technically in this setting than the McClean Lake
14 one.

15 MR. FLAVELLE: There should be
16 very little difference in this setting. The issue
17 is in the initial treatment, and the process which
18 was developed applicable for McClean Lake was to
19 produce a tailings material which the arsenic is
20 contained in a mineral phase within the process
21 circuit.

22 At Cigar Lake, the relative
23 amounts of iron and arsenic are slightly
24 different, and the mineral phase which gets
25 produced is dependent on that ratio. So, the

1 treatment is comparable but not identical. The
2 conditions are comparable but not identical. The
3 relative rapidity of this is referring to geologic
4 time scales as opposed to human time scales.

5 MEMBER BARNES: Just for my own
6 clarification, I take this statement, which is a
7 staff statement, the next sentence reads:

8 "Goethite has a much lower
9 capacity for sorbing As than
10 HFO..."

11 Does this mean that if it is
12 converted to goethite that there simply is an
13 efficiency or, in the conversion from HFO to
14 goethite that arsenic is actually released back
15 into the system?

16 MR. FLAVELLE: In the conversion,
17 arsenic tends to be released but then to be
18 reabsorbed but with lower efficiency because of
19 differences in surface area and surface charge,
20 and just the crystal structure of the material.

21 But it is a question of efficiency
22 on a per gram basis.

23 MEMBER BARNES: So once it is
24 absorbed onto HFO and then HFO converts to
25 goethite, is there a release of arsenic in this

1 phase or not?

2 MR. FLAVELLE: Yes, but there will
3 be a reabsorption as well.

4 MEMBER BARNES: Reabsorption onto
5 what?

6 MR. FLAVELLE: Onto the goethite.
7 It is a dissolution/reprecipitation process which
8 occurs in-situ.

9 MEMBER BARNES: Can the same
10 amount be resorbed or what I interpret here is
11 that less can be resorbed onto goethite and,
12 therefore, there will be a net release of arsenic
13 into that environment.

14 MR. FLAVELLE: It depends on the
15 relative masses of goethite and arsenic. If you
16 have excess HFO to begin with, then you have
17 excess goethite to reabsorb all of the arsenic.
18 If you don't have sufficient, then some may be
19 released into solution and remain there.

20 THE CHAIRPERSON: Ms MacLachlan.

21 MEMBER MacLACHLAN: In Mr.
22 Adamson's submission under item number 10, he
23 quotes from the Joint Federal-Provincial Panel. I
24 am wondering if staff can comment on the issue
25 that he raises here with respect to the mixing of

1 Canadian uranium with uranium acquired from other
2 sources in the global context and the potential
3 for use of Canadian uranium in the development of
4 nuclear weapons?

5 MR. PEREIRA: I will pass the
6 question on to Mr. Howden.

7 MR. HOWDEN: In terms of just a
8 general comment to begin with, the import and
9 export controls and application of IAEA safeguards
10 fulfil part of Canada's international obligation
11 to implement measures respecting non-proliferation
12 of nuclear materials.

13 With regard to exports of Canadian
14 uranium, exports of Canadian uranium for uses in
15 the nuclear fuel cycle are subjected to provisions
16 of Canada's nuclear cooperation agreements with
17 its bilateral trading partners.

18 Under these nuclear cooperation
19 agreements, as a condition of supply, the use of
20 Canadian uranium in the acquisition or manufacture
21 of nuclear weapons or other nuclear devices is
22 covered.

23 As well, the nuclear cooperation
24 agreements can also preclude the use of items
25 subject to the agreement, including Canadian

1 uranium for any military purpose such as the
2 manufacture of depleted uranium shells.

3 Our non-proliferation people are
4 here. If you want more details, they can provide
5 that if you wish.

6 MEMBER MacLACHLAN: That is fine.
7 Thank you.

8 During Hearing Day 1, we were
9 talking a little bit about the Jet Boring Mining
10 System and I believe my colleague, Dr. Barnes,
11 asked for further information on that system.

12 I haven't received it in my
13 materials. Was that information forthcoming from
14 Cigar Lake Mining?

15 MR. SCHMITKE: We have not
16 provided that information yet, but we will provide
17 that shortly.

18 MEMBER MacLACHLAN: Thank you very
19 much.

20 THE CHAIRPERSON: Dr. Barnes.

21 MEMBER BARNES: Is there a reason
22 why we couldn't have had it prior to this meeting?

23 MR. SCHMITKE: We just didn't
24 assemble the information. We will submit it very
25 shortly.

1 THE CHAIRPERSON: Dr. Giroux.

2 MEMBER GIROUX: Yes, I will refer
3 to comment number one from Mr. Adamson in the
4 document following his letter and have staff
5 respond to that. There is an assertion that staff
6 have a basic motivation of facilitating the
7 uranium mining industry.

8 Could you, staff, make a statement
9 about your motivation when you are providing
10 guidance to the industry, I am quoting Mr. Adamson
11 again, to make sure that they understand the
12 rules, and in the same answer, tell me if you make
13 any distinction when you are answering questions
14 or providing guidance between Applicants and
15 intervenors in supplying information and the like?

16 MR. PEREIRA: I believe the
17 comment is made with respect to certain activities
18 which we would consider to be part of our
19 compliance program. In our compliance program and
20 our policy, we have three elements. One is
21 promotion; the second is verification; and the
22 third is enforcement.

23 Promotion involves communicating
24 to the licensee what our regulatory requirements
25 are to make sure that they understand what our

1 regulatory requirements are. That might include
2 provision of guidelines, standards, and taking the
3 trouble to communicate and meet with licensees to
4 explain the true significance of those guidelines
5 and standards. So that they can then undertake
6 what is required by the Act and the Regulations.

7 That might be seen by some as
8 promoting the industry. But we see it as making
9 sure that the licensees are knowledgeable enough
10 to be able to comply without misunderstandings.

11 With respect to providing
12 information to intervenors, we have a very open
13 policy. With particular reference to uranium
14 mining, intervenors are regular visitors to the
15 Uranium Mines Section office in Saskatoon. One of
16 the intervenors in fact has a desk at the office
17 where she comes and visits and obtains reports and
18 information fairly freely.

19 So there is no resistance to
20 providing information to intervenors.

21 I will ask Mr. McCabe if he wants
22 to comment further on the promotion activities.

23 MR. McCABE: Just let me comment
24 first on the references that Mr. Adamson makes
25 here. He refers here to the guidance provided to

1 the Applicant in preparing the environmental
2 impact statement. That was provided by the panel.
3 That was not provided by CNSC staff. That was
4 based upon public hearings to find out the scope
5 of the assessment that would be required in the
6 input from the public prior to the preparation of
7 the EIS. So that example doesn't relate
8 specifically to us.

9 With regard to the other aspect of
10 the promotion, yes, we do provide guidance to the
11 licensee. We do provide written guidance when we
12 can. We have done that in the past. But we also
13 make an effort to communicate that, both to
14 management and to the workers. We have, in the
15 recent past, in the last year and a half or so,
16 provided sessions at the mine sites, to make sure
17 that everybody is aware of the guidance that we
18 are providing. So, it is not specific to the
19 Applicant and it is not exclusive to the
20 Applicants. It is also given to the workers.

21 THE CHAIRPERSON: Just before
22 further questions, I gather, the President of
23 Cigar Lake would like to make a further comment
24 with regards to the technical information that was
25 requested?

1 MR. TOSNEY: Thank you, Madam
2 Chair. A supplementary comment to follow up on
3 Dr. Barnes' question.

4 Upon completion of our jet bore
5 system testing, we have provided a full report on
6 that test to the local office of the CNSC. This
7 deals in considerable detail focusing on radiation
8 protection, occupational health and safety. But
9 we will review with staff the specifics of what
10 you may wish in the way of further information in
11 addition to that report.

12 THE CHAIRPERSON: Dr. Barnes,
13 would you like a copy of that test report supplied
14 at this time? Could staff make sure that this is
15 provided as soon as possible?

16 MR. PEREIRA: Yes, Madam Chair, we
17 will get a copy to the Commission Secretary.

18 THE CHAIRPERSON: This morning?

19 MR. PEREIRA: I am not sure
20 whether we have it with us in Ottawa.

21 Mr. McCabe.

22 MR. McCABE: We don't have it here
23 in Ottawa, but we will get it to you very quickly.

24 THE CHAIRPERSON: Either from
25 Cigar Lake or from the staff, I would appreciate

1 receiving that today.

2 Ms MacLachlan.

3 MEMBER MacLACHLAN: This is a
4 question to staff. In paragraph 9 of Mr.
5 Adamson's submission he asks a question. I think
6 the response to that question, I would like to see
7 that put on the record, please. His question was
8 whether or not a Memorandum of Agreement was ever
9 achieved between Canada and Saskatchewan with
10 respect to the sharing of responsibilities of
11 governments and the uranium industry for
12 institutional controls over the long term.

13 Has such a Memorandum of Agreement
14 ever been achieved?

15 MR. PEREIRA: We have a Memorandum
16 of Understanding to harmonize our regulatory
17 requirements and we are working on developing a
18 joint regulatory regime. I am not sure whether
19 this goes -- this is more specific than that. It
20 talks about aquatic biota.

21 I will ask Dr. Thompson to comment
22 on that, whether there is another specific
23 agreement that is referred to here?

24 DR. THOMPSON: In relation to
25 guidelines to protect the environment, the panel

1 had recommended that site specific or guidelines
2 that would be suitable for northern Saskatchewan
3 environment be developed because most of the
4 available guidelines were generic guidelines for
5 Canada or, in some cases, for Saskatchewan, but
6 not intended necessarily for the types of
7 environment in northern Saskatchewan.

8 We have made a commitment to
9 collaborate with Saskatchewan on this issue. We
10 are part co-chairs of what is being called the
11 Cumulative Effects Environmental Monitoring
12 Working Group. The working group has put forward
13 last year a document on the process to be followed
14 to develop site specific guidelines, and this work
15 is scheduled to start end of year 2001.

16 In the interim, we have four
17 parameters, like uranium or molybdenum, for which
18 there were no guidelines. We have reviewed all
19 the available literature and have developed
20 assessment guidelines that we have used for the
21 purposes of assessing uranium mining and milling
22 operations.

23 I think one of the issues that is
24 raised by Mr. Adamson is for institutional
25 controls. I think possibly it relates to the

1 financial guarantees.

2 THE CHAIRPERSON: Would Mr.
3 Pereira like to comment on the financial
4 guarantees issue that was raised by Dr. Thompson?

5 MR. PEREIRA: There is a financial
6 guarantee in place for each of the mining
7 operations in Saskatchewan. The specifics of
8 protection of aquatic biota, I am not sure how
9 that is addressed, but there is an overall
10 guarantee for decommissioning of the mines. So
11 that would, I presume, cover all of the effects.
12 There are certain assessments that go to justify
13 the amount of money put aside, and that would then
14 cover all remediation that would be required.

15 THE CHAIRPERSON: Further
16 questions? Ms MacLachlan.

17 MEMBER MacLACHLAN: I am just
18 intrigued by this Joint Committee on Cumulative
19 Effects For Northern Saskatchewan Uranium Mining.
20 Can you tell me a little bit more about that, Dr.
21 Thompson.

22 DR. THOMPSON: In 1996, when the
23 Joint Federal/Provincial Panel undertook to review
24 the environmental impact statements for the mines
25 that were planned, there was McArthur River, Cigar

1 Lake and Midwest Joint Venture, the issue of
2 potential cumulative effects from these new
3 operations in the context where there were several
4 operating mines in Saskatchewan came up. There
5 were some impact modelling scenarios that were
6 made looking at the current operations and with
7 predictions of impacts from the new operations.

8 At that time, the conclusions were
9 that the additional operations would not result in
10 significant cumulative environmental effects. But
11 the panel recommended that this issue be looked at
12 more closely to confirm the predictions of no
13 significant cumulative environmental effects.

14 As a result of that, a working
15 group was set up where Saskatchewan environmental
16 and resource management and the CNSC are
17 co-chairing the working group. There are members
18 of industry and other groups are members of this
19 working group, where environmental monitoring
20 stations have been developed that would correspond
21 to potential areas where you would get the
22 cumulative releases of all the operations and to
23 see whether we could see any changes from natural
24 background essentially at those sites.

25 The monitoring program started in

1 1997, I believe. There is at least one full
2 cycle. It is planned to go back on a three-year
3 basis to those stations. There has been one full
4 cycle for all the sites, and the conclusion right
5 now is that we can't see any difference from
6 natural background. The reports are being
7 finalized to address this issue formally.

8 MEMBER MacLACHLAN: Is this one of
9 the sources for the data that you were referring
10 to on alpha radiation?

11 DR. THOMPSON: We have used the
12 data generated by the Cumulative Effects
13 Environmental Monitoring Group. But the sampling
14 stations are essentially far field stations because
15 they are intended to look at all the operations
16 together. So that data is not very useful to look
17 at because there are no effects essentially at
18 those stations.

19 So, the data we focus on is the
20 data that is collected close to the operations
21 where we do see environmental effects and to be
22 able to relate them to the chemicals that are
23 coming out of the operations.

24 MEMBER MacLACHLAN: Thank you. I
25 thought that you said two of the parameters you

1 were looking at were molybdenum and arsenic or was
2 it uranium?

3 DR. THOMPSON: It was molybdenum
4 and uranium. There are no guidelines, or there
5 were no guidelines for neither uranium nor
6 molybdenum for protection of fresh water biota, in
7 the context that both molybdenum and uranium are
8 being released by uranium mining and milling
9 facilities. We have reviewed all the available
10 literature information on both of those chemicals
11 and have developed guidelines that we have used in
12 assessments using the same methods that are being
13 used for developing guidelines by the federal and
14 provincial governments for other chemicals.

15 MEMBER MacLACHLAN: Are there
16 levels stipulated for those two parameters in the
17 licences, for example, that are currently in place
18 for operational mines, uranium mines.

19 DR. THOMPSON: Maybe Mr. McCabe
20 can confirm. The licences do have a uranium
21 effluent limit.

22 The licensees, although Cigar Lake
23 does not have that yet because they are not in the
24 operational phase, but other licensees have
25 environmental effects monitoring programs where we

1 have looked at the use of those values in terms of
2 triggering the need to do more detailed
3 assessments for potential effects at sites where
4 we would have exceedences of the values we have
5 developed. They are being used to trigger
6 additional assessments.

7 MEMBER MacLACHLAN: Right. I
8 think I understand your response. Thank you.

9 DR. THOMPSON: The way they are
10 derived is if water concentrations are below those
11 values, we don't expect to see environmental
12 effects. So, when the guidelines are exceeded,
13 then it triggers additional work to verify whether
14 effects are occurring.

15 MEMBER MacLACHLAN: Thank you.

16 THE CHAIRPERSON: Further
17 questions? Thank you very much, Commission
18 Members.

19 MR. JACK: This then completes the
20 record for the public hearing on the matter of the
21 application by Cigar Lake Mining Corporation for
22 the uranium mine site preparation licence for the
23 Cigar Lake project. The Commission will
24 deliberate and will publish its decision in due
25 course. It will be posted on the CNSC website, as

- 1 well as being distributed to all participants.
- 2 Thank you very much.