

1 **HEARING DAY 1**

2 THE CHAIRPERSON: Item No. 5,
3 Hearing Day 1 for the Application of Cigar Lake
4 Mining Corporation: Application for Uranium Mine
5 site preparation Licence. This is Hearing Day 1.
6 Hearing Day 2 is scheduled for June 28, 2001.

7

8 **Cigar Lake Mining Corporation:**
9 **Application for Uranium Mine Site**
10 **Preparation Licence**

11 April 27th was the deadline set for
12 filing by the applicant and CNSC staff. Both met
13 the deadline.

14 May 22nd was the deadline for
15 filing supplementary information by applicant and by
16 CNSC staff. No supplementary information was
17 submitted by staff or by the applicant.

18 I would, therefore, call on the
19 President of Cigar Lake Mining Corporation to do the
20 oral presentation as outlined in CMD document
21 01-H14.1.

22

23 **01-H14.1**

24 **Oral Presentation by Cigar Lake Mining Corporation**

25 MR. TOSNEY: Madam Chair,

1 Commission members, Commission staff, good day.

2 My name is John Tosney. I am
3 President of Cigar Lake Mining Corporation. I am a
4 professional engineer, Fellow of the Canadian
5 Institute of Mining and Metallurgy, and a past
6 president of the Saskatchewan Mining Association.

7 I am joined today by Barry Schmitke
8 who is the General Manager of the Corporation.
9 Mr. Schmitke is also a professional engineer.

10 We are here today in support of the
11 application for a uranium mine site preparation
12 licence for the Cigar Lake mine site.

13 I will begin by giving an overview
14 of the Cigar Lake project, then Barry Schmitke will
15 go into more detail on the application itself.

16 The site is located approximately
17 660 kilometres by air north of Saskatoon. The
18 nearest small community is Wollaston Lake which is
19 about 80 kilometres east of the site. Cigar Lake is
20 also in close proximity to the Cameco Rabbit Lake
21 operation and the Cogema McClean Lake operation.

22 The site is accessible via an all
23 weather provincial road to within approximately 60
24 kilometres from the mine site and then a temporary
25 access road for the remaining distance.

1 Cigar Lake Mining Corporation was
2 incorporated in the Province of Saskatchewan in
3 1985. Its ownership is: Cameco Corporation, 50.02
4 per cent; Cogema Resources, 37.1 per cent; Idemistu
5 Uranium Exploration Canada Limited, 7.875 per cent;
6 and TEPCO Resources Incorporated, 5 per cent.

7 Cigar Lake Mining Corporation has
8 been responsible for the development and the
9 operations of the Cigar Lake mine site to date.

10 It's worthy of note too, I think,
11 that Cameco is the operator of the McArthur River
12 Mine, the Key Lake Mill and the Rabbit Lake
13 Operation and Cogema operates both the McClean Lake
14 and the Cluff Lake Operations. So our owners
15 themselves are operators in their own right -- two
16 of the owners are.

17 The Cigar Lake deposit hosts the
18 following reserves: Proven reserves of some 496,000
19 tonnes containing about 226 million pounds of U_3O_8 of
20 an average grade of 20.7 per cent of U_3O_8 ; probable
21 reserve, some 54,000 tonnes, just over five million
22 pounds at 4.4 per cent of U_3O_8 ; and resources in the
23 inferred category of approximately 316 tonnes,
24 hosting 118 million pounds at a grade of about 17
25 per cent U_3O_8 .

1 The Jet Boring method proved the
2 most successful and was identified as the mining
3 method for the future production facility.

4 An environmental impact statement
5 for the project development was submitted to the
6 agencies in 1995. The project has been reviewed by
7 a joint provincial/federal panel. During 1995 and
8 1996, the mine site was placed on a care and
9 maintenance basis.

10 A positive decision on the EIS was
11 received from the government agencies in 1998. At
12 this time, it was decided to proceed with a semi-
13 industrial test of the Jet Boring method to
14 determine the technical and economic implications of
15 the mining method on the project.

16 The successful testing of the Jet
17 Boring method occurred in 2000, and subsequently in
18 December 2000 the site was returned to a care and
19 maintenance basis.

20 During the development of the
21 project, Cigar Lake has undertaken an extensive
22 public consultation process. This has involved
23 primarily the local communities and discussions have
24 focused on issues of environmental protection,
25 worker health and safety, training programs,

1 employment opportunities and activities at the Cigar
2 Lake site.

3 The owners are currently
4 considering a feasibility study on the project
5 development. It is planned that the Cigar Lake ores
6 will be processed on a Toll Mill basis at each of
7 the McClean Lake and Rabbit Lake Mills once a
8 development decision is taken.

9 The licence application being
10 considered today relates to the operation of the
11 Cigar Lake mine site. Cigar Lake Mining Corporation
12 is the project operation.

13 CLMC's senior organizational
14 management consists of the President, General
15 Manager, Manger of Accounting and Administration,
16 Mine Operation Superintendent, and Superintendent,
17 Environment and Safety.

18 The President is responsible to the
19 joint venture owners for all aspects of the
20 company's operations. The President has committed
21 the organization to operate in accordance with all
22 applicable regulatory requirements and good Canadian
23 mining practices.

24 The General Manager reports
25 directly to the President. The General Manager

1 carries the responsibility for all facilities,
2 operations and activities at the mine site, and is
3 assisted by the Mine Operation Superintendent.

4 The Environment and Safety
5 Department, headed by the Superintendent, develops
6 programs and practices to facilitate excellent in
7 regulatory compliance with respect to occupational
8 health and safety, radiation protection and
9 environmental conditions.

10 CLMC has established comprehensive
11 environmental and safety policies. These policies
12 are communicated to all individuals working at the
13 Cigar site including contractors.

14 CLMC is in the process of
15 developing an Environment Management System which
16 includes an employee awareness component.

17 Cigar Lake Mining Corporation's
18 commitment to the letter and spirit of the
19 environmental safety policies posted throughout the
20 property is herewith affirmed.

21 The General Manager, Mr. Schmitke,
22 will now offer some more specific project comments.

23 MR. SCHMITKE: The Atomic Energy
24 Control Board provided Cigar Lake Mining Corporation
25 with a mine facilities excavation license which

1 expires on June 30, 2001. Cigar Lake Mining
2 Corporation has submitted an application for a
3 Uranium mine site preparation licence and is
4 requesting a three-year term.

5 In support of our application we
6 have included an updated mining facilities licensing
7 manual which provides a framework to undertake the
8 activities at the mine site, a facilities
9 description manual which describes the existing
10 underground and surface facilities at the mine site,
11 and a licensing programs and procedures manual which
12 describes the programs and procedures which will
13 assist in compliance with the CNSC licence
14 conditions and regulations.

15 This slide shows the main surface
16 facilities at the Cigar Lake site. These are:

17 The headframe which sits above
18 No. 1 shaft and allows access to the underground
19 workings. The water treatment plant and holding
20 ponds which provides for the storage and treatment
21 of the contaminated water pumped from underground
22 prior to release to the environment. The
23 construction camp, which is the residence for site
24 personnel. The main office and various stockpiles
25 which contain the waste rock generated from the

1 mining activities.

2 In the background is Cigar Lake and
3 off to the right is Waterbury Lake. As you can see,
4 it is a very compact mine site.

5 This is an isometric view of the
6 existing underground development. To date, we have
7 developed a shaft to 500 metres and commenced
8 development on both the freeze level, which is the
9 480 level, and the production level which is the 465
10 level.

11 The majority of the development was
12 undertaken to test specific mining methods and types
13 of equipment for mining of the Cigar Lake ore body.
14 A total of 2.5 kilometres of development has been
15 completed and this development will also be utilized
16 as part of the future underground infrastructure.

17 The ore body in the area where the
18 2000 Jet Boring testing occurred was frozen
19 utilizing vertical freeze pipes installed from the
20 freeze level.

21 This slides shows several of the
22 more prominent features at the Cigar Lake site. The
23 headframe and water treatment plant were mentioned
24 previously. In the upper right-hand corner is a
25 slide of the permanent mine dewatering or pump

1 station located underground.

2 In the lower left-hand corner is
3 the underground high-pressure pumps which were used
4 to supply high-pressure water, 100 Mpa water during
5 the Jet Boring testing.

6 In the lower middle is a slide of a
7 typical tunnel which will provide the access below
8 the ore body on the freeze level and the production
9 level. And the final picture is that of the Jet
10 Borer which was used in the testing program.

11 As mentioned previously, all of
12 these facilities are part of the future mine
13 infrastructure.

14 I would like to provide an
15 extremely brief description of the Jet Boring mining
16 method.

17 The mining method involves
18 developing tunnels on the freeze level as show in
19 Step 1. In Step 2, freeze pipes are installed from
20 the freeze level tunnels to freeze the ground. The
21 ground is frozen to enhance ground stability,
22 control the inflow of ground water and minimize the
23 radiation protection issues while drilling into the
24 ore body.

25 After the ground is frozen, Step 3,

1 production level tunnels can be developed as shown
2 in Step 4. In Step 5, casing is then installed from
3 the production level through the deposit. An ore
4 cavity is mined using a high-pressure water jet as
5 shown in Step 6, and then the cavity is backfilled
6 with concrete, Step 7.

7 During the licensing period, the
8 majority of activities will encompass operating the
9 site on a care and maintenance basis and will
10 include daily inspections of underground mine water
11 and electrical systems. Ongoing environmental and
12 radiation protection monitoring to ensure compliance
13 with federal and provincial licences and operating
14 approvals. Continued operation of mine water
15 treatment and release facilities. Ongoing
16 monitoring and management of ore and waste rock
17 extracted and placed in storage facilities during
18 test mining. Use of nuclear substances for
19 analytical purposes, and maintenance of essential
20 functions including mine ventilation and heating,
21 portable water treatment, road and equipment
22 maintenance and other ancillary services.

23 Also there are other activities
24 which may be required to be undertaken during the
25 licensing period which relate to the continuing

1 evaluation or advancement of the determination of
2 the viability of the project.

3 These could include development of
4 an access to the production level on the north side
5 of the ore body to assess the geotechnical
6 conditions. Projects intended to result in
7 enhancements to existing environmental, health or
8 safety protection systems. Surface drilling to
9 gather waste rock, ore or host rock samples for
10 technical analysis. Further testing of the Jet
11 Boring system by mining of up to an additional 3,000
12 tonnes of ore. Drilling of a new surface shaft hole
13 in waste rock for geotechnical investigation.
14 Additional freeze hole drilling to confirm the
15 effectiveness of this process, or additional
16 exploratory drilling underground to further define
17 the characteristics of the ore body.

18 Of course, these potential
19 activities would only proceed after submission of
20 details of the program to CNSC staff for evaluation
21 and approval.

22 Cigar Lake Mining Corporation has
23 developed a number of programs and procedures to
24 support the licence application. Document control,
25 security and site management during the care and

1 maintenance period are examples of the
2 administrative programs that will guide us during
3 the licensing period. Similarly, radiation
4 protection, quality assurance and environmental
5 management systems are examples of several of the
6 environmental health and safety programs.

7 In addition to the programs,
8 numerous procedures have been developed such as mine
9 ventilation control, change management and radiation
10 work permits to support the activities at the mine
11 site.

12 I would now like to turn the
13 presentation to Mr. Tosney who will offer some
14 concluding remarks.

15 MR. TOSNEY: It is appropriate to
16 alert the Commission to the owners' intent to
17 transfer the operatorship of the Cigar Lake site to
18 Cameco Corporation. It is anticipated that the
19 majority of the Cigar Lake workers will remain in
20 their roles while becoming fully integrated as
21 Cameco employees.

22 In summary, Cigar Lake Mining
23 Corporation has operated the Cigar Lake site since
24 1987 and has complied with all AECB/CNSC requests
25 and instructions.

1 On March 18, 2001, Cigar Lake
2 personnel achieved two years without a lost time
3 action. However, we did have two lost time
4 electrical incidents involving contracted personnel
5 during this period.

6 Cigar Lake Mining Corporation, and
7 its successor, are committed to continuing the
8 operation of the project in compliance with the
9 letter and spirit of the published environmental and
10 safety policies.

11 I will make one further note that
12 John Jowell, the Vice President of Environment and
13 Safety for Cameco is here to observe this process in
14 the interest of continuity before the Commission.

15 Thank you, Madam Chair.

16 THE CHAIRPERSON: Thank you very
17 much.

18 With the agreement of the
19 Commission members, we will withhold questions to
20 the licensee, to the applicant until we have heard
21 from CNSC staff. I have that agreement.

22 Then, Mr. Pereira.

23

24 **01-H14**

25 **Oral Presentation by CNSC staff**

1 MR. PEREIRA: For the record, my
2 name is Ken Pereira. I am the Director General of
3 the Directorate of Fuel Cycle and Materials
4 Regulation.

5 With me for the presentation of CMD
6 01-H14, I have Mr. Barclay Howden, Director of the
7 Uranium Facilities Division, Mr. Rick McCabe, Head
8 of the Uranium Mines Section in the same division,
9 Mr. Peter Courtney, Project Officer of the Uranium
10 Mines Section, Mr. Howard Neilson-Sewell from the
11 Performance Evaluation Division, Dr. Patsy Thompson
12 from the Radiation and Environmental Protection
13 Division, Mr. Larry Chamney from the Radiation and
14 Environmental Protection Division, and helping us
15 with our presentation is Miss Lucie Beauvais,
16 Operation Supervisor from the Research and
17 Protection Facilities Division.

18 The Cigar Lake Mining Corporation
19 has applied to the Canadian Nuclear Safety
20 Commission for a licence to continue to manage the
21 Cigar Lake underground mine in a care and
22 maintenance mode for a three-year period.

23 CNSC staff has reviewed the
24 information supplied in support of the application
25 and has presented its recommendations in the

1 Commission member document.

2 I will now pass the presentation
3 over to Mr. McCabe who will outline the basis for
4 the CNSC staff recommendations.

5 MR. McCABE: Thank you, Ken.

6 Madam Chair, members of the
7 Commissions.

8 We are here today to present Cigar
9 Lake's application for a licence.

10 Cigar Lake Mining Corporation has
11 just described their facility and the activities to
12 be undertaken during their requested licensing
13 period. I do not intend to repeat any of the
14 details provided in that presentation.

15 Cigar Lake has applied for a
16 uranium mining site licence. The facility will be
17 managed in a care and maintenance mode.

18 The scope of the activity described
19 in the CMD noted that there will be little activity
20 at the site other than ensuring the integrity of the
21 underground operation, treatment of effluent, and
22 some activities which we will address later in this
23 brief presentation.

24 Any other activity, such as other
25 testing of mining methods will be allowed only after

1 review of the procedures by CNSC staff.

2 CLMC has been testing at this site
3 for about 14 years. During this time a small
4 quantity of ore was produced from the test stopes.
5 This ore is securely stored at the mine, either on
6 surface or underground.

7 CLMC's current licence expires on
8 July 31st of this year. As noted, CLMC is waiting
9 for their owners to decide on the next steps.

10 We have proposed a three-year
11 licence to allow time for the owners to make a
12 decision, for CLMC to complete the engineering work
13 for the construction of the facility and for the
14 CNSC to consider another licence.

15 In the CMD, we divided the scope of
16 activities into two categories. The first category
17 is routine site activities that will be ongoing
18 during the licensing period, and the second category
19 is possible activities during the licensing period.

20 Routine activities are necessary to
21 maintain the facility. They are the daily
22 inspections of the underground and electrical
23 systems; improvement in programs; continued
24 operation of the mine water treatment plant and
25 release facilities; ongoing monitoring and

1 management of the ore and the waste rock piles;
2 maintenance of essential functions including the
3 mine ventilation, heating, potable water, roads,
4 equipment maintenance and other facilities.

5 Possible activities have been
6 described by Cigar Lake Mining Corporation
7 development of access to the north side;
8 enhancements to programs; surface drilling to gather
9 information; further Jet Boring.

10 Of these possible activities, only
11 two types of activities have possible doses to
12 workers. First, the drilling of the holes has a low
13 risk of resulting in significant doses to workers
14 even though the holes intersect the ore body. CLMC
15 has drilled these holes before and successfully
16 implemented their radiation protection program to
17 limit doses to workers.

18 Secondly, Cigar Lake may do
19 additional testing of the Jet Boring system.
20 Earlier tests have demonstrated good radiation
21 protection practices for the workers. Based upon
22 the experience to date, these two activities can be
23 conducted safely.

24 We have noted an error in the CMD
25 in the Radiation Protection Section. The action

1 levels of effective doses were changed late in our
2 assessment process and incorrectly incorporated into
3 the CMD. The correct action levels are more
4 restrictive than those in the CMD and should read:
5 1 mSv action level per week, and 3 mSv per quarter,
6 not as in the CMD.

7 These action levels reflect limited
8 activity at this facility. This in no affects our
9 conclusions or recommendations.

10 One of the main purposes of the
11 test work previously completed at Cigar Lake was to
12 assess the potential doses to workers and to revise
13 procedures or to redesign the equipment to reduce
14 radiation doses.

15 The test work incorporated the
16 radiation protection principle of shielding by
17 developing the freeze tunnels and the production
18 levels in waste rock. CLMC developed a remote
19 mining method to keep workers away from the ore. In
20 addition, ventilation air was exhausted from the
21 workplace at a sufficient volume to control radon
22 progeny levels.

23 The maximum annual dose was 1/20th
24 or the 50 mSv annual limit and 1/8th of 20 mSv
25 average dose spread over five years.

1 Because of our experience to date,
2 the doses to the workers and the radiation
3 protection program that is in place, CNSC staff
4 concludes that the radiation protection program is
5 acceptable.

6 The activities at the mine have
7 generated actually clean waste rock; contaminated
8 mine rock, which we refer to as potentially acid-
9 generating; liquid effluent and ore.

10 Clean waste rock is stockpiled and
11 used for construction. Contaminated waste rock is
12 store in engineered containment facility and all
13 liquids generated in these areas are collected and
14 treated prior to discharge to the environment.

15 Liquid effluent is treated and
16 released to the environment and meets regulatory
17 requirements.

18 The ore is store on surface in an
19 engineered structure or in the underground mine.
20 These areas are ventilated and liquids from the
21 facilities are collected and treated prior to
22 discharge to the environment.

23 CNSC staff concludes that based
24 upon the experience and results to date the
25 Environmental Protection Program is acceptable.

1 Eleven programs were reviewed, nine
2 were acceptable and two were conditionally
3 acceptable. The two conditionally acceptable
4 programs are the quality assurance program and the
5 decommissioning and financial assurance program.

6 In total, there were three
7 deficiencies requiring attention. Each deficiency
8 has been addressed with a condition in the draft
9 licence.

10 CLMC's quality assurance program
11 needs to be expanded and refined to meet the CNSC's
12 requirement. The QA requirements for uranium mines
13 have been set and these guides have been recently
14 issued to the mining companies and will assist them
15 in updating their QA program.

16 Secondly, all licensed uranium
17 mining facilities have financial guarantees in
18 place. The two objectives of our conditions are
19 first, to bring the CLMC financial guarantee into
20 line with the CNSC's guidance and secondly, to
21 require CLMC to conduct a review of the plan and
22 associated costs. The current financial guarantee
23 is acceptable to the CNSC staff for this licence.

24 Thirdly, a minor deficiency as
25 addressed by a licence condition, hazardous

1 substance as compared to nuclear substances have
2 been included within the scope of the uranium mines
3 and mills regulations.

4 CLMC is required by a condition in
5 the draft licence to provide a complete program to
6 the CNSC including notification of spills and
7 follow-up reports.

8 Based upon this review, CNSC staff
9 requests therefore that the Commission accept the
10 CNSC staff assessment that the applicant is
11 qualified to carry on the activity that the licence
12 will authorize, and will, in CNSC's opinion, make
13 adequate provision in carrying on that activity for
14 the protection of the environment, the health and
15 safety of persons and the maintenance of national
16 security and measures required to implement
17 international obligations to which Canada has
18 agreed; accept the CNSC staff's assessment that
19 pursuant to Section 3 of the Exclusion List
20 Regulations, Section 2 of Schedule 1, Part 1 of the
21 Exclusion List Regulations, an environmental
22 assessment pursuant to the Canadian Environmental
23 Assessment Act is not required; and consider issuing
24 the proposed Uranium Mine Site Preparation Licence
25 UMSL-Excavate-Cigar.05/2004 for a three-year period.

1 Thank you.

2 THE CHAIRPERSON: Thank you very
3 much.

4 The floor is now open for questions
5 from the members of the Commission.

6 Dr. Barnes.

7 DR. BARNES: A set of questions,
8 some of them a little technical.

9 Could you just remind me of the
10 scale of the deposit again?

11 MR. TOSNEY: It is of a depth of
12 about 430 metres. It has a strike length of almost
13 two kilometres, an average width of between 80 and
14 120 metres, and a typical thickness of about six
15 metres, although it does vary from a low of two to a
16 high of about 16, and over that ore length, it's
17 somewhat putty in nature. It isn't a continuous ore
18 body, it's somewhat putty.

19 DR. BARNES: And did I read
20 somewhere that the expected life of the mine will be
21 40 years? Is that right?

22 MR. TOSNEY: Is the EIS, we
23 suggested 40 years based upon then 18 million pounds
24 per year for the first 12 years of production, six
25 million pounds thereafter. We are modifying that

1 approach somewhat in the latest feasibly study
2 although it will be of the order of 40 years, and
3 the area to the west of where we propose to start is
4 considered very prospective ground so there is
5 reasonable chance of finding further material.

6 DR. BARNES: You say that "The Jet
7 Boring method proved most successful". Could you
8 give us a criteria for what "most successful" means?
9 Is that technical, economic?

10 MR. TOSNEY: Mr. Schmitke will take
11 that question.

12 MR. SCHMITKE: The first evaluation
13 of the most successful was on a technical basis and
14 it had to do primarily with radiation protection,
15 safety procedures and the ability to minimize the
16 risk of mining of the ore body, and that was what
17 the original criteria was based on.

18 Then, of course, we did look at the
19 economics to a certain extent, but certainly the
20 technical side of things overrode the economic
21 considerations.

22 DR. BARNES: And you say this is
23 the second highest grade deposit. Which is the
24 first?

25 MR. TOSNEY: McArthur River would

1 outrank us now.

2 DR. BARNES: Okay.

3 And could you just return then to
4 the Jet Boring method and give us some discussion as
5 to the process of introducing the water required for
6 that in the mine, that is the source, the use, the
7 potential recycling, the contamination of and where
8 the stuff goes in the end?

9 MR. SCHMITKE: There are three
10 primary streams of water for the Jet Boring method.
11 There is the high-pressure water which is used to
12 shoot against the wall of the cavity to mine out the
13 ore. That's at 100 Mpa. Then there are two other
14 sources of water required. One is to flush the
15 material out of the cavity and there is also what we
16 call preventer water or water required to flush the
17 material away from the Jet Bore.

18 Those three, when you add them
19 together, produce about 3,000 cubic metres per
20 minute -- or 3,000 litres per minute. About 1,000
21 litres for the Jet, about 1,000 litres for flushing
22 the cavity, and 1,000 litres per minute to carry the
23 material away.

24 Those 3,000 litres per minute
25 eventually end up in the ore storage area, and from

1 there they will go through -- when the ore is
2 reclaimed the water will be recycled back to the Jet
3 Bore. It will pass through some clarifier, be
4 cleaned and then be reused as part of the mining
5 process.

6 Any of the extra water that is
7 produced, which we don't use as part of the mining
8 process, will then go through the water treatment
9 facility and then be utilized -- not be utilized,
10 but will be discharged to the environment.

11 DR. BARNES: And the source of this
12 water?

13 MR. SCHMITKE: The source of the
14 water is from Waterbury Lake.

15 DR. BARNES: And since you are
16 freezing the ground, is there any problem in the
17 water itself, within the cavity itself, freezing and
18 generating large areas of ice, or do you have to
19 heat the water in order to maintain --

20 MR. SCHMITKE: The water coming out
21 of the jet comes out at approximately 40°C because
22 passing through the jet there is a large increase in
23 temperature. So there is no chance of the water
24 freezing in the cavity.

25 DR. BARNES: The water used for

1 flushing the cavity.

2 MR. SCHMITKE: The water used for
3 flushing the cavity is at about 10°C and it isn't
4 there long enough for it to freeze.

5 THE CHAIRPERSON: Dr. Giroux.

6 MEMBER GIROUX: Yes, actually this
7 will follow up on these questions.

8 I am trying to understand the Jet
9 Boring method and your answers are answered partly
10 by interrogations.

11 I wonder where the workers are and
12 how are they protected? Do they come into contact
13 with the ore or is it all remote controlled?

14 MR. SCHMITKE: The workers are in
15 the area upstream from where the ore exists the
16 casing and the preventer. So if I can use the
17 example of me sitting here in front of the operating
18 screen, the activity that is going on is in front of
19 me with the ventilation passing over me and the ore
20 itself, the worker doesn't see the ore. The ore
21 comes down through the preventer, goes into a large
22 box which is called the slurry car and from there
23 it's pumped away. So the worker never actually sees
24 the ore.

25 MEMBER GIROUX: But it must be

1 workers who control this machine which brings a jet
2 to the ore face.

3 MR. SCHMITKE: The jet is
4 introduced through this preventer. If I could go
5 back to the one overhead it might help you a bit to
6 understand this.

7 MEMBER GIROUX: Or maybe if you
8 have additional information in your offices showing
9 schematics of the process, I would be interested.

10 MR. SCHMITKE: Certainly.

11 THE CHAIRPERSON: We also have in
12 front of us hard copies of those slides. If you
13 could identify the number we could turn ourselves to
14 those slides.

15 MEMBER GIROUX: That's right.

16 MR. SCHMITKE: If you go to
17 Slide No. 14 which is now coming up on the screen.
18 If you look at Step 6 which is the jet mining
19 itself, on the bottom of the drill string is the
20 preventer. The Jet Boring rods are passed through
21 that preventer and are introduced into the potential
22 cavity and when the jet comes on it mines from the
23 top of the cavity to the bottom and essentially
24 carves out the ore. Then the ore falls down the
25 casing and is passed through the preventer then goes

1 into this big box called the slurry car and from
2 there it's pumped to this ore storage area.

3 MEMBER GIROUX: So the workers are
4 on pipe No. 4?

5 MR. SCHMITKE: Yes, they are in
6 tunnel No. 4 and they are remote from the ore body
7 by some 20 metres.

8 MEMBER GIROUX: That's clear.
9 Thank you.

10 My second question concerns the
11 spills that have been reported by staff. They
12 mention eight spills and they say they are very low
13 volume, but what would be a specific typical volume
14 of that?

15 MR. SCHMITKE: Several of those
16 spills were diesel fuel where there are specific
17 guidelines in the province -- I just can't recall
18 the exact number. But there is something like 50
19 litre or 50 gallons, or something like that. I just
20 can't recall the exact number. But some of those
21 have occurred. There have been a couple of minor
22 excursions where we had contaminated water, where we
23 were transferring from one pump to another and one
24 of the pipelines broke and, of course, we were there
25 and immediately shut it down, but there were some

1 small spills relating to that.

2 MEMBER GIROUX: Thank you.

3 My final question concerns the
4 quality assurance program. Staff has mentioned that
5 they are not satisfied with your program and they
6 have said, I think, that you are engaged to produce
7 further documentation, but I would like to hear from
8 you if you are planning to have a fully satisfactory
9 QA program. Is that in the works now?

10 MR. SCHMITKE: We have just
11 received, I believe, the guidelines from CNSC staff
12 for that program and we are committed to develop the
13 program in accordance with those guidelines.

14 THE CHAIRPERSON: Ms MacLachlan.

15 MEMBER MacLACHLAN: Thank you.

16 With respect to any environmental
17 impact assessment, I realize you have gone through a
18 few, but with respect to this particular
19 application, have you come to your own determination
20 as to whether or not a further environmental
21 assessment is required?

22 MR. TOSNEY: There are no further
23 environmental assessments of a formal nature
24 required that I am aware of.

25 MEMBER MacLACHLAN: If I may, then

1 I would like to -- and that is your determination
2 within your company and your consultants?

3 MR. TOSNEY: I may be
4 misunderstanding the question, I am sorry.

5 MEMBER MacLACHLAN: I am wondering
6 whether or not it's your opinion as to whether or
7 not the Canadian Environmental Assessment Act has
8 been triggered by your making an application here
9 for this licence.

10 MR. TOSNEY: I would ask our
11 Project Manager to take that question for me. Can
12 you help me there, Rick?

13 MR. McCABE: I guess there is
14 confusion with regard to the environmental
15 assessment requirements for Cigar Lake on the basis
16 of the fact that the ore will go to another facility
17 and some of the waste rock will go to the McClean
18 Lake Operation. There will be a further
19 environmental assessment of the McClean Lake
20 required, but not necessarily Cigar Lake. We do not
21 have the definitive proposal in front of us, so we
22 are somewhat speculating on what is going to happen
23 based upon what we hear. But there will be a
24 further assessment for the waste rock at the McClean
25 Lake facility.

1 MEMBER MacLACHLAN: Right. Thank
2 you.

3 I would like to ask staff, in CMD
4 01-H14, staff have -- on page 11 -- reached a
5 determination that a screening or other form of
6 environmental assessment is not required for this
7 application under CEAA.

8 When I take a look at this whole
9 package on page 11, I am a little confused. First
10 of all, I am going to go from the back to the front.

11 At the end of the day, I would have
12 anticipated that although a review was done in 1997,
13 and there was a screening report, that for this
14 licence application there would be some information
15 provided to the Commission about compliance, or at
16 least the success of proposed mitigation measures in
17 actually mitigating any predicted effects. So that
18 caught my attention.

19 When I go backwards then, it's not
20 clear to me the precise licence that is the subject
21 of this application in terms of the law, the Act,
22 the regulation and, therefore, which provision of
23 CEAA may or may not be triggered by this application
24 and I am wondering if staff can help me out here.

25 MR. PEREIRA: This application is

1 essentially a renewal of an existing application.
2 We believe CEAA will be triggered when we go from
3 the care and maintenance licence to the next phase
4 which is the operational of the mine and the
5 proposal to ship ore away from this facility.

6 But I will ask Mr. McCabe to
7 comment on what's in the CMD.

8 MR. McCABE: Thanks, Ken.

9 There is confusion, I agree, with
10 some of the transition provisions, or lack of
11 transition provisions, from the uranium or thorium
12 and mining regulations into the new uranium mines
13 and mill regulations under the Nuclear Safety
14 Control Act.

15 In the interim, we are using the
16 old uranium or thorium mining regulations as the
17 trigger and there may be some wording
18 inconsistencies in the CMD, but I'm pretty sure the
19 licence is right. It is the uranium mine site
20 licence which is an authorized licence by the
21 Commission to excavate this.

22 Like I say, there is a little bit
23 of confusion between the two sets of regulations,
24 but I don't think that there is any inconsistency in
25 the CEAA determination.

1 MEMBER MacLACHLAN: Well, I guess
2 I need clarification as to whether or not that
3 Section 7.1(b) of the UTMR or 8.1 and then secondly,
4 it's my information that a 71(b) or an 8.1 is an
5 issuance, it's not a renewal and that's another
6 concept that triggered my attention, or caught my
7 attention, I should say, as to whether or not CEAA
8 was indeed triggered, and I guess I would seek
9 clarification on this.

10 MR. McCABE: Yes, you are quite
11 correct.

12 The 7.1(b) was for the issuance of
13 a licence, as you indicate. However, this licence
14 is being issued under the NSCA and we have used that
15 term "renewal" as it more closely reflects the
16 activity. It's a continuity of the activities at
17 the site, and because the two sets of legislation
18 were drafted a little bit different, I think there
19 is a little bit of inconsistency probably in the
20 CMD, but not in the licence.

21 MEMBER MacLACHLAN: I see a gap
22 here and I think we need, if I may, a recommendation
23 from staff as to how to close that gap, how to
24 address that gap so as neither the Commission nor
25 the applicant is exposed, and secondly, I would also

1 like to see a checklist. I realize that CMD 01-H14
2 addresses a number of the areas where there could be
3 environmental effects and addresses the compliance,
4 and I am thinking in particular of Section 5.2,
5 I guess, the evaluation of company programs. But
6 I would like a more precise addressing of the
7 original screening report to the Act which was from
8 1997 to the actual performance so that it's clear to
9 the Commission that the Commission can actually --
10 so it's clear to the Commission that CEAA is not
11 triggered.

12 I would like that assurance,
13 please.

14 MR. PEREIRA: We can commit to look
15 at this in some more detail and provide a submission
16 to the Commission for Day 2, as part of our Day 2
17 submission.

18 MEMBER MacLACHLAN: That will be
19 fine. Thank you very much.

20 MR. PEREIRA: Thank you.

21 THE CHAIRPERSON: Dr. Thompson, do
22 you wish to speak?

23 DR. THOMPSON: I was just going to
24 clarify the follow-up programs that were identified
25 during the EIS. The Environmental Impact Statement

1 was done for the operation, the actual mining.

2 There were predictions made on
3 effects on the receiving environment. Since we are
4 not in the operating phase, we have no Environmental
5 Impact Statement predictions that are relevant for
6 this stage in the operation. So we can't compare
7 current performance with EIS predictions. So we
8 can't make a determination on whether the mitigation
9 measures are appropriate or not for the operation.

10 What we can say, and what we have
11 reviewed in the information, is that the
12 environmental impacts are negligible, sometimes not
13 measurable and they are in line with what we would
14 expect for this stage of the operation, but we can't
15 make statements about what they will be once they
16 start mining.

17 MEMBER MacLACHLAN: Thank you.
18 There is no exposure on the part of either the
19 company or the Commission.

20 THE CHAIRPERSON: Mr. Graham.

21 MEMBER GRAHAM: Thank you.

22 Some of the technical questions
23 have been already answered. This is a question to
24 CLMC. Has this mining procedure or process that you
25 are proposing here, is this carried out anywhere

1 else in the world, not necessarily with uranium
2 mining, but in the mining process?

3 MR. SCHMITKE: As far as using a
4 water jet to excavate material, that has been done.
5 It has been tested from a surface application.
6 Actually some of the original test work was done in
7 the U.S. some years ago. However, the application
8 from underground, the way we are proposing to do it,
9 has not been tested and we are certainly the first
10 to apply that to this sort of situation.

11 MEMBER GRAHAM: Another question
12 I have. You have a limited amount of ore that you
13 brought up and that is in storage -- I think it was
14 in your presentation. Just a question. The limited
15 amount of ore, rather than store it, is there a need
16 to be a permit to take it to another facility to be
17 processed rather than store on site?

18 MR. SCHMITKE: Our existing licence
19 does not allow us to transfer the ore.

20 MEMBER GRAHAM: Another question
21 I have. Has there been any -- you are storing on
22 the surface though some contaminated waste rock,
23 believe, according to the drawings.

24 Have you had any incidence of
25 contamination or water escaping into the environment

1 or into lakes and so on? Has there been any
2 incident of a problem of environmental problem with
3 regard to the storage of waste rock to date?

4 MR. SCHMITKE: We have had no
5 incidence of contaminated material leaving the
6 linepad or of any water or spillage escaping from
7 the linepad.

8 MEMBER GRAHAM: A question then to
9 Dr. Thompson, if I may, Madam Chair.

10 You are monitoring the lakes in the
11 area, the two lakes that are in close proximity.
12 There is no indication of any increased
13 contamination, or has there been any increase in the
14 contamination of the lakes?

15 DR. THOMPSON: The environmental
16 monitoring results submitted by Cigar Lake Mining
17 Corporation indicate that the water and sediment
18 concentrations for most parameters that are measured
19 are within background concentrations for the area.

20 There is an exception, that is iron
21 and PH. PH is what we would expect for this kind of
22 environment. It's quite low. Iron tends to be
23 higher than the guidelines and it's probably
24 associated with the use of iron in the treatment
25 process as well as naturally elevated iron, but

1 certainly the levels are not at concentrations which
2 would be toxic or affecting --

3 MEMBER GRAHAM: Thank you.

4 I have one other question.

5 On Slide 9, CLMC is in the process of developing an
6 environmental management system which includes an
7 employee awareness component.

8 How long before that will be
9 completed and will it be submitted to CNSC staff
10 just for review or how long before that will be in
11 progress or process?

12 MR. SCHMITKE: We will be
13 submitting the environmental management system for
14 CNSC review. We anticipate having the employee
15 awareness component in place by the end of the year.

16 We have had an employee awareness
17 program to a lesser extent in place for some time.
18 We do not feel it's adequate, and we will enhance
19 that in consultation with CNSC staff.

20 MEMBER GRAHAM: One further
21 question. How many staff are on site there now?
22 What is the component, the labour component there?

23 MR. SCHMITKE: The on-site labour
24 component is ten per shift. In other words, there
25 are ten people on site and ten people off site that

1 rotate on a 7/7 basis, seven days in, seven days
2 out.

3 MEMBER GRAHAM: And the housing
4 facilities, and so on, are not on the site. They
5 are somewhere else or do the people live right on
6 the site?

7 MR. SCHMITKE: The construction
8 camp is right at the site and they live at the site.

9 MEMBER GRAHAM: Thank you.

10 THE CHAIRPERSON: Dr. Barnes.

11 DR. BARNES: This is a follow up,
12 and then some other questions.

13 That environmental management
14 system then will not be available for Day 2 of the
15 hearing?

16 MR. SCHMITKE: It will not be
17 available for Day 2 of the hearing.

18 DR. BARNES: If I could just go on
19 again with a few more technical points.

20 I'm still not quite sure -- and
21 I realize that some of the questions I will ask will
22 apply to, when you come back again, to go for full-
23 scale mining, but nevertheless you are doing this as
24 a test basically.

25 So you are extracting water from

1 the lake, you are taking it down, you are using it
2 as a jet, you use it for flush out, and then much of
3 that will be treated and recycled within the mine
4 itself. Right?

5 MR. SCHMITKE: Correct.

6 DR. BARNES: So if I took a unit of
7 time, and I don't know what that would be, it could
8 be a week, a month or a year, what per cent of the
9 water taken out of the lake and put down into the
10 mine site would, in fact, over whatever interval
11 time you choose to state, would in fact be taken out
12 to be disposed of in the environment.

13 MR. SCHMITKE: That's a difficult
14 question to answer. I will take a bit of an
15 educated guess. I would say probably about 80 per
16 cent of that is recycled, and about 20 per cent of
17 that would be discharged to the environment.

18 DR. BARNES: And this very process
19 will surely do two things, will it not? One, there
20 will be some pick up of radiation by the water
21 itself, and also a good deal of sediment, right. So
22 can you then address how those two components will
23 be in a sense taken out of the water that is going
24 to be put back into the environment?

25 MR. SCHMITKE: The sediments come

1 out in a -- it's a two-stage treatment process where
2 we have a primary treatment that essentially cleans
3 up the water for recycling and we drop suspended
4 solids through a clarifier.

5 And then in the second stage
6 treatment process, we pass the water through a sand
7 filter, plus a clarifier to ensure that all the
8 material is removed prior to discharge.

9 DR. BARNES: Okay.

10 You have admitted that this whole
11 process is certainly new for your company and for
12 Cameco too.

13 Could you convince us that you have
14 done sufficient research basically, you have the
15 competence to follow this through from pilot stage
16 to a full mining phase?

17 MR. SCHMITKE: We started the
18 original test work in 1992, so it goes back a long
19 ways. From that 1992 test work, we then moved to
20 some significant lab testing where we went from,
21 I would say, a very crude field test. Then we went
22 into a validation phase in the lab, and then from
23 the validation phase in the lab -- and this was done
24 in the U.S. through a company called Water Jet that
25 had extensive experience in water jet mining and the

1 application of water jets in various industries, not
2 just mining.

3 From there we went back to the mine
4 site where we did additional field testing in a
5 purpose-built facility so we could actually observe
6 what was going with the jet and learn from that on
7 how to design the actual Jet Boring equipment. That
8 took place, as John mentioned, in about '95 and then
9 from there, we moved forward into the full-scale
10 semi-industrial testing.

11 So the test period has been very,
12 very extensive. We have extensive documentation on
13 all of those test programs, and certainly previously
14 to CNSC, the AECB staff were kept quite apprised of
15 that test program.

16 DR. BARNES: And as you create the
17 cavity, as you mine it out, you backfill by pumping
18 concrete in, according to this brief.

19 MR. SCHMITKE: Correct.

20 DR. BARNES: And so at any one
21 time, how big will the opened cavity be?

22 MR. SCHMITKE: The open cavity at
23 any one time could be -- the maximum I am talking
24 about -- probably in the range of about 16 metres in
25 height by about four to 4.5 metres in diameter.

1 That would be the maximum size of opening that would
2 be open, the average being six metres.

3 DR. BARNES: And if you get
4 collapses in this process, what happens? How do you
5 then work through that?

6 MR. SCHMITKE: That's one of the
7 unique benefits of the mining method, the fact that
8 we have a very small pipe that access the ore body
9 which is called the casing. So if there is a
10 collapse in the cavity, at any point in time on the
11 preventer we can close the valve, pump concrete into
12 the cavity and walk away from it. So we have total
13 security with the mining method.

14 DR. BARNES: And is there likely to
15 be any problem if the freezing system fails on you?

16 MR. SCHMITKE: First of all, we
17 freeze a very large block of ground, roughly about
18 12 metres in width by about 100 metres in length.
19 In other words, we freeze across the ore body by
20 about 12 metres in width. So it's a 12-metre panel
21 with about five metres above the ore body being
22 frozen. So we have a frozen cap.

23 By freezing the ore body, we
24 enhance the strength of the ground by about ten
25 times, understanding that the ore body is very weak

1 ground, but by freezing it we increase the strength
2 substantially.

3 Once that block of ground is
4 frozen, for instance the area where we froze for the
5 test time, that stays frozen in excess of two years
6 after we turn off the freezing. So it stays frozen
7 for a very, very long period of time.

8 We have done extensive modelling on
9 the ore body itself, and the freezing of the ore
10 body. By the time we complete the mining of the
11 Phase 1, which is the first 12 years of mining, we
12 still will not have thawed the original frozen
13 section.

14 DR. BARNES: Two other questions.
15 One is the small amount, presumably a modest amount
16 of waste, will still go into a muskeg bog as opposed
17 to a larger standing body of water. Is there a
18 reason for that? Is it just practicality?

19 MR. SCHMITKE: It's just the local
20 geography of the area and it's basically an area
21 where we would prefer to discharge rather than
22 discharge directly into the body of water.

23 DR. BARNES: Could I just ask a
24 question to staff? This being a new method, mining
25 method, what competence does staff have to evaluate

1 the technical information that will be provided to
2 you or to what extent are you seeking external
3 advice here?

4 MR. PEREIRA: I will ask Mr. McCabe
5 to respond.

6 MR. McCABE: Thanks.

7 I'm the only mining engineer that
8 we have in our section at the moment, but we have a
9 lot of people with mining expertise. We don't have
10 a formal submission yet. We would look at that. We
11 are in the process of hiring another mining engineer
12 who will be very capable of handling this issue.

13 We have not to date found anything
14 that is beyond the level that we could handle within
15 our own operation, based upon the information
16 provided by Cigar Lake. As I said, we have been
17 intimately involved with it. We have watched this
18 grow, we have watched the changes and we have
19 monitored the changes, and our main focus has
20 certainly been on the areas of radiation protection
21 and environmental protection.

22 Basically, at this point in time,
23 I feel confident that the mining method can work and
24 that there are no substantive issues that are beyond
25 our capabilities at this time.

1 THE CHAIRPERSON: Thank you very
2 much. That's the end of the question period for
3 this day.

4 I would note that on June 28, 2001,
5 we will be having a second day of these hearings
6 here in these offices, that we expect both the
7 applicant and Commission staff to be present at that
8 time.

9 Written submissions and oral
10 presentations from intervenors will be considered on
11 that date, and the deadline for filing by
12 intervenors for Day 2 is May 29, 2001.

13 Therefore, this is the end of
14 Hearing Day 1 on Cigar Lake Mining Corporation's
15 application for the uranium mine site preparation
16 licence.

17 Thank you very much.